

SYSTEMATIC TECHNOLOGY



LUTZE Silflex® is ideal for use with any servo drive and motor combination whether you need a signal pair for a brake or feedback. AutomationDirect is proud to offer the full line of Silflex® cable from 16AWG up to 2AWG with or without the shielded signal pair. This cable is available in bulk lengths starting as low as 10ft up to over 1000 feet on most of the part numbers.

Silflex® is rated Tray Cable - Exposed Run (TC-ER) meaning that it can be used with or without conduit, making the installations more cost-effective by reducing the cost of labor and materials.

The TPE jacket is oil and sunlight resistant and suitable for dry, damp, wet and direct burial locations.

Carrying multiple approvals and ratings, LUTZE Silflex® cable can be used for most all stationary servo motor application.



Please Note: Our prices on
Servo Cable are closely tied to the market price for
copper. This allows us to offer the best savings possible if
conditions are favorable; however, it also means that our
prices may increase if market conditions warrant.



Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

### **Features**

- Class K, flexible stranded bare copper conductors
- Black, brown and blue power conductors with PVC / Nylon insulation
- Green and yellow ground conductor with PVC / Nylon insulation
- 85% coverage tinned copper braid shield
- Shielded Signal Pair for Feedback / Brake Control on A317 Series
- Orange RAL 2003 Thermoplastic Elastomer (TPE) jacket
- Cut to length in 1 foot increments
- Minimum cut lengths as low as 10 feet
- Made in USA

	LUTZE Servo	Cable Specifica	tions	
Power Conductors Gauge & Stranding	16AWG (26 Strands) to 2AWG (665 Strands), Class K flexible stranded bare copper			
Shield	85% coverage tinned copper braid shield	ed Approvals**	UL 1277 - Type TC-ER Standard Power and Control Cabl UL 2277 - Type WTTC Flexible Motor Supply	
Signal Pair	Twisted Pair, bare copper conductor with black and white PVC/Nylon insulation and a tinned copper braid and foil shield		AWM Style 20328 CSA C22.2 No. 210 - CSA AWM I/II A/B CE RoHS-2 cULTC	
Voltage Rating	600V UL TC ER 600V UL MTW 1000V WTTC 1000V Flexible Motor Supply 600V UL AWM 105C		UL MTW Class 1 Div. 2 per NEC Art 336, 392, 501, 502, 505 cURus Oil Res I and II CIC FT4	
Outer Jacket Material	Thermoplastic Elastomer (TPE)			
Outer Jacket Color	Orange with black print			
Minimum Temperature	-40°F (-40°C)			
Temperature Ratings	-40°F to +221°F (-40°C to +105°C)		www.lutze.com LUTZE SILFLEX M @TPE XXXXXXX AWGxx-4C + AWGXX-2C (4x2,08mm2 + 2x0,82mm2 –	
Conductor Insulation	Black, brown and blue PVC / Nylon with green/yellow ground	Sample Print Legend	AWGXX-4C + AWGXX-2C (4XZ,U8mmZ + 2XU,82mmZ - E352875 (UL) TYPE FLEXIBLE MOTOR SUPPLY 90C DRY 1000V OR WTTC 1000V OR TC-ER 90C 600V THWN SUN RES DIR BUR OIL RES II OR MTW OR c(UL) TYPE CIC CONTROL PVC/N 90C DRY 75C WE FT4 OR AWM 20328 RoHS REACH XXXX CE-XX	
* See web store for maximum cut lengths ** To obtain the most current agency appro www.AutomationDirect.com	val information, see the Agency Approval	Checklist section on the specific	part number's web page at	



					LUTZ	E Ser	vo Ca	ble Select	tion						
Part Number	of rs und)		inches		4 <i>WG</i> )	<i>V</i> G)	ngth (ft)	tion Ion (mils)	ket nils)	ıches	*Ampa 310.16	city NEC 3 Amps	s inches	ght (Ib/ft)	oot
	Number of Conductors (includes ground)	AWG	Conductor OD inches	Conductor 0D Strand	Power Conductors (AWG)	Ground (AWG)	Minimum Cut Length (ft)	Nom. Insulation Thickness PVC/Nylon (mils)	Nominal Jacket Thickness (mils)	Nominal OD inches	60°C	90°C	Min. Bend Radius inches	Approximate Weight (Ib/ft)	Price per foot
						L	ÛTZ	E SIM	extM	(C) T	PE				
<u>A3161604-1</u>	4	16	0.117	26/30	16	16	20	0.016/0.005	45	0.410	10	10	2.5	0.124	\$;4!u9:
						1	OTZ	E Sif	lex*M	I(C) T	PE				
<u>A3161404-1</u>	4	14	0.136	41/30	14	14	20	0.016/0.005	60	0.455	15	15	2.7	0.159	\$;4!ua:
						L	OTZ	E Silfl	ex*M	(C) T	PE				
<u>A3161204-1</u>	4	12	0.158	65/30	12	12	20	0.016/0.005	60	0.510	20	20	3.1	0.214	\$;4!ub:
								LOTZE S	ilflex'M(C)'l	TPE					
<u>A3161004-1</u>	4	10	0.206	105/30	10	10	20	0.021/0.005	60	0.650	30	30	3.9	0.321	\$;4!uc:
								LÜTZE S	ilflextM(C) T	FRE					
# Amnacity hased on NEC 310.1	4	8		168/30	8	8	20	0.031/0.005	80	0.825	40	55	4.9	0.490	\$;4!ud:

<sup>\*</sup> Ampacity based on NEC 310.16 up to and including 2000 volts, not more than 3 current-carrying conductors, ambient 86°F (30°C) All dimensions are nominal and subject to normal manufacturing tolerances.





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				LUTZ	E Ser	vo Ca	ble W	ith Signal	Pair S	electio	on					
	of ound)		inches	,	(AWG)	WG)	Length	ation C/Nylon	ıcket mils)	nal Pair	inches	*Ampa 310.10	city NEC 6 Amps	adius	Weight	foot
Part Number	Number of Conductors (includes ground)	AWG Conductor OD inches Strand Power Conductors (AWG) Ground (AWG)	Minimum Cut Length	Nom. Insulation Thickness PVC/Nylon (mils)	Nominal Jacket Thickness (mils)	Shielded Signal Pair AWG**	Nominal OD inches	60°C	90°C	Min. Bend Radius inches	Approximate Weight (Ib/ft)	Price per foot				
							L	OTZE S	ilfle	x+M(C	) TPE			272		E
<u>A3171604-1</u>	4	16	0.117	26/30	16	16	20	0.016/0.005	60	18	0.477	10	10	2.9	0.161	\$;4!ue:
												- X		27/2		
<u>A3171404-1</u>	4	14	0.136	41/30	14	14	20	0.016/0.005	60	18	0.505	15	15	3	0.196	\$;;4!uf:
							Lĺ	)TZE S	ilfle	c*M(C)	TPE					
<u>A3171204-1</u>	4	12	0.158	65/30	12	12	20	0.016/0.005	60	18	0.590	20	20	3.5	0.263	\$;4!ug:
							Lĺ	)TZE S	ilfle>	cM(C)	TPE	S.				
<u>A3171004-1</u>	4	10	0.206	105/30	10	10	20	0.021/0.005	80	18	0.716	30	30	4.3	0.380	\$;4!uh:
								LOTZE Silflex	»M(C) TPE							E
<u>A3170804-1</u>	4	8	0.274	168/30	8	8	20	0.031/0.005	80	18	0.890	40	55	5.3	0.568	\$;-4!ui:
<u>A3170604-1</u>	4	6	0.314	266/30	6	6	10	0.031/0.005	80	18	1.003	55	75	6.0	0.786	\$;-4!uj:
							LÜ	TZE Si	lflex	*M(C)	TPE	×		772		
<u>A3170404-1</u>	4	4	0.394	413/30	4	4	10	0.041/0.005	80	16	1.162	70	95	7.0	1.119	\$;4!uk:
							L	)TZE S	ilfle	<+M (C)	TPE	-				
<u>A3170204-1</u>	4	2	0.466	655/30	2	2	10	0.041/0.005	80	16	1.340	95	130	8.0	1.543	\$;-4!ul:

<sup>\*</sup> Ampacity based on NEC 310.16 up to and including 2000 volts, not more than 3 current-carrying conductors, ambient 86°F (30°C) \*\* Signal Pair Ampacity: 18AWG = 7 amps, 16AWG = 10 amps

All dimensions are nominal and subject to normal manufacturing tolerances.





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	LUTZ	ZE Servo Cable	Specifications	Continued		
Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)		Nom. Conductor DC Resistance @ 20°C (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20°C (Ohm/1000 ft.)	Impedance (ohms)	Max. Operating Voltage - UL
<u>A3161604-1</u>	78.2	27.7	4.1	11.7	59.1	1000V
<u>A3161404-1</u>	86	29.5	2.57	10.9	55.7	1000V
<u>A3161204-1</u>	118	34.5	1.62	7.8	47.6	1000V
<u>A3161004-1</u>	127.7	35.74	1.17	7	46	1000V
<u>A3160804-1</u>	122.2	35	0.638	6.4	46.9	1000V
<u>A3171604-1</u>	62.4	21.7	4.1	11.7	45.9	1000V
<u>A3171404-1</u>	79.5	26	2.57	10.9	45.3	1000V
<u>A3171204-1</u>	96.6	29.8	1.62	7.8	52.5	1000V
<u>A3171004-1</u>	123.4	33.5	1.17	7	51.9	1000V
<u>A3170804-1</u>	134.4	36.7	0.638	6.4	43.9	1000V
<u>A3170604-1</u>	142.9	37.7	0.403	5.8	43.6	1000V
<u>A3170404-1</u>	137.3	37.1	0.253	5.2	44.3	1000V
<u>A3170204-1</u>	170.3	40.3	0.159	4.7	40.7	1000V





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## Flexible Portable Cord - Type SOOW, SJOOW, SEOOW & SJEOOW Type W









### **Overview**

Use AutomationDirect's Flexible Portable Cord for temporary or portable power applications in industrial, OEM, utility, and commercial environments. Portable cord is a great solution for ceiling drops, mobile machinery power supplies, pendants, and lighting. Applications include factory floor, mining, and heavy construction. Our cord is highly flexible and suitable for harsh conditions, including temperature extremes, and is resistant to oil and chemicals that are common in the industrial environment.

AutomationDirect offers a wide range of portable cord types with jacket materials like CPE (chlorinated polyethylene elastomers), thermoset rubber or TPE (thermoplastic elastomer), and insulation types of Ethylene propylene rubber (EPR) or Ethylene Propylene Diene Monomer (EPDM) rubber. The combinations of these jackets and insulation types meet the requirement for "Extra-Hard Use" (SOOW & SEOOW) or "Hard Use" (SJOOW & SJEOOW) applications and carry the appropriate UL, CSA or MSHA ratings so they can be trusted to work in the harshest environments.

You should feel confident that AutomationDirect's Portable Cord meets or exceeds all the requirements to make it UL & CSA Listed and complies with NFPA 70 Articles 400 & 501.140 (Haz-Loc) and the Mine Safety and Health Administration.

### **Features**

- 18AWG to 6AWG
- 2, 3, 4 & 5 conductors
- Cut to length in 1-foot increments
- As low as 10-foot minimum length
- 600V & 300V versions, Type W 2000V
- Multiple ratings and approvals
- Wide operating temperature range
- Thermoset rubber or thermoplastic jackets
- Suitable for outdoor use
- Excellent abrasion resistance









Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

### **Portable Cord Letter Codes Definitions:**

**S** = Service cord - 600 Volt

**J** = Junior service - 300 Volt

**E** = Elastomer - thermoplastic elastomer that looks and feels like rubber

**OO** = Oil-resistant outer jacket and oil-resistant interior insulation

**W** = Moisture and sunlight resistant (approved for indoor and outdoor use)

### **Conductor Colors:**

2 Conductor

3 Conductor

4 Conductor

5 Conductor

## HELUKABEL 18AWG SOOW Portable Cord 600 Volt

	18AWG SOOW Portable	Cord Specificat	tions		
Conductor Gauge	18 AWG		Per UL 62 Annex B		
Conductor Stranding	16-stranded		2 conductor - Black, White		
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green		
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green		
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange		
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)		
Overall Diameter	See table below				
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards	UL 62 CSA Std. C22.2 No. 49		
Oneveting Temperature	Flexing: -40°C to 90°C (-40°F to 194°F)	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501		
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)				
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)		
Conductor Nominal Insulation Thickness	0.030 in [0.76 mm]		HELUKABEL P/N XXXXXXX CORD XC 18AWG		
Outdoor Rated	Yes	Sample Print Legend	HELUKABEL P/N XXXXXXX CORD XC 18AWG (0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C - CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-		
Sunlight Resistant	Yes	oumple I fint Logenu	KA14001 MSHA CE 03046MTR <ch 11="" 86<="" th=""></ch>		
Flame Retardant	Yes (CSA FT2)		PGR12909 A1>		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	18AWG SOOW Portable Cord										
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot				
H11161802-1	18/2	0.346 [8.79]		10	20	0.08	\$6ce6:				
H11161803-1	18/3	0.365 [9.27]	0.060 [1.52]	10	20	0.09	\$6ce7:				
H11161804-1	18/4	0.390 [9.91]		7	20	0.10	\$6ce8:				
	Per NFPA 70 NEC Table 400.5 (A)(1) See web store for maximum cut lengths										





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# HELUKABEL 16AWG SOOW Portable Cord 600 Volt

	16AWG SOOW Portable	Cord Specificat	tions		
Conductor Gauge	16 AWG		Per UL 62 Annex B		
Conductor Stranding	26-stranded		2 conductor - Black, White		
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green		
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green		
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange		
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)		
Overall Diameter	See table below				
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards	UL 62 CSA Std. C22.2 No. 49		
Oneveting Temperature	Flexing: -40°C to 90°C (-40°F to 194°F)	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501		
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)				
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)		
Conductor Nominal Insulation Thickness	0.030 in [0.76 mm]		HELUKABEL P/N XXXXXXX CORD XC 16AWG		
Outdoor Rated	Yes	Sample Print Legend	HELUKABEL P/N XXXXXXX CORD XC 16AWG (0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C - CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-		
Sunlight Resistant	Yes	oumple I fint Logenu	KA14001 MSHA CE 03046MTR <ch 11="" 86<="" th=""></ch>		
Flame Retardant	Yes (CSA FT2)		PGR12909 A1>		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

16AWG SOOW Portable Cord										
AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot				
16/2	0.370 [9.40]		13	20	0.09	\$6ce9:				
16/3	0.390 [9.91]	0.060 [4.52]	13	20	0.10	\$6cea:				
16/4	0.415 [10.54]	0.060 [1.52]	10	20	0.12	\$6ce1:				
16/5	0.500 [12.57]		10	20	0.16	\$6ce2:				
	16/2 16/3 16/4	AWG/ # of Conductors   Nominal Overall Diameter (in [mm])	AWG/ # of Conductors         Nominal Overall Diameter (in [mm])         Outer Jacket Thickness (in [mm])           16/2         0.370 [9.40]           16/3         0.390 [9.91]           16/4         0.415 [10.54]	AWG/ # of Conductors         Nominal Overall Diameter (in [mm])         Outer Jacket Thickness (in [mm])         Ampacity*           16/2         0.370 [9.40]         13           16/3         0.390 [9.91]         13           16/4         0.415 [10.54]         0.060 [1.52]	AWG/ # of Conductors         Nominal Overall Diameter (in [mm])         Outer Jacket Thickness (in [mm])         Ampacity*         Minimum Cut Length (ft)**           16/2         0.370 [9.40]         13         20           16/3         0.390 [9.91]         13         20           16/4         0.415 [10.54]         0.060 [1.52]         10         20	AWG/ # of Conductors         Nominal Overall Diameter (in [mm])         Outer Jacket Thickness (in [mm])         Ampacity*         Minimum Cut Length (ft)**         Approximate Weight (lb/ft)           16/2         0.370 [9.40]         13         20         0.09           16/3         0.390 [9.91]         13         20         0.10           16/4         0.415 [10.54]         0.060 [1.52]         10         20         0.12				

Per NFPA 70 NEC Table 400.5 (A)(1)





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<sup>\*\*</sup> See web store for maximum cut lengths

## HELUKABEL 14AWG SOOW Portable Cord 600 Volt

	14AWG SOOW Portable	Cord Specificat	tions		
Conductor Gauge	14 AWG		Per UL 62 Annex B		
Conductor Stranding	41-stranded		2 conductor - Black, White		
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green		
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green		
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange		
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)		
Overall Diameter	See table below				
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards	UL 62 CSA Std. C22.2 No. 49		
Oneveting Temperature	Flexing: -40°C to 90°C (-40°F to 194°F)		MSHA Class 1 Div. 2 acc. to NEC Art. 501		
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)				
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)		
Conductor Nominal Insulation Thickness	0.045 in [1.14 mm]		HELUKABEL P/N XXXXXXX CORD XC 14AWG		
Outdoor Rated	Yes	Sample Print Legend	HELUKABEL P/N XXXXXXX CORD XC 14AWG (0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C - CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-		
Sunlight Resistant	Yes	oumple I fint Legenu	TO 90C FT2 SUN & WATER RESISTANT P-07- KA14001 MSHA CE 03046MTR <ch 11="" 86<br="">PGR12909 A1&gt;</ch>		
Flame Retardant	Yes (CSA FT2)		FGK 12303 A 12		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	14AWG SOOW Portable Cord										
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot				
H11161402-1	14/2	0.500 [12.70]		18	20	0.16	\$6ce3:				
H11161403-1	14/3	0.525 [13.34]	0.080 [2.03]	18	20	0.19	\$6ce4:				
H11161404-1	14/4	0.570 [14.48]		15	20	0.22	\$6ce5:				
H11161405-1	14/5	0.670 [16.97]	0.095 [2.41]	12	20	0.27	\$6ceb:				

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





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<sup>\*\*</sup> See web store for maximum cut lengths

## HELUKABEL 12AWG SOOW Portable Cord 600 Volt

	12AWG SOOW Portable	Cord Specificat	tions		
Conductor Gauge	12 AWG		Per UL 62 Annex B		
Conductor Stranding	65-stranded		2 conductor - Black, White		
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green		
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green		
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange		
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)		
Overall Diameter	See table below		UL 62 CSA Std. C22.2 No. 49		
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards			
Oneveting Temperature	Flexing: -40°C to 90°C (-40°F to 194°F)		MSHA Class 1 Div. 2 acc. to NEC Art. 501		
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)				
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)		
Conductor Nominal Insulation Thickness	0.045 in [1.14 mm]		HELUKABEL P/N XXXXXXX CORD XC 12AWG		
Outdoor Rated	Yes	Sample Print Legend	(0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-		
Sunlight Resistant	Yes	oumple I fill Logellu	KA14001 MSHA CE 03046MTR <ch 11="" 86<="" th=""></ch>		
Flame Retardant	Yes (CSA FT2)		PGR12909 A1>		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	12AWG SOOW Portable Cord										
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot				
H11161202-1	12/2	0.570 [14.48]		25	20	0.22	\$6cec:				
H11161203-1	12/3	0.595 [15.11]	0.005 [2.41]	25	20	0.24	\$6ced:				
H11161204-1	12/4	0.645 [16.51]	0.095 [2.41]	20	20	0.27	\$6cee:				
<u>H11161205-1</u>	12/5	0.710 [18.11]		16	20	0.35	\$;6cef:				

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





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<sup>\*\*</sup> See web store for maximum cut lengths

## HELUKABEL 10AWG SOOW Portable Cord 600 Volt

	10AWG SOOW Portable Cord Specifications								
Conductor Gauge	10 AWG		Per UL 62 Annex B						
Conductor Stranding	105-stranded		2 conductor - Black, White						
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green						
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green						
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange						
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)						
Overall Diameter	See table below								
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Annliachta Standarda	UL 62 CSA Std. C22.2 No. 49						
On a setting To see a set see	Flexing: -40°C to 90°C (-40°F to 194°F)	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501						
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)		0.000 1.2.11.2.001						
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)						
Conductor Nominal Insulation Thickness	0.045 in [1.14 mm]		HELUKABEL P/N XXXXXXX CORD XC 10AWG						
Outdoor Rated	Yes	Sample Print Legend	(0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-						
Sunlight Resistant	Yes	- Jumpio i init Legenu	TO 90C FT2 SUN & WATER RESISTANT P-07- KA14001 MSHA CE 03046MTR <ch 11="" 86<br="">PGR12909 A1&gt;</ch>						
Flame Retardant	Yes (CSA FT2)		I GRIZZOO AIP						

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	10AWG S00W Portable Cord										
Part Number	AWG/ # of Conductors (i.		Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot				
H11161002-1	10/2	0.620 [15.75]		30	20	0.26	\$6ceg:				
H11161003-1	10/3	0.660 [16.76]	0.005 (0.44)	30	20	0.32	\$6ceh:				
H11161004-1	10/4	0.710 [18.03]	0.095 [2.41]	25	20	0.38	\$-6cei:				
H11161005-1	10/5	0.770 [19.56]		20	20	0.44	\$-6cej:				

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com

**Wires Cords and Cables** 

<sup>\*\*</sup> See web store for maximum cut lengths

## HELUKABEL 8AWG SOOW Portable Cord 600 Volt

	8AWG SOOW Portable	Cord Specificat	ions	
Conductor Gauge	8 AWG		Per UL 62 Annex B	
Conductor Stranding	168-stranded		2 conductor - Black, White	
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green	
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange	
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)	
Overall Diameter	See table below		UL 62 CSA Std. C22.2 No. 49	
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards		
Oneveting Temperature	Flexing: -40°C to 90°C (-40°F to 194°F)	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501	
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)			
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)	
Conductor Nominal Insulation Thickness	0.060 in [1.52 mm]		HELUKABEL P/N XXXXXXX CORD XC 8AWG	
Outdoor Rated	Yes	Sample Print Legend	(0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-	
Sunlight Resistant	Yes	oumple I fill Logellu	TO 90C FT2 SUN & WATER RESISTANT P-07- KA14001 MSHA CE 03046MTR <ch 11="" 86<br="">PGR12909 A1&gt;</ch>	
Flame Retardant	Yes (CSA FT2)		L QIV 15203 W 1	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	8AWG SOOW Portable Cord									
Part Number AWG/ # of Conductors Nominal Overall Diameter (in [mm]) Outer Jacket Thickness (in [mm]) Ampacity* Minimum Cut Length (ft)**						Approximate Weight (lb/ft)	Price per foot			
H11160803-1	8/3	0.874 [17.86]	0.110 [2.79]	40	10	0.47	\$6cek:			
H11160804-1	8/4	0.976 [19.56]	0.125 [3.18]	35	10	0.61	\$-6cel:			
* Per NFPA 70 NEC Ta	able 400.5 (A)(1)									

<sup>\*\*</sup> See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

## HELUKABEL 6AWG SOOW Portable Cord 600 Volt

	6AWG SOOW Portable Cord Specifications							
Conductor Gauge	6 AWG		Per UL 62 Annex B					
Conductor Stranding	266-stranded		2 conductor - Black, White					
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green					
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green					
Outer Jacket Color	Black		5 conductor - Black, White, Red, Green, Orange					
Outer Jacket Thickness	See table below	Temperature Rating	90°C (194°F)					
Overall Diameter	See table below		UL 62 CSA Std. C22.2 No. 49					
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Annicobio Standardo						
Oneretina Temperatura	Flexing: -40°C to 90°C (-40°F to 194°F)	- Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501					
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)							
Conductor Insulation	EPDM thermoset rubber	Approvals*	UL (E192384), CSA (LL602586)					
Conductor Nominal Insulation Thickness	0.060 in [1.52 mm]		HELUKABEL P/N XXXXXXX CORD XC 6AWG					
Outdoor Rated	Yes	Sample Print Legend	HELUKABEL P/N XXXXXXX CORD XC 6AWG (0.824MM2) SOOW E192384 (UL) 600V -40C TO 90C CSA LL602586 SOOW 600V -40C TO 90C FT2 SUN & WATER RESISTANT P-07-					
Sunlight Resistant	Yes	Jampio I IIII Logella	TO 90C FT2 SUN & WATER RESISTANT P-07- KA14001 MSHA CE 03046MTR <ch 11="" 86<br="">PGR12909 A1&gt;</ch>					
Flame Retardant	Yes (CSA FT2)		L QIV 15202 W 15					

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

6AWG SOOW Portable Cord									
Part Number  AWG/ # of Conductors  Nominal Overall Outer Jacket Thickness (in [mm])  Outer Jacket Thickness Ampacity*  (in [mm])  Ampacity*  Length (ft)**  Minimum Cut Length (ft)**							Price per foot		
H11160603-1	6/3	0.988 [19.32]	0.125 [3.18]	55	10	0.64	\$6cen:		
H11160604-1	6/4	1.106 [21.21]	0.140 [3.56]	45	10	0.82	\$6ceo:		
* Per NFPA 70 NEC Ta	able 400.5 (A)(1)								

<sup>\*\*</sup> See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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**Wires Cords and Cables** 

### Southwire 18AWG SOOW Portable Cord

Conductor Gauge	18AWG		Per UL 62 Annex B	
Conductor Stranding	16/30 bare copper, Class K stranding ASTM B 174	0	2 conductor - Black, White	
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green	
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	
Outer Jacket Thickness	0.060" [1.52 mm] Nominal		UL 62, FT2	
Overall Diameter	See table below		CSA 22.2 No. 49	
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400	
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2	
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA	
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)	
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SOOW E46194 (UL 600V -40C TO 90C CSA LL90458 SOOW 600V -40C TO 90C FT2 WATEF RESISTANT	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

18AWG SOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
S00W-18-2BK-1	18/2	0.346 [8.79]	10	20	0.07	\$;2df3:		
SOOW-18-3BK-1	18/3	0.365 [9.27]	10	20	0.08	Retired		
SOOW-18-4BK-1	18/4	0.390 [9.91]	7	20	0.10	\$;2df5:		
* Per NFPA 70 NEC Table 400.5 (A)(1)								





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 16AWG SOOW Portable Cord

16AWG SOOW Portable Cord Specifications								
Conductor Gauge	16AWG		Per UL 62 Annex B					
Conductor Stranding	26/30 bare copper, Class K stranding ASTM B 174		2 conductor - Black, White					
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green					
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green 5 conductor - Black, White, Red, Green, Orange					
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry					
Outer Jacket Thickness	0.060" [1.52 mm] Nominal		UL 62, FT2					
Overall Diameter	See table below	-	CSA 22.2 No. 49					
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400					
Min. Bend Radius	4x diameter	-	NEC (NFPA 70) 501.140 Class 1 Div 2					
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	-	MSHA					
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)					
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SOOW E46194 (UL) 600V -40C TO 90C CSA LL90458 SOOW 600V -40C TO 90C FT2 WATER RESISTANT					

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

16AWG SOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
SOOW-16-2BK-1	16/2	0.370 [9.40]	13	20	0.08	Retired		
SOOW-16-3BK-1	16/3	0.390 [9.91]	13	20	0.09	Retired		
SOOW-16-4BK-1	16/4	0.415 [10.54]	10	20	0.12	Retired		
SOOW-16-5BK-1	16/5	0.500 [12.57]	10	20	0.14	\$40oh:		

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

tCBL-14

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 14AWG SOOW Portable Cord

	14AWG SOOW Portable	<b>Cord Specifications</b>	S
Conductor Gauge	14AWG		Per UL 62 Annex B
Conductor Stranding	41/30 bare copper, Class K stranding ASTM B 174		2 conductor - Black, White
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green 5 conductor - Black, White, Red, Green, Orange
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry
Outer Jacket Thickness	0.080" [2.03 mm] Nominal		UL 62, FT2
Overall Diameter	See table below		CSA 22.2 No. 49
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SOOW E46194 (UL) 600V -40C TO 90C CSA LL90458 SOOW 600V -40C TO 90C FT2 WATER RESISTANT

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

14AWG SOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
S00W-14-2BK-1	14/2	0.500 [12.70]	18	20	0.13	\$;2de!:		
SOOW-14-3BK-1	14/3	0.525 [13.34]	18	20	0.17	Retired		
S00W-14-4BK-1	14/4	0.570 [14.48]	15	20	0.20	Retired		
S00W-14-5BK-1	14/5	0.670 [16.97]	15	20	0.27	Retired		

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

tCBL-15

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 12AWG SOOW Portable Cord

12AWG SOOW Portable Cord Specifications							
Conductor Gauge	12AWG		Per UL 62 Annex B				
Conductor Stranding	65/30 bare copper, Class K stranding ASTM B 174		2 conductor - Black, White				
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green				
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber						
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry				
Outer Jacket Thickness	0.095" [2.41 mm] Nominal		UL 62, FT2				
Overall Diameter	See table below		CSA 22.2 No. 49				
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400				
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA				
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)				
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SOOW E46194 (UL) 600V -40C TO 90C - CSA LL90458 SOOW 600V -40C TO 90C FT2 WATER RESISTANT				

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

12AWG SOOW Portable Cord								
Part Number	AWG/ # of Conductors   Nominal Overall   Diameter   In [mm]		Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
S00W-12-2BK-1	12/2	0.570 [14.48]	25	20	0.18	\$;2de[:		
S00W-12-3BK-1	12/3	0.595 [15.11]	25	20	0.22	\$2de_:		
S00W-12-4BK-1	12/4	0.650 [16.51]	20	20	0.28	Retired		
S00W-12-5BK-1	12/5	0.710 [18.11]	20	20	0.34	Retired		
* Per NEPA 70 NEC Table 400 5 (A)(1)								

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*\*</sup> See web store for maximum cut lengths

### Southwire 10AWG SOOW Portable Cord

	10AWG SOOW Portable Cord Specifications							
Conductor Gauge	10AWG		Per UL 62 Annex B					
Conductor Stranding	104/30 bare copper, Class K stranding ASTM B 174		2 conductor - Black, White					
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green					
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green 5 conductor - Black, White, Red, Green,					
	ciastomers/anomioset rasser		Orange					
Outer Jacket Color	Black with white print Temperature Rating		75°C (167°F) Wet, 90°C (194°F) Dry					
Outer Jacket Thickness	0.095" [2.41 mm] Nominal		UL 62, FT2					
Overall Diameter	See table below		CSA 22.2 No. 49					
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400					
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2					
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA					
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)					
Conductor Nominal Insulation Thickness	or Nominal Insulation 0.045" [1.14 mm]		SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SOOW E46194 (UL) 600V -40C TO 90C CSA LL90458 SOOW 600V -40C TO 90C FT2 WATER RESISTANT					

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

10AWG SOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
S00W-10-2BK-1	10/2	0.620 [15.75]	30	20	0.23	Retired		
S00W-10-3BK-1	10/3	0.660 [16.76]	30	20	0.30	Retired		
S00W-10-4BK-1	10/4	0.710 [18.03]	25	20	0.36	Retired		
S00W-10-5BK-1	10/5	0.770 [19.56]	25	20	0.44	Retired		

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

tCBL-17

<sup>\*\*</sup> See web store for maximum cut lengths

### **DIRECTWIRE** 8AWG SOOW Portable Cord

8AWG SOOW Portable Cord Specifications							
Conductor Gauge	8AWG						
Conductor Stranding	182/30 bare copper	Operation to a Code a	3 conductor - Black, White, Green				
Voltage Rating	600V	Conductor Color					
Outer Jacket Material	CPE (chlorinated polyethylene elastomers) thermoset rubber		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black with white print	Black with white print Temperature Rating					
Outer Jacket Thickness	0.060 in [1.52 mm] nominal		LTE Clama Tastad				
Overall Diameter	See table below		FT5 Flame Tested				
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards*	NEC (NFPA 70) Article 400				
Minimum Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA				
Conductor Insulation	Low-smoke, halogen-free EPDM compound		Direct Wire [AWG]/[COND] SOOW 600V				
Conductor Nominal Insulation Thickness	030 in [0.76 mm]		FT5 -40°C - 90°C P-07-KÁ190007- MSHA 30-CFR-S-7.407				

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8AWG SOOW Portable Cord							
Part Number  AWG/# of   Nominal Overall   Ampacity*   Minimum Cut   Length (ft)**   Approximate Weight   (lb/ft)						Price per foot	
SOOW-8-3BK-1	8/3	17.86	40A	- 10ft	0.314	Retired	
<u>SOOW-8-4BK-1</u>	8/4	19.56	35A		0.406	Retired	
* Dor NEDA 70 NEC Table 400 5 /A	11/41						





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*</sup> See web store for maximum cut lengths

### **DIRECTWIRE** 6AWG SOOW Portable Cord

Conductor Stranding 260  Voltage Rating 600  Outer Jacket Material elas  Outer Jacket Color Blac  Outer Jacket Thickness 0.06	NWG 60/30 bare copper 60V PE (chlorinated polyethylene astomers) thermoset rubber	Conductor Color	3 conductor - Black, White, Green	
Voltage Rating 600  Outer Jacket Material elas  Outer Jacket Color Blac  Outer Jacket Thickness 0.06	00V PE (chlorinated polyethylene	Conductor Color	3 conductor - Black, White, Green	
Outer Jacket Material     CPE elas       Outer Jacket Color     Blacket Thickness       Outer Jacket Thickness     0.06	PE (chlorinated polyethylene	-		
Outer Jacket Color Blac Outer Jacket Thickness 0.06				
Outer Jacket Thickness 0.06	,		4 conductor - Black, White, Red, Green	
	Black with white print Temperature Rating		-40°C (-40°F) to 90°C (194 °F)	
Overall Diameter	060 in [1.52 mm] nominal		ETE Flama Taskad	
Overall Diameter See	ee table below		FT5 Flame Tested	
Cold Bend -40°	0°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400	
Minimum Bend Radius 4x c	diameter		NEC (NFPA 70) 501.140 Class 1 Div 2	
Operating Temperature -40°	0°C to 90°C (-40°F to 194°F)		MSHA	
T.OUOUCIOF IUSIIIAUIOU	w-smoke, halogen-free EPDM mpound		Direct Wire [AWG]/[COND] SOOW 600V	
Conductor Nominal Insulation Thickness	030 in [0.76 mm]	Sample Print Legend	FT5 -40°C - 90°C P-07-KA190007- MSHA 30-CFR-S-7.407	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

6AWG SOOW Portable Cord							
Part Number	AWG/# of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
<u>SOOW-6-3BK-1</u>	6/3	19.33	55A	- 10ft	0.398	\$58h_:	
<u>SOOW-6-4BK-1</u>	6/4	21.21	45A		0.519	Retired	

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

tCBL-19

<sup>\*\*</sup> See web store for maximum cut lengths

# HELUKABEL 18AWG SJOOW Portable Cord 300 Volt

18AWG SJOOW Portable Cord Specifications							
Conductor Gauge	18 AWG		Per UL 62 Annex B				
Conductor Stranding	16-stranded	Conductor Color	2 conductor - Black, White				
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green				
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black	Temperature Rating	90°C (194°F)				
Outer Jacket Thickness	See table below		UL 62 CSA Std. C22.2 No. 49 MSHA Class 1 Div. 2 acc. to NEC Art. 501				
Overall Diameter	See table below						
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards					
On a setting To see a set see	Flexing: -40°C to 90°C (-40°F to 194°F)						
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)	Approvals*	UL (E192384), CSA (LL602586)				
Conductor Insulation	EPDM thermoset rubber						
Conductor Nominal Insulation Thickness	0.030 in [0.76 mm]		HELUKABEL P/N XXXXXXX CORD XC 18AWG (0.824MM2) SJOOW E192384 (UL) 300V -40C				
Outdoor Rated			TO 90C CSA LL602586 SJOOW 300V -40C TO 90C FT2 SUN & WATER RESISTANT P-07				
Sunlight Resistant			KA14001 MSHA CE 00574MTR <ch 11="" 86<br="">PGR1878 FH&gt;</ch>				
Flame Retardant	Yes (CSA FT2)						

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

18AWG SJ00W Portable Cord									
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
H11131802-1	18/2	0.285 [7.24]		10	20	0.06	\$6cep:		
H11131803-1	18/3	0.310 [7.87]	0.030 [0.76]	10	20	0.07	\$6ceq:		
H11131804-1	18/4	0.330 [8.38]		7	20	0.07	\$6ces:		
	Per NFPA 70 NEC Table 400.5 (A)(1)  * See web store for maximum cut lengths								

See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

# HELUKABEL 16AWG SJOOW Portable Cord 300 Volt

16AWG SJOOW Portable Cord Specifications							
Conductor Gauge	16 AWG		Per UL 62 Annex B				
Conductor Stranding	26-stranded	Conductor Color	2 conductor - Black, White				
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green				
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black	Temperature Rating	90°C (194°F)				
Outer Jacket Thickness	See table below		UL 62 CSA Std. C22.2 No. 49 MSHA Class 1 Div. 2 acc. to NEC Art. 501				
Overall Diameter	See table below	A self-selds Observed and					
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards					
Oneretina Temperatura	Flexing: -40°C to 90°C (-40°F to 194°F)						
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)	Approvals*	UL (E192384), CSA (LL602586)				
Conductor Insulation	EPDM thermoset rubber						
Conductor Nominal Insulation Thickness	0.030 in [0.76 mm]		HELUKABEL P/N XXXXXXX CORD XC 16AWG (XXMM2) SJOOW E192384 (UL) 300V -40C				
Outdoor Rated	Yes	Sample Print Legend	TO 90C CSA LL602586 SJOOW 300V -40C TO 90C FT2 SUN & WATER RESISTANT P-07				
Sunlight Resistant	t Resistant Yes		KA14001 MSHA CE 00574MTR <ch 11="" 86<br="">PGR1878 FH&gt;</ch>				
Flame Retardant	Yes (CSA FT2)						

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

16AWG SJOOW Portable Cord									
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
H11131602-1	16/2	0.310 [7.87]		13	20	0.07	\$;6cet:		
H11131603-1	16/3	0.330 [8.38]	0.030 [0.76]	13	20	0.08	\$6ceu:		
H11131604-1	16/4	0.357 [9.07]		10	20	0.09	\$6cev:		
	Per NFPA 70 NEC Table 400.5 (A)(1) * See web store for maximum cut lengths								





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

# HELUKABEL 14AWG SJOOW Portable Cord 300 Volt

14AWG SJOOW Portable	Cord Specifica	tions	
14 AWG		Per UL 62 Annex B	
41-stranded		2 conductor - Black, White	
300V	Conductor Color	3 conductor - Black, White, Green	
CPE thermoset rubber		4 conductor - Black, White, Red, Green	
Black	Temperature Rating	90°C (194°F)	
See table below		UL 62 CSA Std. C22.2 No. 49	
See table below	Annicolis Otondondo		
Flexing: 10x OD, Static: 6x OD	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501	
Flexing: -40°C to 90°C (-40°F to 194°F)		0.000 1.2.11.2.0001.001.207.11.0001	
Static: -20°C to 90°C (-4°F to 194°F)	Approvals*	UL (E192384), CSA (LL602586)	
EPDM thermoset rubber			
0.045 in [1.14 mm]		HELUKABEL P/N XXXXXXX CORD XC 14AWG (XXMM2) SJOOW E192384 (UL) 300V -40C	
Yes	Sample Print Legend	TO 90C CSA LL602586 SJOOW 300V -40C TO 90C FT2 SUN & WATER RESISTANT P-07	
Yes		KA14001 MSHA CE 00574MTR <ch 11="" 86<br="">PGR1878 FH&gt;</ch>	
Yes (CSA FT2)			
	14 AWG 41-stranded 300V CPE thermoset rubber Black See table below See table below Flexing: 10x OD, Static: 6x OD Flexing: -40°C to 90°C (-40°F to 194°F) Static: -20°C to 90°C (-4°F to 194°F) EPDM thermoset rubber 0.045 in [1.14 mm] Yes Yes	41-stranded 300V  CPE thermoset rubber  Black  See table below  See table below  Flexing: 10x OD, Static: 6x OD  Flexing: -40°C to 90°C (-40°F to 194°F)  Static: -20°C to 90°C (-4°F to 194°F)  EPDM thermoset rubber  0.045 in [1.14 mm]  Yes  Yes  Conductor Color  Conductor Color  Approvals *  Applicable Standards  Approvals *  Sample Print Legend	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

14AWG SJOOW Portable Cord									
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
H11131402-1	14/2	0.340 [8.64]		18	20	0.08	\$6cex:		
H11131403-1	14/3	0.365 [9.27]	0.030 [0.76]	18	20	0.10	\$6cey:		
H11131404-1	14/4	0.395 [10.03]		15	20	0.13	\$6cez:		
	Per NFPA 70 NEC Table 400.5 (A)(1) See web store for maximum cut lengths								

See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

# HELUKABEL 12AWG SJOOW Portable Cord 300 Volt

	12AWG SJOOW Portable	Cord Specifica	tions	
Conductor Gauge	12 AWG		Per UL 62 Annex B	
Conductor Stranding	65-stranded	Conductor Color	2 conductor - Black, White	
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green	
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black	Temperature Rating	90°C (194°F)	
Outer Jacket Thickness	See table below		UL 62 CSA Std. C22.2 No. 49	
Overall Diameter	See table below	Annicobio Otondondo		
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501	
On a setting To see a set see	Flexing: -40°C to 90°C (-40°F to 194°F)		0.000 1.2.11.2.0001.001.001	
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)	Approvals*	UL (E192384), CSA (LL602586)	
Conductor Insulation	EPDM thermoset rubber			
Conductor Nominal Insulation Thickness	0.045 in [1.14 mm]		HELUKABEL P/N XXXXXXX CORD XC 12AWG (XXMM2) SJOOW E192384 (UL) 300V -40C	
Outdoor Rated	Yes	Sample Print Legend	TO 90C CSA LL602586 SJOOW 300V -40C TO 90C FT2 SUN & WATER RESISTANT P-07	
Sunlight Resistant	Yes		KA14001 MSHA CE 00574MTR <ch 11="" 86<br="">PGR1878 FH&gt;</ch>	
Flame Retardant	Yes (CSA FT2)			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

12AWG SJOOW Portable Cord									
Part Number	AWG/ # of Conductors	Nominal Overall Diameter (in [mm])	Outer Jacket Thickness (in [mm])	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
H11131202-1	12/2	0.410 [10.41]		25	20	0.12	\$;6ce]:		
H11131203-1	12/3	0.430 [10.92]	0.045 [1.14]	25	20	0.15	\$;6ce[:		
H11131204-1	12/4	0.470 [11.94]		20	20	0.18	\$6ce_:		
	Per NFPA 70 NEC Table 400.5 (A)(1) See web store for maximum cut lengths								

See web store for maximum cut lengths





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## HELUKABEL 10AWG SJOOW Portable Cord 300 Volt

	10AWG SJ00W Portable	Cord Specifica	tions	
Conductor Gauge	10 AWG		Per UL 62 Annex B	
Conductor Stranding	105-stranded	Conductor Color	2 conductor - Black, White	
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green	
Outer Jacket Material	CPE thermoset rubber		4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black	Temperature Rating	90°C (194°F)	
Outer Jacket Thickness	See table below		UL 62 CSA Std. C22.2 No. 49	
Overall Diameter	See table below	Applicable Standards		
Min. Bend Radius	Flexing: 10x OD, Static: 6x OD	Applicable Standards	MSHA Class 1 Div. 2 acc. to NEC Art. 501	
Onevetine Tempoveture	Flexing: -40°C to 90°C (-40°F to 194°F)		0.000 1 2 111 2 0.001 to 1 120 7 111 00 1	
Operating Temperature	Static: -20°C to 90°C (-4°F to 194°F)	Approvals*	UL (E192384), CSA (LL602586)	
Conductor Insulation	EPDM thermoset rubber			
Conductor Nominal Insulation Thickness	0.045 in [1.14 mm]		HELUKABEL P/N XXXXXXX CORD XC 10AWG (XXMM2) SJOOW E192384 (UL) 300V -40C TO 90C CSA LL602586 SJOOW 300V -40C TO 90C FT2 SUN & WATER RESISTANT P-07	
Outdoor Rated	Yes	Sample Print Legend	TO 90C CSA LL602586 SJOOW 300V -40C TO 90C FT2 SUN & WATER RESISTANT P-07	
Sunlight Resistant	Yes		KA14001 MSHA CE 00574MTR < CH 11 86 PGR1878 FH>	
Flame Retardant	Yes (CSA FT2)			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

10AWG SJ00W Portable Cord								
Part Number	AWG/ # of Diameter (in [mm]) Outer Jacket Ampacity* Minimum Cut Length (ft) ** Weight (lb/ft)						Price per foot	
H11131003-1	10/3	0.569 [14.45]	0.060 [4.50]	30	20	0.26	\$6ce#:	
H11131004-1	10/4	0.635 [16.13]	0.060 [1.52]	25	20	0.36	\$;6ce!:	
* Per NFPA 70 NEC Ta	Per NFPA 70 NEC Table 400.5 (A)(1)							





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 18AWG SJOOW Portable Cord

	18AWG SJOOW Portable	<b>Cord Specification</b>	S
Conductor Gauge	18AWG		Per UL 62 Annex B
Conductor Stranding	16/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry
Outer Jacket Thickness	0.030" [0.76 mm] Nominal		UL 62, FT2
Overall Diameter	See table below		CSA 22.2 No. 49
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJOOW E46194 (UL) 300V -40C TO 90C CSA LL90458 SJOOW 300V -40C TO 90C FT2 WATER RESISTANT

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

18AWG SJOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
SJ00W-18-2BK-1	18/2	0.285 [7.24]	10	20	0.05	Retired		
SJ00W-18-3BK-1	18/3	0.310 [7.87]	10	20	0.06	\$2dev:		
SJ00W-18-4BK-1	18/4	0.330 [8.38]	7	20	0.07	\$2dex:		
* Per NFPA 70 NEC Table 400.5 (A)(1)								





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<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 16AWG SJOOW Portable Cord

	<b>16AWG SJOOW Portable</b>	Cord Specification	18
Conductor Gauge	16AWG		Per UL 62 Annex B
Conductor Stranding	26/30 bare copper, Class K stranding ASTM B 174	Conditator Color	2 conductor - Black, White
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry
Outer Jacket Thickness	0.030" [0.76 mm] Nominal		UL 62, FT2
Overall Diameter	See table below		CSA 22.2 No. 49
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	_	MSHA
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJOOW E46194 (UL) 300V -40C TO 90C CSA LL90458 SJOOW 300V -40C TO 90C FT2 WATER RESISTANT

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

16AWG SJOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
SJ00W-16-2BK-1	16/2	0.310 [7.87]	13	20	0.06	Retired		
SJ00W-16-3BK-1	16/3	0.330 [8.38]	13	20	0.07	Retired		
SJ00W-16-4BK-1	16/4	0.357 [9.07]	10	20	0.09	\$;2det:		





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1) \*\* See web store for maximum cut lengths

## Southwire 14AWG SJOOW Portable Cord

14AWG SJOOW Portable Cord Specifications							
Conductor Gauge	14AWG		Per UL 62 Annex B				
Conductor Stranding	41/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White				
Voltage Rating	300V	Conauctor Color	3 conductor - Black, White, Green				
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry				
Outer Jacket Thickness	0.030" [0.76 mm] Nominal		UL 62, FT2				
Overall Diameter	See table below		CSA 22.2 No. 49				
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400				
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA				
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)				
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJOOW E46194 (UL) 300V -40C TO 90C CSA LL90458 SJOOW 300V -40C TO 90C FT2 WATER RESISTANT				

14AWG SJOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
SJ00W-14-2BK-1	14/2	0.340 [8.64]	18	20	0.06	\$2den:		
SJ00W-14-3BK-1	14/3	0.365 [9.27]	18	20	0.08	Retired		
S.IOOW-14-4RK-1	14/4	0.395 [10.03]	15	20	0.10	\$2den		

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 12AWG SJOOW Portable Cord

	12AWG SJOOW Portable Cord Specifications						
Conductor Gauge	12AWG		Per UL 62 Annex B				
Conductor Stranding	65/30 bare copper, Class K stranding ASTM B 174	- Conductor Color	2 conductor - Black, White				
Voltage Rating	300V	Conductor Color	3 conductor - Black, White, Green				
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry				
Outer Jacket Thickness	0.045" [1.14 mm] Nominal		UL 62, FT2				
Overall Diameter	See table below	_	CSA 22.2 No. 49				
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400				
Min. Bend Radius	4x diameter	-	NEC (NFPA 70) 501.140 Class 1 Div 2				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA				
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E46194), CSA (90458)				
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJOOW E46194 (UL) 300V -40C TO 90C CSA LL90458 SJOOW 300V -40C TO 90C FT2 WATER RESISTANT				

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

12AWG SJOOW Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SJ00W-12-2BK-1	12/2	0.410 [10.41]	25	20	0.09	\$-2dej:	
<u>SJ00W-12-3BK-1</u>	12/3	0.430 [10.92]	25	20	0.12	Retired	
<u>SJ00W-12-4BK-1</u>	12/4	0.470 [11.94]	20	20	0.15	Retired	

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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<sup>\*\*</sup> See web store for maximum cut lengths

### Southwire 10AWG SJOOW Portable Cord

	10AWG SJ00W Portable Cord Specifications						
Conductor Gauge	10AWG		Per UL 62 Annex B				
Conductor Stranding	104/30 bare copper, Class K stranding ASTM B 174	Conductor Color	3 conductor - Black, White, Green				
Voltage Rating	300V	Conductor Color					
Outer Jacket Material	CPE (chlorinated polyethylene elastomers)thermoset rubber		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black with white print	Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry				
Outer Jacket Thickness	0.060" [1.52 mm] Nominal		UL 62, FT2				
Overall Diameter	See table below		CSA 22.2 No. 49				
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400				
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA				
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubberr	Approvals*	UL (E46194), CSA (90458)				
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJOOW E46194 (UL) 300V -40C TO 90C CSA LL90458 SJOOW 300V -40C TO 90C FT2 WATER RESISTANT				

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

10AWG SJ00W Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*		Approximate Weight (lb/ft)	Price per foot		
SJ00W-10-3BK-1	10/3	0.569 [14.45]	30	20	0.25	\$2deh:		
SJ00W-10-4BK-1	10/4	0.635 [16.13]	25	20	0.26	Retired		
* Per NFPA 70 NEC Table 400.5 (A)(1)								

<sup>\*\*</sup> See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com **Wires Cords and Cables** 

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### Southwire 18AWG SEOOW Portable Cord

18AWG SEOOW Portable Cord Specifications						
Conductor Gauge	18AWG		Per UL 62 Annex B			
Conductor Stranding	16/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White			
Voltage Rating	600V	Conductor Color	3 conductor - Black, White, Green			
Outer Jacket Material	TPE (thermoplastic elastomer)		4 conductor - Black, White, Red, Green			
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry			
Outer Jacket Thickness	0.085" [2.16 mm] Nominal		UL 62, FT2			
Overall Diameter	See table below		CSA 22.2 No. 49			
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400			
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2			
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA			
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)			
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® SEOPRENE® CORD X/C XX AWG (X.XXmm2) SEOOW E46194 (UL) 600V -50C TO 105C CSA LL90458 STOOW(TPE) 600V -50C TO 105C FT2 WATER RESISTANT			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

18AWG SEOOW Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SE00W-18-2BK-1	18/2	0.346 [8.79]	10	20	0.06	\$2de0:	
SE00W-18-3BK-1	18/3	0.365 [9.27]	10	20	0.07	\$2de1:	
<u>SE00W-18-4BK-1</u>	18/4	0.395 [10.03]	7	20	0.08	\$2de2:	
* Por NEPA 70 NEC Table 400 5 (A)(1)							

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com Wires Cord

<sup>\*\*</sup> See web store for maximum cut lengths

### Southwire 16AWG SEOOW Portable Cord

	16AWG SEOOW Portable	Cord Specification	IS
Conductor Gauge	16AWG	-	Per UL 62 Annex B
Conductor Stranding	26/30 bare copper, Class K stranding ASTM B 174		3 conductor - Black, White, Green
Voltage Rating	600V	Conductor Color	
			4 conductor - Black, White, Red, Green
Outer Jacket Material	TPE (thermoplastic elastomer)		5 conductor - Black, White, Red, Green, Orange
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry
Outer Jacket Thickness	0.083" [2.09 mm] Nominal		UL 62, FT2
Overall Diameter	See table below		CSA 22.2 No. 49
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® SEOPRENE® CORD X/C XX AWG (X.XXmm2) SEOOW E46194 (UL) 600V -50C TO 105C CSA LL90458 SEOOW(TPE) 600V -50C TO 105C FT2 WATER RESISTANT

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

16AWG SEOOW Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**		Price per foot	
<u>SEOOW-16-3BK-1</u>	16/3	0.390 [9.91]	13	20	0.08	\$2dd?:	
SE00W-16-4BK-1	16/4	0.420 [10.67]	10	20	0.10	\$;2dd,:	
* Per NFPA 70 NEC Table 400.5 (A)(1)		•					

<sup>\*\*</sup> See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

## Southwire 14AWG SEOOW Portable Cord

	14AWG SEOOW Portable	<b>Cord Specification</b>	S
Conductor Gauge	14AWG		Per UL 62 Annex B
Conductor Stranding	41/30 bare copper, Class K stranding ASTM B 174		3 conductor - Black, White, Green
Voltage Rating	600V	Conductor Color	Diadity Trinto, G.SS.
O to the last Marte del	TDF (the consideration desired)		4 conductor - Black, White, Red, Green
Outer Jacket Material	TPE (thermoplastic elastomer)		5 conductor - Black, White, Red, Green, Orange
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry
Outer Jacket Thickness	0.097" [2.45 mm] Nominal		UL 62, FT2
Overall Diameter	See table below		CSA 22.2 No. 49
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® SEOPRENE® CORD X/C XX AWG (X.XXmm2) SEOOW E46194 (UL) 600V -50C TO 105C CSA LL90458 SEOOW(TPE) 600V -50C TO 105C FT2 WATER RESISTANT

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

14AWG SEOOW Portable Cord							
	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SE00W-14-3BK-1	14/3	0.525 [13.34]	18	20	0.17	\$2dd#:	
<u>SE00W-14-4BK-1</u>	14/4	0.575 [14.61]	15	20	0.18	\$;2dd!:	

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com

tCBL-32

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 12AWG SEOOW Portable Cord

	12AWG SEOOW Portable Cord Specifications						
Conductor Gauge	12AWG		Per UL 62 Annex B				
Conductor Stranding	65/30 bare copper, Class K stranding ASTM B 174	Conductor Color	3 conductor - Black, White, Green				
Voltage Rating	600V		Diamity Classic				
Outer Jacket Material	TPE (thermoplastic elastomer)		4 conductor - Black, White, Red, Green				
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry				
Outer Jacket Thickness	0.106" [2.68 mm] Nominal		UL 62, FT2				
Overall Diameter	See table below		CSA 22.2 No. 49				
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400				
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2				
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA				
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)				
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® SEOPRENE® CORD XIC XX AWG (X. XXmm2) SEOOW E46194 (UL) 600V -50C TO 105C CSA LL90458 SEOOW(TPE) 600V -50C TO 105C FT2 WATER RESISTANT				

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

12AWG SEOOW Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SE00W-12-3BK-1	12/3	0.595 [15.11]	25	20	0.20	\$2ddz:	
SE00W-12-4BK-1	12/4	0.645 [16.38]	20	20	0.24	\$;2dd]:	
* Per NFPA 70 NEC Table 400.5 (A)(1) ** See web store for maximum cut let							





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com

**Wires Cords and Cables** 

## Southwire 10AWG SEOOW Portable Cord

10AWG SE00W Portable Cord Specifications						
Conductor Gauge	10AWG		Per UL 62 Annex B			
Conductor Stranding	104/30 bare copper, Class K stranding ASTM B 174	Conductor Color				
Voltage Rating	600V		4 conductor - Black, White, Red, Green			
Outer Jacket Material	TPE (thermoplastic elastomer)					
Outer Jacket Color	Black with white print Temperature Rating		60°C (140°F) Wet, 105°C (221°F) Dry			
Outer Jacket Thickness	0.106" [2.68 mm] Nominal		UL 62, FT2			
Overall Diameter	See table below		CSA 22.2 No. 49			
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400			
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2			
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA			
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)			
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® SEOPRENE® CORD X/C XX AWG (X.XXmm2) SEOOW E46194 (UL) 600V -50C TO 105C CSA LL90458 SEOOW(TPE) 600V -50C TO 105C FT2 WATER RESISTANT			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

10AWG SE00W Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SE00W-10-4BK-1	10/4	0.705 [17.91]	25	20	0.32	\$2ddy:	
* Per NFPA 70 NEC Table 400.5 (A)(1) ** See web store for maximum cut let							





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com Wires

## Southwire 18AWG SJEOOW Portable Cord

18AWG SJEOOW Portable Cord Specifications					
Conductor Gauge	18AWG		Per UL 62 Annex B		
Conductor Stranding	16/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White		
Voltage Rating	300V		3 conductor - Black, White, Green		
Outer Jacket Material	TPE (thermoplastic elastomer)		4 conductor - Black, White, Red, Green		
Outer Jacket Color	Black with white print Temperature Rating		60°C (140°F) Wet, 105°C (221°F) Dry		
Outer Jacket Thickness	0.030" [0.76 mm] Nominal		UL 62, FT2		
Overall Diameter	See table below		CSA 22.2 No. 49		
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400		
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2		
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA		
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)		
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJEOOW E46194 (UL) 300V -50C TO 105C CSA LL90458 SJEOOW 300V -50C TO 105C FT2 WATER RESISTANT		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

18AWG SJEOOW Portable Cord							
Part Number	AWG/ # 01	Nominal Overall Diameter in [mm]	/Imnacitu×	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SJE00W-18-2BK-1	18/2	0.290 [7.36]	10	20	0.04	\$2dee:	
SJE00W-18-3BK-1	18/3	0.310 [7.87]	10	20	0.06	\$;2def:	
SJE00W-18-4BK-1	18/4	0.335 [8.51]	7	20	0.07	\$2deg:	

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 16AWG SJEOOW Portable Cord

16AWG SJEOOW Portable Cord Specifications						
Conductor Gauge	16AWG	·	Per UL 62 Annex B			
Conductor Stranding	26/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White			
Voltage Rating	300V		3 conductor - Black, White, Green			
Outer Jacket Material	TPE (thermoplastic elastomer)		4 conductor - Black, White, Red, Green			
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry			
Outer Jacket Thickness	0.030" [0.76 mm] Nominal		UL 62, FT2			
Overall Diameter	See table below		CSA 22.2 No. 49			
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400			
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2			
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA			
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)			
Conductor Nominal Insulation Thickness	0.030" [0.76 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJEOOW E46194 (UL) 300V -50C TO 105C CSA LL90458 SJEOOW 300V -50C TO 105C FT2 WATER RESISTANT			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

16AWG SJEOOW Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SJE00W-16-2BK-1	16/2	0.315 [8.00]	13	20	0.05	\$2deb:	
SJE00W-16-3BK-1	16/3	0.330 [8.32]	13	20	0.07	\$2dec:	
<u>SJE00W-16-4BK-1</u>	16/4	0.360 [9.14]	10	20	0.08	\$2ded:	

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 14AWG SJEOOW Portable Cord

1	4AWG SJEOOW Portable	Cord Specification	ns	
Conductor Gauge	14AWG		Per UL 62 Annex B	
Conductor Stranding	41/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White	
Voltage Rating	300V		3 conductor - Black, White, Green	
Outer Jacket Material	TPE (thermoplastic elastomer)		4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry	
Outer Jacket Thickness	0.030" [0.76 mm] Nominal		UL 62, FT2	
Overall Diameter	See table below		CSA 22.2 No. 49	
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400	
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2	
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA	
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)	
Conductor Nominal Insulation Thickness  0.030" [0.76 mm]		Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJEOOW E46194 (UL) 300V -50C TO 105C CSA LL90458 SJEOOW 300V -50C TO 105C FT2 WATER RESISTANT	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

14AWG SJEOOW Portable Cord						
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
SJE00W-14-2BK-1	14/2	0.345 [8.76]	18	20	0.60	\$2de8:
SJE00W-14-3BK-1	14/3	0.370 [9.14]	18	20	0.80	\$2de9:
<u>SJE00W-14-4BK-1</u>	14/4	0.400 [10.16]	15	20	0.10	\$2dea:

Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\*\*</sup> See web store for maximum cut lengths

## Southwire 12AWG SJEOOW Portable Cord

1	2AWG SJEOOW Portable	Cord Specification	ns	
Conductor Gauge	12AWG		Per UL 62 Annex B	
Conductor Stranding	65/30 bare copper, Class K stranding ASTM B 174	Conductor Color	2 conductor - Black, White	
Voltage Rating	300V		3 conductor - Black, White, Green	
Outer Jacket Material	TPE (thermoplastic elastomer)		4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry	
Outer Jacket Thickness	0.045" [1.14 mm] Nominal		UL 62, FT2	
Overall Diameter	See table below		CSA 22.2 No. 49	
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400	
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2	
Operating Temperature	-50°C to 105°C (-58°F to 221°F)		MSHA	
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)	
Conductor Nominal Insulation Thickness	0.045" [1.14 mm]	Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJEOOW E46194 (UL) 300V -50C TO 105C CSA LL90458 SJEOOW 300V -50C TO 105C FT2 WATER RESISTANT	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

12AWG SJEOOW Portable Cord								
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]  Ampacity*  Ampacity*  Length (ft)**  Approximation Weight (lb)				Price per foot		
SJE00W-12-2BK-1	12/2	0.415 [10.54]	25	20	0.10	\$2de5:		
SJE00W-12-3BK-1	12/3	0.435 [11.05]	25	20	0.12	\$2de6:		
<b>SJE00W-12-4BK-1</b> 12/4 0.480 [12.19] 20 20 0.16 \$2de7:								
* Per NFPA 70 NEC Table 400.5 (A)(1)		,				•		

<sup>\*\*</sup> See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

### Southwire 10AWG SJEOOW Portable Cord

1	<b>OAWG SJEOOW Portable</b>	Cord Specification	ns	
Conductor Gauge	10AWG		Per UL 62 Annex B	
Conductor Stranding	104/30 bare copper, Class K stranding ASTM B 174	Conductor Color	3 conductor - Black, White, Green	
Voltage Rating	300V	-	,,	
Outer Jacket Material	TPE (thermoplastic elastomer)	-	4 conductor - Black, White, Red, Green	
Outer Jacket Color	Black with white print	Temperature Rating	60°C (140°F) Wet, 105°C (221°F) Dry	
Outer Jacket Thickness	0.060" [1.52 mm] Nominal		UL 62, FT2	
Overall Diameter	See table below		CSA 22.2 No. 49	
Cold Bend	-50°C (-58°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400	
Min. Bend Radius	4x diameter	-	NEC (NFPA 70) 501.140 Class 1 Div 2	
Operating Temperature	-50°C to 105°C (-58°F to 221°F)	-	MSHA	
Conductor Insulation	TPE (thermoplastic elastomer)	Approvals*	UL (E46194), CSA (90458)	
Conductor Nominal Insulation Thickness  0.045" [1.14 mm]		Sample Print Legend	SOUTHWIRE® ROYAL® CORD XX/C XX AWG (XXmm2) SJEOOW E46194 (UL) 300V-50C TO 105C CSA LL90458 SJEOOW 300V-50C TO 105C FT2 WATER RESISTANT	

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

10AWG SJE00W Portable Cord							
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
SJE00W-10-3BK-1	10/3	0.580 [14.73]	30	20	0.22	\$2de3:	
<u>SJE00W-10-4BK-1</u>	10/4	0.640 [16.26 ]	25	20	0.28	\$2de4:	
Per NFPA 70 NEC Table 400.5 (A)(1)							

<sup>\*\*</sup> See web store for maximum cut lengths





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

## Southwire 8AWG Type W Portable Cord

	<b>8AWG Type W Portab</b>	le Cord Specifica	tions
Conductor Gauge	8AWG		Per UL 62 Annex B
Conductor Stranding	133/30 bare copper, Class K stranding ASTM B 174	Conductor Color	
Voltage Rating	2000V	Conductor Color	4 conductor - Black, White, Red, Green
Outer Jacket Material	CPE (chlorinated polyethylene elastomers) thermoset rubber		
Outer Jacket Color	Black with white print	Temperature Rating	90°C (194°F) Wet, 90°C (194°F) Dry
Outer Jacket Thickness	0.060" [1.52 mm] Nominal		UL Type W per 1650, Type RHH or RHW-2, FT-5
Overall Diameter	See table below		CSA 22.2 No. 49
Cold Bend	-40°C (-40°F) per UL 1277	Applicable Standards	NEC (NFPA 70) Article 400
Min. Bend Radius	4x diameter		NEC (NFPA 70) 501.140 Class 1 Div 2
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		MSHA
Conductor Insulation	EPDM (ethylene propylene diene monomer) thermoset rubber	Approvals*	UL (E172226), CSA (236844)
Conductor Nominal Insulation Thickness	0.06" [1.52 mm]	Sample Print Legend	SOUTHWIRE® X AWG X/C TYPE W PORTABLE POWER CABLE 90°C WET OR DRY 2000V OIL AND SUN RES (UL) P-136- 35-MSHA AIW™ c(UL) FT1/FT5 (-40°C)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

8AWG Type W Portable Cord						
Part Number	AWG/ # of Conductors	Nominal Overall Diameter in [mm]	Ampacity*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
<u>W-8-4BK-1</u>	8/4	1.01 [25.65]	65	20	0.92	\$;2dfa:
* Dow NEDA 70 NEC Toble 400 F		1.01 [20.00]	00		0.92	φ,Zui

<sup>\*</sup> Per NFPA 70 NEC Table 400.5 (A)(1)





Please Note: Our prices on flexible cord are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

tCBL-40

www.automationdirect.com Wires Cords and Cables

<sup>\*\*</sup> See web store for maximum cut lengths



#### **DRIVEFLEX**® **XLPE VFD Cable**



LUTZE DRIVEFLEX® is ideal for use with any Variable Frequency Drives and servo drive and motor combination for stationary applications. AutomationDirect is proud to offer the full line of DRIVEFLEX® cable from 18AWG up to 8AWG. This cable is available in bulk lengths starting as low as 10ft up to over 1000 feet for most part numbers.

DRIVEFLEX® is rated Tray Cable - Exposed Run (TCER-JP) meaning that it can be used with or without conduit, making the installations more cost-effective by reducing the cost of labor and materials. The XHHW-2 jacket is oil and sunlight resistant and suitable for dry, damp, wet and direct burial locations. Carrying multiple approvals and ratings, LUTZE DRIVEFLEX® cable can be used for most all stationary drive and motor application.

#### **Features**

- Flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Black with white numbers and one green/yellow ground
- Thermoset XLPE insulation type XHHW-2, Wet/Dry
- Shielded with tinned copper braid with 85% optical coverage, and drain wire
- Type XHHW-2 insulation offering smaller ODs for general VFD applications
- TC-ER-JP for use with cable trays without conduit, which can reduce installation costs in industrial environments
- · Sunlight resistant
- · Direct burial
- · Talc and silicone free
- Black jacket similar to RAL 9005
- Cut to length in 1 foot increments
- Minimum cut lengths as low as 10 feet\*
- Made in USA









Please Note: Our prices on Servo Cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase ifmarket conditions warrant.





Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

	DRIVEFLEX® 2	XLPE VFD Cable	Specifications
Conductors Gauge & Stranding	18AWG (19 Strands) to 8AWG (168 Strands), tinned Copper		UL Type Flexible Motor Supply Flexible VFD Servo Cable, TC-ER-JP
Shield	Foil tape, tinned copper braid with 80% optical coverage, and drain wire		WTTC DP-1 Meets NEC 336, 392 Class I & 11, Div. 2 and Class I Zone
Voltage Rating	600V UL TC ER JP 600V UL MTW 1000V WTTC 1000V Flexible Motor Supply 1000V UL AWM 105C	Approvals**	2 per NEC 501, 502, 505 AWM 20886 Submersible Pump (≥AWG14) c(UL)TC CIC FT4
Outer Jacket Material	Thermoset XLPE		UL 1277
Outer Jacket Color	Black with white print		
Temperature Ratings	-40°F to +221°F (-40°C to +105°C)		WWW.LUTZE.COM PART# A106XXXX DRIVEFLEX® AWGXX-XX XHHW-2 E352875 FLEXIBLE VFD SERVO CABLE 90C WET OR DRY 1000V OR
Conductor Insulation	Black with white numbers and one green/yellow ground Thermoset XLPE insulation	Sample Print Legend	WTTC 1000V 90C DRY OR (UL) TYPE TC-ER-JP 90C 600V SUN RES DIR BUR OIL RES II OR DP-1 OR SUBERMSIBLE PUMP CABLE OR AWM 105C 1000V OR c(UL) TYPE CIC CONTROL XLPE FT4 SHIELDED CE ROHS CE-46 1421 MADE IN USA XXXXXXXFT
* See web store for minimum and maximum	cut lengths		

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com www.automationdirect.com



### **DRIVEFLEX® XLPE VFD Cable**

				VF	D 4-C	ondu	ctor	Cable S	electi	on					
	nd)		ches		NG)	(6	gth (ft)	on on (mils)	et is)	hes	*Ampad 310.10	city NEC 6 Amps	inches	eight	ıt
Part Number	Number of Conductors (includes ground)	AWG	Conductor OD inches	Strand	Power Conductors (AWG)	Ground (AWG)	Minimum Cut Length (ft)	Nom. Insulation Thickness PVC/Nylon (mils)	Nominal Jacket Thickness (mils)	Nominal OD inches	75°C	90°C	Min. Bend Radius inches	Approximate Weight (Ib/ft) Price per foot	Price per foot
		LOT	ZE DRIVEFL	EX*					Th	ree 3	-				
A1061804-1	4	18	0.112	19/30	18	18	20	0.032	45	0.415	7	14	2.5	0.124	\$5n?h:
	_	LOT	ZE DRIVEFL	EX*					Th	Wee 3	-			1	
A1061604-1	4	16	0.123	26/30	16	16	20	0.032	60	0.425	10	18	2.6	0.159	\$-5n?i:
<u> </u>	4	10	0.123	20/30	10	10	20	0.032			-	10	2.0	0.139	φ-31111.
		LOT:	ZE DRIVEFL	EX*					Th	ree 3					
<u>A1061404-1</u>	4	14	0.138	41/30	14	14	20	0.032	60	0.456	15	20	2.7	0.214	\$-5n?j:
		LOT	ZE DRIVEFL	.EX*					Th	ree 3	-				
A1061204-1	4	12	0.160	65/30	12	12	20	0.032	60	0.510	25	30	3.1	0.321	\$5n?k:
		LOT	ZE DRIVEFL	.EX*					TI	hree 3					
A1061004-1	4	10	0.194	105/30	10	10	20	0.032	80	0.650	35	40	3.9	0.490	\$-5n?l:
		LOT	ZE DRIVEFL	EX*					Thre	e 3	-				
<u>A1060804-1</u>	4	8	0.268	168/30	8	8	20	0.032	80	0.810	50	55	4.9	0.490	\$5n?n:

<sup>\*</sup> Ampacity based on NFPA 79 12.5.1 up to and including 2000 volts, not more than 3 current-carrying conductors, ambient 86°F (30°C) All dimensions are nominal and subject to normal manufacturing tolerances.





Please Note: Our prices on
Servo Cable are closely tied to the market
price for copper. This allows us to offer the best savings
possible if conditions are favorable; however, it also
means that our prices may increase if market
conditions warrant.



### **DRIVEFLEX® XLPE VFD Cable**

	DRIVEFLEX® XLPE VFD Cable Specifications Continued								
Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)	Nom. Capacitance	Nom. Conductor DC Resistance @ 20°C (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20°C (Ohm/1000 ft.)	Impedance (ohms)	Max. Operating Voltage - UL			
A1061804-1	21.9	38.4	6.2	2.6	90.2	1000V			
A1061604-1	24.0	43.3	4.16	2.4	81.6	1000V			
A1061404-1	26.0	42.7	2.82	1.8	69.1	1000V			
A1061204-1	29.0	52.50	1.77	1.0	49.0	1000V			
A1061004-1	29.2	48.0	1.110	0.8	40.9	1000V			
A1060804-1	26.2	45.0	0.7	0.8	52.4	1000V			





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#### **MOTIONFLEX®** Series Cable



#### **Features**

- Flexible fine wire stranded tinned copper conductors for improved electrical characteristics and reduced oxidation
- Black with white numbers and one green/yellow ground
- Thermoset XLPE insulation type XHHW-2, Wet/Dry
- Shielded with tinned copper braid with 85% optical coverage
- Type XHHW-2 insulation offering smaller ODs for general VFD applications
- TC-ER for use with cable trays without conduit, which can reduce installation costs in industrial environments
- · Sunlight resistant
- · Direct burial
- · Talc and silicone free
- · Oil resistant jacket
- Black jacket similar to RAL 9005
- Cut to length in 1 foot increments
- Minimum cut lengths as low as 10 feet\*
- · Made in USA

LUTZE MOTIONFLEX® is ideal for use with any Variable Frequency Drive and motor combination for the continuous motion applications. Designed for torisional, linear motion and cable tray applications. AutomationDirect is proud to offer the full line of MOTIONFLEX® cable from 18AWG up to 8AWG. This cable is available in bulk lengths starting as low as 10 feet up to over 1000 feet on most part numbers.

MOTIONFLEX® is rated Tray Cable- Exposed Run (TC-ER) meaning that it can be used with or without conduit, making the installations more cost effective by reducing the cost of labor and materials.

The XHHW-2 jacket is oil and sunlight resistant and suitable for dry, damp, wet, and direct burial locations.

Carrying multiple approvals and ratings, LUTZE MOTIONFLEX® cable can be used for most all motion drive and motor application.









Please Note: Our prices on Servo Cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase ifmarket conditions warrant.





Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

	MOTIONFLEX® Cable Specifications						
Conductors Gauge & Stranding	18AWG (41 Strands) to 8AWG (336 Strands), tinned Copper		UL Type Flexible Motor Supply				
Shield	Tinned copper braid with 85% optical coverage	Approve lot t	Flexible VFD Servo Cable, TC-ER WTTC Meets NEC 336, 392 Class I & 11, Div. 2 and Class I Zone				
Voltage Rating	600V UL TC ER 1000V WTTC 1000V Flexible Motor Supply 600V UL AWM 105C	- Approvals**	2 per NEC 501, 502, 505 AWM 21270 c(UL)TC CIC FT4 UL 1277				
Outer Jacket Material	Thermoset XLPE		OL 1277				
Outer Jacket Color	Black with white print						
Temperature Ratings	-40°F to +221°F (-40°C to +105°C)		WWW.LUTZE.COM PART# AXXXXXXX MOTIONFLEX® M (C) TPE CONSTANT FLEXING CABLE SERVO AWG16/4C XHHW-2 E352875 -46 FLEXIBLE				
Conductor Insulation	Black with white numbers and one green/yellow ground Thermoset XLPE insulation	Sample Print Legend	MOTOR SUPPLY 90°C 1000V WET OR DRY OR WTTC 1000V 90C DRY OR UL TYPE TC-ER 600V SUN RES OIL RES I & II -40C OR AWM 21270 105C 600V				
* See web store for minimum and maximum	cut lengths						

\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com



### **MOTIONFLEX®** Series Cable

					MO	<b>TION</b>	<b>FLEX</b> (		Sele	ction						
	nd)		ches		NG)	3)	gth (ft)	on on (mils)	re <b>t</b> ils)	shes	*Ampad 310.16	city NEC Amps	Min. Ben inc	d Radius hes	eight )	)t
Part Number	Number of Conductors (includes ground)	AWG	Conductor OD inches	Strand	Power Conductors (AWG)	Ground (AWG)	Minimum Cut Length (ft)	Nom. Insulation Thickness PVC/Nylon (mils)	Nominal Jacket Thickness (mils)	Nominal OD inches	75°C	90°C	Fixed	Moving	Approximate Weight (lb/1000 ft.)	Price per foot
		L	OTZE MOTI	ONFLEX*	MTPE					Three 3	Two 2	-				
A4061804-1	4	18	0.103	41/34	18	18	20	32	32	0.38	7	14	2.28	4.56	40	\$5n?o:
	1	l	OTZE MOT	IONFLEX	MTPE					Three 3	Two 2	-				
<u>A4061604-1</u>	4	16	0.12	65/34	16	16	20	32	32	0.425	10	18	2.55	5.1	55	\$5n?p:
			LOTZE MOT	TIONFLEX	NTPE					Three 3	TWO Z	-				
<u>A4061404-1</u>	4	14	0.131	104/34	14	14	20	32	32	0.45	20	25	2.7	5.4	76	\$5n?q:
		LÜ	)TZE MOTIC	ONFLEX* N	TPE					Three 3	Two Z					
<u>A4061204-1</u>	4	12	0.167	168/34	12	12	20	32	32	0.535	25	30	3.21	6.42	115	\$5n?s:
			LOTZE MO	TIONFLE	" NTPE					Three 3	Two Z	-				
A4061004-1	4	10	0.192	259/34	10	10	20	32	32	0.625	35	40	3.75	7.5	165	\$;5n?t:
		L	OTZE MOT	ONFLEX*	NTPE					Three 3	Two Z	-				
<u>A4060804-1</u>	4	8	0.254	336/34	8	8	20	46	46	0.775	50	55	4.65	9.3	259	\$5n?u:

<sup>\*</sup> Ampacity based on NFPA 79 12.5.1 Conductor Ampacity Based on Copper Conductors





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conditions warrant.



### **MOTIONFLEX®** Series Cable

	MOTIONFLEX® Cable Specifications Continued											
Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)	apacitance   Nom. Capacitance   Conductor to   Conductor (nF/ft )		Nominal Outer Shield DC Resistance @ 20°C (Ohm/1000 ft.)	Impedance (ohms)	Max. Operating Voltage - UL						
A4061804-1	32.99	17.72	6.71	5.067	89.55	1000V						
A4061604-1	36.94	19.03	4.23	3.092	73.6	1000V						
A4061404-1	46.58	21.76	2.62	3.165	66.0	1000V						
A4061204-1	57.99	24.41	1.7	2.345	51.7	1000V						
A4061004-1	69.27	26.65	1.1	2.11	45.7	1000V						
A4060804-1	59.93	24.81	0.7	1.853	49.1	1000V						





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#### SILFLEX® 24vdc Control Cable



#### **Overview**

LUTZE SILFLEX® 24VDC control cable from AutomationDirect is available with sizes in 18AWG and 16AWG unshielded conductors. Individual conductors are bare copper and stranded for flexibility, with blue PVC/ Nylon insulation and marked with white numbers. One conductor has white and blue insulation for easy identification as a common wire. A convenient ground conductor is included in the conductor count of each cable and has insulation that is green with a yellow stripe. The cable's outer jacket is PVC that is resistant to sunlight, oil, and moisture penetration, making these cables suitable for wet and dry locations as well as outdoors. Although not suitable for continuous flexing applications, these cables are ideal for both stationary and flexible applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements. With multiple ratings and approvals, LUTZE SILFLEX® 24VDC multi-conductor control cable has the versatility to meet a wide range of industrial applications. Given its UL Type TC-ER Tray Cable Exposed Run rating, our cable can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor resulting in installation and maintenance savings. With their UL Type MTW Machine Tool Wire rating, these cables meet NFPA 79, Electrical Standard for Industrial Machinery. Other ratings and approvals include Class 1 Division 2 Hazardous Locations and Direct Burial. When combined with AutomationDirect ZIPport multiwire connectors, our flexible multi-conductor cables provide an economical way to organize and simplify control wiring in facilities and during assembly of machinery. Cut to length in 1-foot increments with a 20-foot minimum length.



\* Cables shown using AutomationDirect's ZIPport multi-wire connectors. See Terminal Blocks & Wiring Solutions section for further information.



#### **Features**

- 16AWG to 18AWG, including an equal size ground
- · Unshielded constructions
- Individual conductors have blue PVC/Nylon insulation and are marked with identification numbers
- Blue conductors for 24VDC circuit per NFPA 79 and UL508A
- · Oil resistant PVC outer jacket
- Equal size green/yellow ground wire included
- Multiple ratings and approvals include Type TC-ER (eliminates need for conduit/armor), Type MTW (meets NFPA 79), Class 1 Division 2, Direct Burial, wet and dry location, oil resistant, sunlight resistant
- · Flexibility for easy installation
- · Cut to length in 1-foot increments
- Low 20-foot minimum length
- · Made in the USA
- Ideal for use with ZIPport multi-wire connectors (as shown below)







18-Gau	ige SILFLEX® Control (	able Specification	ns (Unshielded)
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K		UL 1277 - Type TC-ER
Voltage Rating	600V 90C Tray Cable Exposed Run		UL 1063 - Machine Tool Wiring (MTW) UL 1690 - Data Processing Cable (DP-1)
	600V MTW	Applicable	
Operating Temperature	-40°C to 90°C [-40°F to 194°F]	Standards	
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		Class I & II, Div. 2 336, 392, 725, 727 and Class I
Conductor Colors*	Blue with white numbers and green/ yellow ground, the number 2 conductor is white/blue		Zone 2 per NEC 501, 502, 505
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		
Conductor Markings	"1-ONE", "2-TWO", "3-THREE", etc @ 4.5-inch intervals, ICEA Method 4	Approvals**	UL (E197091) CSA (LL41103)
Temperature Rating	75°C [167°F] Wet, 90°C [194°F] Dry		WWW.LUTZE.COM PART# XXXXXXXX LUTZE
Minimum Bend Radius	4x diameter		Silflex® TRAY-ER AWGXX-XC (UL) TYPE TC-ER
Flame Rating	FT4	Sample Print Legend	90C DRY 75C WET 600V SUN RES DIR BUR OIL E197091 or MTW OR DP-1 ORC(UL) CIC-TC
Dil Resistance	Oil Res I & II		PVC/N FT4 LL41103 CSA AWN I/II A/B 90C 600V FT4CE ROHS CE-45 2133 MADE IN USA XXXXXX FT

<sup>\* 3-</sup>conductor is two Blue with white numbers and green/yellow ground

<sup>\*\*</sup>To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

	18-Gauge SILFLEX® Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft) **	Approximate Weight (lb/ft)	Price per foot	
								Ten 2			
		_			LOTZE SILFLEX TRAY ER BLU	E		WR 1			
A3251803-1	3					0.29	1.12	20	0.05	\$-5dlc:	
A3251805-1	5					0.34	1.32	20	0.07	\$-5dld:	
A3251807-1	7	18	16	20	45	0.37	1.44	20	0.09	\$-5dle:	
<u>A3251812-1</u>	12					0.47	1.84	20	0.14	\$;-5dlf:	
A3251819-1	19	]				0.59	2.36	20	0.22	\$-5dlg:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on
Servo Cable are closely tied to the market price for
copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our
prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

# 16AWG SILFLEX® Control Cable SYSTEMATIC TECHNOLOGY (Unshielded)

16-Gau	ge SILFLEX® Control (	able Specification	ns (Unshielded)			
Conductor Gauge & Stranding	18AWG 26/30 bare copper, Class K		UL 1277 - Type TC-ER			
Voltage Rating	600V 90C Tray Cable Exposed Run		UL 1063 - Machine Tool Wiring (MTW) UL 1690 - Data Processing Cable (DP-1)			
	600V MTW	Applicable				
Operating Temperature	-40°C to 90°C [-40°F to 194°F]	Standards				
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		Class I & II, Div. 2 336, 392, 725, 727 and Class I			
Conductor Colors*	Blue with white numbers and green/ yellow ground, the number 2 conductor is white/blue		Zone 2 per NEC 501, 502, 505			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	'1-ONE", "2-TWO", "3-THREE", etc @ 4.5-inch intervals, ICEA Method 4	Approvals**	UL (E197091) CSA (LL41103)			
Temperature Rating	75°C [167°F] Wet, 90°C [194°F] Dry		WWW.LUTZE.COM PART# XXXXXXXX LUTZE			
Minimum Bend Radius	4x diameter		Silflex® TRAY-ER AWGXX-XC (UL) TYPE TC-ER			
Flame Rating	FT4	Sample Print Legend	90C DRY 75C WET 600V SUN RES DIR BUR OIL E197091 or MTW OR DP-1 ORC(UL) CIC-TC			
Oil Resistance	Oil Res I & II		PVC/N FT4 LL41103 CSA AWN I/II A/B 90C 600V FT4CE ROHS CE-45 2133 MADE IN USA XXXXXX FT			

<sup>\* 3-</sup>conductor is two Blue with white numbers and green/yellow ground

<sup>\*\*</sup>To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

	16-Gauge SILFLEX® Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
					LOTZE SILFLEX TRAY	ER RI HE			Ford		
					2002			T	tree 3		
A3251603-1	3					0.31	1.24	20	0.06	\$-5dlh:	
A3251605-1	5					0.37	1.48	20	0.09	\$5dli:	
A3251607-1	7	16	26	20	50	0.40	1.60	20	0.11	\$5dlj:	
A3251612-1	12					0.54	2.16	20	0.20	\$-5dlk:	
<u>A3251619-1</u>	19					0.64	2.56	20	0.27	\$5dll:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





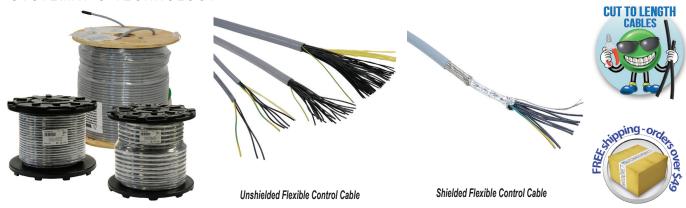
Please Note: Our prices on
Servo Cable are closely tied to the market price for copper.
This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths



### **SILFLEX®** Control Cable

SYSTEMATIC TECHNOLOGY

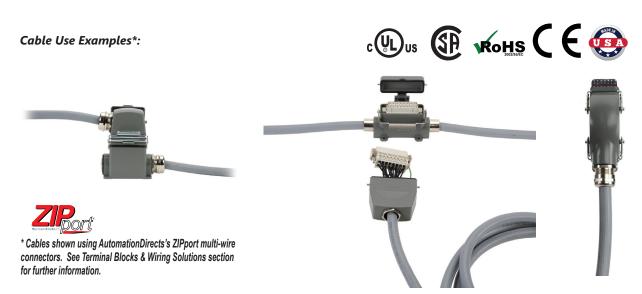


LUTZE SILFLEX® control cable from AutomationDirect is available in sizes from Features 20AWG to 10AWG with 3 to 41 unshielded and shielded conductors. Individual conductors are bare copper and stranded for flexibility, with black PVC/Nylon insulation and marked with numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has insulation that is green with a yellow stripe. Shielded versions include both an overall aluminum mylar foil tape with drain wire and tinned copper braid for maximum effectiveness against external electrical noise interference. The cable's outer jacket is PVC that is resistant to sunlight, oil, and moisture penetration, making these cables suitable for wet and dry locations as well as outdoors. Although not suitable for continuous flexing applications, these cables are ideal for both stationary and flexible applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements.

With multiple ratings and approvals, LUTZE SILFLEX®multi-conductor control cable has the versatility to meet a wide range of industrial applications. Given its Tray Cable Exposed Run rating, UL Type TC-ER or Power Limited Tray Cable Tray Cable, UL Type PLTC-ER, our cable can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/ or armor resulting in installation and maintenance savings. With the Machine Tool Wire rating, UL Type MTW, these cables meet NFPA 79, Electrical Standard for Industrial Machinery. Other ratings and approvals include Wind Turbine Tray Cable UL Type WTTC, Class 1 Division 2 Hazardous Locations and Direct Burial.

When combined with AutomationDirect ZIPport multi-wire connectors, our flexible multi-conductor cables provide an economical way to organize and simplify control wiring in facilities and during assembly of machinery. Cut to length in 1 foot increments with a 20 foot minimum length.

- 20AWG to 10AWG, 3 to 41 conductors including an equal size ground
- · Unshielded and shielded constructions
- Individual conductors have black PVC/Nylon insulation and are marked with identification numbers
- · Oil resistant PVC outer jacket
- Equal size green/yellow ground wire included
- Multiple ratings and approvals include Type TC-ER or PLTC-ER (eliminates need for conduit/armor), Type MTW (meets NFPA 79), WTTC, Class 1 Division 2, Direct Burial for 18AWG and larger, wet and dry location, oil resistant, sunlight resistant
- Flexibility for easy installation
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- · Made in the USA
- Ideal for use with ZIPport multi-wire connectors (as shown below)



<b>20 Gau</b>	ige SILFLEX® Control C	able Specificatio	ns (Unshielded)
Conductor Gauge & Stranding	20AWG 10/30 bare copper, Class K		MSHA Flame Rating
	300V Power Limited Tray Cable -		UL 13 Standard for Power-Limited Circuit Cables
	Exposed Run (PLTC-ER)	A P L .	UL 2250 Standard for Instrumentation Tray Cable
Voltage Rating	300V Instrumentation Tray Cable -	Applicable Standards	UL 1063 - Machine Tool Wiring (MTW)
	Exposed Run (ITC-ER)		UL 758 - AWM Style 20886
	600V MTW Flexing		CSA C22.2 No. 210 - CSA AWM I/II A/B
	1000V 80C AWM		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Approvals**	UL (E324458), CSA (91737)
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		
Conductor Colors	Black with white numbers and green/ yellow ground		WWW.LUTZE.COM PART# XXXXXXXX Silflex
Conductor Insulation	0.011 Inch, PVC + 0.005 Inch, NYLON		PLTC-ER AWGXX-XC - (UL)TYPE MTW "FLEXING" E324458 90C 600V OR PLTC-ER SUN RES OIL
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	RES II -40C FT4 OR AMW 20886 80C 1000V - LL91737 CSA AWM I/II A/B 90C 600V FT4 - P-07-
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		KA090006-MSHA CE ROHS CE-46 2123 MADE IN USA XXXXXX FT
Min. Bend Radius	4x diameter		
Flame Rating	FT4		
Oil Resistance	Oil Res I & II		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	20 Gauge SILFLEX® Control Cable (Unshielded)																		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot									
			_	_	District Ave.				TWO Z										
					LUIZE SILF	LEXT TRAY-ER(C) P	15												
A3082003-1	3														0.27	1.08	20	0.04	\$598q:
A3082004-1	4				47	0.29	1.16	20	0.05	\$598s:									
A3082005-1	5	200	10	16		0.31	1.24	20	0.06	\$;598t:									
A3082007-1	7	20	10	16		0.34	1.36	20	0.07	\$598u:									
A3082012-1	12	1			62	0.43	1.72	20	0.11	\$598v:									
A3082025-1	25	1				0.67	2.68	20	0.22	\$598k:									

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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**Wires Cords and Cables** 

<sup>\* \*</sup> See web store for maximum cut lengths

18 Gai	ige SILFLEX® Control C	able Specificatio	ons (Unshielded)			
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K		MSHA Flame Rating			
	600V 90C Tray Cable Exposed Run		UL 1277 - Type TC-ER			
	Joist Pull (TC-ER-JP)		UL 2277 - Type WTTC			
oltage Rating	1000 V 90C Wind Turbine Tray Cable		UL 1063 - Machine Tool Wiring (MTW)			
	(WTTC)		UL 1690 - Data Processing Cable (DP-1)			
	600V MTW Flexing	Applicable	UL 758 - AWM Style 20886			
	1000V 80C AWM	Standards	OL 730 - AVVIVI Style 20000			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B			
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant					
Conductor Colors	Black with white numbers and green/ yellow ground		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E324630)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		WWW.LUTZE.COM PART# XXXXXXXX Silflex			
Min. Bend Radius	4x diameter		AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V SUN RES DIR BUR OIL RES II OR DP-1 OR MTW			
Flame Rating	FT4	Sample Print Legend	"FLEXING" OR WTTC E324630 1000V 90C DRY OR			
Oil Resistance	Oil Res I & II		DP-1 OR ITC-ER OR PLTC-ER OR c(UL) TYPE CIC PVC/N CONTROL FT4 OR AWM 20886 80C 1000V - P07-KA090006-MSHA CE ROHS CE-46 2124 MADE IN USA XXXXXX FT			

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	18 Gauge SILFLEX® Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft) **	Approximate Weight (lb/ft)	Price per foot	
					LÜTZE SII	_FLEX* TRAY-ER(C)P	vc		One I	_	
<u> A3081803-1</u>	3					0.28	1.12	20	0.05	\$-5981:	
<u>A3081804-1</u>	4					0.31	1.24	20	0.06	\$598n:	
A3081805-1	5				45	0.33	1.32	20	0.07	\$598o:	
A3081807-1	7	10	40	00	45	0.36	1.44	20	0.09	\$598p:	
A3081809-1	9	18	16	20		0.41	1.64	20	0.11	\$598x:	
A3081812-1	12					0.46	1.84	20	0.14	\$598y:	
A3081818-1	18				45	0.55	2.20	20	0.21	\$598z:	
A3081825-1	25				60	0.64	2.56	20	0.25	\$;598]:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

16 Gau	ge SILFLEX® Control C	able Specification	ns (Unshielded)		
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K		MSHA Flame Rating		
	600V 90C Tray Cable Exposed Run		UL 1277 - Type TC-ER		
	Joist Pull (TC-ER-JP)		UL 2277 - Type WTTC		
oltage Rating	1000 V 90C Wind Turbine Tray Cable		UL 1063 - Machine Tool Wiring (MTW)		
	(WTTC)		UL 1690 - Data Processing Cable (DP-1)		
	600V MTW Flexing	Applicable	UL 758 - AWM Style 20886		
	1000V 80C AWM	Standards	CSA C22.2 No. 210 - CSA AWM I/II A/B		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		COA CZZ.Z NO. Z IU - COA AVVIVI I/II A/B		
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant				
Conductor Colors	Black with white numbers and green/ yellow ground		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E324630)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		WWW.LUTZE.COM PART# XXXXXXXX Silflex		
Min. Bend Radius	4x diameter		AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V SUN RES DIR BUR OIL RES II OR MTW "CLASS		
Flame Rating	FT4	Sample Print Legend	K" OR WTTC E324630 1000V 90C DRY OR DP-1		
Oil Resistance	Oil Res I & II	vampio i iin Logoilu	OR ITC-ER OR PLTC-ER OR c(UL) TYPE CIC PVC/N CONTROL FT4 OR AWM 20886 80C 10000V - P07-KA090006-MSHA CE ROHS CE-46 2124 MADE IN USA XXXXXX FT		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	16 Gauge SILFLEX® Control Cable (Unshielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
	_	_	_						Unit I	
					LUTZE SILFLEX	TRAY-ER(C) PVC			Oile 1	
A3081603-1	3					0.31	1.24	20	0.06	\$;598[:
A3081604-1	4				50	0.34	1.36	20	0.08	\$598_:
A3081605-1	5				50	0.37	1.48	20	0.09	\$598#:
A3081607-1	7	16	26	20		0.40	1.60	20	0.11	\$;598!:
A3081612-1	12	10	20	20	50	0.51	2.04	20	0.20	\$598?:
A3081618-1	18				65	0.62	2.48	20	0.28	\$;598,:
A3081625-1	25				00	0.72	2.88	20	0.35	\$5990:
A3081641-1	41				85	0.91	3.64	20	0.56	\$5991:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

14 Gau	ge SILFLEX® Control C	able Specification	ons (Unshielded)		
Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K		MSHA Flame Rating		
	600V 90C Tray Cable Exposed Run		UL 1277 - Type TC-ER		
	Joist Pull (TC-ER-JP)		UL 2277 - Type WTTC		
Voltage Rating	1000 V 90C Wind Turbine Tray Cable		UL 1063 - Machine Tool Wiring (MTW)		
Vollage hallily	(WTTC)		UL 1690 - Data Processing Cable (DP-1)		
	600V MTW Flexing	Applicable	UL 758 - AWM Style 20886		
	1000V 80C AWM	Standards	C22.2 NO. 230 - c(UL) Type TC		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		C22.2 NO. 230 - C(OL) Type TC		
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		Class I & II, Div. 2 336, 392, 725, 727 and Class I		
Conductor Colors	Black with white numbers and green/ yellow ground		Zone 2 per NEC 501, 502, 505		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E324630)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		WWW.LUTZE.COM PART# XXXXXXXX Silflex		
Cold Impact	-40°C (-40°F) per UL 1277		TRAY-ER AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V THHN-THWN SUN RES DIR BUR OIL		
Min. Bend Radius	4x diameter	Sample Print Legend	RES II OR MTW "CLASS K" OR WTTC E324630		
Flame Rating	FT4	,	1000V 90C DRY OR DP-1 OR ITC-ER OR PLTC-ER   OR c(UL) TYPE CIC PVC/N CONTROL FT4 OR		
Oil Resistance	Oil Res I & II		AWM 20886 80C 10000V - P07-KA090006-MSHA CE ROHS CE-46 2124 MADE IN USA XXXXXX FT		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	14 Gauge SILFLEX® Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
									Two 2	_	
					LÜTZE SILFLE	TRAY-ER(C) PVC			Une I	_	
A3081403-1	3					0.34	1.36	20	0.82	\$5992:	
A3081404-1	4	1,,		00	50	0.37	1.48	20	0.11	\$5993:	
A3081405-1	5	14	41	20		0.41	1.64	20	0.13	\$5994:	
A3081425-1	25	1			65	0.81	3.24	20	0.57	\$5995:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

12 Gaug	ge SILFLEX® Control Ca	able Specification	s (Unshielded)		
Conductor Gauge & Stranding	12AWG 65/30 bare copper, Class K		MSHA Flame Rating		
	600V 90C Tray Cable Exposed Run		UL 1277 - Type TC-ER		
	Joist Pull (TC-ER-JP)		UL 2277 - Type WTTC		
Voltage Rating	1000 V 90C Wind Turbine Tray Cable		UL 1063 - Machine Tool Wiring (MTW)		
Voltage nating	(WTTC)		UL 1690 - Data Processing Cable (DP-1)		
	600V MTW Flexing	Applicable	UL 758 - AWM Style 20886		
	1000V 80C AWM	Standards	C22.2 NO. 230 - c(UL) Type TC		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		022.2 NO. 230 - C(OL) Type TO		
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant "				
Conductor Colors	Black with white numbers and green/ yellow ground		Class I & II, Div. 2 336, 392, 725, 727 and Class Zone 2 per NEC 501, 502, 505		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON				
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc  @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E324630)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		WWW.LUTZE.COM PART# XXXXXXXX Silflex		
Cold Impact	-40°C (-40°F) per UL 1277		TRAY-ER AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V THHN-THWN SUN RES DIR BUR OIL		
Min. Bend Radius	4x diameter		RES II OR MTW "CLASS K" OR WTTC E324630		
Flame Rating	FT4	Sample Print Legend	1000V 90C DRY OR DP-1 OR ITC-ER OR PLTC-   ER OR c(UL) TYPE CIC PVC/N CONTROL FT4		
Oil Resistance	Oil Res I & II		OR AWM 20886 80C 10000V - P07-KA090006- MSHA CE ROHS CE-46 2124 MADE IN USA XXXXXX FT		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	12 Gauge SILFLEX® Control Cable (Unshielded)										
Part Number						Nominal O.D. (Inches ±10%)		Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
	LÜTZE SILFLEX' TRAY-ERIDIPVO										
A3081204-1	4	12	65	20	50	0.43	1.72	20	0.15	\$5997:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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**Wires Cords and Cables** 

<sup>\* \*</sup> See web store for maximum cut lengths

10 Gau	ge SILFLEX® Control C	able Specification	ons (Unshielded)		
Conductor Gauge & Stranding	10 AWG 105/30 bare copper, Class K		MSHA Flame Rating		
	600V 90C Tray Cable Exposed Run		UL 1277 - Type TC-ER		
	Joist Pull (TC-ER-JP)		UL 2277 - Type WTTC		
Voltage Rating	1000 V 90C Wind Turbine Tray Cable		UL 1063 - Machine Tool Wiring (MTW)		
	(WTTC)		UL 1690 - Data Processing Cable (DP-1)		
	600V MTW Flexing	Applicable	UL 758 - AWM Style 20886		
	1000V 80C AWM	Standards	C22 2 NO 220 c/III \ Time TC		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		C22.2 NO. 230 - c(UL) Type TC		
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant				
Conductor Colors	Black with white numbers and green/ yellow ground		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E324630)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		WWW.LUTZE.COM PART# XXXXXXXX Silflex		
Cold Impact	-40°C (-40°F) per UL 1277		TRAY-ER AWGXX-XC (UL) TYPE TC-ER-JP 90C		
Min. Bend Radius	4x diameter		600V THHN-THWN SUN RES DIR BUR OIL RES II		
g	FT4	Sample Print Legend	OR MTW "CLASS K" OR WTTC E324630 1000V 90C DRY OR DP-1 OR ITC-ER OR PLTC-ER OR		
	Oil Res I & II		90C DRY OR DP-1 OR TIC-ER OR PLTC-ER OR C(UL) TYPE CIC PVC/N CONTROL FT4 OR AWM 20886 80C 10000V - P07-KA090006-MSHA CE ROHS CE-46 2124 MADE IN USA XXXXXX FT		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	10 Gauge SILFLEX® Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	Conductors (includes AWG Strand Insulation Thickness (Mile)			Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
LÜTZE SILFLEX' TRAY-ERICIPVO											
A3081004-1	4	10	105	25	50	0.50	2.00	20	0.21	\$5999:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com Wires Cords and Cables tCBL-56

<sup>\* \*</sup> See web store for maximum cut lengths

20 Gai	uge SILFLEX® Control C	Cable Specificatio	ns (Shielded)		
Conductor Gauge & Stranding	20AWG 10/30 bare copper, Class K		MSHA Flame Rating		
	300V Power Limited Tray Cable - Exposed Run (PLTC-ER)		UL 1277 - Type TC-ER		
Voltage Rating	300V Instrumentation Tray Cable - Exposed Run (ITC-ER)		UL 2277 - Type WTTC		
	600V MTW Flexing		UL 1063 - Machine Tool Wiring (MTW)		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	. Applicable	UL 1690 - Data Processing Cable (DP-1)		
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant "	Standards	UL 758 - AWM Style 20886		
Conductor Colors	Black with white numbers and green/ yellow ground		CSA C22.2 No. 210 - CSA AWM I/II A/B		
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 20 AWG drain		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		25.10 2 50. 1120 00 1, 002, 000		
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc  @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E324458), CSA (91737)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		WWW.LUTZE.COM PART# XXXXXXXX		
Cold Impact	-40°C (-40°F) per UL 1277		CONTROL PLTC-ER (C) AWGXX-XC - (UL) TYPE MTW "FLEXING" E324458 90C 600V OR		
Min. Bend Radius	4x diameter	Sample Print Legend	PLTC-ER SUN RES OIL RES II -40C FT4 OR		
Flame Rating	FT4		AMW 20886 80C 1000V - LL91737 CSA AWM I/II A/B 90C 600V FT4 - P-07-KA090006-MSHA CE		
Oil Resistance	Oil Res I & II		ROHS CE-46 2123 MADE IN USA XXXXXX FT		

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	20 Gauge SILFLEX® Control Cable (Shielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
					LOTZE SILE	LEX* TRAY-ER(C) PV	IC .		One I	-	
<u>A3092003-1</u>	3				47	0.26	1.12	20	0.04	\$599a:	
A3092004-1	4					0.28	1.24	20	0.04	\$599b:	
A3092005-1	5		40	40		0.30	1.32	20	0.05	\$599c:	
A3092007-1	7	20	10	16		0.33	1.44	20	0.06	\$599d:	
A3092012-1	12				62	0.45	1.84	20	0.11	\$599e:	
A3092025-1	25					0.60	2.56	20	0.20	\$;599f:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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**Wires Cords and Cables** 

<sup>\* \*</sup> See web store for maximum cut lengths

18 Ga	uge SILFLEX® Control	Cable Specificat	ions (Shielded)		
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K		MSHA Flame Rating		
	600V 90C Tray Cable Exposed Run Joist Pull (TC-ER-JP)		UL 1277 - Type TC-ER		
Voltage Rating	1000 V 90C Wind Turbine Tray Cable (WTTC)		UL 2277 - Type WTTC		
	600V MTW Flexing	Applicable	III 1062 Machine Teel Wiring (MTM)		
	1000V (UL AWM)	Standards	UL 1063 - Machine Tool Wiring (MTW)		
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		Class I & II, Div. 2 336, 392, 725, 727 and Class		
Conductor Colors	Black with white numbers and green/ yellow ground		Zone 2 per NEC 501, 502, 505		
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 20 AWG drain	Approvals**	UL (E324630)		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		WWW.LUTZE.COM PART# XXXXXXXX Silflex		
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		(C) AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V SUN RES DIR BUR OIL RES II OR DP-1 OR		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	Sample Print Legend	MTW "FLEXING" OR WTTC E324630 1000V 90C		
Min. Bend Radius	6x diameter		DRY ITC-ER OR PLTC-ER OR c(UL) TYPE CIC CONTROL PVC/N FT4 SHIELDED OR AWM 20886		
Flame Rating	FT4		80C 10000V - P07-KA090006-MSHA CE ROHS		
Oil Resistance	Oil Res I & II		CE-46 2124 MADE IN USA XXXXXX FT		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		18	Gaug	e SILFLEX	® Control	Cable (	Shielded	<b>)</b>		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
					LOTZE SILFLEX TR				TWO 2	
					EUIZE SILFLEX IN	AT-ENWPYC 3				
A3091803-1	3					0.30	3.60	20	0.06	\$599g:
A3091804-1	4					0.33	3.96	20	0.07	\$599h:
A3091805-1	5	10	10	20	47	0.35	4.20	20	0.08	\$-599i:
A3091807-1	7	18	16	20		0.38	4.56	20	0.10	\$-599j:
A3091812-1	12	1				0.47	5.64	20	0.16	\$599k:
A3091825-1	25	1			62	0.66	7.92	20	0.31	\$-5991:

<sup>\*</sup> Installed bend radius ≥ 6x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

16 Ga	uge SILFLEX® Control	Cable Specificat	ions (Shielded)			
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K		MSHA Flame Rating			
	600V 90C Tray Cable Exposed Run Joist Pull (TC-ER-JP)		UL 1277 - Type TC-ER			
Voltage Rating	1000 V 90C Wind Turbine Tray Cable (WTTC)		UL 2277 - Type WTTC			
On and the Towns and the	600V MTW Flexing	A P I.I.	UL 1063 - Machine Tool Wiring (MTW)			
	1000V UL AWM	Applicable Standards	OL 1063 - Machine 1001 Willing (MTW)			
	4000 to 0000 ( 4000 to 40400)	Otanaarao	UL 1690 - Data Processing Cable (DP-1)			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 758 - AWM Style 20886			
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		C22.2 NO. 230 - c(UL) Type TC			
	Overall aluminized polyester foil shield		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505			
Shield	100% coverage & tinned copper braid 85% coverage with 18 AWG drain	Approvals**	UL (E324630)			
Conductor Colors	Black with white numbers and green/ yellow ground		WWW.LUTZE.COM PART# XXXXXXXX Silflex			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		(C) AWGXX-XC (UL) TYPE TC-ER-JP 90C			
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	600V SUN RES DIR BUR OIL RES II OR DP-1 OR MTW "CLASS K" OR WTTC E324630 1000V 90C			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		DRY ITC-ER OR PLTC-ER OR c(UL) TYPE CIC CONTROL PVC/N FT4 SHIELDED OR AWM 20886			
Min. Bend Radius	6x diameter		80C 10000V - P07-KA090006-MSHA CE ROHS			
Flame Rating	FT4		CE-46 2124 MADE IN USA XXXXXX FT			
Oil Resistance	Oil Res I & II					

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	16 Gauge SILFLEX® Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG		Overall Conductor Insulation Thickness (Mils)		Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Cut Length	Approximate Weight (lb/ft)	Price per foot
					ZE SILFLEX TRAY-ER(C)				Two Z	
				LUT	ZE SILFLEX TRAY-ER(C)	PVC NXXX			Old .	
A3091603-1	3					0.33	3.96	20	0.08	\$599n:
A3091604-1	4				47	0.36	4.32	20	0.10	\$599o:
A3091605-1	5	16	26	20	47	0.39	4.68	20	0.11	\$599p:
A3091607-1	7					0.42	5.04	20	0.14	\$599q:
A3091625-1	25				76	0.75	9.00	20	0.41	\$599s:

<sup>\*</sup> Installed bend radius ≥ 6x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

14 Ga	uge SILFLEX® Control	Cable Specificat	ions (Shielded)
Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K		MSHA Flame Rating
	600V 90C Tray Cable Exposed Run Joist Pull (TC-ER-JP)		UL 1277 - Type TC-ER
Voltage Rating	1000 V 90C Wind Turbine Tray Cable (WTTC)		UL 2277 - Type WTTC
	600V MTW Flexing	Applicable	UL 1063 - Machine Tool Wiring (MTW)
	1000V UL AWM	Standards	OL 1003 - Machine 1001 Willing (MTW)
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1690 - Data Processing Cable (DP-1)
Jacket Material	Flexible Gray (PVC) - sunlight & oil resistant		UL 758 - AWM Style 20886
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid		C22.2 NO. 230 - c(UL) Type TC  Class I & II, Div. 2 336, 392, 725, 727 and Class I  Zone 2 per NEC 501, 502, 505
	85% coverage with 16 AWG drain	Approvals**	UL (E324630)
Conductor Colors	Black with white numbers and green/ yellow ground		WWW.LUTZE.COM PART# XXXXXXXX Silflex (C)
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V THHN-THWN SUN RES DIR BUR OIL RES II OR
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	DP-1 OR MTW "CLASS K" OR WTTC E324630 1000V 90C DRY ITC-ER OR PLTC-ER OR c(UL)
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		TYPE CIC CONTROL PVC/N FT4 SHIELDED OR
Min. Bend Radius	6x diameter		AWM 20886 80C 10000V - P07-KA090006-MSHA CE ROHS CE-46 2124 MADE IN USA XXXXXX FT
Flame Rating	FT4		OL NOTIO SE TO 2124 WINDE IN GONZOVXXXI I
Oil Resistance	Oil Res I & II		

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		14	Gaug	e SILFLE	<b>K® Control</b>	Cable	(Shielde	d)		
Part Number	Number of Conductors (includes ground)	AWG		Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
						CYPVC			Two Z	
				L	ITZE SILFLEX TRAY-ER	C) PVC			One I	
A3091403-1	3	14	41	20	47	0.36	4.32	20	0.10	\$;599t:
A3091404-1	4	14	41	20	47	0.40	4.80	20	0.13	\$599u:

<sup>\*</sup> Installed bend radius ≥ 6x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

12 Ga	uge SILFLEX® Control	Cable Specificat	ions (Shielded)				
Conductor Gauge & Stranding	12AWG 65/30 bare copper, Class K		MSHA Flame Rating				
	600V 90C Tray Cable Exposed Run Joist Pull (TC-ER-JP)		UL 1277 - Type TC-ER				
Voltage Rating	1000 V 90C Wind Turbine Tray Cable (WTTC)		UL 2277 - Type WTTC				
	600V MTW Flexing	Applicable					
	1000V UL AWM	Standards	UL 1063 - Machine Tool Wiring (MTW)				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1690 - Data Processing Cable (DP-1)				
lookat Matarial	Flexible Gray (PVC) - sunlight & oil		UL 758 - AWM Style 20886				
Jacket Material	resistant		C22.2 NO. 230 - c(UL) Type TC				
Shield	Overall aluminized polyester foil shield		Class I & II, Div. 2 336, 392, 725, 727 and Class I Zone 2 per NEC 501, 502, 505				
	100% coverage & tinned copper braid 85% coverage with 14 AWG drain	Approvals**	UL (E324630)				
Conductor Colors	Black with white numbers and green/ yellow ground		WWW.LUTZE.COM PART# XXXXXXXX Silflex (C)				
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		AWGXX-XC (UL) TYPE TC-ER-JP 90C 600V				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	THHN-THWN SUN RES DIR BUR OIL RES II OR DP-1 OR MTW "CLASS K" OR WTTC E324630 1000V 90C DRY ITC-ER OR PLTC-ER OR c(UL)				
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	-	TYPE CIC CONTROL PVC/N FT4 SHIELDED OR				
Min. Bend Radius	6x diameter		AWM 20886 80C 10000V - P07-KA090006-MSHA				
Flame Rating	FT4		CE ROHS CE-46 2124 MADE IN USA XXXXXX FT				
Oil Resistance	Oil Res I & II						

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	12 Gauge SILFLEX® Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG		Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft) **	Approximate Weight (lb/ft)	Price per foot
_				LOTZE	SILFLEX TRAY-ER(OP)	C			Three 3	
A3091204-1	4	12	65	25	47	0.44	5.28	20	0.18	\$599v:

<sup>\*</sup> Installed bend radius ≥ 6x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths



## **SILFLEX® FBP Control Cable for Food & Beverage Applications**



#### **Overview**

LUTZE SILFLEX FBP control cable from AutomationDirect is available with 20AWG to 12AWG size conductors in shielded or unshielded versions. LUTZE SILFLEX® FBP cables are the ultimate solution to the challenges that today's food and beverage machine builders and processing companies face. All LUTZE SILFLEX® FBP cables meet both UL and FDA requirements, streamlining inspections and reducing the need for exceptions to 21 CFR. LUTZE's patent-pending food safe design reduces cabling as a contamination risk. The resistance to commonly used cleaning agents was third party evaluated by Ecolab. Reduced cable diameters allow for easy routing and installation in conduit. Cables may be run without conduit in some areas due to the external wiring approval, washdown certification, and food-contact rating. Cut to length in 1-foot increments with a 20-foot minimum length.



#### **Features**

- 20AWG to 12AWG, including an equal size ground
- · Unshielded or shielded constructions
- Safe for food contact per 21 CFR
- Used in contact and splash zones for food and beverage applications per FDA guidelines
- Phthalate free jacket
- Certified by Ecolab for resistance to the most common cleaning agents
- Resistant to oils and fats that are common to food processing
- Reduced diameter design allows for easy routing and installation in conduit
- Flexible stranding makes installation and routing easy
- Low capacitance insulation for control cables
- · Compliant with California Proposition 65
- · Cut to length in 1-foot increments
- · Low 20-foot minimum length
- · Made in the USA













20	Gauge SILFLEX® FBP C	ontrol Cable Spe	cifications (Unshielded)				
Conductor Gauge & Stranding	20AWG 10/30 bare copper, Class K		FDA 21 CFR 175.300				
		Annlinahla Standarda	NFPA 79 12.9 Compliant				
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	UL 758 - AWM Style 20886				
			CSA C22.2 No. 210 - CSA AWM I/II A/B				
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Approvals*	UL (E197090)				
Jacket Material	Black Phthalate free proprietary thermoplastic polymer						
Conductor Colors	Black with white numbers and green/ yellow ground						
Conductor Insulation	Polypropylene						
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	WWW.LUTZE.COM PART# XXXXXXXX Siflex FBP E197090 cRUus AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE				
UL Temperature Rating	90°C (194°F)		FREE JACKET CE-46 2027 MADE IN USA XXXXXX FT				
Min. Bend Radius	4x diameter						
Flame Rating	UL 1581						

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

AWG	<b>Strand</b> TZE SILFLE	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
LÜ	TZE SILFLE	EX* FPB		Three 3	1wo 2			
	122 012122							
		1						
1				0.203	0.812	20	0.03	\$-5j2c:
			20	0.219	0.876	20	0.03	\$-5j1e:
			32	0.237	0.948	20	0.04	\$;-5j1f:
20	10	13		0.255	1.020	20	0.05	\$-5j1g:
				0.339	1.356	20	0.08	\$-5j1h:
1			38	0.391	1.564	20	0.11	\$-5j2d:
				0.448	1.792	20	0.14	\$-5j2e:
	20 meter cut lengtl	meter		38	20 10 13 32 0.237 0.255 0.339 38 0.391 0.448	20 10 13 0.237 0.948 0.255 1.020 0.339 1.356 0.391 1.564 0.448 1.792	32 0.237 0.948 20 0.255 1.020 20 0.339 1.356 20 0.391 1.564 20 0.448 1.792 20	20     10     13     0.237     0.948     20     0.04       0.255     1.020     20     0.05       0.339     1.356     20     0.08       0.391     1.564     20     0.11       0.448     1.792     20     0.14







18 Gauge SILFLEX <sup>®</sup> FBP Control Cable Specifications (Unshielded)									
Oanduster Oanna 9 Otrandian	40.4040.40/20.1		FDA 21 CFR 175.300						
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K	Applicable Standards	NFPA 79 12.9 Compliant						
Voltage Rating	1000V 90C UL AWM 20886	Appricable otalicales	UL 758 - AWM Style 20886						
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B						
Jacket Material	Black Phthalate free proprietary thermoplastic polymer	Approvals**	UL (E197090)						
Conductor Colors	Black with white numbers and green/ yellow ground								
Conductor Insulation	Polypropylene								
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		WWW.LUTZE.COM PART# XXXXXXXX Siffex FBP E197090 cRUus AWM 90C 1000V AMW  /II A/B 90C 1000V FT1 CE						
UL Temperature Rating	90°C (194°F)	Sample Print Legend	ROHS PHTHALATE FREE JACKET CE-46 2027 MADE IN USA						
Min. Bend Radius	4x diameter		XXXXXX FT						
Flame Rating	UL 1581								

		- 1	8 Gau	ge SILFLEX	® FBP Cont	rol Cable (	Unshielde	d)		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ± 10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
					LOTZ	E SILFLEX FPB		Counters 17 Peo 3 Two 1 Two 2		
<u>A6011803-1</u>	3					0.229	0.916	20	0.04	\$5j1i:
<u>A6011804-1</u>	4				32	0.248	0.992	20	0.05	\$5j1j:
A6011805-1	5					0.269	1.076	20	0.06	\$-5j1k:
A6011807-1	7	40	40	40		0.303	1.212	20	0.08	\$5j1I:
A6011809-1	9	18	16	13		0.349	1.396	20	0.10	\$-5j1n:
A6011812-1	12				38	0.389	1.556	20	0.12	\$-5j1o:
A6011818-1	18					0.448	1.792	20	0.18	\$;-5j2f:
A6011825-1	25	1				0.539	2.156	20	0.24	\$-5j1p:

<sup>\*</sup>See webstore for maximum cut lengths







16 Ga	uge SILFLEX <sup>®</sup> FBP Co	ntrol Cable Specit	ications (Unshielded)				
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K		FDA 21 CFR 175.300				
		Applicable Standards	NFPA 79 12.9 Compliant				
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	UL 758 - AWM Style 20886				
			CSA C22.2 No. 210 - CSA AWM I/II A/B				
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Approvals**	UL (E197090)				
Jacket Material	Black Phthalate free proprietary thermoplastic polymer						
Conductor Colors	Black with white numbers and green/ yellow ground		WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090				
Conductor Insulation	Polypropylene						
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	cRUus AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE FREE JACKET CE-46 2027 MADE IN USA				
UL Temperature Rating	90°C (194°F)		XXXXXX FT				
Min. Bend Radius	4x diameter						
Flame Rating	UL 1581						

		1	6 Gau	ge SILFLEX	® FBP Cont	rol Cable (	Unshielde	d)		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ± 10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
					LÜTZE SILFLEX FPB			Une I		
<u>A6011603-1</u>	3					0.253	1.012	20	0.05	\$-5j1q:
A6011604-1	4				32	0.274	1.096	20	0.06	\$-5j1s:
<u>A6011605-1</u>	5					0.298	1.192	20	0.07	\$;-5j1t:
<u>A6011607-1</u>	7	16	26	13	38	0.336	1.344	20	0.1	\$-5j1u:
A6011612-1	12				42	0.443	1.772	20	0.16	\$-5j1v:
<u>A6011618-1</u>	18				42	0.514	2.056	20	0.22	\$-5j1x:
<u>A6011625-1</u>	25				48	0.604	2.416	20	0.31	\$-5j1y:

\*See webstore for maximum cut lengths



Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K		FDA 21 CFR 175.300		
		Applicable Standards	NFPA 79 12.9 Compliant		
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	UL 758 - AWM Style 20886		
			CSA C22.2 No. 210 - CSA AWM I/II A/B		
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Approvals*	UL (E197090)		
Jacket Material	Black Phthalate free proprietary thermoplastic polymer				
Conductor Colors	Black with white numbers and green/ yellow ground				
Conductor Insulation	Polypropylene				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	WWW.LUTZE.COM PART# XXXXXXXX Siffex FBP E197090 cRUus AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE		
UL Temperature Rating	90°C (194°F)		FREE JACKET CE-46 2027 MADE IN USA XXXXXX FT		
Min. Bend Radius	4x diameter				
Flame Rating	UL 1581				

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
				LOTZE SIL	FLEX' FPB		Une	Z process		
A6011403-1	3					0.310	1.240	20	0.07	¢ ε:Ω~.
	3				38					\$-5j2g:
<u> 46011404-1</u>	4					0.336	1.344	20	0.09	\$-5j1z:
A6011405-1	5	14	41	16		0.367	1.468	20	0.11	\$;-5j1]:
A6011407-1	7				42	0.419	1.676	20	0.15	\$;-5j1[:
A6011412-1	12					0.542	2.168	20	0.24	\$-5j2h:

www.automationdirect.com Wires Cords and Cables tCBL-66

tCBL-67



# 12 Gauge SILFLEX® FBP Food and Beverage Rated Control Cable (Unshielded)

12 (	Gauge SILFLEX® FBP C	ontrol Cable Spe	cifications (Unshielded)			
Conductor Gauge & Stranding	12AWG 65/30 bare copper, Class K		FDA 21 CFR 175.300			
		Applicable Standards	NFPA 79 12.9 Compliant			
Voltage Rating	1000V 90C UL AWM 20886	Аррисаріе отапиатиз	UL 758 - AWM Style 20886			
			CSA C22.2 No. 210 - CSA AWM I/II A/B			
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Approvals*	UL (E197090)			
Jacket Material	Black Phthalate free proprietary thermoplastic polymer					
Conductor Colors	Black with white numbers and green/ yellow ground					
Conductor Insulation	Polypropylene					
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	WWW.LUTZE.COM PART# XXXXXXXX Siflex FBP E197090 cRUus AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE			
UL Temperature Rating	90°C (194°F)		FREE JACKET CE-46 2027 MADE IN USA XXXXXX FT			
Min. Bend Radius	4x diameter					
Flame Rating	UI 1581					

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	12 Gauge SILFLEX® FBP Control Cable (Unshielded)											
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
					LÜTZE SILFLI	EX. EAB		Four t				
A6011204-1	4	40	CF.	40	40	0.410	1.640	20	0.14	\$-5j1_:		
A6011205-1	5	12	12 65	16	48	0.447	1.788	20	0.17	\$5j2i:		
* Installed bend r * * See web store			s									

www.automationdirect.com Wires Cords and Cables



20	Gauge SILFLEX® FBP	Control Cable Sp	ecifications (Shielded)			
Conductor Gauge & Stranding	20AWG 10/30 bare copper, Class K		FDA 21 CFR 175.300			
			1 DAZI OTA 175.500			
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	NFPA 79 12.9 Compliant			
			UL 758 - AWM Style 20886			
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B			
Jacket Material	Black Phthalate free proprietary thermoplastic polymer	Approvals*	UL (E197090)			
Conductor Colors	Black with white numbers and green/ yellow ground					
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 75% coverage with 20 AWG drain					
Conductor Insulation	Polypropylene		WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090 cRUus			
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE FREE JACKET CE-46			
UL Temperature Rating	90°C (194°F)		2027 MADE IN USA XXXXXX FT			
Min. Bend Radius	6x diameter					
Flame Rating	UL 1581					

To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			20 Gai	ige SILFLE)	(® FBP Con	trol Cable	(Shielded)			
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
					LOTZE SI	LFLEX" FPB		Une I	name (	
<u>A6022003-1</u>	3			13	32	0.233	0.932	20	0.04	\$5j2j:
A6022004-1	4					0.248	0.992	20	0.05	\$-5j1#:
A6022005-1	5					0.266	1.064	20	0.05	\$;-5j1!:
A6022007-1	7	20	10			0.285	1.14	20	0.06	\$-5j1?:
A6022012-1	12				38	0.369	1.476	20	0.1	\$;-5j1,:
A6022018-1	18				38	0.421	1.684	20	0.13	\$-5j2k:
A6022025-1	25					0.486	1.944	20	0.17	\$5j2l:
* Installed bend ra * * See web store			s							

www.automationdirect.com **Wires Cords and Cables** tCBL-68



18	Gauge SILFLEX® FBP	Control Cable Sp	ecifications (Shielded)
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K		FDA 21 CFR 175.300
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	NFPA 79 12.9 Compliant UL 758 - AWM Style 20886
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B
Jacket Material	Black Phthalate free proprietary thermoplastic polymer	Approvals*	UL (E197090)
Conductor Colors	Black with white numbers and green/ yellow ground		
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 75% coverage with 20 AWG drain		
Conductor Insulation	Polypropylene		WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090 cRUus
	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE FREE JACKET CE-46
UL Temperature Rating	90°C (194°F)		2027 MADE IN USA XXXXXX FT
Min. Bend Radius	6x diameter		
Flame Rating	UL 1581		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
				LÜ	TZE SILFLEX" FPB		Y	TWO Z		
A6021803-1	3					0.259	1.036	20	0.05	\$-5j2n:
A6021804-1	4				32	0.289	1.156	20	0.07	\$-5j20:
A6021805-1	5					0.310	1.240	20	0.08	\$-5j21:
A6021807-1	7	18	16	13		0.333	1.332	20	0.10	\$-5j22:
A6021812-1	12				00	0.427	1.708	20	0.15	\$-5j23:
A6021818-1	18				38	0.489	1.956	20	0.20	\$-5j2o:
A6021825-1	25					0.569	2.276	20	0.27	\$-5j2p:

www.automationdirect.com **Wires Cords and Cables** tCBL-69

tCBL-70



# 16 Gauge SILFLEX® FBP Food and Beverage Rated Control Cable (Shielded)

16	Gauge SILFLEX® FBP	Control Cable Sp	ecifications (Shielded)			
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K		FDA 21 CFR 175.300			
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	NFPA 79 12.9 Compliant UL 758 - AWM Style 20886			
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B			
Jacket Material	Black Phthalate free proprietary thermoplastic polymer	Approvals*	UL (E197090)			
Conductor Colors	Black with white numbers and green/ yellow ground					
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 75% coverage with 18 AWG drain	per braid				
Conductor Insulation	Polypropylene		WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090 cRUus			
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE FREE JACKET CE-46			
UL Temperature Rating	90°C (194°F)		2027 MADE IN USA XXXXXX FT			
Min. Bend Radius	6x diameter					
Flame Rating	UL 1581					

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ± 10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
				LÜTZE SILFLEX	FPB =		Four 4			
16001600 1	2					0.000	4.400	20	0.07	ф г:04.
<u>46021603-1</u>	3	1				0.282	1.128	20	0.07	\$-5j24:
<u> 46021604-1</u>	4				32	0.316	1.264	20	0.08	\$-5j25:
<u> 46021605-1</u>	5					0.340	1.360	20	0.10	\$-5j2q:
46021607-1	7	16	26	13	38	0.366	1.464	20	0.12	\$-5j26:
<u>46021612-1</u>	12				40	0.472	1.888	20	0.19	\$-5j27:
<u>46021618-1</u>	18	1			42	0.556	2.224	20	0.26	\$-5j28:
A6021625-1	25	1			48	0.639	2.556	20	0.35	\$-5j29:

www.automationdirect.com Wires Cords and Cables



14	Gauge SILFLEX® FBP	Control Cable Sp	ecifications (Shielded)
Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K		FDA 21 CFR 175 300
			T DAZT GIR 173.300
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	NFPA 79 12.9 Compliant
			UL 758 - AWM Style 20886
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B
Jacket Material	Black Phthalate free proprietary thermoplastic polymer	Approvals*	UL (E197090)
Conductor Colors	Black with white numbers and green/ yellow ground		
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 75% coverage with 16 AWG drain		
Conductor Insulation	Polypropylene		WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090 cRUus
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE FREE JACKET CE-46
UL Temperature Rating	90°C (194°F)		2027 MADE IN USA XXXXXX FT
Min. Bend Radius	6x diameter		
Flame Rating	UL 1581		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		•	14 Gau	ige SILFLE)	(® FBP Con	trol Cable	(Shielded			
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
				LÖTZE SILFL	EX FPB		Une I			
A6021403-1	3					0.348	1.392	20	0.10	\$-5j2s:
A6021404-1	4				38	0.374	1.496	20	0.12	\$-5j2a:
A6021405-1	5	14	41	16		0.405	1.620	20	0.14	\$-5j2b:
A6021407-1	7				42	0.449	1.796	20	0.18	\$;-5j2t:
A6021412-1	12					0.572	2.288	20	0.28	\$-5j2u:
* Installed bend ra * * See web store			s		'					

www.automationdirect.com **Wires Cords and Cables** tCBL-71



12	Gauge SILFLEX® FBP	Control Cable Sp	ecinications (Snieided)
Conductor Gauge & Stranding	12AWG /30 bare copper, Class K		FDA 21 CFR 175 300
			1 DAZI OTA 175.500
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	NFPA 79 12.9 Compliant
			UL 758 - AWM Style 20886
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)		CSA C22.2 No. 210 - CSA AWM I/II A/B
Jacket Material	Black Phthalate free proprietary thermoplastic polymer	Approvals*	UL (E197090)
Conductor Colors	Black with white numbers and green/ yellow ground		
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 75% coverage with 14 AWG drain		
Conductor Insulation	Polypropylene		WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090 cRUus
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE FREE JACKET CE-46
UL Temperature Rating	90°C (194°F)		2027 MADE IN USA XXXXXX FT
Min. Bend Radius	6x diameter		
Flame Rating	UL 1581		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			12 Gau	ige SILFLE)	(® FBP Con	trol Cable	(Shielded			
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
			LOTZE S	ILFLEX FP8		Three 3	•			
A6021204-1	4	40	05	16	40	0.439	1.756	20	0.17	\$-5j2v:
A6021205-1	5	12	65		48	0.476	1.904	20	0.20	\$-5j2x:
* Installed bend r * * See web store			s							

<u>www.automationdirect.com</u> Wires Cords and Cables tCBL-72



### ZE 😭 10 Gauge SILFLEX® FBP Food and **Beverage Rated Control Cable** (Shielded)

10	Gauge SILFLEX® FBP	Control Cable Sp	ecifications (Shielded)		
Conductor Gauge & Stranding	10AWG 105/30 bare copper, Class K		FDA 21 CFR 175.300		
		Applicable Standards	NFPA 79 12.9 Compliant		
Voltage Rating	1000V 90C UL AWM 20886	Applicable Standards	UL 758 - AWM Style 20886		
		(	CSA C22.2 No. 210 - CSA AWM I/II A/B		
Static Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Approvals*	UL (E197090)		
Jacket Material	Black Phthalate free proprietary thermoplastic polymer				
Conductor Colors	Black with white numbers and green/ yellow ground				
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 75% coverage with 12 AWG drain				
Conductor Insulation	Polypropylene	Sample Print Legend	WWW.LUTZE.COM PART# XXXXXXXX Silflex FBP E197090 cRUus AWM 90C 1000V AMW I/II A/B 90C 1000V FT1 CE ROHS PHTHALATE		
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Cample I IIII Legend	FREE JACKET CE-46 2027 MADE IN USA XXXXXX FT		
UL Temperature Rating	90°C (194°F)				
Min. Bend Radius	6x diameter				
Flame Rating	UL 1581				

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			10 Gai	ige SILFLE)	(® FBP Con	trol Cable	(Shielded			
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
			LOTZE S	ILFLEX" FPB		Three 3	-			
<u>A6021004-1</u>	4	10	105	16	48	0.54	2.16	20	0.38	\$-5j2y:
* Installed bend * * See web store			s		ı			ı	1	

www.automationdirect.com **Wires Cords and Cables** tCBL-73















### **Overview**

LUTZE® SILFLEX FBP motor cable from AutomationDirect is available with 18 AWG to 10 AWG size shielded conductors. LUTZE SILFLEX® FBP M cables are the ultimate solution to the challenges that today's food and beverage machine builders and processing companies face. All LUTZE SILFLEX® FBP M cables meet both UL and FDA requirements, streamlining inspections and reducing the need for exceptions to 21 CFR. LUTZE's patented foodsafe design reduces cabling as a contamination risk. The resistance to commonly used cleaning agents was third-party evaluated by ECOLAB. Reduced cable diameters allow for easy routing and installation in conduit. Cables may be run without conduit in some areas due to the external wiring approval, washdown certification, and food contact rating. Cut to length in 1ft increments with a 20ft minimum length.





### **Features**

- 18 AWG to 10 AWG, including an equal size ground
- REACH 1907/2006/EC compliant
- Safe for food contact per 21 CFR 175.300
- Used in contact and splash zones for food and beverage applications per FDA guidelines
- · Flame retardant
- Phthalate-free jacket
- · Talc- and silicone-free
- · Non-wicking fillers
- Certified by Ecolab for resistance to the most common cleaning
- Resistant to oils and fats that are common to food processing
- · Reduced diameter design allows for easy routing and installation in conduit
- Flexible stranding makes installation and routing easy
- · Easy stripping for fast installation
- Low capacitance insulation for motor cables
- High protection against electromagnetic interferences (EMI)
- · Cut to length in 1-foot increments
- · Low 20-foot minimum length
- Made in the USA

	SILFLEX® FBP M Motor Cable Specifications									
Part Number	Nom. Capacitance Conductor to Conductor (pF/ft.)	Nom. Capacitance Conductor to Shield (pF/ft.)	Nom. Conductor DC Resistance @ 20°C (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance@ 20°C (Ohm/1000 ft.)	Impedance (ohms)	Max Operating Voltage				
<u>A6061804-1</u>	21.9	38.4	5.7	3.2	90.2	1000V				
<u>A6061604-1</u>	23.8	43.3	4.1	3.51	81.6	1000V				
A6061404-1	25.7	42.7	2.6	2.61	69.1	1000V				
<u>A6061204-1</u>	29	52.5	1.6	2.44	48.6	1000V				
<u>A6061004-1</u>	29.2	48.32	1.1	1.23	40.9	1000V				

www.automationdirect.com **Wires Cords and Cables** tCBL-74

# SILFLEX®M FBP Motor Cable for A U T O M A T I O N Food & Beverage Applications

Conductor Stranding	30AWG tinned copper, Class K		FDA 21 CFR 175.300			
Voltage Deting	1000V 90C UL AWM 20886	Applicable Standards	NFPA 79 12.9 Compliant			
Voltage Rating	1000V 90C OL AVVIVI 20000		UL 758 - AWM Style 20886			
Static Operating Temperature	-40 to 90°C (-40 to 194°F)	Approvals*	URus, CE, RoHs, REACH, TSCA			
Jacket Material	TPE					
Conductor Insulation Colors	Black with white numbers and green/ yellow ground					
Shield	Overall foil and braid shielded					
Conductor Insulation	Cross-linked polyethylene (XLPE)		WWW.LUTZE.COM PART# A606XXXX SILFLEX® FBP SHIELDED AWGXX-4C – E197090 cURus AWM 20886 90°C 600V AWM I/II A/B			
Conductor Markings	#"1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Sample Print Legend	90°C 1000V CE ROHS PHTHALATE FREE JACKET CE-46 1522 xxxxFT			
UL Temperature Rating	90°C (194°F)	_				
Min. Bend Radius	6x diameter					
Flame Rating	UL 1581					

AU FLEVO EDD MALL O LL O W. W. (O U.)	
SILFLEX® FRP M Motor Cable Specifications (Cont'd)	

To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

		•	DILFLEAG	FBP M Mo	for canif 9	Jecilication	is (Guilt u			
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
1 0235	SILFLEX® M F	an.			Three	23 (wo 2				
COLEE	. SILTLENGT T	07				. Mai				
A6061804-1		18	19			0.112	0.67		0.042	ФСI-07-
									0.0.2	\$6k07:
A6061604-1		16	26		E0	0.123	0.74		0.054	\$6k07:
A6061604-1 A6061404-1	4	16 14	26 41	32	50	0.123 0.138	0.74 0.83	20		· ·
	4		-	32	50	1 1	-	20	0.054	\$6k08:

<sup>\*</sup> Installed bend radius ≥ 6x diameter



<sup>\*</sup> See web store for maximum cut lengths

## **HELUKABEL®** Traycontrol® 600



Helukabel Traycontrol® 600V from AutomationDirect is available in sizes from 20AWG to 4AWG with 2 to 41 unshielded conductors. Individual conductors are bare copper and stranded for flexibility, with black PVC/Nylon insulation and marked with numbers for easy identification. A convenient insulated ground conductor, green with a yellow stripe, is included in the conductor count of each cable with conductor counts higher than two.

Helukabel Traycontrol 600V PVC is offered with a specially formulated PVC jacket. The PVC outer jacket has been designed to resist oil (Oil Res I/II), chemicals, and cleaning and disinfecting agents (based on ECOLAB tests) making this cable suitable installation in dry, humid, and damp environments, outdoors, and pipes. Additionally, they can be installed in the ground (direct burial rated) and for open, unprotected installation from the cable tray (TC-ER) to machines throughout industrial plants.

With multiple ratings and approvals, Helukabel Traycontrol 600V multiconductor control cable has the versatility to meet a wide range of industrial control, power and instrumentation applications. These flexible multiconductor cables provide an economical way to organize and simplify control wiring in machines and facilities. With UL 1277 or UL 2277 approvals and TC-ER, PLTC-ER and/or ITC-ER these cable can to be installed up to 6 feet outside of the tray or conduit makes using these a economical solution for any industrial automation project.

### **Features**

- Finely stranded (Class K), bare copper according to AWG standards
- Special PVC conductor insulation with transparent nylon coating, 3 conductors and above include a green/yellow ground
- Conductor identification to DIN VDE 0293 black conductors with continuous white numbering
- Conductors stranded in layers with optimal lay length
- Special PVC outer jacket Self-extinguishing and flame retardant according to CSA FT4
- UV-resistant
- · Direct burial rating available
- Resistant to cleaning and disinfecting agents according to Ecolab
- TC-ER, PLTC-ER, and/or ITC-ER Tray Cable Exposed Run
- Outstanding flexibility
- Torsion resistant for wind power application
- UL 1277 and/or UL2277 approvals

### **Application**

- NFPA 79 conformant flexible control and power cable up to 600 V (WTTC 1000 V), for all machinery in new plant construction.
- Torsion resistant, exceptional flexibility and abrasion resistance. Suitable for installation in dry, humid and damp environments, outdoors and pipes.
- For underground installation and for open, unprotected installation from the cable tray to machines in industrial plants.





## **HELUKABEL**<sup>®</sup>

## 0.5 mm<sup>2</sup> (20AWG) Unshielded Flexible Control Cable

0.5 m	nm² (20AWG) Flexible Cont	rol Cable Specifi	cations (Unshielded)		
Conductors Gauge & Stranding	0.5 mm² (20AWG) 10/30 bare copper	Outer Jacket	Black PVC		
Voltago Detingo	600V (Types ITC-ER, PLTC-ER, MTW)	UV Resistance	Yes		
Voltage Ratings	Tested to 3000V	Oil Resistance	Yes		
Minimum Bond Dodius	Maying 5 0 v diameter	Flame Retardant	Yes, per CSA FT4		
Minimum Bend Radius	Moving, 5.0 x diameter	Silicone-free	Yes		
	UL/CSA TC, -40°C to +90°C		UL ITC-ER & PLTC-ER, MTW 600V		
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA 22.2 No. 210 - AWM I/II A/B		
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.		
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 20 AWG (0.50mm2)/XC (UL) MTW 600V "FLEXING" E330431 OR ITC-ER		
Conductor Markings	Black with white numbers	Sample Print Legend	OR PLTC-ER 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING		
* Note -ER not available for 2 conductor cabl	es				

	0.5 mm <sup>2</sup> (20	DAWG) I	Flexible (	Control Cable	e (Unshiel	ded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
							- Very
<u>H62020-1</u>	2	20	10	0.264	20	0.04	\$;5,x#:
							Un
<u>H62021-1</u>	3	20	10	0.276	20	0.04	\$;;5,x!:
							Thos 3
<u>H62022-1</u>	4	20	10	0.295	20	0.05	\$;5,x?:
							fort.
H62023-1	5	20	10	0.319	20	0.06	\$;;5,x,:
							01   21 01   12 01   12 01   12
<u>H62024-1</u>	7	20	10	0.343	20	0.07	\$;5,y1:

<sup>\*</sup> See web store for maximum cut lengths





## HELUKABEL®

# 0.5 mm<sup>2</sup> (20AWG) Unshielded Flexible Control Cable

	0.5 mm <sup>2</sup> (20	AWG) F	exible Co	ontrol Cable	(Unshield	ed)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
							too 17
<u>H62026-1</u>	12	20	10	0.437	20	0.11	\$;5,y3:
							Francisco Co.
							ve j
<u>H62027-1</u>	18	20	10	0.508	20	0.16	\$;5,y4:
							Sweety Four 24
							Three S Four 4
<u>H62028-1</u>	25	20	10	0.618	20	0.23	\$;5,y5:

<sup>\*</sup> See web store for maximum cut lengths





### **HELUKABEL**<sup>®</sup>

# 1.0 mm<sup>2</sup> (18AWG) Unshielded Flexible Control Cable

1.0 n	nm² (18AWG) Flexible Control C	able Specification	ns (Unshielded)		
Conductors Gauge & Stranding	1.0mm2 (18AWG) 19/30 bare copper	Outer Jacket	Black PVC		
Voltage Ratings	600V (Types ITC-ER, PLTC-ER, MTW) 1000V (Type WTTC)	UV Resistance	Yes		
, ,	Tested to 3000V	Oil Resistance	Yes		
Minimum Pand Dadius	Moving 5.0 v diameter	Flame Retardant	Yes, per CSA FT4		
Minimum Bend Radius	Moving, 5.0 x diameter	Silicone-free	Yes		
	UL/CSATC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, ITC-ER, PLTC-ER		
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B		
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.		
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 18 AWG (1.00mm2)/XC (UL) TC-ER 90C DRY / WET 600V		
Conductor Markings	Black with white numbers	Sample Print Legend	SUN RES DIR BUR OIL RES I/II E330430 OR MTW "FLEXING" OR WTTC 1000V OR DP-1 OR ITC-ER OR PLTC-ER OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING		
* Note -ER not available for 2 conductor cab	les				

	1.0 mm <sup>2</sup> (1	8AWG) F	lexible C	ontrol Cable (	Unshielde	d)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
					=		<b>-</b>
<u>162902-1</u>	2	18	19	0.287	20	0.05	\$;5,y6:
					_		CARD .
<u> 162903-1</u>	3	18	19	0.299	20	0.06	\$;5,y7:
							Three 3
<u> 162904-1</u>	4	18	19	0.323	20	0.07	\$;5,y8:
						Ξ	Ford .
<u>162905-1</u>	5	18	19	0.350	20	0.08	\$;5,y9:
							GR 1 (GR 1) (GR
<u> 462906-1</u>	7	18	19	0.378	20	0.10	\$;5,ya:

<sup>\*</sup> See web store for maximum cut lengths





Please Note: Our prices on
Flexing Control Cable are closely tied to the
market price for copper. This allows us to offer the best
savings possible if conditions are favorable; however, it
also means that our prices may increase if market
conditions warrant.

**Wires Cords and Cables** 

tCBL-79

### HELUKABEL 1.0 mm<sup>2</sup> (18AWG) Unshielded **Flexible Control Cable**

	1.0 mm² (18	AWG) FI	exible Co	ntrol Cable (U	nshielded	)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
<u>H62907-1</u>	9	18	19	0.433	20	0.13	\$;5,yb:
							on! <u></u>
<u>H62908-1</u>	10	18	19	0.465	20	0.14	\$;5,yc:
							Count 11
							(m) 1 g)
<u>H62909-1</u>	12	18	19	0.480	20	0.15	\$;5,yd:
							Foliate G Foreign (1)
							ter i
<u>H62912-1</u>	18	18	19	0.594	20	0.24	\$;;5,yf:
							Swing Four 24
							Three 3 Four 4
<u>H62914-1</u>	25	18	19	0.685	20	0.25	\$;5,yg:
							Probability of the Control of the Co
<u>H62918-1</u>	41	18	19	0.827	20	0.48	\$;5,yh:

<sup>\*</sup> See web store for maximum cut lengths





## **HELUKABEL**<sup>®</sup>

# 1.5 mm<sup>2</sup> (16AWG) Unshielded Flexible Control Cable

1.5 m	m² (16AWG) Flexible Control Ca	ble Specification	s (Unshielded)	
Conductors Gauge & Stranding	1.5 mm² (16AWG) 26/30 bare copper	Outer Jacket	Black PVC	
Voltage Ratings	600V (Types ITC-ER, PLTC-ER, TC-ER-JP, MTW) 1000V (Type WTTC)	UV Resistance	Yes	
, , ,	Tested to 3000V	Oil Resistance	Yes	
Minimum Bend Radius	Moving 5.0 v diameter	Flame Retardant	Yes, per CSA FT4	
Millilliulii dellu raulus	Moving, 5.0 x diameter	Silicone-free	Yes	
	UL/CSA TC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, ITC- ER, PLTC-ER, TC-ER-JP	
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B	
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.	
Conductor Insulation	Special PVC with transparent nylon coating and green/ yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 16 AWG (1.50mm2)/XC (UL) TC-ER-JP* 90C DRY /	
Conductor Markings	Black with white numbers	Sample Print Legend*	WET 600V SUN RES DIR BUR OIL RES I/II E330430 OR MTW "FLEXING" OR WTTC 1000V OR DP-1 OR ITC-ER OR PLTC-ER OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING	
NOTE: -JP in sample print legend only applie	s to 16 AWG, 3 to 5/C constructions, -ER not available for 2 cor	ductor cables		

	1.5	mm² (16AWG)	Continu	ous Flexi	ng Control Ca	<mark>ble (Unsh</mark> i	ielded)	
Part Number		Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
						_	ve i	
<u>H62921-1</u>		2	16	26	0.307	20	0.05	\$;-5,yi:
<u>H62922-1</u>		3	16	26	0.323	20	0.07	\$;-5,yj:
							Three 3	94 -
H62923-1		4	16	26	0.346	20	0.08	\$;5,yk:
							Food July 3	=
H62924-1		5	16	26	0.378	20	0.10	\$;-5,yl:
							- Orange Control of the Control of t	00 d
H62926-1		7	16	26	0.413	20	0.12	\$;5,yo:

<sup>\*\*</sup> See web store for maximum cut lengths





### HELUKABEL<sup>®</sup> 1.5mm<sup>2</sup> (16AWG) Unshielded **Flexible Control Cable**

	1.5mm <sup>2</sup> (1	6AWG) F	lexible Co	introl Cable (l	Unshielded	1)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
							SQUE -
H62928-1	9	16	26	0.472	20	0.16	\$;5,yq:
	,				'	<u> </u>	Streen 11
							See 1 02
H62930-1	12	16	26	0.528	20	0.19	\$;;5,yt:
							Parion M. Guarden (T
							Thou S  (FIF ) Free h  (FIF )
H62934-1	18	16	26	0.646	20	0.30	\$;5,yx:
		-					Twenty Nine 29
							Fox 4
H62939-1	30	16	26	0.787	20	0.46	\$;5,yy:

<sup>\*</sup> See web store for maximum cut lengths





### HELUKABEL 2.0mm<sup>2</sup> (14AWG) Unshielded **Flexible Control Cable**

2.0m	2.0mm² (14AWG) Flexible Control Cable Specifications (Unshielded)								
Conductors Gauge & Stranding	2.0mm² (14AWG) 41/30 bare copper	Outer Jacket	Black PVC						
Voltage Ratings	600V (Types ITC-ER, PLTC-ER, TC-ER-JP, MTW) 1000V (Type WTTC)	UV Resistance	Yes						
	Tested to 3000V	Oil Resistance	Yes						
Minimum Bend Radius	Maying 5.0 v diameter	Flame Retardant	Yes, per CSA FT4						
Willimini Bena kaalus	Moving, 5.0 x diameter	Silicone-free	Yes						
	UL/CSA TC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, ITC-ER, PLTC-ER, TC-ER-JP						
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B						
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.						
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 14 AWG (2.00mm2)/XC (UL) TC-ER-JP* 90C DRY / WET						
Conductor Markings	Black with white numbers	Sample Print Legend *	600V SUN RES DIR BUR OIL RES I/II E330430 OR MTW "FLEXING" OR WTTC 1000V OR DP-1 OR SUBMERSIBLE PUMP CABLE OR ITC-ER OR PLTC-ER OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING						
NOTE: -JP in sample print legend only applie	es to 14 AWG, 3 to 5/C constructions - Submersible Pump (	Cable to appear in legend for 14 A	WG, 3 - 7/C constructions only						

2.0 mm² (14AWG) Flexible Control Cable (Unshielded)								
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
							1601	
<u>H62946-1</u>	3	14	41	0.362	20	0.09	\$;;5,y[:	
			1	1			Teo 2	
						1096 3 ******		
<u>H62947-1</u>	4	14	41	0.398	20	0.09	\$;5,y_:	
							Fourt	
							time)	
<u>H62948-1</u>	5	14	41	0.429	20	0.13	\$;5,y#:	
						See 3	3	
H62950-1	7	14	41	0.472	20	0.17	\$;5,y?:	

<sup>\*\*</sup> See web store for maximum cut lengths





### HELUKABEL<sup>®</sup> 2.0mm<sup>2</sup> (14AWG) Unshielded **Flexible Control Cable**

2.0mm² (14AWG) Flexible Control Cable (Unshielded)								
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
							=	
						- Ton	=	
H62951-1	9	14	41	0.579	20	0.24	\$;;5,y,:	
			I					
					-	imp / mark imp / mark imp / mark		
<u> 462953-1</u>	12	14	41	0.646	20	0.30	\$;5,z0:	
			I		I		-	
						Part of the form o		
<u> H62955-1</u>	18	14	41	0.744	20	0.41	\$;5,z1:	

<sup>\*</sup> See web store for maximum cut lengths





### HELUKABEL<sup>®</sup> 3.5mm<sup>2</sup> (12AWG) Unshielded **Flexible Control Cable**

3.5m	nm² (12AWG) Flexible Control	Cable Specification	ons (Unshielded)
Conductors Gauge & Stranding	3.5mm² (12AWG) 65/30 bare copper	Outer Jacket	Black PVC
Voltage Ratings	600V (Types ITC-ER, PLTC-ER, TC-ER-JP, MTW) 1000V (Type WTTC)	UV Resistance	Yes
	Tested to 3000V	Oil Resistance	Yes
Minimum Bend Radius	Moving, 5.0 x diameter	Flame Retardant	Yes, per CSA FT4
INITITITITI DETIU MAUTUS	ivioving, 5.0 x diameter	Silicone-free	Yes
	UL/CSATC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, ITC-ER, PLTC-ER, TC-ER-JP
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 12 AWG (3.50mm2)/XC (UL) TC-ER-JP* 90C DRY / WET 600V
Conductor Markings	Black with white numbers	Sample Print Legend*	SUN RES DIR BUR OIL RES I/II E330430 OR MTW "FLEXING" OR WTTC 1000V OR DP-1 OR SUBMERSIBLE PUMP CABLE OR ITC-ER OR PLTC-ER OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING
NOTE: -JP in sample print legend only applie	es to 12 AWG, 3 to 5/C constructions. Submersible Pump C	Cable to appear in legend for 12 AV	VG, 3 - 7/C constructions only

3.5	mm² (12AWG)	Continu	ous Flexi	ng Control Ca	ble (Unsh	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
							1992
<u> 162959-1</u>	3	12	65	0.402	20	0.12	\$;5,z3:
						Three 3	1902
H62960-1	4	12	65	0.441	20	0.15	\$;5,z4:
					=		For I
H62961-1	5	12	65	0.480	20	0.18	\$;5,z5:
							One Section 2
<u>162963-1</u>	7	12	65	0.528	20	0.24	\$;5,z7:
							0 to 17
H62965-1	12	12	65	0.720	20	0.42	\$;5,z9:

<sup>\*\*</sup> See web store for maximum cut lengths





### HELUKABEL® 6.0mm<sup>2</sup> (10AWG) Unshielded Flexible Control Cable

6.0n	6.0mm² (10AWG) Flexible Control Cable Specifications (Unshielded)						
Conductors Gauge & Stranding	6.0mm² (10AWG) 105/30 bare copper	Outer Jacket	Black PVC				
Voltage Ratings	600V (Types TC-ER-JP, MTW) 1000V (Type WTTC)	UV Resistance	Yes				
	Tested to 3000V	Oil Resistance	Yes				
Minimum Dand Dadius	Maying F.O. diameter	Flame Retardant	Yes, per CSA FT4				
Minimum Bend Radius	Moving, 5.0 x diameter	Silicone-free	Yes				
	UL/CSATC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, TC-ER-JP				
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B				
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.				
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 10 AWG (6.00mm2)/XC (UL) TC-ER-JP 90C DRY / WET 600V SUN				
Conductor Markings	Black with white numbers	Sample Print Legend*	RES DIR BUR OIL RES I/II E330430 OR MTW "FLEXING" OR WTTC 1000V OR DP-1 OR SUBMERSIBLE PUMP CABLE OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING				

NOTE: -JP in sample print legend only applies to 12 AWG, 3 to 5/C constructions. Submersible Pump Cable to appear in legend for 12 AWG, 3 - 7/C constructions only

	6.0mm <sup>2</sup> (10.	AWG) F	exible Co	ntrol Cable (	Unshielde	ed)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
						Law y	
<u>H62971-1</u>	3	10	105	0.492	20	0.18	\$;5,zb:
						Three 3	1997
<u> H62972-1</u>	4	10	105	0.567	20	0.24	\$;5,zc:
					= =	Tires 3	lost)
				· · · · · · · · · · · · · · · · · · ·		I	
<u>H62973-1</u>	5	10	105	0.622	20	0.29	\$;5,zd:

<sup>\*</sup> See web store for maximum cut lengths





### **HELUKABEL**<sup>®</sup>

## 10mm<sup>2</sup> (8AWG) Unshielded Flexible Control Cable

10m	10mm² (8AWG) Flexible Control Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	10mm² (8AWG) 168/30 bare copper	Outer Jacket	Black PVC					
Voltage Ratings	600V (Types TC-ER-JP, MTW) 1000V (Type WTTC)	UV Resistance	Yes					
	Tested to 3000V	Oil Resistance	Yes					
Minimum Bend Radius	Moving, 5.0 x diameter	Flame Retardant	Yes, per CSA FT4					
Millilliulii della radius	Mioving, 5.0 x diameter	Silicone-free	Yes					
	UL/CSA TC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, TC-ER-JP					
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B					
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.					
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 8 AWG (10mm2)/XC (UL) TC-ER-JP 90C DRY / WET 600V SUN					
Conductor Markings	Black with white numbers	Sample Print Legend	RES DIR BUR OIL RES I/II E330430 OR MTW OR WTTC 1000V OR DP-1 OR SUBMERSIBLE PUMP CABLE OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING					
*NOTE: -JP in sample print legend only appli	es to 12 AWG, 3 to 5/C constructions. Submersible Pump	Cable to appear in legend for 12	AWG, 3 - 7/C constructions only					

10mm² (8AWG) Flexible Control Cable (Unshielded)								
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
						Tires 3		
						in the second		
<u>H62978-1</u>	4	8	168	0.756	20	0.39	\$;5,ze:	

<sup>\*</sup> See web store for maximum cut lengths





### **HELUKABEL**<sup>®</sup>

# 16mm<sup>2</sup> (6AWG) Unshielded Flexible Control Cable

16	16mm² (6AWG) Flexible Control Cable Specifications (Unshielded)								
Conductors Gauge & Stranding	16mm² (6AWG) 266/30 bare copper	Outer Jacket	Black PVC						
Voltage Ratings	600V (Types TC-ER-JP, MTW) 1000V (Type WTTC)	UV Resistance	Yes						
, ,	Tested to 3000V	Oil Resistance	Yes						
Minimum David Dadius	Marine 50 v diagratus	Flame Retardant	Yes, per CSA FT4						
Minimum Bend Radius	Moving, 5.0 x diameter	Silicone-free	Yes						
	UL/CSA TC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, TC-ER-JP						
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B						
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.						
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 6 AWG (16mm2)/XC (UL) TC-ER-JP 90C DRY / WET 600V SUN						
Conductor Markings	Black with white numbers	Sample Print Legend*	RES DIR BUR OIL RES I/II E330430 OR MTW OR WTTC 1000V OR DP-1 OR SUBMERSIBLE PUMP CABLE OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/ II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING						
* NOTE: -JP in sample print legend only app	lies to 12 AWG, 3 to 5/C constructions. Submersible	Pump Cable to appear in legend	for 12 AWG, 3 - 7/C constructions only						

	16mm² (6AWG) Flexible Control Cable (Unshielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
						1902	_			
						Three 3				
<u>H62981-1</u>	4	6	266	0.878	20	0.58	\$;;5,zf:			

<sup>\*</sup> See web store for maximum cut lengths





### HELUKABEL<sup>®</sup> 25mm<sup>2</sup> (4AWG) Unshielded **Flexible Control Cable**

251	25mm² (4AWG) Flexible Control Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	25mm² (4AWG) 420/30 bare copper	Outer Jacket	Black PVC					
Voltage Ratings	600V (Types TC, TC-ER, MTW), 1000V (Type WTTC)	UV Resistance	Yes					
J	Tested to 3000V	Oil Resistance	Yes					
Minimum Bond Doding	Maying 5 0 v diameter	Flame Retardant	Yes, per CSA FT4					
Minimum Bend Radius	Moving, 5.0 x diameter	Silicone-free	Yes					
	UL/CSA TC, -40°C to +90°C		UL - TC-ER (1277), WTTC (2277), MTW, DP-1, TC-ER-JP					
Temperature Ratings	Moving, +5°C to +50°C	Approvals*	CSA - C22.2 No. 230 TC, C22.2 No. 239 CIC, 22.2 No. 210 - AWM I/II A/B					
	Fixed, -40°C to +105°C		CE Low-Voltage Directive 2006/95/EC.					
Conductor Insulation	Special PVC with transparent nylon coating and green/yellow ground		HELUKABEL® TRAYCONTROL 600 P/N XXXXX 4 AWG (25mm2)/XC (UL) TC-ER-JP 90C DRY / WET 600V SUN RES					
Conductor Markings	Black with white numbers	Sample Print Legend*	DIR BUR OIL RES I/II E330430 OR MTW OR WTTC 1000V OR DP-1 OR SUBMERSIBLE PUMP CABLE OR C(UL) CIC-TC 90C DRY 75C WET SR PVC/N FT4 605853 CSA AWM I/ II A/B 105C 1000V FT4 CE BATCH CODE + SEQUENTIAL FOOTAGE MARKING					
*NOTE: -JP in sample print legend only appli	es to 12 AWG, 3 to 5/C constructions. Submersible I	Pump Cable to appear in legend fo	or 12 AWG, 3 - 7/C constructions only					

25mm² (4AWG) Flexible Control Cable (Unshielded)							
Part Number	Number of Conductors (includes ground)  Strand		Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
						Three 3	
						1000	
<u>H62984-1</u>	4	4	420	1.059	20	0.85	\$;5,zg:

<sup>\*</sup> See web store for maximum cut lengths





## **HELUKABEL** VFD Cable



### **Features**

- Special Cross-linked Polyethylene (XLPE) conductor insulation
- Class K, flexible stranded tinned copper conductors according to AWG standards
- Green ground conductor with yellow stripe, cross-linked Polyethylene (XLPE) insulation
- · Special aluminum foil shield
- 85% coverage tinned copper braid shield
- Separator
- · Black special PVC outer jacket
- Self-extinguishing and flame retardant according to CSA FT4
- UV-resistant
- Direct-burial rated
- Resistant to cleaning and disinfecting agents according to ECOLAB
- Minimum cut lengths as low as 10 feet
- Cut to length in 1 foot increments
- · Made in USA

Variable-frequency drives (VFDs) control the speed and torque of AC motors by varying the frequency of the voltage to the motor; however, the VFD does not send a pure sine-wave frequency to the motor. They more accurately use a series of pulses which varies in frequency in a technique called pulse-width modulation (PWM). While PWM is an excellent way to control a motor, it creates several issues that can affect the motor's life and power quality, as well as create Electromagnetic Interference (EMI) and reduce the life of the cable. By using a cable designed for use with VFDs, it is possible to limit the effect of high frequencies on the surrounding equipment and possibly prevent costly machine downtime. AutomationDirect is pleased to introduce our new line of Variable-frequency drive (VFD) cable manufactured by Helukabel.

Helukabel's TOPFLEX® 600 VFD cable is a Flexible, extremely oil-resistant, thermoset-insulated motor supply cable. The double-shielding with special aluminum foil and tinned copper braid provides effective protection against electrical disturbances. XLPE insulation makes it compliant with the requirements of NFPA 79 Chapter 4. The PVC jacket is extremely resistant to oil, coolants, and solvents, making it the perfect solution for most industrial applications. The TC-ER rating allows for installation in cable trays and from cable trays to the machine saving money on installation cost. TOPFLEX® can also be used in conduit and is direct-burial approved.















Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

T0	TOPFLEX® 600 VFD 4-Conductor Cable Specifications								
Conductors Gauge & Stranding	tinned copper 4 conductors (includes ground)		UL: TC-ER (1277), WTTC (2277), ITC-ER & PLTC-ER (18-12 AWG), 44 (14-2 AWG).						
Voltage Rating	600V (Type TC), 1000V (Type WTTC, Flexible Motor Supply Cable)	Approvals*	NFPA 79 Ch, 4, Class I Div. 2 per NEC Art. 501, NEC Art. 336 & 392, Oil Res I/II, 90°C Dry/Wet, -40°C Cold Bend						
Outer Jacket Material	PVC		CSA: C22.2 No. 230 & 239 - c(UL) CIC-TC FT4 C22.2 No. 210 - AWM I/II A/B FT4						
Outer Jacket Color	black with white numbers and green/ yellow ground								
Temperature Ratings	UL/CSA TC -40°C to +90°C flexing +5°C to +50°C static -40°C to +105°C		HELUKABEL® TOPFLEX® VFD P/N XXXXX XX AWG (X.XXmm2)/4C (UL) TC-ER 90C DRY/WET 600V SUN RES DIR BUR OIL RES I/II E330430 OR WTTC						
Conductor Insulation	XLPE	Sample Print Legend	OR FLEXIBLE MOTOR SUPPLY CABLE 1000V OR ITC-ER** OR PLTC-ER** OR c(UL) CIC-TC XLPE FT4 257839 CSA AWM I/II A/B 90C 1000V FT4 CE						

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

<sup>\*\*</sup> ITC-ER and PLTC-ER ratings only appear on 18-12 AWG SKUs

## **HELUKABEL** VFD Cable

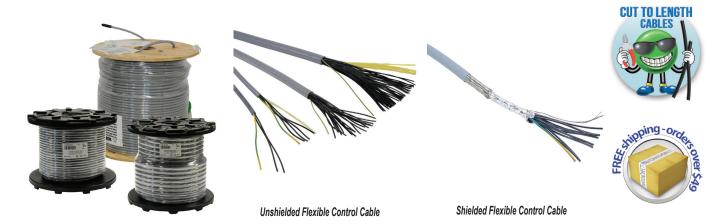
		TOPFLE	(® 600 \	/FD 4-Con	ductor Ca	ble Selec	ction		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Insulaton Thickness (millimeters)	Jacket Thickness (millimeters)	Nominal OD (inches)	Min. Bend Radius (inches)	Approximate Weight (lb/ft)	Price per foot
								Three 3	vo 2
H63137-1		14 AWG	41-stranded		0.053	0.579	5	0.160	\$64gq:
<u>H63140-1</u>	-	16 AWG	26-stranded		0.070	0.492	5.8	0.220	\$64gp:
<u>H63141-1</u>	-	12 AWG	65-stranded	0.045		0.618	6.2	0.280	\$64gs:
<u>H63142-1</u>	4 conductors	10 AWG	105-stranded			0.697	6.95	0.360	\$;64gt:
<u>H63143-1</u>	(includes ground)	8 AWG	168-stranded			0.906	9.05	0.570	\$64gu:
<u>H63144-1</u>		6 AWG	266-stranded	0.000	0.000	0.972	9.71	0.760	\$-64gl:
<u>H63145-1</u>		4 AWG	420-stranded	0.090	0.090	1.090	10.92	1.020	\$64gn:
<u>H63146-1</u>		2 AWG	665-stranded			1.252	12.5	1.420	\$64go:
* See web store for m	aximum cut lengths					1			

	TOPFLEX® 600	VFD 4-Conductor Cat	ole Specification	s Continued	
Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)	Nom. Capacitance Conductor to Conductor (pF/ft.)	Nom. Conductor DC Resistance @ 20°C (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20°C (Ohm/1000 ft.)	Impedance (ohms)
<u>H63137-1</u>	35.7	21	2.930	2.01	77
<u>H63140-1</u>	30.4	16.95	4.580	3.30	90
<u>H63141-1</u>	40.3	23	1.880	1.86	68
<u>H63142-1</u>	47.1	27	1.140	1.58	59
<u>H63143-1</u>	46.8	28	0.700	1.41	56
<u>H63144-1</u>	53.7	29	0.457	0.80	54
<u>H63145-1</u>	57.9	32	0.233	0.10	46
H63146-1	66	38	0.183	1.05	41





### **Multi-Conductor Flexible Control Cable**



Multi-conductor flexible control cable from Southwire is available in sizes from Features 20AWG to 10AWG with 3 to 41 unshielded and shielded conductors. Individual conductors are bare copper and stranded for flexibility, with black PVC/Nylon insulation and marked with numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has insulation that is green with a yellow stripe. Shielded versions include both an overall aluminum mylar foil tape with drain wire and tinned copper braid for maximum effectiveness against external electrical noise interference. The cable's outer jacket is a flexible, premium grade Thermoplastic Elastomer (TPE) that is resistant to sunlight, oil, and moisture penetration, making these cables suitable for wet and dry locations as well as outdoors. Although not suitable for continuous flexing applications, these cables are ideal for both stationary and flexible applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements.

With multiple ratings and approvals, Southwire flexible multi-conductor control cable has the versatility to meet a wide range of industrial applications. Given its Tray Cable Exposed Run rating, UL Type TC-ER or Power Limited Tray Cable Tray Cable, UL Type PLTC-ER, our cable can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/ or armor resulting in installation and maintenance savings. With the Machine Tool Wire rating, UL Type MTW, these cables meet NFPA 79, Electrical Standard for Industrial Machinery. Other ratings and approvals include Wind Turbine Tray Cable UL Type WTTC, Class 1 Division 2 Hazardous Locations, Direct Burial, and have been tested by UL for compliance with ECOLAB's resistance to cleaning chemicals per PM-40-1.

When combined with AutomationDirect ZIPport multi-wire connectors, our flexible multi-conductor cables provide an economical way to organize and simplify control wiring in facilities and during assembly of machinery. Cut to length in 1 foot increments with a 20 foot minimum length

- 20AWG to 10AWG, 3 to 41 conductors including a equal size ground
- Unshielded and shielded constructions
- Individual conductors have black PVC/Nylon insulation and are marked with identification numbers
- Rugged Thermoplastic Elastomer (TPE) outer jacket
- · Equal size green/yellow ground wire included
- Multiple ratings and approvals include Type TC-ER or PLTC-ER (eliminates need for conduit/armor), Type MTW (meets NFPA 79), WTTC, Class 1 Division 2, Direct Burial, Wet and Dry Location, Oil Resistant, Sunlight Resistant
- Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
- Flexibility for easy installation
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- · Made in the USA
- Ideal for use with ZIPport multi-wire connectors (as shown below)













### Cable Use Examples\*:





\* Cables shown using AutomationDirects's ZIPport multi-wire connectors. See Terminal Blocks & Wiring Solutions section for further information.



20 Ga	uge Multi-Conductor Flexi	ble Control Cab	le Specifications (Unshielded)
Conductor Gauge & Stranding	20AWG 10/30 bare copper, Class K		
Voltage Rating	300V Power Limited Tray Cable - Exposed Run (PLTC-ER) 300V Instrumentation Tray Cable - Exposed Run (ITC-ER) 600V MTW Flexing / AWM 2587	Applicable Standards	ASTM B3 Soft or Annealed Copper Wire ASTM B174 Standard Specification for Bunch-Stranded Copper UL 13 Power-Limited Circuit Cables UL 758 AWM Style 2587 Standard for Appliance Wiring Material UL 1063 Machine Tool Wiring (MTW)
Capacitance	26 pF/ft Nom. Conductor to Conductor	,,,	UL 2250 Instrumentation Tray Cable CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 -
Resistance	10.15 Ω/kft*		8AWG) Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure,
Impedance	61.0 Ω		UL Verified V747862
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant	Approvals**	UL (E57497), CSA (90458)
Conductor Insulation	0.011 Inch, PVC + 0.005 Inch, NYLON		
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		Southwire EXXXXX (UL) Type PLTC-ER XXAWG (XXmm²)
Cold Impact	-40°C (-40°F) per UL 1277	Sample Print Legend	XX/C PVC/Nylon 90C Sun Res Oil Res I/II -40C or ITC-ER or MTW Flexing 600V or AWM 2587 or LLXXXXXX CSA
Min. Bend Radius	4x diameter		AWM I/II A/B 105C 600V -40C FT4 CE RoHS -2 Made
Flome Deting	FT4, IEEE 1202/383, ICEA T-29-520		in USA Sequential Footage
Flame Rating	UL1685, UL MTW NFPA 79 2007		
Oil Resistance	Oil Res I & II		

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		20 Gaug	e Multi-C	onductor	Flexible C	ontrol Ca	ble (Unsh	ielded)				
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
					Twent	Four 24						
<u>V30156-1</u>	3					0.26	1.12	20	0.04	\$4h18:		
<u>V30158-1</u>	4						47	0.28	1.24	20	0.04	\$4h19:
<u>V30160-1</u>	5					0.30	1.32	20	0.05	\$4h1a:		
<u>V30162-1</u>	7	20	10			0.33	1.44	20	0.06	\$4h1b:		
<u>V30164-1</u>	9	20	10	16		0.41	1.64	20	0.09	\$4h1c:		
<u>V30186-1</u>	12				62	0.45	1.84	20	0.11	\$4h15:		
<u>V30188-1</u>	18					0.52	2.20	20	0.15	\$4h16:		
<u>V30190-1</u>	25					0.60	2.56	20	0.20	\$4h17:		

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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www.automationdirect.com Wires Cords and Cables tCBL-93

<sup>\* \*</sup> See web store for maximum cut lengths

18 Gau	ge Multi-Conductor Flexi	ble Contr	ol Cable Specifications (Unshielded)
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having
	600V (Type TC-ER)		Bunch-Stranded Copper Conductors ASTM B174 Standard Specification for Bunch-Stranded Copper
Voltage Rating	1000V (Type WTTC)		UL 13 Power-Limited Circuit Cables UL 66 Fixture Wire Type TFFN (for sizes 18 and 16 AWG)
	1000V (UL/CSAAWM)		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW)
Capacitance	28.2 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER UL 1690 Data Processing Cable (DP-1)
Resistance	6.53 Ω/kft*	. Applicable	UL 2250 Instrumentation Tray Cable UL 2277 Type WTTC CSA C22.2 No.230 Tray Cables - Rated TC
Impedance	55.0 Ω	Standards	ICEA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Distribution of Electrical Energy IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant		Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		NFPA 79 Electrical Standard for Industrial Machinery Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		America requirements per 49 C.F.R. part 661
Cold Impact	-40°C (-40°F) per UL 1277	Approvals**	UL (E75755), CSA (90458)
Min. Bend Radius	4x diameter		O. II. ' VVANO (VV
Flome Deting	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print	Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR
Flame Rating	UL1685, UL MTW NFPA 79 2007	Legend	WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 CE
Oil Resistance	Oil Res I & II		AVVIII I/II AVD 103 G 10000 -40 GT 14 GE

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		18 Gaug	e Multi-C	onductor	Flexible C	ontrol Ca	ble (Unsh	ielded)				
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
	-		-		Eleven 11 One 1 No 2							
<u>V40166-1</u>	3					0.28	1.12	20	0.05	\$;2df6:		
<u>V40168-1</u>	4			40		ı		0.31	1.24	20	0.06	\$;2df7:
<u>V40170-1</u>	5				45	0.33	1.32	20	0.07	\$;2df8:		
<u>V40172-1</u>	7	18	16 20		45	0.36	1.44	20	0.09	\$;2df9:		
<u>V40174-1</u>	9	10		16	16	20		0.41	1.64	20	0.11	\$;2dfb:
<u>V40176-1</u>	12					0.46	1.84	20	0.14	\$;2dfc:		
<u>V40178-1</u>	18				45	0.55	2.20	20	0.21	\$;2dfd:		
<u>V40180-1</u>	25				60	0.64	2.56	20	0.25	\$;2dfe:		

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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**Wires Cords and Cables** 

<sup>\* \*</sup> See web store for maximum cut lengths

16 Ga	uge Multi-Conductor Flex	ible Contr	rol Cable Specifications (Unshielded)
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having
	600V (Type TC-ER)		Bunch-Stranded Copper Conductors ASTM B174 Standard Specification for Bunch-Stranded Copper
Voltage Rating	1000V (Type WTTC) 1000V (UL/CSA AWM)	UL 13 Power-Limited Circuit Cables UL 66 Fixture Wire Type TFFN (for sizes 18 and 16 AWG)	
		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW)	
Capacitance	32.78 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER UL 1690 Data Processing Cable (DP-1)
Resistance	4.10 Ω/kft*		UL 2250 Instrumentation Tray Cable UL 2277 Type WTTC
Impedance	46.3 Ω	Applicable	CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG) CSA C22.2 No.230 Tray Cables - Rated TC
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Standards	CSA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant		Distribution of Electrical Energy IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive NFPA 79 Electrical Standard for Industrial Machinery
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy
Cold Impact	-40°C (-40°F) per UL 1277		America requirements per 49 C.F.R. part 661
Min. Bend Radius	4x diameter	Approvals**	UL (E75755), CSA (90458)
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	0	Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C
Traine nating	UL1685, UL MTW NFPA 79 2007	Sample Print Legend	Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA
Oil Resistance	Oil Res I & II		AWM I/II A/B 105°C 1000V -40°C FT4 CE

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		16 Gaug	e Multi-C	onductor	Flexible (	ontrol Ca	ble (Unsh	ielded)		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
					Lhree 3 One 1 Four 4vo 2					
V50196-1	3					0.31	1.24	20	0.06	\$;;2dff:
<u>V50198-1</u>	4					0.34	1.36	20	0.08	\$;2dfg:
V50200-1	5				50	0.37	1.48	20	0.09	\$;2dfh:
V50202-1	7					0.40	1.60	20	0.11	\$;-2dfi:
<u>V50206-1</u>	9	16	26	20		0.46	1.84	20	0.14	\$;-2dfj:
V50208-1	12				50	0.51	2.04	20	0.20	\$;2dfk:
<u>V50212-1</u>	18				CF	0.62	2.48	20	0.28	\$;-2dfl:
<u>V50214-1</u>	25				65	0.72	2.88	20	0.35	\$;2dfn:
V50216-1	41				85	0.91	3.64	20	0.56	\$;2dfo:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

14 Ga	uge Multi-Conductor Flex	cible Cont	rol Cable Specifications (Unshielded)			
Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having			
	600V (Type TC-ER)		Bunch-Stranded Copper Conductors ASTM B174 Standard Specification for Bunch-Stranded Copper			
Voltage Rating	1000V (Type WTTC)		UL 13 Power-Limited Circuit Cables UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 10AWG)			
	1000V (UL/CSAAWM)		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW) UL 1277 TC-ER			
Capacitance	37.09 pF/ft Nom. Conductor to Conductor		UL 1690 Data Processing Cable (DP-1) UL 2250 Instrumentation Tray Cable			
Resistance	2.57 Ω/kft*	Applicable	UL 2277 Type WTTC CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG)			
Impedance	40.0 Ω	Standards	CSA C22.2 No.230 Tray Cables - Rated TC CSA C22.2 No. 239 Control and instrumentation cables			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy			
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant		IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive			
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		NFPA 79 Electrical Standard for Industrial Machinery Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		requirements per 49 C.F.R. part 661			
Cold Impact	-40°C (-40°F) per UL 1277	Approvals**	UL (E75755), CSA (90458)			
Min. Bend Radius	4x diameter		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry			
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print	75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC			
Traine Haung	UL1685, UL MTW NFPA 79 2007	Legend	1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 CE			
Oil Resistance	Oil Res I & II		AVD 103 G 1000V -40 G F14 GE			

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

		'								
	14 Gauge Multi-Conductor Flexible Control Cable (Unshielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
Inree 3 Four 4 One 1 wo 2										
<u>V60127-1</u>	3					0.34	1.36	20	0.82	\$;2dfp:
<u>V60129-1</u>	4					0.37	1.48	20	0.11	\$;2dfq:
<u>V60131-1</u>	5				50	0.41	1.64	20	0.13	\$;2dfs:
<u>V60133-1</u>	7	14	41	20		0.45	1.80	20	0.16	\$;;2dft:
<u>V60135-1</u>	9	14	41	20		0.52	2.08	20	0.21	\$;2dfu:
<u>V60137-1</u>	12					0.60	2.40	20	0.28	\$;2dfv:
<u>V60139-1</u>	18				65	0.70	2.80	20	0.40	\$;2dfx:
V60141-1	25					0.81	3.24	20	0.57	\$;2dfy:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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<sup>\* \*</sup> See web store for maximum cut lengths

12 Ga	uge Multi-Conductor Flexi	ble Contro	ol Cable Specifications (Unshielded)				
Conductor Gauge & Stranding	12AWG 65/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors				
	600V (Type TC-ER)		Having Bunch-Stranded Copper Conductors ASTM B174 Standard Specification for Bunch-Stranded Copper				
Voltage Rating	1000V (Type WTTC)		UL 13 Power-Limited Circuit Cables UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 10AWG)				
	1000V (UL/CSA AWM)		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW)				
Capacitance	40.4 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER UL 1690 Data Processing Cable (DP-1)				
Resistance	1.62 Ω/kft*		UL 2250 Instrumentation Tray Cable UL 2277 Type WTTC				
Impedance	36.1 Ω	Applicable Standards	CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG) CSA C22.2 No. 230 Tray Cables - Rated TC CSA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)						
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant "		IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified				
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		V747862 CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to				
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		the material restrictions identified in the RoHS-2 (2011/65/EÚ) Directive NFPA 79 Electrical Standard for Industrial Machinery				
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy				
Cold Impact	-40°C (-40°F) per UL 1277		America requirements per 49 C.F.R. part 661				
Min. Bend Radius	4x diameter	Approvals**	UL (E75755), CSA (90458)				
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C				
rianie nauny	UL1685, UL MTW NFPA 79 2007	Sample Print Legend	Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 CE				
Oil Resistance	Oil Res I & II						

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	12 Gauge Multi-Conductor Flexible Control Cable (Unshielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
_	Three 3 Two 2 Cha 1									
<u>V70107-1</u>	4	12	65	20	50	0.43	1.72	20	0.15	\$;2dfz:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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<sup>\* \*</sup> See web store for maximum cut lengths

10 Ga	uge Multi-Conductor Flex	ible Conti	rol Cable Specifications (Unshielded)				
Conductor Gauge & Stranding	10 AWG 105/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having				
	600V (Type TC-ER)		Bunch-Stranded Copper Conductors ASTM B174 Standard Specification for Bunch-Stranded Copper UL 13 Power-Limited Circuit Cables				
Voltage Rating	1000V (Type WTTC)		UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 10AWG) UL 758 AWM Style 2587				
	1000V (UL/CSA AWM)		UL 1063 Machine Tool Wiring (MTW) UL 1277 TC-ER				
Capacitance	40.7 pF/ft Nom. Conductor to Conductor		UL 1690 Data Processing Cable (DP-1) UL 2250 Instrumentation Tray Cable				
Resistance	1.02 Ω/kft*	Applicable	UL 2277 Type WTTC CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG) CSA C22.2 No.230 Tray Cables - Rated TC				
Impedance	35.8 Ω	Standards	CSA C22.2 No. 230 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Distribution of Electrical Energy IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test				
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant	_	Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862				
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		NFPA 79 Electrical Standard for Industrial Machinery Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy				
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		America requirements per 49 C.F.R. part 661				
Cold Impact	-40°C (-40°F) per UL 1277	Approvals**	UL (E75755), CSA (90458)				
Min. Bend Radius	4x diameter						
Elomo Poting	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print	Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR				
Flame Rating	UL1685, UL MTW NFPA 79 2007	Legend	WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 CE				
Oil Resistance	Oil Res I & II						

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	10 Gauge Multi-Conductor Flexible Control Cable									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
	Three 3									
<u>V80059-1</u>	4	10	105	25	50	0.50	2.00	20	0.21	\$;;2df]:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

18 Ga	uge Multi-Conductor Fle	xible Con	trol Cable Specifications (Shielded)				
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K						
	600V (Type TC-ER)		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Havin				
Voltage Rating	1000V (Type WTTC)		Bunch-Stranded Copper Conductors ASTM B174 Standard Specification for Bunch-Stranded Copper				
	1000V (UL/CSA AWM)		UL 13 Power-Limited Circuit Cables				
Capacitance	72.02 pF/ft Nom. Conductor to Shield		UL 66 Fixture Wire Type TFFN (for sizes 18 and 16 AWG) UL 758 AWM Style 2587				
Сараснанов	40.01 pF/ft Nom. Conductor to Conductor		UL 1063 Machine Tool Wiring (MTW)				
Resistance	6.53 Ω/kft*		UL 1277 TC-ER UL 1690 Data Processing Cable (DP-1)				
Impedance	53.8 Ω		UL 2250 Instrumentation Tray Cable				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Applicable	UL 2277 Type WTTC CSA C22.2 No.230 Tray Cables - Rated TC				
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant	Standards	CSA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the				
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 20 AWG drain		Distribution of Electrical Energy IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862				
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		the material restrictions identified in the RoHS-2 (2011/65/EU) Directive NFPA 79 Electrical Standard for Industrial Machinery				
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy				
Cold Impact	-40°C (-40°F) per UL 1277		America requirements per 49 C.F.R. part 661				
Min. Bend Radius	12x diameter	Approvals**	UL (E75755), CSA (90458)				
Flome Deting	FT4, IEEE 1202/383, ICEA T-29-520		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C				
Flame Rating	UL1685, UL MTW NFPA 79 2007	Sample Print Legend	Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA				
Oil Resistance	Oil Res I & II		AWM I/II A/B 105°C 1000V -40°C FT4 CE				

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	18 Gauge Multi-Conductor Flexible Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
						Twenty Four 24				
MCTC-18-3S-1	3					0.30	3.60	20	0.06	\$2dda:
MCTC-18-4S-1	4					0.33	3.96	20	0.07	\$2ddb:
MCTC-18-5S-1	5				47	0.35	4.20	20	0.08	\$2ddc:
MCTC-18-7S-1	7	18	16	20	47	0.38	4.56	20	0.10	\$2ddd:
MCTC-18-9S-1	9					0.44	5.28	20	0.14	\$2dde:
MCTC-18-12S-1	12					0.47	5.64	20	0.16	\$2dd8:
MCTC-18-25S-1	25				62	0.66	7.92	20	0.31	\$2dd9:

<sup>\*</sup> Installed bend radius ≥ 12x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

16 Ga	auge Multi-Conductor Fle	xible Con	trol Cable Specifications (Shielded)			
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having			
	600V (Type TC-ER)		Bunch-Stranded Copper Conductors			
Voltage Rating	1000V (Type WTTC)		ASTM B174 Standard Specification for Bunch-Stranded Copper UL 13 Power-Limited Circuit Cables			
	1000V (UL/CSA AWM)		UL 66 Fixture Wire Type TFFN (for sizes 18 and 16 AWG) UL 758 AWM Style 2587			
0	85.59 pF/ft Nom. Conductor to Shield		UL 1063 Machine Tool Wiring (MTW)			
Capacitance	47.55 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER UL 1690 Data Processing Cable (DP-1)			
Resistance	4.10 Ω/kft*		UL 2250 Instrumentation Tray Cable UL 2277 Type WTTC			
Impedance	45.3 Ω	Applicable	CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG)			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Standards	CSA C22.2 No. 230 Tray Cables - Rated TC CSA C22.2 No. 239 Control and instrumentation cables			
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy			
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 18 AWG drain		IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive			
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		NFPA 79 Electrical Standard for Industrial Machinery Made in America: Compliant with both Buy American and Buy America Act (BAA)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America requirements per 49 C.F.R. part 661			
Cold Impact	-40°C (-40°F) per UL 1277		America requirements per 45 c.r.rx. part ou i			
Min. Bend Radius	12x diameter	Approvals**	UL (E75755), CSA (90458)			
Flama Dating	FT4, IEEE 1202/383, ICEA T-29-520		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C			
Flame Rating	UL1685, UL MTW NFPA 79 2007	Sample Print Legend	Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA			
Oil Resistance			AWM I/II A/B 105°C 1000V -40°C FT4 CE			

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	16 Gauge Multi-Conductor Flexible Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
						Twenty Four 24  Citie 1 22  Three 3 Four 4				
MCTC-16-3S-1	3					0.33	3.96	20	0.08	\$2dd3:
MCTC-16-4S-1	4					0.36	4.32	20	0.10	\$2dd4:
MCTC-16-5S-1	5				47	0.39	4.68	20	0.11	\$2dd5:
MCTC-16-7S-1	7	16	26	20		0.42	5.04	20	0.14	\$2dd6:
MCTC-16-9S-1	9					0.49	5.88	20	0.18	\$2dd7:
MCTC-16-12S-1	12				73	0.56	6.72	20	0.28	\$2dd1:
MCTC-16-25S-1	25				76	0.75	9.00	20	0.41	\$2dd2:

<sup>\*</sup> Installed bend radius ≥ 12x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

14 G	auge Multi-Conductor Fle	xible Con	trol Cable Specifications (Shielded)			
Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having			
	600V (Type TC-ER)		Bunch-Stranded Copper Conductors			
Voltage Rating	1000V (Type WTTC)		ASTM B174 Standard Specification for Bunch-Stranded Copper UL 13 Power-Limited Circuit Cables			
	1000V (UL/CSAAWM)		UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 10AWG)			
Capacitance	99.09 pF/ft Nom. Conductor to Shield		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW)			
Сараснансе	55.05 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER			
Resistance	2.57 Ω/kft*		UL 1690 Data Processing Cable (DP-1) UL 2250 Instrumentation Tray Cable			
Impedance	39.1 Ω		UL 2277 Type WTTC CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG)			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Applicable Standards	CSA C22.2 No.230 Tray Cables - Rated TC CSA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy			
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant	- Otanaarao				
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 16 AWG drain		IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive			
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		NFPA 79 Electrical Standard for Industrial Machinery  Made in America: Compliant with both Buy American and Buy America Act (BAA)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America requirements per 49 C.F.R. part 661			
Cold Impact	-40°C (-40°F) per UL 1277		Atherica requirements per 45 C.F.A. part 001			
Min. Bend Radius	12x diameter	Approvals**	UL (E75755), CSA (90458)			
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	0	Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C			
i iailie naully	UL1685, UL MTW NFPA 79 2007	Sample Print Legend	Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA			
Oil Resistance	Oil Res I & II	J	AWM I/II A/B 105°C 1000V -40°C FT4 - CE			

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	14 Gauge Multi-Conductor Flexible Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
	One 1  Two 2  Two 2									
MCTC-14-3S-1	3					0.36	4.32	20	0.10	\$2dc?:
MCTC-14-4S-1	4	14	41	20	47	0.40	4.80	20	0.13	\$;2dc,:
MCTC-14-7S-1	7					0.47	5.64	20	0.20	\$2dd0:

<sup>\*</sup> Installed bend radius ≥ 12x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

12 Ga	auge Multi-Conductor Fle	xible Con	trol Cable Specifications (Shielded)				
Conductor Gauge & Stranding	12AWG 65/30 bare copper, Class K						
	600V (Type TC-ER)		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Havin Bunch-Stranded Copper Conductors				
Voltage Rating	1000V (Type WTTC)		ASTM B174 Standard Specification for Bunch-Stranded Copper UL 13 Power-Limited Circuit Cables				
	1000V (UL/CSAAWM)		UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 10AWG)				
Conscitones	109.85 pF/ft Nom. Conductor to Shield		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW)				
Capacitance	61.03 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER				
Resistance	1.62 Ω/kft*		UL 1690 Data Processing Cable (DP-1) UL 2250 Instrumentation Tray Cable				
Impedance	35.5 Ω		UL 2277 Type WTTC				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Applicable	CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG) CSA C22.2 No.230 Tray Cables - Rated TC				
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant	Standards	CSA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the				
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 14 AWG drain		Distribution of Electrical Energy IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862				
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to				
Conductor Markings	#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		the material restrictions identified in the RoHS-2 (2011/65/EU) Directive NFPA 79 Electrical Standard for Industrial Machinery Made in America: Compliant with both Buy American and Buy America Act (BAA)				
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy				
Cold Impact	-40°C (-40°F) per UL 1277		America requirements per 49 C.F.R. part 661				
Min. Bend Radius	12x diameter	Approvals**	UL (E75755), CSA (90458)				
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C				
rianic nauny	UL1685, UL MTW NFPA 79 2007	Sample Print Legend	Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA				
Oil Resistance	Oil Res I & II		AWM I/II A/B 105°C 1000V -40°C FT4 CE				

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	12 Gauge Multi-Conductor Flexible Control Cable (Shielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
	One 1 Two 2										
MCTC-12-4S-1	4	12	65	25	47	0.44	5.28	20	0.18	\$;2dc!:	

<sup>\*</sup> Installed bend radius ≥ 12x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

10 G	auge Multi-Conductor Fle	xible Con	trol Cable Specifications (Shielded)					
Conductor Gauge & Stranding	10AWG 105/30 bare copper, Class K		ACTM D470 Charded Case Fasting for Daniel as Charded Course Conductors Heritage					
	600V (Type TC-ER)		ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Copper Conductors					
Voltage Rating	1000V (Type WTTC)		ASTM B174 Standard Specification for Bunch-Stranded Copper UL 13 Power-Limited Circuit Cables					
	1000V (UL/CSAAWM)		UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 10AWG)					
Capacitance	110.83 pF/ft Nom. Conductor to Shield		UL 758 AWM Style 2587 UL 1063 Machine Tool Wiring (MTW)					
Сараснансе	61.57 pF/ft Nom. Conductor to Conductor		UL 1277 TC-ER					
Resistance	1.02 Ω/kft*		UL 1690 Data Processing Cable (DP-1) UL 2250 Instrumentation Tray Cable					
Impedance	35.0 Ω		UL 2277 Type WTTC CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG)					
Operating Temperature	-40°C to 90°C (-40°F to 194°F)	Applicable Standards	CSA C22.2 No.230 Tray Cables - Rated TC					
Jacket Material	Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant	Gianuarus	CSA C22.2 No. 239 Control and instrumentation cables ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the					
Shield	Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 12 AWG drain		Distribution of Electrical Energy IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862					
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON		CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to					
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4		the material restrictions identified in the RoHS-2 (2011/65/EU) Directive NFPA 79 Electrical Standard for Industrial Machinery Made in America: Compliant with both Buy American and Buy America Act (BAA)					
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy					
Cold Impact	-40°C (-40°F) per UL 1277		America requirements per 49 C.F.R. part 661					
Min. Bend Radius	12x diameter	Approvals**	UL (E75755), CSA (90458)					
5, 5,	FT4, IEEE 1202/383, ICEA T-29-520		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C					
Flame Rating	UL1685, UL MTW NFPA 79 2007	Sample Print Legend						
Oil Resistance	Oil Res I & II	Logona						

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	10 Gauge Multi-Conductor Flexible Control Cable (Shielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
	One 1 Two 2										
MCTC-10-4S-1	4	10	105	25	62	0.56	6.72	20	0.32	\$2dc#:	

<sup>\*</sup> Installed bend radius ≥ 12x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

### **Power Machine Tray Cable**



### **Features**

- 18AWG to 8AWG, 3 to 25 conductors including a ground
- Individual conductors have black PVC/Nylon insulation and are marked with identification numbers
- Rugged Thermoplastic Elastomer (TPE) outer jacket
- Green/yellow ground wire included
- Multiple ratings and approvals include Type TC-ER (eliminates need for conduit/armor), Type MTW (meets NFPA 79), WTTC,
- Class 1 Division 2, Direct Burial, Wet and Dry Location, Oil Resistant, Sunlight Resistant
- Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
- Flexibility for easy installation
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- Made in the USA



Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

### Overview

Power Machine Tray Cable from Southwire is available in sizes from 18AWG to 8AWG with 3 to 25 unshielded conductors. Individual conductors are bare copper and stranded for flexibility, with black PVC/Nylon insulation and marked with numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has insulation that is green with a yellow stripe. The cable's outer jacket is a flexible, premium grade Thermoplastic Elastomer (TPE) that is resistant to sunlight, oil, and moisture penetration, making these cables suitable for wet and dry locations as well as outdoors. Although not suitable for continuous flexing applications, these cables are ideal for both stationary and flexible applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements.

With multiple ratings and approvals, Southwire Power Machine Tray Cable has the versatility to meet a wide range of industrial applications. Given its Tray Cable Exposed Run rating, UL Type TC-ER, our cable can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor resulting in installation and maintenance savings. With the Machine Tool Wire rating, UL Type MTW, these cables meet NFPA 79, Electrical Standard for Industrial Machinery. Other ratings and approvals include Wind Turbine Tray Cable UL Type WTTC, Class 1 Division 2 Hazardous Locations and Direct Burial. Cut to length in 1 foot increments with a 20 foot minimum length.













18 Gauge Multi-C	Conductor Flexible Powe	er/Control Cable	Specifications (Unshielded)			
Conductor Gauge & Stranding	18AWG 16/30 bare copper, Class K					
	600V (Type TC-ER)		ASTM B3, B172, B174			
Voltage Rating	1000V (Type WTTC)		UL 1277 - Type TC-ER UL 2277 - Type WTTC			
	1000V (UL/CSAAWM)		UL 1063 - Machine Tool Wiring (MTW)			
Capacitance	28.2 pF/ft Nom. Conductor to Conductor	Applicable	UL 1690 - Data Processing Cable (DP-1) UL 758 - AWM Style 20886			
Resistance	6.53 Ω/kft*	Standards	C22.2 NO. 230 - c(UL) Type TC CSA 22.2 No. 239 - c(UL) Type CIC			
Impedance	55.0 Ω		CSA C22.2 No. 210 - CSA AWM I/II A/B Class 1 Division II per NEC 336, 501, 502 Ecolab PM-40-1 Material Resistance Test With 30-day			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)					
Jacket Material	Flexible Black Thermoplastic Elastomer (TPE) - sunlight & oil resistant		Exposure, UL Verified V747862			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E75755), CSA (90458)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry					
Cold Impact	-40°C (-40°F) per UL 1277		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type			
Min. Bend Radius	4x diameter	Comple Drint Legand	TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR			
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print Legend	DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B			
	UL1685, UL MTW NFPA 79 2007		105°C 1000V -40°C FT4 CE			
Oil Resistance	Oil Res I & II					

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

18	18 Gauge Multi-Conductor Flexible Power/Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
					Inree 3 One 1	Eleven 11					
PMTC-18U-3BK-1	3					0.28	1.12	20	0.05	\$47yg:	
PMTC-18U-4BK-1	4					0.31	1.24	20	0.06	\$47yh:	
PMTC-18U-5BK-1	5					0.33	1.32	20	0.07	\$-47yi:	
PMTC-18U-7BK-1	7	18	16	20	45	0.36	1.44	20	0.09	\$-47yj:	
PMTC-18U-9BK-1	9					0.41	1.64	20	0.11	\$47yk:	
PMTC-18U-12BK-1	12					0.46	1.84	20	0.14	\$47yb:	
PMTC-18U-25BK-1	25				60	0.64	2.56	20	0.25	\$47yc:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible power/
control cable are closely tied to the market
price for copper. This allows us to offer the best savings
possible if conditions are favorable; however, it also means
that our prices may increase if market conditions
warrant.

www.automationdirect.com

**Wires Cords and Cables** 

<sup>\* \*</sup> See web store for maximum cut lengths

16 Gauge Multi-C	onductor Flexible Powe	er/Control Cable S	Specifications (Unshielded)			
Conductor Gauge & Stranding	16AWG 26/30 bare copper, Class K					
	600V (Type TC-ER)		ASTM B3, B172, B174			
Voltage Rating	1000V (Type WTTC)		UL 1277 - Type TC-ER			
	1000V (UL/CSA AWM)		UL 2277 - Type WTTC UL 1063 - Machine Tool Wiring (MTW)			
Capacitance	32.78 pF/ft Nom. Conductor to Conductor	Applicable	UL 1690 - Data Processing Cable (DP-1) UL 758 - AWM Style 20886			
Resistance	4.10 Ω/kft*	Standards	C22.2 NO. 230 - c(UL) Type TC			
Impedance	46.3 Ω		CSA 22.2 No. 239 - c(UL) Type CIC CSA C22.2 No. 210 - CSA AWM I/II A/B			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Class 1 Division II per NEC 336, 501, 502 Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Jacket Material	Flexible Black Thermoplastic Elastomer (TPE) - sunlight & oil resistant					
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E75755), CSA (90458)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry					
Cold Impact	-40°C (-40°F) per UL 1277		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type			
Min. Bend Radius	4x diameter	Comple Drint Legand	TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR			
Flome Deting	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print Legend	DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B			
Flame Rating	UL1685, UL MTW NFPA 79 2007		105°C 1000V -40°C FT4 CE			
Oil Resistance	Oil Res I & II					

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

16	16 Gauge Multi-Conductor Flexible Power/Control Cable (Unshielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
						en 11				
PMTC-16U-3BK-1	3			20		0.31	1.24	20	0.06	\$47yd:
PMTC-16U-4BK-1	4				50	0.34	1.36	20	0.08	\$47ye:
PMTC-16U-5BK-1	5	16	26			0.37	1.48	20	0.09	\$;47yf:
PMTC-16U-9BK-1	9					0.46	1.84	20	0.14	\$-47yl:
PMTC-16U-12BK-1	12				50	0.51	2.04	20	0.20	\$47yn:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

14 Gauge Multi-C	onductor Flexible Powe	er/Control Cable	Specifications (Unshielded)			
Conductor Gauge & Stranding	14AWG 41/30 bare copper, Class K					
	600V (Type TC-ER)		ASTM B3, B172, B174			
Voltage Rating	1000V (Type WTTC)		UL 1277 - Type TC-ER			
	1000V (UL/CSA AWM)		UL 2277 - Type WTTC UL 1063 - Machine Tool Wiring (MTW)			
Capacitance	37.09 pF/ft Nom. Conductor to Conductor	Applicable	UL 1690 - Data Processing Cable (DP-1) UL 758 - AWM Style 20886			
Resistance	2.57 Ω/kft*	Standards	C22.2 NO. 230 - c(UL) Type TC			
Impedance	40.0 Ω		CSA 22.2 No. 239 - c(UL) Type CIC CSA C22.2 No. 210 - CSA AWM I/II A/B			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Class 1 Division II per NEC 336, 501, 502 Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Jacket Material	Flexible Black Thermoplastic Elastomer (TPE) - sunlight & oil resistant					
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E75755), CSA (90458)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry					
Cold Impact	-40°C (-40°F) per UL 1277		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type			
Min. Bend Radius	4x diameter	Cample Print Legard	TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR			
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print Legend	DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V			
	UL1685, UL MTW NFPA 79 2007		OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 CE			
Oil Resistance	Oil Res I & II					

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

14	Gauge M	ulti-C	ondu	ctor Flexi	ble Powe	r/Control	Cable (	Unshiel	ded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
					Inreg	Faur 4				
PMTC-14U-3BK-1	3					0.34	1.36	20	0.82	\$47yo:
PMTC-14U-4BK-1	4				50	0.37	1.48	20	0.11	\$47yp:
PMTC-14U-9BK-1	9	14	41	20		0.52	2.08	20	0.21	\$47yq:
PMTC-14U-12BK-1	12				65	0.60	2.40	20	0.28	\$47ys:
PMTC-14U-18BK-1	18	1			05	0.70	2.80	20	0.40	\$;47yt:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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control cable are closely tied to the market
price for copper. This allows us to offer the best savings
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warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

12 Gauge Multi-C	Conductor Flexible Powe	er/Control Cable	Specifications (Unshielded)			
Conductor Gauge & Stranding	12AWG 65/30 bare copper, Class K					
	600V (Type TC-ER)		ASTM B3. B172. B174			
Voltage Rating	1000V (Type WTTC)		UL 1277 - Type TC-ER			
	1000V (UL/CSA AWM)		UL 2277 - Type WTTC UL 1063 - Machine Tool Wiring (MTW)			
Capacitance	40.4 pF/ft Nom. Conductor to Conductor	Applicable	UL 1690 - Data Processing Cable (DP-1) UL 758 - AWM Style 20886			
Resistance	1.62 Ω/kft*	Standards	C22.2 NO. 230 - c(UL) Type TC			
Impedance	36.1 Ω		CSA 22.2 No. 239 - c(UL) Type CIC CSA C22.2 No. 210 - CSA AWM I/II A/B			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Class 1 Division II per NEC 336, 501, 502 Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Jacket Material	Flexible Black Thermoplastic Elastomer (TPE) - sunlight & oil resistant					
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E75755), CSA (90458)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry					
Cold Impact	-40°C (-40°F) per UL 1277		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type			
Min. Bend Radius	4x diameter	Sample Print Legend	TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR			
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	Sample Finit Legenu	DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B			
	UL1685, UL MTW NFPA 79 2007		105°C 1000V -40°C FT4 CE			
Oil Resistance	Oil Res I & II					

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

12 Gauge Multi-Conductor Flexible Power/Control Cable (Unshielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
Four 4 Three 3										
PMTC-12U-3BK-1	3	12	65	20	50	0.39	1.56	20	0.11	\$47yu:
PMTC-12U-4BK-1	4					0.42	1.68	20	0.15	\$47yv:
PMTC-12U-5BK-1	5					0.46	1.85	20	0.18	\$47yx:
PMTC-12U-7BK-1	7					0.50	2.01	20	0.23	\$47yy:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

# 10 Gauge Multi-Conductor Power/Control Cable (Unshielded)

10 Gauge Multi-C	Conductor Flexible Powe	er/Control Cable	Specifications (Unshielded)		
Conductor Gauge & Stranding	10 AWG 105/30 bare copper, Class K				
	600V (Type TC-ER)		ASTM B3, B172, B174		
Voltage Rating	1000V (Type WTTC)		UL 1277 - Type TC-ER		
	1000V (UL/CSA AWM)		UL 2277 - Type WTTC UL 1063 - Machine Tool Wiring (MTW)		
Capacitance	40.7 pF/ft Nom. Conductor to Conductor	Applicable	UL 1690 - Data Processing Cable (DP-1) UL 758 - AWM Style 20886		
Resistance	1.02 Ω/kft*	Standards	C22.2 NO. 230 - c(UL) Type TC		
Impedance	35.8 Ω		CSA 22.2 No. 239 - c(UL) Type CIC CSA C22.2 No. 210 - CSA AWM I/II A/B		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Class 1 Division II per NEC 336, 501, 502 Ecolab PM-40-1 Material Resistance Test With 30-day		
Jacket Material	Flexible Black Thermoplastic Elastomer (TPE) - sunlight & oil resistant		Exposure, UL Verified V747862		
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON				
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc  @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E75755), CSA (90458)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry				
Cold Impact	-40°C (-40°F) per UL 1277		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type		
Min. Bend Radius	4x diameter	Sample Print Legend	TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR		
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	Sample Finit Leyenu	DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B		
	UL1685, UL MTW NFPA 79 2007		105°C 1000V -40°C FT4 CE		
Oil Resistance	Oil Res I & II				

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

	10 Gauge Multi-Conductor Flexible Power/Control Cable										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Inetalled	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
					I nree .	70 Z					
							_				
PMTC-10U-4BK-1	4	10	105	25	50	0.50	2.00	20	0.21	\$47yz:	
PMTC-10U-5BK-1	5	10	105	25	30	0.53	2.12	20	0.26	\$;47y]:	

<sup>\*</sup> Installed bend radius ≥ 4x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

# 8 Gauge Multi-Conductor Power/Control Cable (Unshielded)

8 Gauge Multi-C	onductor Flexible Powe	r/Control Cable S	Specifications (Unshielded)			
Conductor Gauge & Stranding	8 AWG 168/30 bare copper, Class K					
	600V (Type TC-ER)		ASTM B3, B172, B174			
Voltage Rating	1000V (Type WTTC)		UL 1277 - Type TC-ER UL 2277 - Type WTTC			
	1000V (UL/CSA AWM)		UL 1063 - Machine Tool Wiring (MTW)			
Capacitance	40.7 pF/ft Nom. Conductor to Conductor  Applicable		UL 1690 - Data Processing Cable (DP-1) UL 758 - AWM Style 20886			
Resistance	1.02 Ω/kft*	Standards	C22.2 NO. 230 - c(UL) Type TC			
Impedance	35.8 Ω		CSA 22.2 No. 239 - c(UL) Type CIC CSA C22.2 No. 210 - CSA AWM I/II A/B			
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		Class 1 Division II per NEC 336, 501, 502			
Jacket Material	Flexible Black Thermoplastic Elastomer (TPE) - sunlight & oil resistant		Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862			
Conductor Insulation	0.015 Inch, PVC + 0.005 Inch, NYLON					
Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	Approvals**	UL (E75755), CSA (90458)			
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry		Courthuring VVANAC (VVmm2) VV/C DVC/Niden Time			
Cold Impact	-40°C (-40°F) per UL 1277		Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun			
Min. Bend Radius	4x diameter	Comple Print Legend	Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR			
Flame Rating	FT4, IEEE 1202/383, ICEA T-29-520	Sample Print Legend	DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 CE			
riallie Kauliy	UL1685, UL MTW NFPA 79 2007					
Oil Resistance	Oil Res I & II		100 0 1000V -40 01 14 OL			

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

8 Gauge Multi-Conductor Flexible Power/Control Cable										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
Hillier 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										
PMTC-8U-4BK-1	4	8	168	37	70	0.68	2.72	20	0.37	\$;47y[:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible power/
control cable are closely tied to the market
price for copper. This allows us to offer the best savings
possible if conditions are favorable; however, it also means
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warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

### **Quabbin 600 Volt Control Cable**





### **Overview**

Quabbin 600 Volt control cables from AutomationDirect are suited for use in control panels, conduits, and where superior electrical properties are desired. Quabbin's 600 Volt Control Cable provide significant cost and space savings and are designed for 600V, 105C maximum ambient temperature, internal or external interconnection for industrial controls and instrumentation, HVAC controls, appliance controls, and mixed voltage/signal environments.

### **Features**

- 20AWG to 14AWG, 2 to 25 conductors
- Shielded and Unshielded constructions
- UL Appliance Wiring Material (AWM) style 2586
- Color coded Polyvinyl Chloride (PVC) conductor insulation
- Polyvinyl Chloride (PVC) Jacket
- Reduced diameter for space savings in panels and conduits.
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- · Made in the USA

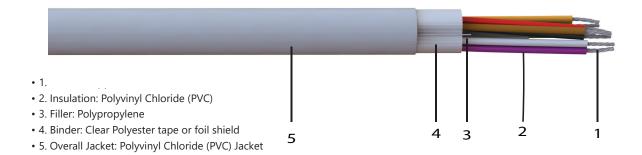




Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable



	Control Cable Conductor Identification										
Conductor Number	Primary Color	Stripe	Conductor Number	Primary Color	Stripe						
1	Black	_	14	White	Orange						
2	Brown	_	15	White	Yellow						
3	Red	_	16	White	Green						
4	Orange	_	17	White	Blue						
5	Yellow	_	18	White	Violet						
6	Green	_	19	White	Gray						
7	Blue	_	20	White	Black/Brown						
8	Violet	_	21	White	Black/Red						
9	Gray	_	22	White	Black/Orange						
10	White	_	23	White	Black/Yellow						
11	White	Black	24	White	Black/Green						
12	White	Brown	25	White	Black/Blue						
13	White	Red									



20 Ga	uge 600 Volt Control Ca	ble Specification	s (Unshielded)		
Conductor Gauge & Stranding	20AWG 7/28 stranded tinned copper				
Voltage Rating	600V				
Resistance	10.4 Ω/1000ft				
Operating Temperature	-20°C to 105 °C (-4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	Applicable Standards	UL Appliance Wiring Material (AWM) style 2586 UL VW-1 UL 1581 Flame Tested		
Conductor Insulation	0.016 Inch, PVC		CSA FT-4 Flame Tested		
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

<sup>\*\*</sup> Color code located in table on overview page of this section

	20 Gauge 600 Volt Control Cable (Unshielded)									
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1,000ft)	Price per foot
CC600-20-3U-1	3					0.218	2.18	20	27	\$544c:
CC600-20-4U-1	4					0.236	2.36	20	33.3	\$-544i:
CC600-20-9U-1	9					0.323	3.23	20	65.1	\$544p:
CC600-20-12U-1	12	20	7	16	32	0.351	3.51	20	81.2	\$544x:
CC600-20-15U-1	15					0.395	3.95	20	99.8	\$544#:
CC600-20-19U-1	19					0.417	4.17	20	121	\$5447:
CC600-20-25U-1	25					0.498	4.98	20	156.8	\$5448:

<sup>\*</sup> Installed bend radius ≥ 10x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

18 Ga	uge 600 Volt Control Ca	ble Specification	s (Unshielded)		
Conductor Gauge & Stranding	18AWG 16/30 stranded tinned copper				
Voltage Rating	600V				
Resistance	7.15 Ω/1000ft				
Operating Temperature	-20°C to 105°C (-4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	Applicable Standards	UL Appliance Wiring Material (AWM) style 2586 UL VW-1 UL 1581 Flame Tested		
Conductor Insulation	0.016 Inch, PVC		CSA FT-4 Flame Tested		
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

<sup>\*\*</sup> Color code located in table on overview page of this section

		18 G	auge (	600 Volt	Control C	able (Uns	hielded			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1000ft)	Price per foot
					_					
					_			_		
CC600-18-2U-1	2					0.221	2.21	20	28.1	\$5449:
CC600-18-3U-1	3					0.223	2.23	20	34.7	\$544a:
CC600-18-4U-1	4					0.253	2.53	20	41.2	\$544b:
CC600-18-5U-1	5					0.275	2.75	20	52.2	\$544d:
CC600-18-7U-1	7	18	16	16	32	0.298	2.98	20	64.6	\$544e:
CC600-18-9U-1	9					0.348	3.48	20	83.1	\$;544f:
CC600-18-15U-1	15					0.428	4.28	20	131.8	\$544g:
CC600-18-19U-1	19					0.452	4.52	20	156	\$544h:
CC600-18-25U-1	25					0.541	5.41	20	205.5	\$-544j:

<sup>\*</sup> Installed bend radius ≥ 10x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

16 Ga	uge 600 Volt Control Ca	ble Specification	ıs (Unshielded)		
Conductor Gauge & Stranding	16AWG 19/0.117 stranded tinned copper				
Voltage Rating	600V				
Resistance	4.82 Ω/1000ft				
Operating Temperature	-20°C to 105°C ( -4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	Applicable Standards	UL Appliance Wiring Material (AWM) style 2586 UL VW-1 UL 1581 Flame Tested CSA FT-4 Flame Tested		
Conductor Insulation	0.016 Inch, PVC	otanuar ub			
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

<sup>\*\*</sup> Color code located in table on overview page of this section

		16 G	auge	600 Volt	<b>Control C</b>	able (Uns	hielded			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1000ft)	Price per foot
	_	_	_	_					7990	
CC600-16-4U-1	4					0.282	2.82	20	58.4	\$544k:
CC600-16-5U-1	5	1				0.307	3.07	20	72	\$-5441:
CC600-16-7U-1	7	]				0.334	3.34	20	91.1	\$544n:
CC600-16-9U-1	9	16	19	16	32	0.392	3.92	20	115.2	\$544o:
CC600-16-12U-1	12	16	19	10		0.427	4.27	20	148.8	\$544q:
CC600-16-15U-1	15	]				0.484	4.84	20	182.6	\$544s:
CC600-16-19U-1	19					0.512	5.12	20	225	\$;544t:
CC600-16-25U-1	25				52	0.654	6.54	20	318	\$544u:

<sup>\*</sup> Installed bend radius ≥ 10x diameter





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<sup>\* \*</sup> See web store for maximum cut lengths

14 Gau	ige 600 Volt Control Cat	le Specifications	(Unshielded)		
Conductor Gauge & Stranding	14AWG 41/30 stranded tinned copper				
Voltage Rating	600V				
Resistance	2.94 Ω/1000ft				
Operating Temperature	-20°C to 105°C (-4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	UL Appliance Wiring Material (AWM) style 2586 UL VW-1 UL 1581 Flame Tested			
Conductor Insulation	0.016 Inch, PVC	CSA FT-4 Flame Tested			
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

<sup>\*\*</sup> Color code located in table on overview page of this section

	14 Gauge 600 Volt Control Cable (Unshielded)										
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1000ft)	Price per foot	
		_			_						
			_								
CC600-14-2U-1	2					0.271	2.71	20	49.2	\$544v:	
CC600-14-3U-1	3					0.286	2.86	20	66.3	\$544y:	
CC600-14-4U-1	4	14	41	16	32	0.314	3.14	20	79.4	\$544z:	
CC600-14-5U-1	5					0.342	3.42	20	97.7	\$;544]:	
CC600-14-7U-1	7					0.373	3.73	20	129	\$;544[:	

<sup>\*</sup> Installed bend radius ≥ 10x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

18 G	auge 600 Volt Control C	Cable Specification	ons (Shielded)		
Conductor Gauge & Stranding	18 AWG 16/30 stranded tinned copper				
Voltage Rating	600V				
Resistance	7.15 Ω/1000ft				
Operating Temperature	-20°C to 105°C (-4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	Applicable	UL Appliance Wiring Material (AWM) style 2586		
Conductor Insulation	0.016 Inch, PVC	Standards	UL VW-1 UL 1581 Flame Tested CSA FT-4 Flame Tested		
Shielding	Overall aluminized polyester foil shield, 100% coverage includes an 18 AWG. stranded tinned copper drain wire.				
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

<sup>\*\*</sup> Color code located in table on overview page of this section

		18	Gaug	e 600 Volt	<b>Control</b>	Cable (S	Shielded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1000ft)	Price per foot
		-	-							
CC600-18-3S-1	3					0.236	2.36	20	40.7	\$544_:
CC600-18-4S-1	4					0.272	2.72	20	48.2	\$;544!:
CC600-18-5S-1	5					0.278	2.78	20	58.2	\$544?:
CC600-18-7S-1	7	18	16	16	32	0.321	3.21	20	71.8	\$;544,:
CC600-18-9S-1	9					0.351	3.51	20	90.6	\$5450:
CC600-18-12S-1	12					0.382	3.82	20	111.5	\$5451:
CC600-18-19S-1	19					0.476	4.76	20	164.7	\$5452:

<sup>\*</sup> Installed bend radius ≥ 10x diameter





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<sup>\* \*</sup> See web store for maximum cut lengths

16 G	auge 600 Volt Control C	able Specification	ons (Shielded)		
Conductor Gauge & Stranding	16 AWG 19/0.117 stranded tinned copper				
Voltage Rating	600V				
Resistance	4.82 Ω/1000ft				
Operating Temperature	-20°C to 105°C (-4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	Applicable	UL Appliance Wiring Material (AWM) style 2586		
Conductor Insulation	0.016 Inch, PVC	Standards	UL VW-1 UL 1581 Flame Tested CSA FT-4 Flame Tested		
Shielding	Overall aluminized polyester foil shield, 100% coverage includes an 16 AWG. stranded tinned copper drain wire.				
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

	16 Gauge 600 Volt Control Cable (Shielded)										
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1000ft)	Price per foot	
		,	,								
<u>CC600-16-3S-1</u>	3	16	19	0.117	32	0.276	2.76	20	55.6	\$5453:	
CC600-16-4S-1	4	16	19	0.117	32	0.304	3.04	20	69.9	\$5454:	

<sup>\*</sup> Installed bend radius ≥ 10x diameter





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<sup>\*\*</sup> Color code located in table on overview page of this section

<sup>\* \*</sup> See web store for maximum cut lengths

14 G	auge 600 Volt Control C	able Specification	ons (Shielded)		
Conductor Gauge & Stranding	14 AWG 41/30 stranded tinned copper, Class K				
Voltage Rating	600V				
Resistance	2.94 Ω/1000ft				
Operating Temperature	-20°C to 105°C (-4°F to 221°F)				
Jacket Material	Polyvinyl Chloride (PVC) jacket, Chrome Gray	Applicable	UL Appliance Wiring Material (AWM) style 2586		
Conductor Insulation	0.020 Inch, PVC	Standards	UL VW-1 UL 1581 Flame Tested CSA FT-4 Flame Tested		
Shielding	Overall aluminized polyester foil shield, 100% coverage includes an 14 AWG. stranded tinned copper drain wire.				
Filler	Polypropylene filler				
Binder	Clear Polyester binder tape				
Conductor Markings	Color coded conductors**				
Temperature Rating	105°C	Approvals*	UR E69976		
Flame Rating	FT4	Sample Print Legend	600V-TROL® E69976 AWM 2586 VW-1 CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www. AutomationDirect.com

<sup>\*\*</sup> Color code located in table on overview page of this section

		14	Gaug	e 600 Volt	Control	Cable (S	Shielded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/1000ft)	Price per foot
CC600-14-4S-1	4	14	41	16	32	0.317	3.17	20	71.4	\$5455:

<sup>\*</sup> Installed bend radius ≥ 10x diameter





<sup>\* \*</sup> See web store for maximum cut lengths

## Vinyl Nylon Tray Cable (VNTC) Control Cable















Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable



### **Overview**

Vinyl Nylon Tray Cable (VNTC) 600 Volt Type TC-ER control cables from AutomationDirect are suited for use in wet and dry areas, conduits, ducts, troughs, trays, direct burial, aerial supported by a messenger, and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 75°C in wet locations and 90°C in dry locations, 130°C for emergency overload, and 150°C for short circuit conditions. For use in Class I, II, and III, Division 2 hazardous locations per NEC Article 501 and 502. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC 336.10. Silicone Free

### **Features**

- 18AWG to 10AWG, 3 to 24 conductors
- · Unshielded constructions
- Type TC-ER Control Cable 600Volt Copper Conductors
- Polyvinyl Chloride (PVC) with nylon layer Insulation THHN Polyvinyl Chloride (PVC) lacket
- Control Cable Conductor Identification Method
   1 Table 2
- · Silicone Free
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- · Made in the USA

Control	Cable Cor	iductor Ident	ification Met	hod 1 Tab	le 2*
Conductor Number	Primary Color	Stripe	Conductor Number	Primary Color	Stripe
1	Black	_	19	Orange	Blue
2	Red	_	20	Yellow	Blue
3	Blue	_	21	Brown	Blue
4	Orange	_	22	Black	Orange
5	Yellow	_	23	Red	Orange
6	Brown	_	24	Blue	Orange
7	Red	Black	25	Yellow	Orange
8	Blue	Black	26	Brown	Orange
9	Orange	Black	27	Black	Yellow
10	Yellow	Black	28	Red	Yellow
11	Brown	Black	29	Blue	Yellow
12	Black	Red	30	Orange	Yellow
13	Blue	Red	31	Brown	Yellow
14	Orange	Red	32	Black	Brown
15	Yellow	Red	33	Red	Brown
16	Brown	Red	34	Blue	Brown
17	Black	Blue	35	Orange	Brown
18	Red	Blue	36	Yellow	Brown

\* ICEA Method 1 Table 2 does not provide a green or green/yellow conductor for ground



- 1. Conductor: 7 strands class B compressed bare copper per ASTM B3 and ASTM B8 for 14, 12, and 10 AWG cables. 26 strands class K bare copper per ASTM B3 and B174 for 16 AWG cables
- 2. Insulation: Polyvinyl Chloride (PVC) with nylon layer 19 Mils thick for 18, 16, 14, 12 AWG cables and 24 Mils for 10 AWG cables, Type TFFN/TFN for 18 and 16 AWG cable and Type THHN or THWN for 14, 12 and 10 AWG cables
- 3. Filler: Polypropylene filler on cables with 5 or less conductors
- 4. Binder: Polyester flat thread binder tape applied for cables with more than 5 conductors
- 5. Overall Jacket: Polyvinyl Chloride (PVC) Jacket

	18 Gauge VNTC Cable S	pecifications (Ur	ishielded)				
Conductor Gauge & Stranding	18AWG 7/26 bare copper, Class K		ASTM B3 Standard Specification for Soft or Annealed Copper Wire				
Voltage Rating	600V (Type TC-ER)		ASTM B8 Concentric-Lay-Stranded Copper Conductors				
Resistance	6.53 Ω/kft*		UL 83 Thermoplastic Insulated Wires and Cables Type THHN				
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1277 Electrical Power and Control Tray Cables				
Jacket Material	Polyvinyl chloride (PVC) jacket	Applicable	UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test				
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON	Standards	ICEA S-58-679 Control Cable Conductor Identification Method 1 Table 2				
Filler	Polypropylene filler on cables with 5 or less conductors		ICEA S-73-532 Standard for Control				
Binder	Polyester flat thread binder tape applied for cables with more than 5 conductors		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy				
Conductor Markings	Control Cable Conductor Identification Method 1 Table 2		IEEE 1202 FT4 Vertical Tray Flame Test (70,000 Btu/hr) and ICEA T-29-520 - (210,000 Btu/hr)				
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	Approvals**	UL (E75755)				
Flame Rating	FT4	Sample Print Legend	SOUTHWIRE EXXXXX #P# (UL) [#AWG Or #kcmil] CU THHN PVC/PVC 600V Type TC-ER For CT USE SUN. RES. For DIRECT BURIAL FT4 YEAR (NESC) [SEQUENTIAL FEET MARKS]				

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			18 G	auge VN	TC Cable	(Unshie	ded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
VNTC-18-3-BK-1	3					0.350	1.1	20	0.05	\$4jl6:
VNTC-18-6-BK-1	6					0.453	1.4	20	0.08	\$4jI7:
<u>VNTC-18-8-BK-1</u>	8					0.490	1.6	20	0.09	\$4jl8:
VNTC-18-10-BK-1	10	18	7	15	45	0.551	1.8	20	0.12	\$4jl9:
VNTC-18-12-BK-1	12					0.573	1.8	20	0.13	\$4jla:
VNTC-18-19-BK-1	19					0.705	2.3	20	0.21	\$4jl1:
VNTC-18-24-BK-1	24					0.826	2.6	20	0.26	\$4jl2:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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<sup>\* \*</sup> See web store for maximum cut lengths

	16 Gauge VNTC Cable S	pecifications (Ur	ishielded)		
Conductor Gauge & Stranding	16AWG 7/24 bare copper, Class K		ASTM B3 Standard Specification for Soft or Annealed Copper Wire		
Voltage Rating	600V (Type TC-ER)		ASTM B8 Concentric-Lay-Stranded Copper Conductors		
Resistance	4.18 Ω/kft*		UL 83 Thermoplastic Insulated Wires and Cables Type THHN		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1277 Electrical Power and Control Tray Cables		
Jacket Material	Polyvinyl chloride (PVC) jacket	Applicable	UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test		
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON	Standards	ICEA S-58-679 Control Cable Conductor Identification Method 1 Table 2		
Filler	Polypropylene filler on cables with 5 or less conductors		ICEA S-73-532 Standard for Control		
Binder	Polyester flat thread binder tape applied for cables with more than 5 conductors		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy		
Conductor Markings	Control Cable Conductor Identification Method 1 Table 2		IEEE 1202 FT4 Vertical Tray Flame Test (70,000 Btu/hr) and ICEA T-29-520 - (210,000 Btu/hr)		
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	Approvals**	UL (E75755)		
Flame Rating	FT4	Sample Print Legend	SOUTHWIRE EXXXXX #P# (UL) [#AWG Or #kcmil] CU THHN PVC/PVC 600V Type TC-ER For CT USE SUN. RES. For DIRECT BURIAL FT4 YEAR (NESC [SEQUENTIAL FEET MARKS]		

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			16 G	auge VNT	C Cable	(Unshield	ed)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
VNTC-16-3-BK-1	3					0.368	1.2	20	0.06	\$4jl3:
VNTC-16-4-BK-1	4					0.398	1.3	20	0.07	\$4jl4:
VNTC-16-5-BK-1	5				45	0.432	1.4	20	0.08	\$4jl5:
VNTC-16-7-BK-1	7	16	7	19	45	0.466	1.5	20	0.11	\$4jlb:
VNTC-16-9-BK-1	9					0.539	1.7	20	0.14	\$4jlc:
VNTC-16-12-BK-1	12					0.604	1.9	20	0.17	\$4jld:
<u>VNTC-16-19-BK-1</u>	19				60	0.746	2.4	20	0.27	\$4jle:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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www.automationdirect.com Wires Cords and Cables tCBL-121

<sup>\* \*</sup> See web store for maximum cut lengths

	14 Gauge VNTC Cable S	pecifications (U	nshielded)
Conductor Gauge & Stranding	14AWG 7/22 bare copper, Class K		ASTM B3 Standard Specification for Soft or Annealed Copper Wire
Voltage Rating	600V (Type TC-ER)		ASTM B8 Concentric-Lay-Stranded Copper Conductors
Resistance	2.63 Ω/kft*		UL 83 Thermoplastic Insulated Wires and Cables Type THHN
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1277 Electrical Power and Control Tray Cables
Jacket Material	Polyvinyl chloride (PVC) jacket	Applicable	UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON	Standards	ICEA S-58-679 Control Cable Conductor Identification Method 1 Table 2
Filler	Polypropylene filler on cables with 5 or less conductors		ICEA S-73-532 Standard for Control
Binder	Polyester flat thread binder tape applied for cables with more than 5 conductors		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
Conductor Markings	Control Cable Conductor Identification Method 1 Table 2		IEEE 1202 FT4 Vertical Tray Flame Test (70,000 Btu/hr) and ICEA T-29-520 - (210,000 Btu/hr)
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	Approvals**	UL (E75755)
Flame Rating	FT4	Sample Print Legend	SOUTHWIRE EXXXXX #P# (UL) [#AWG Or #kcmil] CU THHN PVC/PVC 600V Type TC-ER For CT USE SUN. RES. For DIRECT BURIAL FT4 YEAR (NESC) [SEQUENTIAL FEET MARKS]

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			14 G	auge VN	TC Cable	<b>Unshield</b>	ed)			
Part Number	Number of Conductors	AWI; Strand Insulation				Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
VNTC-14-3-BK-1	3					0.405	1.3	20	0.08	\$;4jlf:
VNTC-14-4-BK-1	4	14	7		45	0.437	1.4	20	0.09	\$4jlg:
<u>VNTC-14-5-BK-1</u>	5	14	,	19	45	0.475	1.5	20	0.11	\$4jlh:
<u>VNTC-14-7-BK-1</u>	7					0.516	1.7	20	0.15	\$4jli:
VNTC-14-12-BK-1	12				60	0.710	2.3	20	0.26	\$4jlj:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





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<sup>\* \*</sup> See web store for maximum cut lengths

	2 Gauge VNTC Cable S	pecifications (Un	shielded)
Conductor Gauge & Stranding	12AWG 7/20 bare copper, Class K		ASTM B3 Standard Specification for Soft or Annealed Copper Wire
Voltage Rating	600V (Type TC-ER)		ASTM B8 Concentric-Lay-Stranded Copper Conductors
Resistance	1.66 Ω/kft*		UL 83 Thermoplastic Insulated Wires and Cables Type THHN
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1277 Electrical Power and Control Tray Cables
Jacket Material	Polyvinyl chloride (PVC) jacket	Applicable	UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON	Standards	ICEA S-58-679 Control Cable Conductor Identification Method 1 Table 2
Filler	Polypropylene filler on cables with 5 or less conductors		ICEA S-73-532 Standard for Control
Binder	Polyester flat thread binder tape applied for cables with more than 5 conductors		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
Conductor Markings	for cables with more than 5 conductors		IEEE 1202 FT4 Vertical Tray Flame Test (70,000 Btu/hr) and ICEA T-29-520 - (210,000 Btu/hr)
nnalictor Warkings		Approvals**	UL (E75755)
Flame Rating	FT4	Sample Print Legend	SOUTHWIRE EXXXXX #P# (UL) [#AWG Or #kcmil] CU THHN PVC/PVC 600V Type TC-ER For CT USE SUN. RES. For DIRECT BURIAL FT4 YEAR (NESC) [SEQUENTIAL FEET MARKS]

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

12 Gauge VNTC Cable							ded)			
Part Number	Mumber of Conductors AWG Strand Insulation Thickness (Mils)				Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)*		Approximate Weight (lb/ft)	Price per foot
VNTC-12-3-BK-1	3					0.450	1.4	20	0.10	\$4jlk:
<u>VNTC-12-4-BK-1</u>	4	12	7	19	45	0.490	1.6	20	0.13	\$4jII:
<u>VNTC-12-5-BK-1</u>	5					0.539	1.7	20	0.16	\$4jln:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

	10 Gauge VNTC Cable S	pecifications (U	nshielded)
Conductor Gauge & Stranding	10 AWG 7/18 bare copper, Class K		ASTM B3 Standard Specification for Soft or Annealed Copper Wire
Voltage Rating	600V (Type TC-ER)		ASTM B8 Concentric-Lay-Stranded Copper Conductors
Resistance	1.04 Ω/kft*		UL 83 Thermoplastic Insulated Wires and Cables Type THHN
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		UL 1277 Electrical Power and Control Tray Cables
Jacket Material	Polyvinyl chloride (PVC) jacket	Applicable Standards	UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.020 Inch, PVC + 0.004 Inch, NYLON	- Glanuarus	ICEA S-58-679 Control Cable Conductor Identification Method 1 Table 2
Filler	Polypropylene filler on cables with 5 or less conductors		ICEA S-73-532 Standard for Control
Binder	Polyester flat thread binder tape applied for cables with more than 5 conductors		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
Conductor Markings	Control Cable Conductor Identification Method 1 Table 2		IEEE 1202 FT4 Vertical Tray Flame Test (70,000 Btu/hr) and ICEA T-29-520 - (210,000 Btu/hr)
Temperature Rating	75°C (167°F) Wet, 90°C (194°F) Dry	Approvals**	UL (E75755)
Flame Rating	FT4	Sample Print Legend	SOUTHWIRE EXXXXX #P# (UL) [#AWG Or #kcmil] CU THHN PVC/PVC 600V Type TC-ER For CT USE SUN. RES. For DIRECT BURIAL FT4 YEAR (NESC) [SEQUENTIAL FEET MARKS]

<sup>\*</sup> Per ASTM B174

<sup>\*\*</sup> To obtain the most current agency approval information, see Agency Approval Checklist section on the specifict part number's web page at www. AutomationDirect.com

			10 G	auge VNT	C Cable (	Unshiel	ded)			
Part Number	mber Number of Conductors AWG Strand				rall ductor Jacket Jacket Christian (Mils) Nominal O.D. Thickness (Mils) ±10%)			Minimum Installed Minimum Bend Cut Length Radius (ft)** (inches)*		Price per foot
<u>VNTC-10-3-BK-1</u>	3					0.541	1.7	20	0.16	\$4jlo:
<u>VNTC-10-4-BK-1</u>	4	10	7	24	45	0.591	1.9	20	0.20	\$4jlp:
<u>VNTC-10-5-BK-1</u>	5					0.650	2.1	20	0.24	\$4jlq:

<sup>\*</sup> Installed bend radius ≥ 4x diameter





Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

<sup>\* \*</sup> See web store for maximum cut lengths

### VFD (Variable-Frequency Drive)



Variable-frequency drives (VFDs) control the speed and torque of AC motors by varying the frequency of the voltage to the motor; however, the VFD does not send a pure sine-wave frequency to the motor. They more accurately use a series of pulses which varies in frequency in a technique called pulse-width modulation (PWM).

While PWM is an excellent way to control a motor, it creates several issues that can affect the motor's life and power quality, as well as create Electromagnetic Interference (EMI) and reduce the life of the cable.

By using a cable designed for use with VFDs, it is possible to limit the effect of high frequencies on the surrounding equipment and possibly prevent costly machine downtime.

AutomationDirect is pleased to introduce our new line of Variable-frequency drive (VFD) cable manufactured by Southwire Company.

#### **Features**

- Cross-linked Polyethylene (XLPE) conductor insulation
- Class K, flexible stranded tinned annealed copper conductors per ASTM B33, B172 and B174
- Green ground conductor with yellow stripe, cross linked Polyethylene (XLPE) insulation
- 100% coverage aluminum/mylar/aluminum foil shield
- 85% coverage tinned copper braid shield
- Tinned copper drain wire(s)
- Black Thermoplastic Elastomer (TPE) jacket
- Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
- Cut to length in 1 foot increments
- · Minimum cut lengths as low as 10 feet
- Made in USA















Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable



	VFD 4-Cor	iductor Cable S	Specifications Specification Specif
Conductors Gauge & Stranding	g 16AWG (26 Strands) to 2AWG (651 Strands), Class K flexible stranded tinned annealed copper per ASTM B3: B172 and B174 600V UL 90°C TC-ER 1000V WTTC 1000V AWM 1000V Flexible Motor Supply Cable Thermoplastic Elastomer (TPE) Black with white print -40°F (-40°C) 20 feet -40°F to +194°F (-40°C to +90°C) Black cross-linked Polyethylene (XLPE with green/yellow ground "1-ONE", "2-TWO", "3-THREE", @ 4.5 inch intervals, ICEA Method 4		ASTM B172 - Rope-Lay-Stranded Copper Conductors ASTM B174 - Bunch-Stranded Copper Conductors ASTM B33 - Tinned soft or annealed Copper UL 44 - Thermoset Insulation
Voltage Rating	1000V WTTC 1000V AWM	- Approvals**	UL 1063 - Machine Tool Wiring (MTW) UL 1277 - Type TC-ER Standard Power and Control Cables UL 2277 - Type WTTC Flexible Motor Supply UL 758 - AWM Style 20886 Standard for Appliance Wiring Material
Outer Jacket Material	Thermoplastic Elastomer (TPE)	ripprovato	Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
Outer Jacket Color	Black with white print		C22.2 No. 230 Type TC CSA 22.2 No. 239 TYPE CIC
Cold Bend	-40°F (-40°C)		CSA C22.2 No. 210 - CSA AWM I/II A/B ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the
Min. Cut Length*	20 feet		Distribution of Electrical Energy CE RoHS 2
Temperature Ratings	-40°F to +194°F (-40°C to +90°C)		Southwire XXAWG (XXmm2) XX/C VFD XLPE CDRS TYPE TC-ER EXXXXX
Conductor Insulation	Black cross-linked Polyethylene (XLPE) with green/yellow ground	Sample Print Legend	(UL) 600V 90°C DRY 90°C WET SUN RES OIL RES I/II DIR BUR -40°C OR WTTC 1000V OR AWM 20886 105°C 1000V OR Flexible Motor Supply Cable
Conductor Markings	1 1		1000V LLXXXXXX CSA CIC/TC FT4 OR AWM I/II A/B 1000V 105C FT4 -40°C CE RoHS-2 Made in USA
* Soo woh store for maximum out land	ha		

See web store for maximum cut lengths

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

### **VFD Cable - 4 Conductor**

	VF	D 4-Conducto	r Cable Speci	ifications Co	ntinued		
Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)	Nom. Capacitance Conductor to Conductor (pF/ft.)	Nom. Conductor DC Resistance @ 20°C (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20°C (Ohm/1000 ft.)	Impedance (ohms)	Velocity of Propagation	Max. Operating Voltage - UL
<u>VFDC-16-4B-1</u>	36.34	20.19	4.49	2.40	86.6	0.57	600V / 1000V
VFDC-14-4B-1	44.10	24.50	2.82	2.31	71.4	0.57	600V / 1000V
VFDC-12-4B-1	46.93	26.07	1.77	2.48	67.1	0.57	600V / 1000V
VFDC-10-4B-1	52.52	29.18	1.12	2.63	60.0	0.57	600V / 1000V
VFDC-8-4B-1	50.72	28.18	0.72	3.66	62.1	0.57	600V / 1000V
VFDC-6-4B-1	56.81	31.56	0.45	3.48	55.4	0.57	600V / 1000V
VFDC-4-4B-1	67.95	37.75	0.28	3.69	46.3	0.57	600V / 1000V
<u>VFDC-2-4B-1</u>	75.96	42.20	0.18	4.10	41.5	0.57	600V / 1000V

				VFD	4-Co	nduct	or Ca	ble S	electi	on				
	er of ctors ground)		þı	er tors	AWG)	n WG)	ton (mils)	et (mils)	) inches	310.15	city NEC (B) (16) ips	Radius	e Weight !)	r foot
Part Number	Number of Conductors (includes ground)	AWG	Strand	Power Conductors	Ground (AWG)	Drain Wire (AWG)	Insulaton Thickness (mils)	Jacket Thickness (mils)	Nominal OD inches	75°C	90°C	Min. Bend Radius inches	Approximate Weight (1b/ft)	Price per foot
	• 3	Three 3		SOUTH	WIRE® 16	AWG (1.:	3 IMM2) 3	/C W/GRN	D VFD XLF	PE				
<u>VFDC-16-4B-1</u>	4	16AWG (1.31 mm²)	26	3	1 x (16)	1 x (16)	46	62	0.523	10	10	6	0.171	\$;2c!e:
<u>VFDC-14-4B-1</u>	4	14AWG (2.08 mm²)	41	3	1 x (14)	1 x (14)	46	62	0.565	15	15	7	0.212	\$;;2c!f:
<u>VFDC-12-4B-1</u>	4	12AWG (3.31 mm²)	65	3	1 x (12)	1 x (12)	46	62	0.635	20	20	8	0.269	\$;2c!g:
<u>VFDC-10-4B-1</u>	4	10AWG (5.26 mm²)	105	3	1 x (10)	1 x (10)	46	62	0.698	30	30	8	0.352	\$;2c!h:
VFDC-8-4B-1	4	8AWG (8.36 mm²)	168	3	1 x (8)	4 x (14)	60	80	0.870	50	55	10	0.533	\$;-2c!i:
VFDC-6-4B-1	4	6AWG (13.3 mm²)	266	3	1 x (6)	4 x (12)	60	80	0.942	65	75	11	0.699	\$;2c!b:
VFDC-4-4B-1	4	4AWG (21.2 mm²)	420	3	1 x (4)	4 x (10)	60	80	1.071	85	95	14	1.039	\$;2c!c:
<u>VFDC-2-4B-1</u>	4	2AWG (33.6 mm²)	651	3	1 x (2)	4 x (8)	60	80	1.230	115	130	14	1.486	\$;2c!d:

<sup>\*</sup> Ampacity based on NEC 310.15 (B) (16) up to and including 2000 volts, not more than 3 current-carrying conductors, ambient 86°F (30°C) All dimensions are nominal and subject to normal manufacturing tolerances.





### VFD (Variable-Frequency Drive) / Servo **Cable with Signal Pair**



## **Features**

- Class K, flexible stranded tinned annealed copper conductors per ASTM B33, B172 and B174
- Green ground conductor with yellow stripe, cross linked Polyethylene (XLPE) insulation

• Cross-linked Polyethylene (XLPE) conductor insulation

- 100% coverage aluminum/mylar/aluminum foil shield
- 85% coverage tinned copper braid shield
- Tinned copper drain wire(s)
- 16AWG Shielded Signal Pair for Feedback / Brake Control
- Black Thermoplastic Elastomer (TPE) jacket
- Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
- Cut to length in 1 foot increments
- Minimum cut lengths as low as 20 feet
- Made in USA

### Overview

AutomationDirect's VFD-SC series VFD / Servo cable is the same high-quality cable as our VFDC series with one additional feature. The VFD-SC cable has a shielded 16AWG signal pair allowing this cable to be used with motors and drives requiring brake control or feedback from devices like temperature or position sensors. Having the integral signal pair allows this cable to be used with our SureServo Drives and Motors up to 3kW.

















Please Note: Our prices on VFD Cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.



Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

	VFD/Servo Ca	ble 4-Conductor	Cable Specifications
Power Conductors Gauge & Stranding	16AWG (26 Strands) to 10AWG (105 Strands), Class K flexible stranded tinned annealed copper per ASTM B33, B172 and B174		ASTM B172 - Rope-Lay-Stranded Copper Conductors ASTM B174 - Bunch-Stranded Copper Conductors ASTM B33 - Tinned soft or annealed Copper
Signal Pair	Foil shielded 16AWG (26 Strands), tinned copper conductor with black and white EPDM insulation		UL 44 - Thermoset Insulation UL 1277 - Type TC-ER Standard Power and Control Cables UL 2277 - Type WTTC Flexible Motor Supply
Voltage Rating	600V UL 90°C TC-ER 1000V WTTC 1000V AWM 1000V Flexible Motor Supply Cable	Approvals**	UL 758 - AWM Style 20886 Standard for Appliance Wiring Material Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862 C22.2 No. 230 Type TC CSA 22.2 No. 239 TYPE CIC
Outer Jacket Material	Thermoplastic Elastomer (TPE)		CSA C22.2 No. 210 - CSA AWM I/II A/B
Outer Jacket Color	Black with white print		ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
Cold Bend	-40°F (-40°C)		NFPA 79 - Electrical Standard for Industrial Machinery
Min. Cut Length*	20 feet		CE RoHS-2
Temperature Ratings	-40°F to +194°F (-40°C to +90°C)		Southwire XXAWG (XXmm2) XX/C VFD RHH/RHW-2 CDRS PLUS 16 AWG 1 PR
Conductor Insulation	Black cross-linked Polyethylene (XLPE) with green/yellow ground	Sample Print Legend	TYPE TC-ER EXXXXX (UL) 600V 90°C DRY 90°C WET SUN RES OIL RES I/II DIR BUR -40°C OR WTTC 1000V OR AWM 20886 105°C 1000V OR Flexible Motor
Conductor Markings	"1-ONE", "2-TWO", "3-THREE", @ 4.5 inch intervals, ICEA Method 4		Supply Cable 1000V LLXXXXXX CSA CIC/TC FT4 OR AWM I/II A/B 1000V 105C FT4 -40°C CE RoHS-2 Made in USA

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

### **VFD / Servo Cable - 4 Conductor**

	VFD/Servo Cable 4-Conductor Cable Specifications Continued													
Part Number	Nom. Capacitance Conductor to Shield (pF/ft.)	Nom. Capacitance Conductor to Conductor (pF/ft.)	Nom. Conductor DC Resistance @ 20°C (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20°C (Ohm/1000 ft.)	Impedance (ohms)	Max. Operating Voltage - UL								
VFD-SC-16-4B-1P-1	36.34	20.19	4.49	2.40	86.6	600V / 1000V								
VFD-SC-14-4B-1P-1	44.10	24.50	2.82	2.31	71.4	600V / 1000V								
<u>VFD-SC-12-4B-1P-1</u>	46.93	26.07	1.77	2.48	67.1	600V / 1000V								
VFD-SC-10-4B-1P-1	52.52	29.18	1.12	2.63	60.0	600V / 1000V								

		VFC	)/Se	rvo	Cabl	e 4-	Cond	ducto	r Ca	ble S	elec	tion				
	er of ctors ground)		D inches	ρ	r tors	4 <i>WG</i> )	n WG)	on (mils)	et (mils)	mal Pair	inches	310.15	city NEC (B) (16) nps	Bend Radius inches	: Weight )	r foot
Part Number	Number of Conductors (includes grou	Conductors (includes ground)  AWG  AWG  Strand  Power  Conductors  Ground (AWG)  Mire (AWG)  Insulaton  Thickness (mils)  Jacket  Thickness (mils)		Shielded Signal Pair AWG	Nominal OD inches	75°C	90°C	Min. Bend Re inches	Approximate l (Ib/ft)	Price per foot						
		T	wo 2	On Th	ree 3											
VFD-SC-16-4B-1P-1	4	16AWG (1.31 mm²)	0.054	26	3	1 x (16)	1 x (16)	46	62	16	0.604	10	10	7.25	0.20	\$;4c2[:
VFD-SC-14-4B-1P-1	4	14AWG (2.08 mm²)	0.074	41	3	1 x (14)	1 x (14)	46	62	16	0.689	15	15	8.27	0.24	\$4c2_:
VFD-SC-12-4B-1P-1	4	12AWG (3.31 mm²)	0.090	65	3	1 x (12)	1 x (12)	46	62	16	0.719	20	20	8.63	0.31	\$4c2#:
VFD-SC-10-4B-1P-1	4	10AWG (5.26 mm²)	0.112	105	3	1 x (10)	1 x (10)	46	62	16	0.773	30	30	9.28	0.37	\$;4c2!:

 $<sup>^*</sup>$  Ampacity based on NEC 310.15 (B) (16) up to and including 2000 volts, not more than 3 current-carrying conductors, ambient 86°F (30°C) All dimensions are nominal and subject to normal manufacturing tolerances.





### **Instrumentation Cable**



### **Features**

- Typical applications include industrial instrumentation, control, alarm, audio, intercom, and energy management circuits
- Dual listed Type ITC and Type PLTC
- Suitable for use in hazardous locations
- 20AWG, 18AWG, and 16AWG with 2, 4 or 8 twisted pairs, overall shield or individually shielded pairs with overall shield
- Conductor pairs with black and white premium PVC insulation and alpha-numeric identification
- Communication (Talk) wire included on multi-pair 18AWG and 16AWG cables for use during installation or instrument calibration
- Sunlight resistant PVC outer jacket with sequential foot markings
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- · Made in the USA

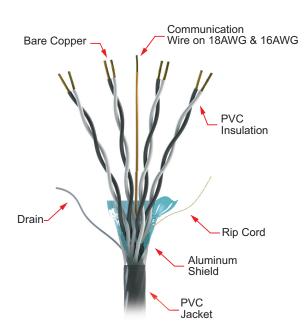
### **Overview**

AutomationDirect offers 300V UL Instrumentation Cable available with 20AWG, 18AWG and 16AWG conductors in 1, 2, 4, or 8 twisted pairs with an overall shield or in 2, 4, or 8 individually shielded twisted pairs with an overall shield. The overall shielded cables have an aluminum/polyester foil shield with 100% coverage and a tinned copper continuous drain wire for protection against external electrical noise interference. Cables with both individually shielded pairs and an overall shield have aluminum/polyester foil shields with 100% coverage complete with separate tinned copper continuous drain wires for maximum effectiveness against both external electrical noise interference and crosstalk between pairs. Individual conductor pairs are stranded bare copper with black and white premium grade PVC insulation and marked with alpha-numeric print for easy identification. The cable's outer jacket is a black premium grade PVC that is sunlight resistant. A convenient 22AWG orange PVC insulated communications conductor is included on 18AWG and 16AWG multi-pair cables. Cut to length in 1 foot increments with a 20 foot minimum length.

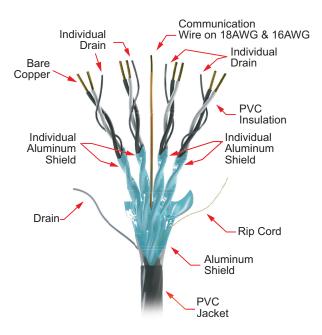
Our instrumentation cables are dual listed as UL 2250 Type ITC (Instrumentation Tray Cables) and UL 13 Type PLTC (Power Limited Tray Cables). Type ITC cables can be used for instrumentation and control circuits operating at 150 volts or less and 5 amperes or less as described in NEC Article 727. Type PLTC cables can be used for Class 2 and Class 3 remote-control, signaling, and power-limited circuits as described in NEC Article 725. Additionally, certain cables are permitted for use in hazardous locations as described in NEC Articles 501 through 505.



#### **Overall Cable Shield**



#### **Individual and Overall Cable Shields**



20AWG Instrumentation Cable - Overall Shield Specifications							
Conductor Gauge & Stranding	20AWG Class B 7 stranded bare copper per ASTM B-3 and B-8	Shield and Drain Wire	Overall aluminum polyester foil shield with a tinned copper drain wire				
Voltage Rating	300V	Min. Bend Radius	10x diameter				
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)		CHARRING THE COLUMN TWO STATES OF THE COLUMN TO STATES OF THE COLUMN TWO STATES OF THE COLUMN TW				
Conductor Insulation	PVC	Print Legend*	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 20AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM 2464-RoHS(LOT#)				
Pair Lay Length	1.25 twists per inch		Z TOT TIGHTS (ESTIN)				
Resistance	10.50Ω/1000' @ 20°C per conductor	Flame Rating	UL 1581 Section 1061 Cable Flame, UL 1581 Vertical Tray				
Capacitance	31 pF/ft		UL Standard 13 Type PLTC				
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	UL Standard 2250 Type ITC NEC Article 725 (Type PLTC) NEC Article 727 (Type ITC)				
Temperature Rating	-40°C to 105°C (-40°F to 221°F)						

<sup>\*</sup> XX = Number of shielded pairs

#### **20AWG Instrumentation Cable - Overall Shield** Overall **Overall** Nominal Installed Approximate Weight Conductor **Conductor** Minimum Price Number Jacket 0.D. Bend Part Number AWG Stranding Insulation Approx. O.D. **Cut Length** of Pairs **Thickness** (Inches Radius per foot Thickness (Inches) (ft)\* (lb/ft) (Mils) (Inches) ±10%) (Mils) PLTC3-20-1S-1 0.203 2.03 0.02 1 20 \$;;4tk,: 37 0.264 2.64 20 PLTC3-20-2S-1 0.04 \$;-4tI0: 20 7 15 0.063 PLTC3-20-4S-1 4 42 0.333 3.33 20 0.06 \$;-4tl1: PLTC3-20-8S-1 0.453 4.53 0.11 \$;-4tl2:





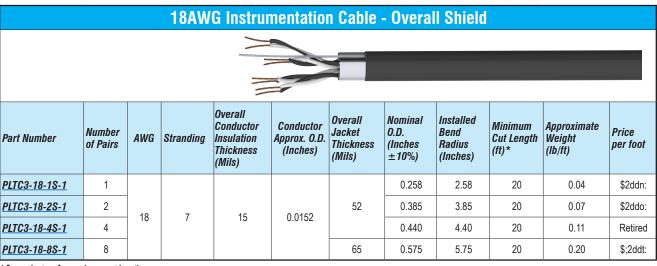
<sup>\*\*</sup> Included on multi-pair cables

<sup>\*</sup> See web store for maximum cut lengths

18AWG Instrumentation Cable - Overall Shield Specifications								
Conductor Gauge & Stranding	18AWG Class B 7 stranded bare copper per ASTM B-3 and B-8	Shield and Drain Wire	Overall aluminum polyester foil shield with a tinned copper drain wire					
Voltage Rating	300V	Min. Bend Radius	10x diameter					
Jacket Material	Sunlight and moisture resistant black PVC (polyvinyl chloride)	Print Legend*	CCI ROYAL 18 AWG XX SHIELDED PAIRS PVC/PVC					
Conductor Insulation	PVC	Frint Legenu	TYPE PLTC/ITC E176494 (UL) 105C SUN RES FT4/IEEI 1202 SEQUENTIAL MARKING					
Pair Lay Length	1.25 twists per inch	Flame Rating	Passes FT4/EEE 1202 Flame Test					
Resistance	6.60Ω/1000' @ 20°C per conductor	Traine nating	Passes IEEE 383 Flame Test (70,000btu)					
Capacitance	40.66 pF/ft		UL Standard 13 Type PLTC UL Standard 2250 Type ITC					
Inductance	0.0957 µH/ft		EPA 40 CFR, Part 26, Subpart C, heavy metals per Table 1, TCLP method NEC Article 725 (Type PLTC)					
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	NEC Article 727 (Type ITC) Hazardous Locations: NEC Article 501.10 (Class I, Div 2)					
Temperature Rating	-30°C to 105°C (-22°F to 221°F)		NEC Article 502.10 (Class II, Div 2) NEC Article 503.10 (Class III, Div 1 and 2) NEC Article 504 (Intrinsically Safe Systems) NEC Article 505.15 (Class I, Zone 2)					

<sup>\*</sup> XX = Number of shielded pairs

<sup>\*\*</sup> Included on 18AWG and 16AWG multi-pair cables



<sup>\*</sup> See web store for maximum cut lengths





18AWG Instrumentation Cable - Overall Shield Specifications								
Conductor Gauge & Stranding	18AWG 7-stranded bare copper	Shield and Drain Wire	Overall aluminum polyester foil shield with a tinned copper drain wire					
Voltage Rating	300V	Min. Bend Radius	10x diameter					
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)	Print Legend	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 18AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM					
Conductor Insulation	PVC	riini Legenu	2464—RoHS(LOT#)					
Pair Lay Length	1.25 twists per inch	Flame Rating	UL 1685 Vertical Tray, Section 1061 of UL 1581 Cable					
Resistance	6.64Ω/1000' @ 20°C per conductor	Traine nauny	Flame					
Conductor Markings	Black / White		UL Standard 444 Type CM					
Temperature Rating	-40°C to 105°C (-40°F to 221°F)	Applicable Standards	UL Standard 758 AWM 2464 UL Standard 13 Type PLTC					
Communication Wire*	22AWG PVC (orange)		UL Standard 2250 Type ITC					

<sup>\*</sup>Included on 18AWG and 16AWG multi-pair cables

	18AWG Instrumentation Cable - Overall Shield											
Part Number	Number of Pairs	AWG	Stranding	Overall Conductor Insulation Thickness (Mils)	Conductor Approx. O.D. (Inches)	Overall Jacket Thickness (Mils)	Capacitance (pF/ft)	Nominal O.D. (Inches ±10%)	Installed Bend Radius (Inches)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
PLTC-18-1S-1	1					37	62	0.233	2.33	20	0.03	\$6a58:
PLTC-18-2S-1	2	18	7	16	0.078	42	47	0.318	3.18	20	0.06	\$6a59:
PLTC-18-4S-1	4	10	_ ′	16	0.076	52	43	0.417	4.17	20	0.10	\$6a5a:
PLTC-18-8S-1	8					JZ	41	0.535	5.35	20	0.17	\$6a5b:

<sup>\*</sup> See web store for maximum cut lengths

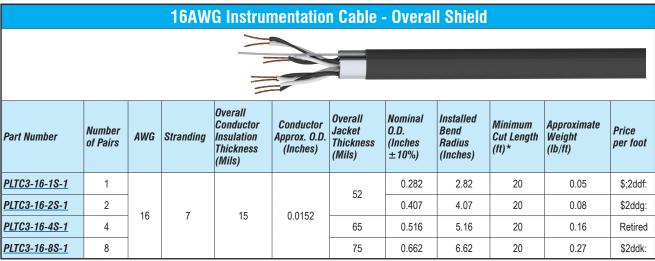




16A	16AWG Instrumentation Cable - Overall Shield Specifications								
Conductor Gauge & Stranding	or Gauge & Stranding 16AWG Class B 7 stranded bare copper per ASTM B-3 and B-8 Shield and Drain Wire		Overall aluminum polyester foil shield with a tinned copper drain wire						
Voltage Rating	300V	Min. Bend Radius	10x diameter						
Jacket Material	Sunlight and moisture resistant black PVC (polyvinyl chloride)	Print Legend*	CCI ROYAL 16 AWG XX SHIELDED PAIRS PVC/PVC						
Conductor Insulation	PVC	riiii Legenu	TYPE PLTC/ITC E176494 (UL) 105C SUN RES FT4/IEEE 1202 SEQUENTIAL MARKING						
Pair Lay Length	1.25 twists per inch	Flame Rating	Passes FT4/EEE 1202 Flame Test						
Resistance	4.18Ω/1000' @ 20°C per conductor	riame nauny	Passes IEEE 383 Flame Test (70,000btu)						
Capacitance	48.51 pF/ft		UL Standard 13 Type PLTC UL Standard 2250 Type ITC						
Inductance	0.0895 µH/ft		EPA 40 CFR, Part 26, Subpart C, heavy metals per Table 1, TCLP method NEC Article 725 (Type PLTC)						
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	NEC Article 727 (Type FLTC) Hazardous Locations: NEC Article 501.10 (Class I, Div 2)						
Temperature Rating	-30°C to 105°C (-22°F to 221°F)		NEC Article 501.10 (Class I, Div 2) NEC Article 502.10 (Class II, Div 2) NEC Article 503.10 (Class III, Div 1 and 2)						
Communication Wire**	22AWG PVC (orange)		NEC Article 504 (Intrinsically Safe Systems) NEC Article 505.15 (Class I, Zone 2)						

<sup>\*</sup> XX = Number of shielded pairs

<sup>\*\*</sup> Included on 18AWG and 16AWG multi-pair cables



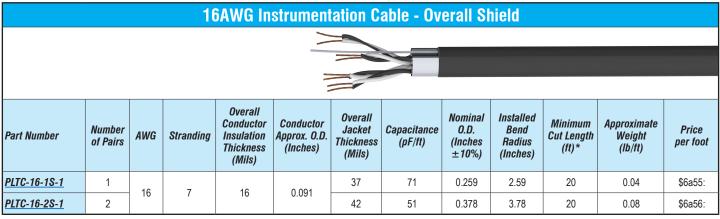
<sup>\*</sup> See web store for maximum cut lengths





	16AWG Instrumentation Cable - Overall Shield Specifications								
Conductor Gauge & Stranding	16AWG 7-stranded bare copper	Shield and Drain Wire	Overall aluminum polyester foil shield with a tinned copper drain wire						
Voltage Rating	300V	Min. Bend Radius	10x diameter						
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)	Print Legend	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 16AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM						
Conductor Insulation	PVC	rimi Legenu	2464—RoHS(LOT#)						
Pair Lay Length	1.25 twists per inch	Flame Rating	UL 1685 Vertical Tray, Section 1061 of UL 1581 Cable						
Resistance	4.15Ω/1000' @ 20°C per conductor	Traile natily	Flame						
Conductor Markings	Black / White		UL Standard 444 Type CM						
Temperature Rating	-40°C to 105°C (-40°F to 221°F)	Applicable Standards	UL Standard 758 AWM 2464 UL Standard 13 Type PLTC						
Communication Wire*	22AWG PVC (orange)		UL Standard 2250 Type ITC						

<sup>\*</sup>Included on 18AWG and 16AWG multi-pair cables



<sup>\*</sup> See web store for maximum cut lengths





20AWG Instrumentation Cable - Individual and Overall Shields Specifications								
Conductor Gauge & Stranding	nductor Gauge & Stranding 20AWG Class B 7 stranded bare copper per ASTM B-3 and B-8		Individual and overall aluminum polyester foil shield with a tinned copper drain wire					
Voltage Rating	300V	Min. Bend Radius	10x diameter					
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)		CHARRIA RIA					
Conductor Insulation	PVC	Print Legend*	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 20AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM 2464-RoHS(LOT#)					
Pair Lay Length	1.25 twists per inch							
Resistance	10.50Ω/1000' @ 20°C per conductor	Flame Rating	UL 1581 Section 1061 Cable Flame, UL 1581 Vertical Tra					
Capacitance	31 pF/ft							
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	UL Standard 13 Type PLTC UL Standard 2250 Type ITC NEC Article 725 (Type PLTC)					
Temperature Rating	-40°C to 105°C (-40°F to 221°F)		NEC Article 727 (Type ITC)					
Communication Wire**	22AWG PVC (orange)							

<sup>\*</sup> XX = Number of shielded pairs

#### 20AWG Instrumentation Cable - Individual and Overall Shields Overall **Overall** Nominal Installed Approximate Weight Conductor **Conductor** Minimum Number 0.D. Bend Price Jacket Part Number AWG Stranding Insulation Cut Length Approx. O.D. of Pairs **Thickness** (Inches Radius per foot Thickness (Inches) (ft)\* (lb/ft) (Mils) ±10%) (Inches) (Mils) 2 PLTC3-20-2SS-1 42 0.312 3.12 20 0.05 \$;-4tl5: 4 20 7 0.063 0.411 4.11 20 0.09 \$;-4tl3: PLTC3-20-4SS-1 15 52 0.520 0.14 PLTC3-20-8SS-1 8 5.20 20 \$;-4tl4:





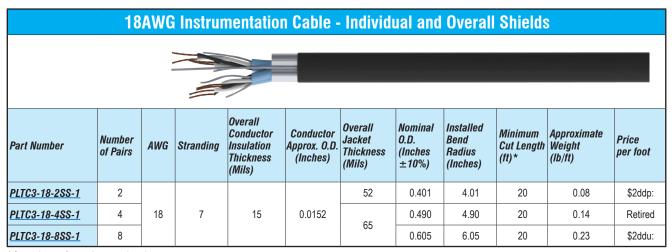
<sup>\*\*</sup> Included on 18AWG and 16AWG multi-pair cables

<sup>\*</sup> See web store for maximum cut lengths

18AWG Inst	18AWG Instrumentation Cable - Individual and Overall Shields Specifications								
Conductor Gauge & Stranding	18AWG Class B 7 stranded bare copper per ASTM B-3 and B-8	Min. Bend Radius	10x diameter						
Voltage Rating	300V	Shield and Drain Wire	Individual and overall aluminum polyester foil shield with a tinned copper drain wire						
Jacket Material	Sunlight and moisture resistant black PVC (polyvinyl chloride)	Print Legend*	CCI ROYAL 18 AWG XX SHIELDED PAIRS PVC/PVC TYPE PLTC/ITC E176494 (UL) 105C SUN RES FT4/IEEE						
Conductor Insulation	PVC	Time Legenu	1202 SEQUENTIAL MARKING						
Pair Lay Length	1.25 twists per inch	Flame Rating	Passes FT4/EEE 1202 Flame Test						
Resistance	6.60Ω/1000' @ 20°C per conductor	Traine nating	Passes IEEE 383 Flame Test (70,000btu)						
Capacitance	40.66 pF/ft		UL Standard 13 Type PLTC UL Standard 2250 Type ITC						
Inductance	0.0957 µH/ft		EPA 40 CFR, Part 26, Subpart C, heavy metals per Table 1, TCLP method NEC Article 725 (Type PLTC)						
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	NEC Article 727 (Type ITC) Hazardous Locations: NEC Article 501.10 (Class I, Div 2)						
Temperature Rating	-30°C to 105°C (-22°F to 221°F)		NEC Article 501.10 (Class II, Div 2) NEC Article 503.10 (Class II, Div 2) NEC Article 503.10 (Class III, Div 1 and 2)						
Communication Wire**	22AWG PVC (orange)		NEC Article 504 (Intrinsically Safe Systems) NEC Article 505.15 (Class I, Zone 2)						

<sup>\*</sup> XX = Number of shielded pairs

<sup>\*\*</sup> Included on 18AWG and 16AWG multi-pair cables



<sup>\*</sup> See web store for maximum cut lengths





18AWG Instrumentation Cable - Individual and Overall Shields Specifications								
Conductor Gauge & Stranding	18AWG 7-stranded bare copper	Min. Bend Radius	10x diameter					
Voltage Rating	300V	Shield and Drain Wire	Individual and overall aluminum polyester foil shield with a tinned copper drain wire					
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)	Drint Logond	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 18AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM					
Conductor Insulation	PVC	Print Legend	2464-Rohs(LOT#)					
Pair Lay Length	1.25 twists per inch	Flome Poting	UL 1685 Vertical Tray, Section 1061 of UL 1581 Cable					
Resistance	6.64Ω/1000' @ 20°C per conductor	Flame Rating	Flame					
Conductor Markings	Black / White		UL Standard 444 Type CM					
Temperature Rating	-40°C to 105°C (-40°F to 221°F)	Applicable Standards	UL Standard 758 AWM 2464 UL Standard 13 Type PLTC					
Communication Wire*	22AWG PVC (orange)		UL Standard 2250 Type ITC					

<sup>\*</sup>Included on 18AWG and 16AWG multi-pair cables

#### 18AWG Instrumentation Cable - Individual and Overall Shields Overall Nominal Installed **Overall** Conductor Conductor Minimum Approximate Capacitance Number Jacket 0.D. Bend Price Part Number AWG Stranding Insulation Approx. O.D. **Cut Length** . Weight (Inches of Pairs **Thickness** (pF/ft) Radius per foot **Thickness** (Inches) (ft)\* (lb/ft) ±10%) (Mils) (Inches) (Mils) PLTC-18-2SS-1 2 42 0.365 3.65 20 0.07 \$6a5c: PLTC-18-4SS-1 4 18 7 16 0.078 52 62 0.483 4.83 0.12 \$6a53: PLTC-18-8SS-1 0.639 6.39 \$6a54:





<sup>\*</sup> See web store for maximum cut lengths

16AWG Inst	16AWG Instrumentation Cable - Individual and Overall Shields Specifications								
Conductor Gauge & Stranding	nding 16AWG Class B 7 stranded bare copper per ASTM B-3 and B-8 Shield and Drain Wire		Individual and overall aluminum polyester foil shield with a tinned copper drain wire						
Voltage Rating	300V	Min. Bend Radius	10x diameter						
Jacket Material	Sunlight and moisture resistant black PVC (polyvinyl chloride)								
Conductor Insulation	PVC	Print Legend*	CCI ROYAL 16 AWG XX SHIELDED PAIRS PVC/PVC TYPE PLTC/ITC E176494 (UL) 105C SUN RES FT4/IEEE 1202 SEQUENTIAL MARKING						
Pair Lay Length	1.25 twists per inch								
Resistance	4.18Ω/1000' @ 20°C per conductor	Flame Rating	Passes FT4/EEE 1202 Flame Test Passes IEEE 383 Flame Test (70,000btu)						
Capacitance	48.51 pF/ft		UL Standard 13 Type PLTC UL Standard 2250 Type ITC						
Inductance	0.0895 µH/ft		EPA 40 CFR, Part 26, Subpart C, heavy metals per Table 1, TCLP method NEC Article 725 (Type PLTC)						
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	NEC Article 727 (Type LTC) Hazardous Locations: NEC Article 501.10 (Class I, Div 2)						
Temperature Rating	-30°C to 105°C (-22°F to 221°F)		NEC Article 501.10 (Class II, Div 2) NEC Article 502.10 (Class II, Div 2) NEC Article 503.10 (Class III, Div 1 and 2)						
Communication Wire**	22AWG PVC (orange)		NEC Article 504 (Intrinsically Safe Systems) NEC Article 505.15 (Class I, Zone 2)						

<sup>\*</sup> XX = Number of shielded pairs

<sup>\*\*</sup> Included on 18AWG and 16AWG multi-pair cables

	16AWG Instrumentation Cable - Individual and Overall Shields										
Part Number	Number of Pairs	AWG	Stranding	Overall Conductor Insulation Thickness (Mils)	Conductor Approx. O.D. (Inches)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Installed Bend Radius (Inches)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
PLTC3-16-2SS-1	2					52	0.443	4.43	20	0.11	Retired
PLTC3-16-4SS-1	4	16	7	15	0.0152	65	0.539	5.39	20	0.18	\$-2ddj:
PLTC3-16-8SS-1	8					75	0.690	6.90	20	0.32	Retired

<sup>\*</sup> See web store for maximum cut lengths





16AWG Instrumentation Cable - Individual and Overall Shields Specifications								
Conductor Gauge & Stranding	16AWG 7-stranded bare copper	Shield and Drain Wire	Individual and overall aluminum polyester foil shield with a tinned copper drain wire					
Voltage Rating	300V	Min. Bend Radius	10x diameter					
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)		CHARDIN DIN (III) TYPE DITO OD ITO (OMIO					
Conductor Insulation	PVC	Print Legend	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 16AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM 2464-RoHS(LOT#)					
Pair Lay Length	1.25 twists per inch							
Resistance	4.18Ω/1000' @ 20°C per conductor	Flame Rating	UL 1685 Vertical Tray, Section 1061 of UL 1581 Cable Flame					
Conductor Markings	Black / White		UL Standard 444 Type CM					
Temperature Rating	-40°C to 105°C (-40°F to 221°F)	Applicable Standards	UL Standard 758 AWM 2464 UL Standard 13 Type PLTC					
Communication Wire*	22AWG PVC (orange)		UL Standard 2250 Type ITC					

<sup>\*</sup>Included on 18AWG and 16AWG multi-pair cables

#### 16AWG Instrumentation Cable - Individual and Overall Shields **Overall Overall** Nominal Installed Conductor Conductor Minimum Approximate Capacitance 0.D. Bend Price Number Jacket Part Number AWG Stranding Insulation Approx. O.D. **Cut Length** Weight of Pairs **Thickness** (pF/ft) (Inches Radius per foot **Thickness** (Inches) (lb/ft) (ft)\* (Mils) ±10%) (Inches) (Mils) 20 ft PLTC-16-2SS-1 2 7 0.091 52 0.432 4.32 16 16 71 0.10 \$6a57:





<sup>\*</sup> See web store for maximum cut lengths

20AWG Triad Instrumentation Cable - Overall Shield Specifications									
Conductor Gauge & Stranding	20AWG Class B 10 stranded bare copper per ASTM B-3 and B-8	Shield and Drain Wire	Overall aluminum polyester foil shield with a 22AWG tinned copper drain wire						
Voltage Rating	300V	Min. Bend Radius	10x diameter						
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)								
Conductor Insulation	PVC	Print Logond*	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 20AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM						
Conductor Insulation Colors	(1) Black/ (1) Red/ (1) White	Print Legend*	2464-RoHS(LOT#)						
Set Lay Length	1 twist per inch								
Resistance	10.50Ω/1000' @ 20°C per conductor	Flame Rating	UL 1581 Section 1061 Cable Flame, UL 1581 Vertical Tray						
Capacitance	42 pF/ft		NEC (UL) Type PLTC						
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Applicable Standards	NEC (UL) Type ITC NEC (UL) Type CM CEC C(UL)Type CM						
Temperature Rating	-40°C to 105°C (-40°F to 221°F)		UL AWM STYLE 2464						

#### **20AWG Triad Instrumentation Cable - Overall Shield** Overall **Overall** Nominal Installed Approximate Weight Conductor Conductor Minimum Bend Number Jacket 0.D. Price Insulation Part Number AWG Stranding Approx. O.D. Cut Length of Triads **Thickness** (Inches Radius per foot Thickness (lb/ft) (Inches) (ft)\* (Mils) ±10%) (Inches) (Mils) PLTC3-20-1TS-1 0.212 0.03 1 37 2.12 20 \$4u2#: PLTC3-20-2TS-1 2 0.358 3.58 0.05 \$;4u2!: 0.037 20 10 13 PLTC3-20-4TS-1 4 0.432 4.32 0.09 \$4u2?: 52 PLTC3-20-8TS-1 0.560 5.60 0.16 \$;4u2,:





<sup>\*</sup> See web store for maximum cut lengths

18AWG	Triad Instrumentation	Cable - Overall S	nield Specifications		
Conductor Gauge & Stranding	18AWG 7 stranded bare copper	Shield and Drain Wire	Overall aluminum polyester foil shield with a 22AWG tinned copper drain wire		
Voltage Rating	300V	Min. Bend Radius	10x diameter		
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)		QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 18 AWG SHIELDED 105C SUN RES OR C(UL)US CM OR AWM 2464 RoHS (LOT DESIGNATOR)		
Conductor Insulation	PVC	Print Legend*			
Conductor Insulation Colors	(1) Black/ (1) Red/ (1) White				
Set Lay Length	1 twist per inch	Flame Rating	UL 1581 Section 1061 Cable Flame, UL 1581 Vertical Tray		
Resistance	6.64Ω/1000' @ 20°C per conductor	riame naung			
Capacitance	42 pF/ft		N=0 (H) = -0.10		
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Agency Approvals	NEC (UL) Type PLTC NEC (UL) Type ITC NEC (UL) Type CM		
Temperature Rating	-40°C to 105°C (-40°F to 221°F)		CEC C(UL)Type CM UL AWM STYLE 2464		

18AWG Triad Instrumentation Cable - Overall Shield											
Part Number	Number of Triads	AWG	Stranding	Overall Conductor Insulation Thickness (Mils)	Conductor Approx. O.D. (Inches)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Installed Bend Radius (Inches)	Minimum Cut Length (ft) *	Approximate Weight (lb/ft)	Price per foot
PLTC3-18-1TS-1	1					37	0.245	2.45	20	0.04	\$4u33:
PLTC3-18-2TS-1	2	18	7	16	0.046	52	0.442	4.42	20	0.08	\$4u34:
PLTC3-18-4TS-1	4	10	/			52	0.513	5.13	20	0.13	\$4u35:
PLTC3-18-8TS-1	8					62	0.681	6.81	20	0.24	\$4u36:

<sup>\*</sup> See web store for maximum cut lengths





20AWG Triad Instrumentation Cable - Individual and Overall Shields Specifications										
Conductor Gauge & Stranding	20AWG Class B 10 stranded bare copper per ASTM B-3 and B-8	Shield and Drain Wire	Individual and overall aluminum polyester foil shield with a 22AWG tinned copper drain wire							
Voltage Rating	300V	Min. Bend Radius	10x diameter							
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)		QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 20AWG SHEILDED 105C SUN RES OR C(UL)US CM OR AWM 2464–RoHS–(LOT#)							
Conductor Insulation	PVC	Print Logond*								
Conductor Insulation Colors	(1) Black/ (1) Red/ (1) White									
Set Lay Length	1 twist per inch									
Resistance	10.50Ω/1000' @ 20°C per conductor	Flame Rating	UL 1581 Section 1061 Cable Flame, UL 1581 Vertical Tray							
Capacitance	57 pF/ft		NEC (UL) Type PLTC							
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Agency Approvals	NEC (UL) Type ITC NEC (UL) Type CM CEC C(UL)Type CM							
Temperature Rating	-40°C to 105°C (-40°F to 221°F)		UL AWM STÝLE 2464							

#### 20AWG Triad Instrumentation Cable - Individual and Overall Shields Overall Nominal Installed Overall Conductor Conductor Minimum Approximate Number of Jacket 0.D. Bend Price Part Number AWG Stranding Insulation Approx. O.D. Cut Length Weight Thickness (Inches Triads Radius per foot Thickness (Inches) (ft)\* (lb/ft) (Mils) ±10%) (Inches) (Mils) PLTC3-20-2TSS-1 2 0.367 0.06 \$4u30: 42 3.67 20 PLTC3-20-4TSS-1 4 20 10 13 0.37 0.444 4.44 20 0.11 \$4u31: 52 PLTC3-20-8TSS-1 8 0.576 5.76 20 0.18 \$4u32:





<sup>\*</sup> See web store for maximum cut lengths

18AWG Triad Instrumentation Cable - Individual and Overall Shields Specifications										
Conductor Gauge & Stranding	18AWG 7 stranded bare copper	Min. Bend Radius	10x diameter							
Voltage Rating	300V	Shield and Drain Wire	Individual and overall aluminum polyester foil shield with a 22AWG tinned copper drain wire							
Jacket Material	Sunlight resistant black PVC (polyvinyl chloride)									
Conductor Insulation	PVC	Print Legend*	QUABBIN P/N xxxx (UL) TYPE PLTC OR ITC 18 AWG SHIELDED 105C SUN RES OR C(UL)US CM OR AWI 2464 RoHS (LOT DESIGNATOR)							
Conductor Insulation Colors	(1) Black/ (1) Red/ (1) White									
Set Lay Length	1 twist per inch	Flame Rating	UL 1581 Section 1061 Cable Flame, UL 1581 Vertical Tray							
Resistance	6.64Ω/1000' @ 20°C per conductor	Traine nating								
Capacitance	57 pF/ft		NEC (UL) Type PLTC							
Conductor Markings	Black / White; Alpha-numeric print; alternate & inverted @ 2.5 inch intervals	Agency Approvals	NEC (UL) Type ITC NEC (UL) Type CM CEC C(UL)Type CM							
Temperature Rating	-40°C to 105°C (-40°F to 221°F)		UL AWM STÝLE 2464							

18AWG Triad Instrumentation Cable - Individual and Overall Shields											
Part Number	Number of Triads	AWG	Stranding	Overall Conductor Insulation Thickness (Mils)	Conductor Approx. O.D. (Inches)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Installed Bend Radius (Inches)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
PLTC3-18-2TSS-1	2					50	0.454	4.54	20	0.09	\$4u37:
PLTC3-18-4TSS-1	4	18	7	16	0.046	52	0.527	5.27	20	0.15	\$4u38:
PLTC3-18-8TSS-1	8					62	0.701	7.01	20	0.28	\$4u39:

<sup>\*</sup> See web store for maximum cut lengths







### **Industrial Use Data Cables**

Electrically radiated noise frequently present in factory floor environments can interfere with device-to-device communication circuits, causing delayed signals or data loss. One important factor in establishing a good, reliable communication circuit is cable selection. AutomationDirect offers high quality, low-capacitance data cables designed with impedances specific for communication applications in industrial environments. The tinned copper conductors are twisted pairs that help reduce electrical noise sensitivity and are available in one-, two-, three-, or four-pair color-coded versions. The polyethylene conductor insulation provides a very high insulation resistance with a low, stable dielectric constant that results in lower capacitance and excellent propagation velocity for superior signal transmission.

To protect from radiated or conducted electromagnetic interference (EMI), these data cables have shields consisting of an overall foil shield with drain wire and some are available with a woven braided layer. The overall foil shield has 100% cable coverage for excellent protection against higher frequency noise. A drain wire is provided to easily terminate and ground the foil shield. On the RS-422 data cables a second shield layer consists of a woven braid that is ideal for minimizing low frequency interference while providing superior structural integrity to the overall cable.

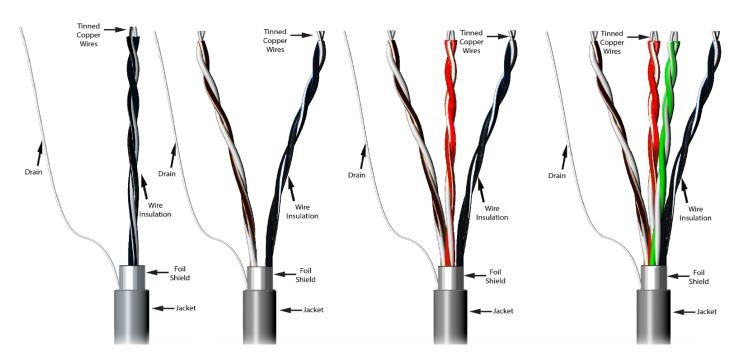


Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable



#### **Features**

- Low capacitance data cables for RS-232, RS-422, and RS-485 applications in industrial environments
- Color-coded tinned copper twisted-pair conductors to reduce electrical noise sensitivity
- · Shielded with tinned copper drain wire
- Rugged gray PVC jacket provides durability in demanding installations
- · UL CM available in multipliable AWM Styles
- Cut-to-length in 1-foot increments
- Low 25-foot minimum length



		Series RS-232 Data	a Cable Specifications	
		Q8105-1	Q8504-1	Q8506-1
Conductor Gau Stranding	ige and	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper
Pairs		1	2	3
Pair 1		Black X Red	Black X Black/White	Black X Black/White
Color Code	Pair 2	N/A	White X White/Black	White X White/Black
	Pair 3	N/A	N/A	Red X White/Red
Insulation		Semi-Rigid PVC	Low Density Polyethylene	Low Density Polyethylene
Construction		Twisted pair, overall shield	Twisted pairs cabled; overall shield	Twisted pairs cabled; overall shield
Shield/Drain		Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire
Jacket		Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC
Diameter		.155in Nominal	.235in Nominal	.235in Nominal
Minimum Bend	d Radius	1.55in (Install)	2.94in (Install)	2.35in (Install)
Cable Weight		13.9lbs/1000ft Approx.	23.6 lb/1000ft Approx.	28.8 lb/1000ft Approx.
Impedance		N/A	100 Ω/1,000	100 Ω/1,000
Capacitance		40 pF/ft mutual Nom. 74 pF/ft grounded Nom.	12.5 pF/ft Nom. 23.2 pF/ft Nom.	15.5 pF/ft Nom. 29.0 pF/ft Nom.
Resistance		26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max
Voltage		300V	300V	300V
Temperature F	ange	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)
Plenum		No	No	No
UL Classificati	on	CM or AWM Style 2464	CM/CL2 or AWM Style 2919	CM/CL2 or AWM Style 2919
Agency Approvals		UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame
Sample Print Legend		QUABBIN 8105 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4RoHS	QUABBIN 8504 (UL) TYPE CM 24 AWG 75C OR AWM 2448 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG 60C RoHS	QUABBIN 8506 (UL) TYPE CM 24 AWG 75C OR AWM 2448LOW VOLTAGE COMPUTER CABLE -CSA LL51726 TYPE CMG 60CRoHS

Series RS-232 Data Cable Specifications										
Part Number	Number of Twisted Pairs	AWG	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot				
<u>Q8105-1</u>	1		0.20		0.014	\$56xy:				
<u>Q8504-1</u>	2	24	0.24	25	0.023	\$;56x!:				
<u>Q8506-1</u>	3		0.28		0.028	\$56y3:				

<sup>\*</sup> See web store for maximum cut lengths





		Series	s RS-422 Data	Cable Specificat	tions	
		<u>Q8602-1</u>	<u>Q8604-1</u>	<u>Q8606-1</u>	<u>Q8804-1</u>	<u>Q8806-1</u>
Conductor G Stranding	auge and	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper
Pairs		1	2	3	2	3
	Pair 1	Black X Red	Black X Red	Black X Red	Black X Red	Black X Red
Color Code	Pair 2	N/A	Black X White	Black X White	Black X White	Black X White
	Pair 3	N/A	N/A	Black X Green	N/A	Black X Green
Insulation		Foam Polypropylene	Foam Polypropylene	Foam Polypropylene	High Density Polyethylene	High Density Polyethylene
Construction		Twisted pair, overall shield	Twisted pairs cabled; overall shield	Twisted pairs cabled; overall shield	Twisted pairs cabled; overall shield	Twisted pairs cabled; overall shield
Shield/Drain		Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Tinned Copper Braid over a Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Tinned Copper Braid over a Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire
Jacket		Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC
Diameter		.203in Nominal	.294in Nominal	.324in Nominal	.242in Nominal	.239in Nominal
Minimum Be	nd Radius	2.07in (Install)	2.94in (Install)	3.24in (Install)	2.42in (Install)	2.39in (Install)
Cable Weigh	t	18.9lbs/1000ft Approx.	31.7 lb/1000ft Approx.	41.1 lb/1000ft Approx.	31.7 lb/1000ft Approx.	35.4 lb/1000ft Approx.
Impedance		120 Ω/1,000	100 Ω/1,000	100 Ω/1,000	100 Ω/1,000	100 Ω/1,000
Capacitance		12.5 pF/ft mutual Nom. 23.2 pF/ft grounded Nom.	12.5 pF/ft mutual Nom. 23.2 pF/ft grounded Nom.	12.5 pF/ft mutual Nom. 23.2 pF/ft grounded Nom.	18.0 pF/ft Nom. 32.0 pF/ft Nom.	18.0 pF/ft Nom. 32.0 pF/ft Nom.
Resistance		26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max
Voltage		300V	300V	300V	300V	300V
Temperature	Range	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)
Plenum		No	No	No	No	No
UL Classifica		CM or AWM Style 2919 UL E69976 & E118830 RoHS	CM or AWM Style 2448 UL E69976 & E118830 RoHS	CM or AWM Style 2448 UL E69976 & E118830 RoHS	CM or AWM Style 2919 UL E69976 & E118830 RoHS	CM or AWM Style 2919 UL E69976 & E118830 RoHS
Agency Appr	ovals	UL 1685 Vertical Tray, UL 1581 Cable Flame	UL 1685 Vertical Tray, UL 1581 Cable Flame	UL 1685 Vertical Tray, UL 1581 Cable Flame	UL 1685 Vertical Tray, UL 1581 Cable Flame	UL 1685 Vertical Tray, UL 1581 Cable Flame
Sample Print Legend		QUABBIN 8602 C(UL)US TYPE CM 24 AWG OR AWM 2919 LOW VOLTAGE COMPUTER CABLE RoHS 	QUABBIN 8604 TYPE CM C(UL)US 24 AWG SHIELDED OR AWM 2448 LOW VOLTAGE COMPUTER CABLE RoHS	QUABBIN 8606 TYPE CM C(UL)US 24 AWG SHIELDED OR AWM 2448 LOW VOLTAGE COMPUTER CABLE RoHS	QUABBIN 8804 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2919 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG RoHS	QUABBIN 8806 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2919 – LOW VOLTAGE COMPUTER CABLE – CSA LL51726 TYPE CMG – RoHS –

	Series RS-422 Data Cable Specifications										
Part Number	Number of Twisted Pairs	AWG	Maximum O.D. (Inches ± 10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot					
<u>Q8602-1</u>	1		0.203		0.0189	\$56y9:					
<u>Q8604-1</u>	2		0.294	25	0.0317	\$56ya:					
<u>Q8606-1</u>	3	24	0.324		0.0411	\$56xs:					
<u>Q8804-1</u>	2		0.242		0.0317	\$;56xt:					
<u>Q8806-1</u>	3		0.239		0.0354	\$56xu:					

<sup>\*</sup> See web store for maximum cut lengths





		Series RS-4	22/485 Data Cable	Specifications	
		<u>Q8302-1</u>	Q8304-1	<u>Q8606-1</u>	<u>Q8308-1</u>
Conductor Gau Stranding	ge and	24 AWG 7/32 stranded tinned copper	24 AWG 7/32 stranded tinned copper 24 AWG 7/32 stranded tinned copper		24 AWG 7/32 stranded tinned copper
Pairs		1	2	3	4
Pair 1		Black X Black/White	Black X Black/White	Black X Black/White	Black X Black/White
Color Code	Pair 2	N/A	White X White/Black	White X White/Black	White X White/Black
Color Coue	Pair 3	N/A	N/A	Red X White/Red	Red X White/Red
	Pair 4				Green X White/Green
Insulation		Low Density Polyethylene	Low Density Polyethylene	Low Density Polyethylene	Low Density Polyethylene
Construction		Twisted pair, overall shield	Twisted pairs cabled; overall shield	Twisted pairs cabled; overall shield	Twisted pairs cabled; overall shield
Shield/Drain		Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 24 AWG Stranded Tinned Copper Drain Wire
Jacket		Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC
Diameter		.238in Nominal	.250in Nominal	.258in Nominal	.298in Nominal
Minimum Bend	Radius	2.38in (Install)	2.50in (Install)	2.58in (Install)	2.98in (Install)
Cable Weight		28.8lbs/1000ft Approx.	35.1 lb/1000ft Approx.	37.7 lb/1000ft Approx.	46.7 lb/1000ft Approx.
Impedance		100 Ω/1,000	110 Ω/1,000	110 Ω/1,000	110 Ω/1,000
Capacitance		15.5 pF/ft mutual Nom. 29 pF/ft grounded Nom.	14 pF/ft mutual Nom. 25.9 pF/ft grounded Nom.	13.5 pF/ft mutual Nom. 25.0 pF/ft grounded Nom.	13.0 pF/ft mutual Nom. 24.0 pF/ft grounded Nom.
Resistance		26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max	26.2 Ω DC per 1000 ft @ 20°C (68°F) max
Voltage		300V	300V	300V	300V
Temperature R	ange	-20°C to 80°C (-4°F to 176°F)	-20°C to 75°C (-4°F to167 °F)	-20°C to 75°C (-4°F to167 °F)	-20°C to 75°C (-4°F to167 °F)
Plenum		No	No	No	No
UL Classification	on	CM or AWM Style 2448	CM or AWM Style 2448	CM or AWM Style 2448	CM or AWM Style 2919
Agency Approvals		UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame
Sample Print Legend		QUABBIN 8302 (UL) TYPE CM 24 AWG 75C SHIELDED OR AWM 2448 LOW VOLTAGE COMPUTER CABLECSA LL51726 CMG 60C RoHS	QUABBIN 8304 (UL) TYPE CM 24 AWG 75C SHIELDED OR AWM 2448 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG 60C RoHS	QUABBIN 8306 (UL) TYPE CM 24 AWG 75C SHIELDED OR AWM 2448 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG 60C RoHS	QUABBIN 8308 (UL) TYPE CM 24 AWG 75C SHIELDED OR AWM 2448 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG 60C RoHS

	Series RS-422/485 Data Cable Specifications										
Part Number	Number of Twisted Pairs	AWG	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot					
<u>Q8302-1</u>	1		0.238	- 25	0.0288	\$56xv:					
<u>Q8304-1</u>	2	24	0.250		0.0351	\$56xx:					
<u>Q8606-1</u>	3	24	0.258		0.0377	\$56xs:					
<u>Q8308-1</u>	4		0.298		0.0467	\$;56x]:					

<sup>\*</sup> See web store for maximum cut lengths





		Series RS-422/485 [	Data Cable Specifications		
		<u>Q0356-1</u>	<u>Q0357-1</u>	<u>Q0358-1</u>	
Conductor Gau	ge and Stranding	24AWG 7/32 stranded tinned copper	22AWG 7/30 stranded tinned copper	20AWG 7/28 stranded tinned copper	
Pairs		1.5	1.5	1.5	
0-101-	Pair 1	Black X Black/White	Black X Black/White	Black X Black/White	
Color Code	Ground	Green	Green	Green	
Insulation		Low Density Polyethylene	Low Density Polyethylene	Low Density Polyethylene	
Construction		Shielded twisted pair with green ground conductor and overall shield	Shielded twisted pair with green ground conductor and overall shield	Shielded twisted pair with green ground conductor and overall shield	
Pair Shield/Dra	ain	Aluminized Polyester Foil Shield with a 24AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 22AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 20AWG Stranded Tinned Copper Drain Wire	
Overall Shield/Drain		Tinned Copper Braid 70% Minimum Coverage	Tinned Copper Braid 70% Minimum Coverage	Tinned Copper Braid 70% Minimum Coverage	
Jacket		Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC	
Diameter		0.219 in Nominal	0.249 in Nominal	0.292 in Nominal	
Minimum Bend	l Radius	2.19 in Nominal (install)	2.49 in Nominal (install)	2.92 in (install)	
Cable Weight		24.8 lbs/1000ft Approx.	36.9 lbs/1000ft Approx.	49.7 lbs/1000ft Approx.	
Impedance		100 Ω/1,000	101 Ω/1,000	102 Ω/1,000	
Capacitance	Signal to Signal	18.0 pF/ft Nom.	18.0 pF/ft Nom.	18.0 pF/ft Nom.	
Сараснансь	Signal to Ground	32.0 pF/ft Nom.	32.0 pF/ft Nom.	32.0 pF/ft Nom.	
Resistance		26.2 Ω DC per 1000 ft @ 20°C (68°F) max	16.7 Ω DC per 1000 ft @ 20°C (68°F) max	10.4 Ω DC per 1000 ft @ 20°C (68°F) max	
Voltage		300V	300V	300V	
Temperature R	ange	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	
Plenum		No	No	No	
UL Classificati	оп	CM or AWM Style 2448	CM or AWM Style 2448	CM or AWM Style 2448	
Agency Approvals		UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 ROHS UL 1685 Vertical Tray, UL 1581 Cable Flame	
Sample Print Legend		QUABBIN P/N 0356 3/C 24 AWG SHIELDED C(UL)US CM 75C OR AWM 2448 RoHS (LOT DESIGNATOR)	QUABBIN P/N 0356 3/C 24 AWG SHIELDED C(UL)US CM 75C OR AWM 2448 RoHS (LOT DESIGNATOR)	QUABBIN P/N 0356 3/C 24 AWG SHIELDED C(UL)US CM 75C OR AWM 2448 ROHS (LOT DESIGNATOR)	

Twisted Pairs Data Cable Specifications										
Part Number	Part Number   Number of Twisted Pairs   AWG   Maximum O.D.   Minimum Cut Length (ft)*   Approximate per foot									
<u>Q0356-1</u>	1.5	24	0.219	25	0.0248	\$5guc:				
<u>Q0357-1</u>	1.5	22	0.249	25	0.0369	\$5gud:				
<u>Q0358-1</u>	1.5	20	0.292	25	0.0497	\$5gue:				

<sup>\*</sup> See web store for maximum cut lengths





		Twisted Pairs Dat	a Cable Specifications	
		<u>Q6135-1</u>	<u>Q6155-1</u>	<u>Q7380-1</u>
Conductor Gau Stranding	ge and	20 AWG 7/28 stranded tinned copper	20 AWG 7/28 stranded tinned copper	22 AWG Solid
Pairs		3	3	3
	Pair 1	Black X Red	Black X Red	Black X Red
Color Code	Pair 2	Black X White	Black X White	Black X White
	Pair 3	Black X Green	Black X Green	Black X Green
Insulation		Semi-Rigid PVC	High Density Polyethylene	Semi-Rigid PVC
Construction		Twisted pair, unshielded	Twisted pairs cabled, individually shielded	Twisted pairs cabled, individually shielded
Shield/Drain		N/A	Aluminized Polyester Foil Shield with a 22 AWG Stranded Tinned Copper Drain Wire	Aluminized Polyester Foil Shield with a 22AWG Solid Tinned Copper Drain Wire
Jacket		Chrome Gray PVC	Chrome Gray PVC	Chrome Gray PVC
Diameter		.264in Nominal	.325in Nominal	.270in Nominal
Minimum Bend	l Radius	2.64in (Install)	3.25in (Install)	2.70in (Install)
Cable Weight		42.3lbs/1000ft Approx.	54.5 lb/1000ft Approx.	39.3 lb/1000ft Approx.
Impedance		N/A	100 Ω/1,000	100 Ω/1,000
Capacitance		40 pF/ft mutual Nom. 74 pF/ft grounded Nom.	30.0 pF/ft Nom. 55.0 pF/ft Nom.	26.0 pF/ft Nom. 47.0 pF/ft Nom.
Resistance		10.4 Ω DC per 1000 ft @ 20°C (68°F) max	10.4 Ω DC per 1000 ft @ 20°C (68°F) max	17.2 Ω DC per 1000 ft @ 20°C (68°F) max
Voltage		300V	300V	300V
Temperature R	ange	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)	-20°C to 80°C (-4°F to 176°F)
Plenum		No	No	No
UL Classification	on	CM or AWM Style 2464	CM/CL2 or AWM Style 2919	CM/CL2 or AWM Style 2919
Agency Approvals		UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame	UL E69976 & E118830 RoHS UL 1685 Vertical Tray, UL 1581 Cable Flame
Sample Print Legend		QUABBIN 6135 (UL) TYPE CM 20 AWG OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4RoHS	QUABBIN 6155 (UL) TYPE CM 20 AWG 75C SHIELDED OR AWM 2919 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG 60C RoHS	QUABBIN 7380 (UL) TYPE CM 22 AWG SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS

	Twisted Pairs Data Cable Specifications										
Part Number	Approximate Weight (lb/ft)	Price per foot									
<u>Q6135-1</u>		20	0.264		0.0423	\$;56x[:					
<u>Q6155-1</u>	3	20	0.325	25	0.0545	\$56x_:					
<u>Q7380-1</u>		22	0.270		0.0393	\$56x#:					

<sup>\*</sup> See web store for maximum cut lengths







### **Flexing Cable**



#### Flexible Cable or Flexing Cable?

While it may seem there should be no difference between a cable described as flexible and one described as flexing, there are actually big differences in the design, manufacture, and application of flexible cable and flexing cable.

A flexible cable allows for easier installation in a control panel or machine as it can be easily bent and routed as needed. However, once routed and installed a flexible cable will generally be static during its service life.

A flexing (or more descriptively continuous flexing) cable during its service life will be exposed to continuous motion in the form of rolling, bending, torsional, or variable flexing operations. To provide a long service life under these rigorous applications especially when exposed to harsh industrial environmental conditions, special design and manufacturing characteristics are required to produce a continuous flexing rated cable.

Additionally, factors such as temperature, velocity, acceleration, travel distance, minimum bend radius, torsion, and minimum number of cycles must be considered when selecting a continuous flexing rated cable for a specific application.

#### **Cable Failures**

Misapplied flexible cables or poorly designed/manufactured flexing cables will quickly fail when exposed to the rigors of continuous flexing applications in harsh industrial environments.

#### Loss of continuity

The copper conductors can break or become severed causing a loss of continuity when insulated conductors are twisted with incorrect pitch length/direction. The cable core cannot absorb the mechanical load caused by the cable's flexing, transferring the force to the copper conductors and causing them to break under the increased tensile load.

#### **Insulation damage**

Insulation damage occurs when the insulation integrity of a cable's conductors are compromised. This is caused by material fatigue under constant bending stress, abrasion within the cable structure and/or conductor strand breakage, which in turn perforates the insulation.

#### Corkscrewing

This failure type is named for its easily recognizable mechanical deformation of the entire cable. The corkscrew, sometimes called pigtail, effect is caused when the torsional forces incurred during the cabling process are allowed to release during continuous-flexing operation. These forces are released because the cable configuration, pitch length and pitch direction are incorrect. Cables constructed using the layering process are typically more susceptible to corkscrewing.

#### Jacket abrasion

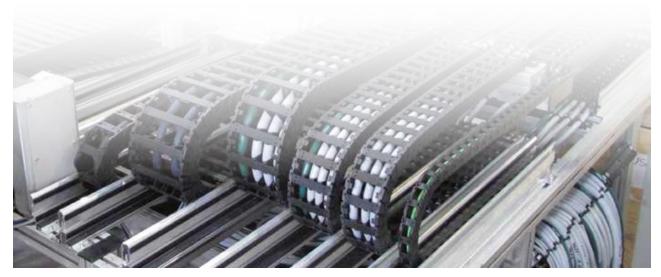
When the outer jacket of a cable wears through to the underlying layers of shielding or conductors, jacket abrasion occurs. This mechanical failure is common when soft jacket materials or a thin jacket extrusion is used.

#### Jacket swelling/cracking

A cable's outer jacket usually swells because of exposure to oil or chemicals the cable was not designed to withstand. Jacket cracking occurs when the jacket breaks so that the shield can be seen, and is an effect of excessively high/low temperatures.

#### Shielding losses/EMC problems

Increased electromagnetic interfaces (EMI) occurs when the shield designed to protect the cable signals from electromagnetic fields break and abrade due to continuous flexing. To avoid this, the tensile load of the shield wires along the outer radius of the cable must be considered in the cable design and manufacturing. If an unfavorable braiding angle is added, the tensile load can increase even further causing shield wire breakage. This breakage can result in reduced shielding properties or short circuits if the sharp broken wires penetrate into the conductors.





### **Flexing Cable**



#### igus® Cable Design and Testing

Based on more than 25 years of experience and testing, various design principles for igus Chainflex® cables have been developed to prevent premature cable failures in demanding continuous flexing applications.

#### Strain-relieving center element

The center core is filled with a high-quality, high tensile strength center element to protect conductors from falling into the center of the cable.

#### **Conductor structure**

The copper stranding in Chainflex® continuous-flex cables is chosen in accordance with tested and proven designs. The test results from the igus® lab indicate that a medium to fine conductor strand diameter is preferable. Many competitive cable manufacturers will employ an extrafine conductor strand, which has the tendency to kink when subjected to a high number of cycles. Using findings from long-term cable testing, igus® uses a combination of conductor strand diameter, pitch-length, and pitch direction to achieve the best service life and performance, even in the most demanding applications.

#### **Conductor insulation**

Igus uses only the highest quality high-pressure extruded PVC or TPE conductor insulation materials to support the stranded individual wires of the conductor and help prevent the conductors from adhering to one another within the cable.

#### Cable core

Individual conductors are bundled into groups, which are cabled together in a single layer surrounding the cable core. This design enables pulling and compressing forces of the bending motion to balance and cancel out torsional forces. Special attention is given to pitch length and direction. The cable's inner jacket will also help to maintain the integrity of the cable core and provide a continuous surface for the shield.

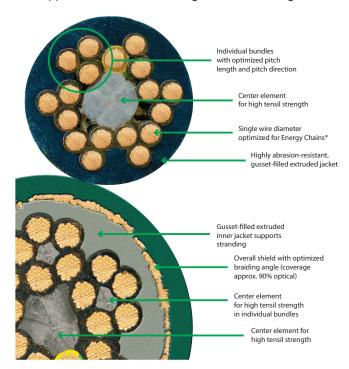
#### Inner jacket

A pressure extruded inner jacket is used in igus continuous flexing cables, as opposed to inexpensive fleece wrap or filler. This extruded inner jacket both ensures that the insulated conductors are efficiently guided, as well as maintaining the integrity of the cable core and providing a continuous surface for the overall shield.

#### Shield design

A high-quality braided shield provides electromagnetic interference (EMI) protection for the cable. An optimized braid angle prevents the shield strands from breaking over the linear axis and increases torsional stability. The shield has an optical coverage of approximately 90%, providing maximum shield effectiveness.

Igus outer jacket material is resistant to UV radiation, abrasion, oils, and chemicals, as well as being cost-effective. Additionally the outer jacket is resistant to abrasion, and remains flexible while providing support of the cable for dynamic applications. For best wear rates and service life, igus outer jackets are extruded under pressure compared to other cables which are extruded as a "tube" that does not support the conductors during constant bending.









### Flexing Cable



#### **Cycles Selection Tables - Guaranteed Service Life**

For each Chainflex cable system, you will find a lifetime calculation table, expressed in cycles, using technical

parameters for the specific cable series. For the Chainflex Guarantee to remain valid, the cables must be used in accordance with these parameters.

Temperature, from/to °F

- 4 Travel in ft.
- Velocity, v max. unsupported/gliding ft/s
- Min. bend radius [factor x diameter] at 5, 7.5 or 10 million cycles

Acceleration, a max. ft/s

#### Example: Selection table "Guaranteed Lifetime"

	Cycles			3	4	5 million	7.5 million	10 million
	Temperature,	emperature, v max. [ft/s]		a. max	Travel distance	R min.	R min.	R min.
	from/to [°F]	unsupported	gliding	[ft/s <sup>2</sup> ]	[ft]	[factor x d]	[factor x d]	[factor x d]
	-31 / -13	2				6.8	7.5	8.5
1	-13 / +194	32.81	19.69	328.1	> 1,312	5	6	7
Ĭ	+194/+212					6.8	7.5	8.5

#### Example:

You operate a cable with a diameter of 12 mm in an Energy Chain\* with a radius of 100 mm. This results in a bending factor of 8.3 (100 mm/12 mm). You now want to know what the quaranteed service life is.

To find this out, select the technical framework conditions from areas 1-4. In area 5, you can now see that when using  $8.3 \times d$  the effective bending factor is above the limit of 7 and the cable has a guaranteed service life for 10 million cycles.

If the temperature is higher or lower, the number of guaran teed cycles falls to 7.5 million.

This statement creates dependability and planning reliability for your entire system.







### **Flexing Control Cable**



Automation Direct is pleased to offer the igus CF5 and CF6 series multi-conductor control cable for continuous flexing applications. These cables are available in sizes from 20AWG to 14AWG with 3 to 25 unshielded (CF5 series) or 4 to 12 shielded (CF6 series) conductors. Individual conductors are bare copper and stranded for flexing applications. Conductor insulation is a mechanically high-quality black TPE mixture for 20AWG and black PVC mixture for 18 through 14AWG, and individual conductors are marked with white numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has green-yellow insulation. The cable's outer jacket is a low-adhesion pressure extruded PVC mixture that provides resistance to sunlight, oil penetration, and is flame retardant.

Unshielded Chainflex<sup>®</sup> cables have a tear strip underneath the outer jacket, shielded Chainflex<sup>®</sup> cables have it underneath the inner jacket. With a few easy steps, the jacket can be opened like a zipper to the desired length by pulling on the special tear strip. The outer jacket/inner jacket can then be removed from conductors. This not only saves time and effort for assemblers and electricians, but also means they have no need for additional tools. Cables are designed such that the strip does not cause damage to the jacket or conductors, even after millions of motion cycles.

The igus CF5 and CF6 multi-conductor control cables are specifically designed, tested, and manufactured for continuous flexing, high mechanical load application requirements, and will provide a guaranteed service life between 5 million and 10 million cycles when operated within specified conditions\*.

#### **Features**

- 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup> (20AWG to 14AWG), 3 to 25 conductors including ground
- · Unshielded and shielded constructions
- Individual conductors have black TPE or PVC insulation and are marked with white identification numbers
- Low adhesion pressure extruded PVC mixture outer jacket that is sunlight and oil resistant and flame retardant
- · Green/yellow ground wire included

- Rated for continuous flexing applications with high mechanical load requirements
- Guaranteed service life between 5 million and 10 million cycles when operated within specified conditions
- UL Recognized type AWM (appliance wiring material)
- · Cut to length in 1 foot increments
- · Low 20 foot minimum length
- 3 year warranty\*



Strip cables 50% faster: The tear strip is in the outer jacket for unshielded cables and inner jacket for shielded



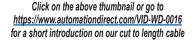


#### \* CF5 and CF6 Series Guaranteed lifetime according to guarantee conditions

Cycl	5 mi	llion	7.5 m	illion	10 m	illion	
Temperature,	Travel distance [ft]	R min. [factor x d]		R min. [factor x d]		R min. [factor x d]	
from/to [°F]	Traver distance [11]	< 32.81 ft	≥ 32.81 ft	< 32.81 ft	≥ 32.81 ft	< 32.81 ft	≥ 32.81 ft
+41 / +59		7.5	10	8.5	11	9.5	12
+59 / +140	≤ 328	6.8	7.5	7.8	8.5	8.8	9.5
+140 / +158		7.5	10	8.5	11	9.5	12













# 0.5 mm<sup>2</sup> (20AWG) Flexing Control Cable CF5 Series Unshielded

0.5 mm <sup>2</sup> (20AWG) Mu	Iti-Conductor Flexing Co	ntrol Cable Spec	ifications (Unshielded)	
Conductors Gauge & Stranding	0.5 mm² (20AWG) 16/32 bare copper	Conductor Insulation	Black TPE with green/yellow ground	
Voltage Ratings	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	
renage namge	Tested to 2000V	Outer Jacket	Dark Green PVC	
	e-Chain®, 6.8 x diameter	UV Resistance	Yes	
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes	
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1	
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes	
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 10492 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter	
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9	
Max. Velocity	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01254	
тах. Устоску	Gliding, 16 ft/s (5 m/s)		CTP; Certified to no. C-DE. PB49.B.00416	
Max. Acceleration	262.5 ft/s² (80 m/s²)	Approvals	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU	
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Comple Drint Larged	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1	
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de	

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.5 mi	m² (20AWG) N	Iulti-Co	nductor I	lexing Cont	rol Cable (	(Unshielde	d)
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
1							
		igus ch	ainflex CF5	5.05.03			
<u>CF5-05-03-1</u>	3	0.5 mm <sup>2</sup> (20AWG)	16	0.24	20	0.03	\$2dc6:
		igus c	hainflex Cl	F5.05.05			
<u>CF5-05-05-1</u>	5	0.5 mm <sup>2</sup> (20AWG)	16	0.28	20	0.05	\$2dc7:
		igus	:hainflex (	F5.05.07			
<u>CF5-05-07-1</u>	7	0.5 mm <sup>2</sup> (20AWG)	16	0.31	20	0.05	\$2dc8:

<sup>\*</sup> See web store for maximum cut lengths





# 0.5 mm<sup>2</sup> (20AWG) Flexing Control Cable CF5 Series Unshielded

0.5 mm	<sup>2</sup> (20AWG) M	ulti-Con	ductor FI	exing Contro	l Cable (U	Inshielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
	igus	: chainflex (	CF5.05.12				
CF5-05-12-1	12	0.5 mm <sup>2</sup> (20AWG)	16	0.43	20	0.09	\$2dc9:
		igus chai	inflex CF5.0	5.18	_	_	_
<u>CF5-05-18-1</u>	18	0.5 mm <sup>2</sup> (20AWG)	16	0.51	20	0.13	\$2dca:
igus chainflex CF5.05.25							
<u>CF5-05-25-1</u>	25	0.5 mm <sup>2</sup> (20AWG)	16	0.63	20	0.19	\$2dc1:

<sup>\*</sup> See web store for maximum cut lengths





# 0.75 mm<sup>2</sup> (18AWG) Flexing Control Cable CF5 Series Unshielded

0.75 mm² (18AWG) M	ulti-Conductor Flexing Co	ontrol Cable Spec	cifications (Unshielded)
Conductors Gauge & Stranding	0.75 mm² (18AWG) 34/32 bare copper	Conductor Insulation	Black PVC with green/yellow ground
Voltage Ratings	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
renage name	Tested to 2000V	Outer Jacket	Dark Green PVC
	e-Chain®, 6.8 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9
Max. Velocity	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01254
max. velocity	Gliding, 16 ft/s (5 m/s)	A	CTP; Certified to no. C-DE. PB49.B.00416
Max. Acceleration	262.5 ft/s² (80 m/s²)	Approvals	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Onesala Deinklaused	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.75 m	m² (18AWG) N	/lulti-Con	ductor F	exing Control	Cable (Ur	shielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
. \							
		igus chainf	lex CF5.07.I	33		_	
							9
CF5-07-03-1	3	0.75 mm² (18AWG)	24	0.26	20	0.04	\$2dc2:
		igus chain	flex CF5.07	04			
<u>CF5-07-04-1</u>	4	0.75 mm² (18AWG)	24	0.28	20	0.05	\$2dc3:
			- :_4  ofe (				
		iyus cha	inflex CF5.0	71.03		,9V))	31 %
					T		<u>                                    </u>
<u>CF5-07-05-1</u>	5	0.75 mm² (18AWG)	24	0.30	20	0.06	\$2dc4:

<sup>\*</sup> See web store for maximum cut lengths





# 0.75 mm<sup>2</sup> (18AWG) Flexing Control Cable CF5 Series Unshielded

0.75 m	m² (18AWG) N	<mark>/lulti-C</mark> on	ductor F	<b>exing Control</b>	Cable (U	nshielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		igus chair	nflex CF5.01	7.07			_
<u>CF5-07-07-1</u>	7	0.75 mm <sup>2</sup> (18AWG)	24	0.35	20	0.08	\$2dc5:
		igus chainf	lex CF5.07.1	2		_	_
<u>CF5-07-12-1</u>	12	0.75 mm² (18AWG)	24	0.49	20	0.13	\$2dcb:
	igus ch	ainflex CF5.	07.18				
<u>CF5-07-18-1</u>	18	0.75 mm² (18AWG)	24	0.59	20	0.19	\$2dcc:
	igus	chainflex Cl	F5.07.25		_		_
<u>CF5-07-25-1</u>	25	0.75 mm² (18AWG)	24	0.69	20	0.27	\$2dcd:

<sup>\*</sup> See web store for maximum cut lengths





# 1.5 mm<sup>2</sup> (16AWG) Flexing Control Cable CF5 Series Unshielded

1.5 mm² (16AWG) Mu	Iti-Conductor Flexing Co	ntrol Cable Spec	ifications (Unshielded)	
Conductors Gauge & Stranding	1.5 mm² (16AWG) 30/30 bare copper	Conductor Insulation	Black PVC with green/yellow ground	
Voltage Ratings	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4	
ronago namigo	Tested to 2000V	Outer Jacket	Dark Green PVC	
	e-Chain®**, 6.8 x diameter	UV Resistance	Yes	
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes	
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1	
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes	
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter	
			12.9	
Max. Velocity	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01254 CTP; Certified to no. C-DE. PB49.B.00416	
тах. Увюску	Gliding, 16 ft/s (5 m/s)			
Max. Acceleration	262.5 ft/s² (80 m/s²)	Approvals	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU	
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Comple Drint Legar	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1	
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de	

<sup>\*</sup> Per EN 60811-504 standard

<sup>\*\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

1.5 mr	n² (16AWG) M	lulti-Con	ductor Fl	exing Control	Cable (Un	shielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		igus chainfl	ex CF5.15.0:	3			
<u>CF5-15-03-1</u>	3	1.5 mm² (16AWG)	30	0.30	20	0.05	\$2dce:
		igus chainfl	ex CF5.15.0°	1			
<u>CF5-15-04-1</u>	4	1.5 mm² (16AWG)	30	0.31	20	0.07	\$;2dcf:
		igus chain	flex CF5.15.I	<b>2</b> 5			
<u>CF5-15-05-1</u>	5	1.5 mm² (16AWG)	30	0.35	20	0.09	\$2dcg:

<sup>\*</sup> See web store for maximum cut lengths





# 1.5 mm<sup>2</sup> (16AWG) Flexing Control Cable CF5 Series Unshielded

1.5 mr	1.5 mm <sup>2</sup> (16AWG) Multi-Conductor Flexing Control Cable (Unshielded)						
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
		igus chain	flex CF5.15.	97			
<u>CF5-15-07-1</u>	7*	1.5 mm² (16AWG)	30	0.41	20	0.13	\$2dch:
igus chainflex CF5.15.12							
<u>CF5-15-12-1</u>	12	1.5 mm² (16AWG)	30	0.59	20	0.19	\$-2dci:

<sup>\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter





<sup>\*\*</sup> See web store for maximum cut lengths

# 2.5 mm<sup>2</sup> (14AWG) Flexing Control Cable CF5 Series Unshielded

2.5 mm <sup>2</sup> (14AWG) Mu	<b>Iti-Conductor Flexing Co</b>	ntrol Cable Spec	ifications (Unshielded)
Conductors Gauge & Stranding	2.5 mm² (14AWG) 50/30 bare copper	Conductor Insulation	Black PVC with green/yellow ground
Voltage Ratings	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Tonago namgo	Tested to 2000V	Outer Jacket	Dark Green PVC
	e-Chain®**, 6.8 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter
			12.9 EAC; Certified to no. TC RU C-DE.
May Valacity	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254
Max. Velocity	Gliding, 16 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)
Max. Acceleration	262.5 ft/s² (80 m/s²)		CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Sample Print Legend	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	oumpro i imi Logona	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

2.5 mr	n <sup>2</sup> (14AWG) M	lulti-Con	ductor Flo	exing Control (	Cable (Un	shielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
		igus chair	nflex CF5.25	5.04	_	_	_
CF5-25-04-1	4	2.5 mm <sup>2</sup> (14AWG)	50	0.39	20	0.12	\$-2dcj:
igus chainflex CF5,25,07							
<u>CF5-25-07-1</u>	7*	2.5 mm <sup>2</sup> (14AWG)	50	0.51	20	0.20	\$2dck:

<sup>\*</sup> For 7 conductor cable with travel distance  $\geq$  5m (16.4ft) requires bending radius  $\geq$  17 x diameter





<sup>\*\*</sup> For 7 conductor cable with travel distance  $\geq$  5m (16.4ft) requires bending radius  $\geq$  17 x diameter

<sup>\*\*</sup> See web store for maximum cut lengths

# 0.5 mm<sup>2</sup> (20AWG) Flexing Control Cable CF6 Series Shielded

0.5 mm <sup>2</sup> (20AWG) M	0.5 mm <sup>2</sup> (20AWG) Multi-Conductor Flexing Control Cable Specifications (Shielded)							
Conductors Gauge & Stranding	0.5 mm² (20AWG) 16/32 bare copper	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
Voltage Retings	600V per UL	Inner Jacket	Tan PVC					
Voltage Ratings	Tested to 2000V	Outer Jacket	Dark Green PVC					
	e-Chain®, 6.8 x diameter	UV Resistance	Yes					
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes					
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1					
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes					
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 10492 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter					
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9 EAC; Certified to no. TC RU C-DE.					
Max Volcoity	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254					
Max. Velocity	Gliding, 16 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)					
Max. Acceleration	262.5 ft/s² (80 m/s²)		CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU					
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)		igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1					
Conductor Insulation	Black TPE with green/yellow ground	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de					

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.5 mm <sup>2</sup> (20AWG) Multi-Conductor Flexing Control Cable (Shielded)								
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
6005	i	gus chaint	lex CF6.05.0	95				
<u>CF6-05-05-1</u>	5	0.5 mm <sup>2</sup> (20AWG)	16	0.33	20	0.07	\$-2dcl:	
		igus cha	inflex CF6.6	5.07				
<u>CF6-05-07-1</u>	7	0.5 mm <sup>2</sup> (20AWG)	16	0.39	20	0.09	\$2dcn:	
igus chainflex CF6.05.12								
<u>CF6-05-12-1</u>	12	0.5 mm <sup>2</sup> (20AWG)	16	0.51	20	0.16	\$2dco:	

<sup>\*</sup> See web store for maximum cut lengths





# 0.75 mm<sup>2</sup> (18AWG) Flexing Control Cable CF6 Series Shielded

0.75mm <sup>2</sup> (18AWG) N	lulti-Conductor Flexing (	Control Cable Spe	ecifications (Shielded)
Conductors Gauge & Stranding	0.75 mm² (18AWG) 24/32 bare copper	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Voltage Ratings	600V per UL	Inner Jacket	Tan PVC
Vollage hallings	Tested to 2000V	Inner Jacket  Outer Jacket  UV Resistance  Deter Oil Resistance  Flame Retardant  158°F (5°C to  Silicone-free  158°F (-15°C to +70°C)  Signory  Si	Dark Green PVC
	e-Chain®, 6.8 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9 EAC; Certified to no. TC RU C-DE.
May Valacity	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254
Max. Velocity	Gliding, 16 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)
Max. Acceleration	262.5 ft/s² (80 m/s²)		CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE: Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Sample Print Legend	igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1
Conductor Insulation	Black PVC with green/yellow ground	Sample Find Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.75m	m² (18AWG) l	Multi-Co	nductor	Flexing Cont	rol Cable (	Shielded)		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		igus chair	nflex CF6.07	7.04	_			
<u>CF6-07-04-1</u>	4	0.75 mm² (18AWG)	24	0.33	20	0.08	\$2dcp:	
		igus chair	nflex CF6.0°	7.07	_			
<u>CF6-07-07-1</u>	7	0.75 mm² (18AWG)	24	0.41	20	0.11	\$2dcq:	
igus chainflex CF6.07.12								
<u>CF6-07-12-1</u>	12	0.75 mm² (18AWG)	24	0.55	20	0.19	\$2dcs:	

<sup>\*</sup> See web store for maximum cut lengths







# 1.5 mm<sup>2</sup> (16AWG) Flexing Control Cable CF6 Series Shielded

1.5 mm <sup>2</sup> (16AWG) Multi-Conductor Flexing Control Cable Specifications (Shielded)							
Conductors Gauge & Stranding	1.5 mm² (16AWG) 30/30 bare copper	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4				
Voltage Petings	600V per UL	Inner Jacket	Tan PVC				
Voltage Ratings	Tested to 2000V	Outer Jacket	Dark Green PVC				
	e-Chain®**, 6.8 x diameter	UV Resistance	Yes				
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes				
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1				
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes				
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)						
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9				
May Valacity	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01254				
Max. Velocity	Gliding, 16 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416				
Max. Acceleration	262.5 ft/s² (80 m/s²)		Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU				
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Occupie Duint Louis	igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1				
Conductor Insulation	Black PVC with green/yellow ground	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de				

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

1.5 m	m² (16AWG) I	Multi-Co	nductor	Flexing Contr	ol Cable (	Shielded)		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
		igus ch	aintlex CF6	15.04			_	
<u>CF6-15-04-1</u>	4	1.5 mm <sup>2</sup> (16AWG)	30	0.37	20	0.11	\$;2dct:	
		igus cl	nainflex CF	6.15.07			_	
CF6-15-07-1	7*	1.5 mm² (16AWG)	30	0.51	20	0.18	\$2dcu:	
igus chainflex CF6.15.12								
<u>CF6-15-12-1</u>	12	1.5 mm <sup>2</sup> (16AWG)	30	0.67	20	0.26	\$2dcv:	

<sup>\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter

<sup>\*\*</sup> See web store for maximum cut lengths





<sup>\*\*</sup> For 7 conductor cable with travel distance  $\geq$  5m (16.4ft) requires bending radius  $\geq$  17 x diameter

# 2.5 mm<sup>2</sup> (14AWG) Flexing Control Cable CF6 Series Shielded

2.5 mm <sup>2</sup> (14AWG) Multi-Conductor Flexing Control Cable Specifications (Shielded)							
Conductors Gauge & Stranding	2.5 mm² (14AWG) 50/30 bare copper	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4				
Voltage Detings	600V per UL	Inner Jacket	Tan PVC				
Voltage Ratings	Tested to 2000V	Outer Jacket	Dark Green PVC				
	e-Chain®, 6.8 x diameter	UV Resistance	Yes				
Min. Bend Radius	Flexible*, 5.0 x diameter	Oil Resistance	Yes				
	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1				
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Yes				
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter				
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9				
May Valacity	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01254				
Max. Velocity	Gliding, 16 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416				
Max. Acceleration	262.5 ft/s² (80 m/s²)		Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU				
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)		igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1				
Conductor Insulation	Black PVC with green/yellow ground	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de				

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

2.5 mm² (14AWG) Multi-Conductor Flexing Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Cut Length	Woight	Price per foot		
igus chainflex CF8.25.04									
<u>CF6-25-04-1</u>	4	2.5 mm <sup>2</sup> (14AWG)	50	0.45	20	0.16	\$2dcx:		

<sup>\*</sup> See web store for maximum cut lengths







### **High Flex Control Cable**



AutomationDirect is pleased to offer the igus CF9 and CF10 series multi-conductor control cables for continuous flexing applications. These cables are available in sizes from 20AWG to 14AWG with 3 to 7 unshielded (CF9 series) or 4 and 5 shielded (CF10 series) conductors. Individual conductors are bare copper and stranded for flexing applications. Conductor insulation is a mechanically high-quality black TPE mixture. Individual conductors are marked with white numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has green-yellow insulation. The cable's outer jacket is a low-adhesion pressure extruded slate gray TPE mixture that provides resistance to sunlight, oil penetration, and flame-retardant.

Unshielded Chainflex<sup>®</sup> cables have a tear strip underneath the outer jacket, but shielded Chainflex<sup>®</sup> cables have it underneath the inner jacket. With a few easy steps, the jacket can be opened like a zipper to the desired length by pulling on the special tear strip. The outer jacket/inner jacket can then be removed from conductors. This not only saves time and effort for assemblers and electricians, but also means they have no need for additional tools. Cables are designed such that the strip does not cause damage to the jacket or conductors, even after millions of motion cycles.

The igus CF9 and CF10 multi-conductor control cables are specifically designed, tested, and manufactured for continuous flexing, high mechanical load application requirements, and will provide a guaranteed service life between 5 million and 10 million cycles when operated within specified conditions\*.

#### **Features**

- 0.5 mm<sup>2</sup> to 2.5 mm<sup>2</sup> (20AWG to 14AWG), 3 to 7 conductors, including ground
- Unshielded and shielded constructions
- 0.5 mm<sup>2</sup> (20AWG) conductors have color coded TPE insulation, larger conductors have black TPE insulation and are marked with white identification numbers
- Low adhesion pressure extruded TPE mixture outer jacket that is sunlight and oil resistant and flame retardant
- · Green/yellow ground wire included
- Rated for continuous flexing applications with high mechanical load

- requirements
- Guaranteed service life between 5 million and 10 million cycles when operated within specified conditions
- UL Recognized type AWM (appliance wiring material)
- Cut to length in 1-foot increments
- · Low 20-foot minimum length
- 3-year warranty\*
- PVC Free



Strip cables 50% faster: The tear strip is in the outer jacket for unshielded cables and inner jacket for shielded

#### \* CF9 and CF10 Series Guaranteed lifetime according to guarantee conditions

Cycles	5 million	7.5 million	10 million
Temperature, from/to [°F]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-31/-13 (-35°C / -25°C)	6.8	7.5	8.5
-13/194 (-25°C / +90°C)	5.0	6.0	7.0
194/212 (+90°C/ +100°C)	6.8	7.5	8.5











Click on the above thumbnail or go to https://www.automationdirect.com/vID-WD-0016 for a short introduction on our cut to length cable

# 0.5 mm<sup>2</sup> (20AWG) High Flex Control Cable CF9 Series Unshielded

0.5 mm² (20AWG) Mul	ti-Conductor High Flex C	ontrol Cable Spe	cifications (Unshielded)
Conductors Gauge & Stranding	0.5 mm² (20AWG) 28/0.15 mm² bare copper	Conductor Insulation	Black TPE with green/yellow ground
Voltage Ratings	300/500V per UL	Conductor Markings	#1 white, #2 brown, #3 green, #4 yellow, #5 grey
voltage natings	Tested to 2000V	Slate Gray TPE	
	e-Chain®, 5.0 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes
	Fixed, 3.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, -31°F to +212°F (-35°C to +100°C)		Yes
Temperature Ratings	Flexible*, -49°F to +212°F (-45°C to +100°C) Fixed, -58°F to +212°F (-50°C to +100°C)		UL/CSA Style 10492 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter 12.9 EAC: Certified to no. TC RU C-DE.
Max. Velocity	Unsupported, 33 ft/s (10 m/s) Gliding, 19.6 ft/s (6 m/s)		ME77.B.01254 CTP; Certified to no. C-DE. PB49.B.00416
Max. Acceleration	328.08 ft/s² (100 m/s²)	Oil Resistance Flame Retardant  Silicone-free  to  Approvals	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (400m)		igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CI xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.5 mm	1 <sup>2</sup> (20AWG) M	ulti-Con	ductor H	igh Flex Con	trol Cable	(Unshield	ed)
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per Foot
							iaus (
<u>CF9-UL-05-03-1</u>	3	0.5 mm² (20AWG)	28	0.24	20	0.03	\$-4ohj:
							iaus c
CF9-UL-05-04-1	4	0.5 mm <sup>2</sup> (20AWG)	28	0.28	20	0.04	\$4ohk:
	(222)						iaus
CF9-UL-05-05-1	5	0.5 mm <sup>2</sup> (20AWG)	28	0.31	20	0.05	\$-4ohl:

<sup>\*</sup> See web store for maximum cut lengths





# 0.75 mm<sup>2</sup> (18AWG) High Flex Control Cable CF9 Series Unshielded

0.75 mm² (18AWG) Mu	lti-Conductor High Flex (	Control Cable Spe	ecifications (Unshielded)
Conductors Gauge & Stranding	0.75 mm² (18AWG) 42/0.15 mm² bare copper	Conductor Insulation	Black TPE with green/yellow ground
Voltage Ratings	300/500V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Politing Hallings	Tested to 2000V	Outer Jacket	Slate Gray TPE
	e-Chain®, 5.0 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes
	Fixed, 3.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, -31°F to +212°F (-35°C to +100°C)	e-Chain, -31°F to +212°F (-35°C to	
Temperature Ratings	Flexible*, -49°F to +212°F (-45°C to +100°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter
	Fixed, -58°F to +212°F (-50°C to +100°C)		12.9 EAC; Certified to no. TC RU C-DE.
Max. Velocity	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254
max. velocity	Gliding, 19.6 ft/s (6 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)
Max. Acceleration	328.08 ft/s² (100 m/s²)	Conductor Insulation  Conductor Markings  Outer Jacket  UV Resistance  Oil Resistance  Flame Retardant  °C to  Silicone-free  °C to  to  Approvals	CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Occupie Driet Languag	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.75 mn	n² (18AWG) M	ulti-Cond	luctor Hi	gh Flex Contro	l Cable (U	nshielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per Foot
							isus cha
<u>CF9-UL-07-05-1</u>	5	0.75 mm² (18AWG)	42	0.26	20	0.06	\$4ohn:
							iaus chai
<u>CF9-UL-07-07-1</u>	7	0.75 mm² (18AWG)	42	0.28	20	0.09	\$4oho:

<sup>\*</sup> See web store for maximum cut lengths





# 1.5 mm<sup>2</sup> (16AWG) High Flex Control Cable CF9 Series Unshielded

1.5 mm <sup>2</sup> (16AWG) Mul	ti-Conductor High Flex C	ontrol Cable Spe	cifications (Unshielded)
Conductors Gauge & Stranding	1.5 mm² (16AWG) 80/0.15 mm² bare copper	Conductor Insulation	Black TPE with green/yellow ground
Voltage Ratings	300/500V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Tonago namgo	Tested to 2000V	Outer Jacket	Slate Gray TPE
	e-Chain®**, 5.0 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes
	Fixed, 3.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, -49°F to +212°F (-45°C to +100°C) Fixed, -58°F to +212°F (-50°C to +100°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter 12.9 EAC; Certified to no. TC RU C-DE.
Max. Velocity	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254
max. velocity	Gliding, 19.6 ft/s (6 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)
Max. Acceleration	328.08 ft/s² (100 m/s²)	"	CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	On made Driet Languit	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

1.5 mm	<sup>լշ</sup> (16AWG) Mւ	ılti-Cond	uctor Hig	h Flex Control	Cable (U	nshielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per Foot
							iaus ch
CF9-UL-15-04-1	4	1.5 mm² (16AWG)	80	0.30	20	0.08	\$4ohe:
							iaus cha
<u>CF9-UL-15-05-1</u>	5	1.5 mm <sup>2</sup> (16AWG)	80	0.31	20	0.10	\$;4ohf:

<sup>\*</sup> See web store for maximum cut lengths





<sup>\*\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter

# 2.5 mm<sup>2</sup> (14AWG) High Flex Control Cable CF9 Series Unshielded

2.5 mm <sup>2</sup> (14AWG) Mul	ti-Conductor High Flex C	ontrol Cable Spe	cifications (Unshielded)
Conductors Gauge & Stranding	2.5 mm² (14AWG) 76/0.2 mm² bare copper	Conductor Insulation	Black TPE with green/yellow ground
Voltage Ratings	300/500V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
voltage Hattings	Tested to 2000V	Outer Jacket	Slate Gray TPE
	e-Chain <sup>®</sup> **, 5.0 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes
	Fixed, 3.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, -49°F to +212°F (-45°C to +100°C) Fixed, -58°F to +212°F (-50°C to +100°C)		UL/CSA Style 11113 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter 12.9 EAC; Certified to no. TC RU C-DE.
May Malacity	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254
Max. Velocity	Gliding, 19.6 ft/s (6 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)
Max. Acceleration	28.08 ft/s² (100 m/s²)		CEI; Following CEI 20-35 Clean Room; According to ISO Class 1, outer jacket material complies with CF130.15.07.UL, tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Sample Print Legend	igus chainflex CF5.xx.xx xxGxx 300/500V E310776 C cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	Gumpio i init Logona	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

2.5 mm	<sup>2</sup> (14AWG) Mւ	ılti-Cond	uctor Hig	h Flex Control	Cable (U	nshielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per Foot
							iaus ch
CF9-UL-25-04-1	4	2.5 mm <sup>2</sup> (14AWG)	76	0.39	20	0.13	\$4ohg:
							iaus chai
<u>CF9-UL-25-05-1</u>	5	2.5 mm <sup>2</sup> (14AWG)	76	0.51	20	0.16	\$4ohh:

<sup>\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter





<sup>\*\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter

<sup>\*\*</sup> See web store for maximum cut lengths

# 0.5 mm<sup>2</sup> (20AWG) High Flex Control Cable CF10 Series Shielded

0.5 mm <sup>2</sup> (20AWG) Mu	Iti-Conductor High Flex	<b>Control Cable Sp</b>	ecifications (Shielded)		
Conductors Gauge & Stranding	0.5 mm² (20AWG) 28/0.15 mm² bare copper	Conductor Markings	#1 white, #2 brown, #3 green, #4 yellow, #5 grey		
Voltage Potings	300/500V per UL	Inner Jacket	Tan TPE		
Voltage Ratings	Tested to 2000V	Outer Jacket	Slate Gray TPE		
	e-Chain®, 5.0 x diameter	UV Resistance	Yes		
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes		
	Fixed, 3.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1		
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes		
Temperature Ratings	Flexible*,-49°F to +212°F (-45°C to +100°C) Fixed, -58°F to +212°F (-50°C to +100°C)		UL/CSA Style 10492 and 2570, 600V, 80°C NFPA 79; Following NFPA 79-2012 chapter 12.9 EAC: Certified to no. TC RU C-DE.		
Ad Mala att	Unsupported, 33 ft/s (10 m/s)		ME77.B.01254		
Max. Velocity	Gliding, 19.6 ft/s (6 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)		
Max. Acceleration	328.08 ft/s² (100 m/s²)		CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU		
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)		igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1		
Conductor Insulation	Black TPE with green/yellow ground	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de		

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.5 mr	n² (20AWG) M	ulti-Cor	ductor H	igh Flex Con	trol Cable	(Shielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per Foot
							isus chainfle
<u>CF10-UL-05-04-1</u>	4	0.5 mm <sup>2</sup> (20AWG)	28	0.33	20	0.07	\$-4ohi:
						<u></u> :	aus chainfle>
<u>CF10-UL-05-05-1</u>	5	0.5 mm <sup>2</sup> (20AWG)	28	0.39	20	0.07	\$4ohp:

<sup>\*</sup> See web store for maximum cut lengths





# 0.75 mm<sup>2</sup> (18AWG) High Flex Control Cable CF10 Series Shielded

0.75mm <sup>2</sup> (18AWG) Mu	ılti-Conductor High Flex	Control Cable Sp	pecifications (Shielded)
Conductors Gauge & Stranding	0.75 mm² (18AWG) 42/0.15 mm² bare copper	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Voltage Retings	300/500V per UL	Inner Jacket	Tan TPE
Voltage Ratings	Tested to 2000V	Outer Jacket	Slate Gray TPE
	e-Chain®, 5.0 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes
	Fixed, 3.0 x diameter	Fixed, 3.0 x diameter Flame Retardant	
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, -49°F to +212°F (-45°C to +100°C) Fixed, -58°F to +212°F (-50°C to +100°C)	Flexible*, -49°F to +212°F (-45°C to +100°C) Fixed, -58°F to +212°F (-50°C to	
May Valacity	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01254
Max. Velocity	Gliding, 19.6 ft/s (6 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416 Lead Free; Following 2011/65/EU (RoHS-II)
Max. Acceleration	328.08 ft/s² (100 m/s²)		CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	Comple Drint Legend	igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1
Conductor Insulation	Black PVC with green/yellow ground	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

0.75mr	n² (18AWG) M	lulti-Co	nductor H	igh Flex Con	trol Cable	(Shielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per Foot
						11-1	aus chainfle
<u>CF10-UL-07-04-1</u>	4	0.75 mm² (18AWG)	42	0.33	20	0.08	\$4ohq:
						19	us chainflex
<u>CF10-UL-07-05-1</u>	5	0.75 mm² (18AWG)	42	0.41	20	0.10	\$4ohs:

<sup>\*</sup> See web store for maximum cut lengths







# 1.5 mm<sup>2</sup> (16AWG) High Flex Control Cable CF10 Series Shielded

1.5 mm² (16AWG) N	Multi-Conductor High Flex C	ontrol Cable Spe	cifications (Shielded)
Conductors Gauge & Stranding	1.5 mm² (16AWG) 80/0.15 mm² bare copper	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Voltage Detings	300/500V per UL	Inner Jacket	Tan TPE
Voltage Ratings	Tested to 2000V	Outer Jacket	Slate Gray TPE
	e-Chain®**, 5.0 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 4.0 x diameter	Oil Resistance	Yes
	Fixed, 3.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, -49°F to +212°F (-45°C to +100°C)		UL/CSA Style 11113 and 2570, 600V, 80°C
	Fixed, -58°F to +212°F (-50°C to +100°C)		NFPA 79; Following NFPA 79-2012 chapter 12.9
Billion Malacita	Unsupported, 33 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE.
Max. Velocity	Gliding, 19.6 ft/s (6 m/s)		ME77.B.01254 CTP; Certified to no. C-DE. PB49.B.00416
Max. Acceleration	Approvals		Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, material/cable tested by IPA According to ISO standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)	0	igus chainflex CF6.xx.xx (xxGxx)C 300/500V E310776 C cRUus AWM Style 2570 VW-1
Conductor Insulation	Black PVC with green/yellow ground	Sample Print Legend	AWM I/II A/B 80+C 600V FT1 EAC / CTP CE xx/x RoHS-II conform www.igus.de

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

1.5 mr	n² (16AWG) M	ulti-Cor	ductor H	igh Flex Cont	rol Cable	(Shielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	IMAIANT	Price per Foot
						1	aus chainfle
<u>CF10-UL-15-04-1</u>	4	1.5 mm² (16AWG)	80	0.37	20	0.13	\$;4oht:
						19	us chainflex
<u>CF10-UL-15-05-1</u>	5	1.5 mm² (16AWG)	80	0.51	20	0.15	\$4ohu:

<sup>\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter





<sup>\*\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter

<sup>\*\*</sup> See web store for maximum cut lengths



# **Tray Rated Continuous Flexing Control Cable**



AutomationDirect is pleased to offer the igus CF130US and CF140US series tray rated cable for continuous flexing applications. These cables are available in sizes from 18AWG to 12AWG with 4 to 25 unshielded (CF130US series) or 4 to 18 shielded (CF140US series) conductors. Individual conductors are bare copper and stranded for flexing applications. Conductor insulation is a mechanically high-quality black PVC mixture with a nylon outer layer and individual conductors are marked with white numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has green-yellow insulation. The cable's outer jacket is a low-adhesion pressure extruded PVC mixture that provides resistance to sunlight, oil penetration, and is flame resistant.

The igus CF130US and CF140US tray rated continuous flexing control cables are specifically designed, tested, and manufactured for use in both continuous flexing and fixed tray application. The UL TC-ER rating of our igus CF130US and CF140US series cables makes it ideally suited for most all control cable application.

#### **Features**

- 0.75 mm<sup>2</sup> to 4mm<sup>2</sup> (18AWG to 12AWG), 4 to 25 conductors including ground
- · Unshielded and shielded constructions
- Individual conductors have black PVC/Nylon insulation and are marked with white identification numbers
- Low adhesion pressure extruded gray PVC mixture outer jacket that is sunlight and oil resistant and flame retardant
- Green/yellow ground wire included

- Rated for low duty continuous flexing and fixed tray applications
- Guaranteed service life between 1 million and 5 million cycles when operated within specified conditions
- UL Tray cable for exposed run (TC-ER)
- Cut to length in 1 foot increments
- · Low 20 foot minimum length
- · 3 year warranty\*

#### \* CF130US and CF140US Series Guaranteed lifetime according to quarantee conditions

CF130US Series Tray Rated Continuous Flexing Control Cable								
Cycles	1 million	3 million	5 million					
Temperature, from/to [°F]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]					
+23 / +59	10	12	13					
+59 / +140	8	10	12					
+140 / +176	10	12	13					

CF1	CF140US Series Tray Rated Continuous Flexing Control Cable								
	Cycles				3 million	5 million			
Temperature, from/to [°F]	V max. [ft/s] unsupported	A max. [ft/s]	Travel distance [ft]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]			
+23 / +59				12	13	15			
+59 / +140	9.84	6.56	≤ 29.52	10	12	13			
+140 / +176				12	13	15			









Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable



# 18AWG (0.75 mm<sup>2</sup>) Tray Rated Cable CF130US Series Unshielded

TOAWG (U.73 IIIII	Tray Rated Multi-Conduc) (' Unshield)		itui Gabie Specifications
Conductors Gauge & Stranding	18AWG (0.75 mm²) 24/30 bare copper	Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one green-yellow
	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Voltage Ratings	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.
	e-Chain®, 8 x diameter	UV Resistance	Medium
Min. Bend Radius	Flexible, 7.5 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4
	Fixed, 5.0 x diameter	Flame Resistance	MTW: UL VW-1 and CSA FT4 TC-ER: UL 1685 and CSA FT4
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV3.10.7 – status 1992)
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C)		UL; 22-10 AWG: Type MTW per UL 1063 18-10 AWG: Type TC-ER per UL 1277
	Fixed, -4°F to +194°F (-20°C to +90°C)	Fixed, -4°F to +194°F (-20°C to +90°C)	
	Unsupported, 9.84 ft/s (3 m/s)	-	CE; Following 2014/35/EU Tray cable for exposed runs
Max. Velocity	Gliding, 6.56 ft/s (2 m/s)	-	Sunlight resistant
Max. Acceleration	65.6 ft/s² (20 m/s²)	Approvals	Direct Burial Oil Resistant I Type WTTC: Wind Turbine Tray Cable UL AWM 2587 90°C 600V CSA AWM I/II A/B 90°C 600V FT4 NEC section 500: For hazardous environments Class 1 and 2 Division 2
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF130US-07-XX 18 AWG ##/C E223775 (UL) TYPE TC-ER-HL 90°C DRY
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	75°C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 OR CUL CIC-TC PVC/N 600V FT4 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

18AWG (0.75 mm²) Tray Rated Multi-Conductor Flexing Control Cable (Unshielded)							
18AWG (0.)	<u>75 mm²) Tray F</u>	<u>lated Mu</u>	<u>lti-Condu</u>	ctor Flexing C	ontrol Cal	<u>ble (Unshi</u>	<u>elded)                                  </u>
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
CF130US-07-04-1	4	18AWG (0.75 mm²)	24 x 30	0.33	20	0.06	\$4ay3:
CF130US-07-12-1	12	18AWG (0.75 mm²)	24 x 30	0.50	20	0.14	\$4ay4:
CF130US-07-18-1	18	18AWG (0.75 mm²)	24 x 30	0.58	20	0.20	\$4ay5:
					_	_	_
CF130US-07-25-1	25	18AWG (0.75 mm²)	24 x 30	0.69	20	0.27	\$4ay6:

<sup>\*</sup> See web store for maximum cut lengths







# 16AWG (1.5 mm<sup>2</sup>) Tray Rated Cable CF130US Series Unshielded

16AWG (1.5 mm²) Tray Rated Multi-Conductor Flexing Control Cable Specifications (Unshielded)								
Conductors Gauge & Stranding	16AWG (1.5 mm²) 30/30 bare copper	Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one green-yellow					
	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
Voltage Ratings	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.					
	e-Chain®, 8 x diameter	UV Resistance	Medium					
Min. Bend Radius	Flexible, 7.5 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4					
	Fixed, 5.0 x diameter	Flame Resistance	MTW: UL VW-1 and CSA FT4 TC-ER: UL 1685 and CSA FT4					
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV3.10.7 – status 1992)					
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C) Fixed, -4°F to +194°F (-20°C to +90°C)	_	UL; 22-10 AWG: Type MTW per UL 1063 18-10 AWG: Type TC-ER per UL 1277 Lead Free; Following 2002/95/EC					
Max. Velocity	Unsupported, 9.84 ft/s (3 m/s) Gliding, 6.56 ft/s (2 m/s)	<b>4</b>	CE; Following 2014/35/EU Tray cable for exposed runs Sunlight resistant					
Max. Acceleration	65.6 ft/s² (20 m/s²)	- Approvals	Direct Burial Oil Resistant I Type WTTC: Wind Turbine Tray Cable UL AWM 2587 90°C 600V CSA AWM I/II A/B 90°C 600V FT4 NEC section 500: For hazardous environments Class 1 and 2 Division 2					
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF130US-15-XX 16AWG ##/C E223775 (UL) TYPE TC-ER-HL 90°C DRY					
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	75C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 OR cUL CIC-TC PVC/N 600V FT4 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY					

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

e-Chaine is a trademarked hexibi	Chain® is a trademarked nexible cable carrier by igus®. Igus® cable can be used in any suitable cable carrier.							
16AWG (1.5	mm²) Tray Ra	ited Mult	i-Conduc	tor Flexing Co	ntrol Cabl	e (Unshie	lded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
<u>CF130US-15-05-1</u>	5	16AWG (1.5 mm²)	30 x 30	0.39	20	0.09	\$4ay7:	
CF130US-15-12-1	12	16AWG (1.5 mm²)	30 x 30	0.56	20	0.20	\$4ay8:	
<u>CF130US-15-18-1</u>	18	16AWG (1.5 mm²)	30 x 30	0.65	20	0.28	\$4ay9:	

<sup>\*</sup> See web store for maximum cut lengths





# 14AWG (2.5 mm<sup>2</sup>) Tray Rated Cable CF130US Series Unshielded

14AWG (2.0 IIIII )	Tray Rated Multi-Conduci) Unshield)		Tor oabic opcomoations
Conductors Gauge & Stranding	2.5 mm² (14AWG) 50/30 bare copper	Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one green-yellow
	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4
Voltage Ratings	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.
	e-Chain <sup>®</sup> , 8 x diameter	UV Resistance	Medium
Min. Bend Radius	Flexible, 7.5 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4
	Fixed, 5.0 x diameter	Flame Resistance	MTW: UL VW-1 and CSA FT4 TC-ER: UL 1685 and CSA FT4
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV3.10.7 – status 1992)
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C) Fixed, -4°F to +194°F (-20°C to +90°C)	_	UL; 22-10 AWG: Type MTW per UL 1063 18-10 AWG: Type TC-ER per UL 1277 Lead Free; Following 2002/95/EC CE: Following 2014/35/EU
Max. Velocity	Unsupported, 9.84 ft/s (3 m/s)	Unsupported, 9.84 ft/s (3 m/s)	
тах. Устоску	Gliding, 6.56 ft/s (2 m/s)	- Approvals	Sunlight resistant Direct Burial
Max. Acceleration	65.6 ft/s² (20 m/s²)	- Approvais	Oil Resistant I Type WTTC: Wind Turbine Tray Cable UL AWM 2587 90°C 600V CSA AWM I/II A/B 90°C 600V FT4 NEC section 500: For hazardous environments Class 1 and 2 Division 2
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF130US-25-XX 14AWG ##/C E223775 (UL) TYPE TC-ER-HL 90°C DRY
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	75C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 OR CUL CIC-TC PVC/N 600V FT4 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

14AWG (2.5	mm²) Tray Ra	ited Mult	i-Conduc	tor Flexing Co	ntrol Cab	le (Unshiel	lded)
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
<u>CF130US-25-04-1</u>	4	14AWG (2.5 mm²)	50 x 30	0.39	20	0.10	\$4aya:
		_				_	_
<u>CF130US-25-07-1</u>	7	14AWG (2.5 mm²)	50 x 30	0.51	20	0.17	\$4ayb:

<sup>\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter





<sup>\*\*</sup> See web store for maximum cut lengths

# 12AWG (4.0 mm<sup>2</sup>) Tray Rated Cable CF130US Series Unshielded

12AWG (4.0 mm²) Tray Rated Multi-Conductor Flexing Control Cable Specifications								
Conductors Gauge & Stranding	(Unshield 12AWG (4.0 mm²) 56/28 bare copper	Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one green-yellow					
	600V per UL	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
Voltage Ratings	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.					
	e-Chain <sup>®</sup> , 8 x diameter	UV Resistance	Medium					
Min. Bend Radius	Flexible, 7.5 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4					
	Fixed, 5.0 x diameter	Flame Resistance	MTW: UL VW-1 and CSA FT4 TC-ER: UL 1685 and CSA FT4					
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV3.10.7 – status 1992)					
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C) Fixed, -4°F to +194°F (-20°C to +90°C)		UL; 22-10 AWG: Type MTW per UL 1063 18-10 AWG: Type TC-ER per UL 1277 Lead Free; Following 2002/95/EC					
Max. Velocity	Unsupported, 9.84 ft/s (3 m/s)		CE; Following 2014/35/EU Tray cable for exposed runs Sunlight resistant					
Max. Acceleration	Gliding, 6.56 ft/s (2 m/s) 65.6 ft/s² (20 m/s²)	Approvals	Direct Burial Oil Resistant I Type WTTC: Wind Turbine Tray Cable UL AWM 2587 90°C 600V CSA AWM I/II A/B 90°C 600V FT4 NEC section 500: For hazardous environments Class 1 and 2 Division 2					
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF130US-40-XX 12AWG ##/C E223775 (UL) TYPE TC-ER-HL 90°C DRY					
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	75C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 OR cUL CIC-TC PVC/N 600V FT4 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY					

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

12AWG (4.0 mm²) Tray Rated Multi-Conductor Flexing Control Cable (Unshielded)										
Number of Conductors (includes groun		AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>CF130US-40-04-1</u>	4	12AWG (4.0 mm²)	56 x 28	0.49	20	0.15	\$4ayc:			

<sup>\*</sup> For 7 conductor cable with travel distance  $\geq$  5m (16.4ft) requires bending radius  $\geq$  17 x diameter





<sup>\*\*</sup> See web store for maximum cut lengths



# 18AWG (0.75 mm<sup>2</sup>) Tray Rated Cable CF140US Series Shielded

18AWG (0.75 mm²) Tray Rated Multi-Conductor Flexing Control Cable Specifications (Shielded)								
Conductors Gauge & Stranding	18AWG (0.75 mm²) 24/30 Finely stranded bundled bare copper wires. Designed in accordance with ASTM B174-95	Conductor Markings	"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
	600V per UL	Inner Jacket	Low-adhesion PVC					
Voltago Patings	ooov per oc	Overall Shield	Tinned copper braid. 85% optical coverage					
Voltage Ratings	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.					
	e-Chain®, 10.0 x diameter	UV Resistance	Medium					
Min. Bend Radius	Flexible, 8.0 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4					
	Fixed, 7.5 x diameter Flame Resistance		CSA AWM: FT4					
	e-Chain, +41°F to +176°F (5°C to +80°C)		Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992					
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C)		UL; 22-10 AWG: UL Type MTW (Machine Tool					
	Fixed, -4°F to +194°F (-20°C to +90°C)		Wire) 18-10 AWG: UL Type TC (Tray Cable) Lead Free; 2002/95/EC					
Max. Velocity	Unsupported, 9.84 ft/s (3 m/s)	Approvals	CE; In accordance with European Council Directive 73/23/EEC					
IMAX. VEIOCHY	Gliding, 6.56 ft/s (2 m/s)		UL AWM: 2587 90 °C 600V					
Max. Acceleration	65.6 ft/s² (20 m/s²)		CSA AWM: I/II A/B 90 °C 600V FT4					
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF140US-07-## 18 AWG XX/C SHIELDED E223775 (UL) TYPE TC-ER 90C					
Conductor Insulation	Mechanically high-quality, PVC/Nylon,		DRY 75°C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY					

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

18AWG (0.	75 mm <sup>2</sup> ) Tray	Rated M	ulti-Cond	luctor Flexing	<b>Control C</b>	able (Shie	lded)
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
<u>CF140US-07-04-1</u>	4	18AWG (0.75 mm²)	24 x 30	0.40	20	0.09	\$4ayd:
18hord		X.		· onence - que o que o o o o o o			
<u>CF140US-07-05-1</u>	5	18AWG (0.75 mm²)	24 x 30	0.43	20	0.10	\$4aye:
			_				
<u>CF140US-07-12-1</u>	12	18AWG (0.75 mm²)	24 x 30	0.57	20	0.20	\$;4ayf:
<u>CF140US-07-18-1</u>	18	18AWG (0.75 mm²)	24 x 30	0.66	20	0.27	\$4ayg:

<sup>\*</sup> See web store for maximum cut lengths





# S CF211 and CF11 Series Continuous Flexing Control and Signal Cable



AutomationDirect offers Igus CF211 and CF11 series Continuous Flexing Control and Signal Cable for continuous flexing applications. These cables are available in sizes from 26AWG to 20AWG with shielded conductors and up to 4 twisted pairs. Individual conductors are bare copper and stranded for flexing applications. Conductor insulation is a mechanically high-quality color-coded TPE mixture. These cables are available in a halogen-free PUR, halogen-free PVC or standard PVC casing, all of which are low-adhesion highly abrasion resistant and adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2). All provide resistance to sunlight, oil penetration, and are flame retardant. igus CF211 and CF11Continuous Flexing Control and Signal

Cable are a excellent choice for connecting low-voltage signal like encoders, position sensors and analog signals or any application requiring a continuous flexing cable with a signal of less than 300 volt.

The Igus CF211 and CF11 series data cables are specifically designed, tested, and manufactured for continuous flexing, high mechanical load application requirements, and will provide a guaranteed service life between 5 million and 10 million cycles when operated within specified conditions\*.

#### **Features**

- 0.14 mm<sup>2</sup> to 0.50 mm<sup>2</sup> (26AWG to 20AWG)
- · Overall shielded constructions
- Low adhesion pressure extruded outer jacket that is oil resistant and flame retardant
- Rated for continuous flexing applications with high mechanical load requirements
- Guaranteed service life between 5 million and 10 million cycles when operated within specified conditions
- · UL Recognized type AWM (appliance wiring material)
- Cut to length in 1 foot increments
- 3 year warranty\* (see note 1)

Cycles					5 million	7.5 million	10 million	
Temperature,	v max.	v max. [ft/s]		Travel distance [ft]	R min.	R min.	R min.	
from/to [°F]	Unsupported	Gliding	[ft/s²]	mavor alotanoo [rq	[factor x d]	[factor x d]	[factor x d]	
-13/5					10	11	12	
5/158	16.41	9.84	164.1	≤ 328.1	7.5	8.5	9.5	
158/176					10	11	12	

Note 1





Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable







<sup>\*</sup> and Series Guaranteed lifetime according to guarantee conditions



# Continuous Flexing Control and Signal Cable CF11 Series (Shielded)

Continuous	<b>Flexing Control and Signal</b>	Cable CF11 Serie	es (Shielded)	
Conductors Gauge & Stranding	26AWG ( 0.14 mm²) to 24AWG ( 0.25 mm²) bare copper	Conductor Markings	Color code in accordance with DIN 47100	
Voltage Ratings	300V per UL	Overall Shield	Aluminum/Polyester tape and extremely bend-resistant braiding made of tinned copper wires. Coverage approx. 70% linear, approx. 90% optical	
	Tested to 1500V	Outer Jacket	Pressure extruded PVC mixture	
	e-Chain®, 6.8 x diameter	UV Resistance	Yes	
Min. Bend Radius	Flexible, 5 x diameter	Oil Resistance	Yes (following DIN EN 50363-10-2), Class 3	
	Fixed, 4 x diameter	Flame Retardant	Yes	
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes	
Temperature Ratings	Flexible, -58°F to +212°F (-50°C to +100°C)			
	Fixed, -67°F to +212°F (-55°C to +100°C)		Halogen-free Following DIN EN 60754	
Max. Velocity	Unsupported, 32.8 ft/s ( 10m/s)		REACH	
max. Velocity	Gliding, 19.7 ft/s ( 6m/s)	Approvals	RoHS-II Cleanroom According to ISO Class 1.	
Max. Acceleration	328.1 ft/s² (100m/s²)		CE .	
Length of Travel	Unsupported travels and up to 400m for gliding applications, Class 6	Sample Print Legend	igus chainflex CF11.01.04.02 (4x(2x0.14)) EAC CE RoHS-II conform	
Conductor Insulation	TPE mixture	Campio I IIII Edgena	www.igus.de +++ chainflex cable works +++	

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

Continuous Flexing Control and Signal Cable Series CF11 (Shielded)							
Part Number	Number of Twisted Pairs	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
					WINTER STATE OF THE STATE OF TH	igus c	hainfle
<u>CF11-01-04-02-1</u>	4	26	18	0.30	20	0.43	\$-56yj:
CF11-02-01-02-1	1	24	32	0.24		0.26	\$56yk:
CF11-02-02-02-1	2			0.26		0.33	\$-56yl:
CF11-02-03-02-1	3			0.31		0.55	\$56yn:
CF11-02-04-02-1	4			0.33		0.60	\$56yo:

<sup>\*</sup> See web store for maximum cut lengths





#### **GUS** Continuous Flexing Control and Signal Cable CF211 Series (Shielded)

Continuous	Flexing Control and Signal (		ries (Shielded)	
Conductors Gauge & Stranding	24AWG ( 0.25 mm²) to 20AWG ( 0.50 mm²) bare copper	Conductor Markings	Color code in accordance with DIN 47100	
Voltage Ratings	300V per UL	Overall Shield	Aluminum/Polyester tape and extremely bend-resistant braiding made of tinned copper wires. Coverage approx. 70 % linear, approx. 90 % optical	
	Tested to 1500V	Outer Jacket	Pressure extruded PVC mixture	
	e-Chain®, 7.5 x diameter	UV Resistance	Yes	
Min. Bend Radius	Flexible, 6 x diameter	Oil Resistance	Yes (following DIN EN 50363-10-2), Class 3	
	Fixed, 4 x diameter	Flame Retardant	Yes	
	e-Chain, -13°F to +176°F (-25°C to +80°C)	Silicone-free	Yes	
Temperature Ratings	Flexible, -40°F to +176°F (-40°C to +80°C)			
	Fixed, -58°F to +176°F (-50°C to +80°C)		cURus AWM Style 2464	
May Valasity	Unsupported, 16.40 ft/s ( 5m/s)		CSA REACH	
Max. Velocity	Gliding, 9.84 ft/s ( 3m/s)	Approvals	RoHS-II	
Max. Acceleration	164.04 ft/s² ( 50m/s²)		Cleanroom According to ISO Class 1. CE	
Length of Travel	Unsupported travels and up to 100m for gliding applications, Class 5		igus chainflex CF211.02.04.02 (4x(2x0.25)) E310776 cяUus AWM Style	
Conductor Insulation	TPE mixture	Sample Print Legend	2464 VW-1 AWM I/II A/B 80°C 300V FT EAC/CTP CE RoHS-II conform www.igu de +++ chainflex cable works +++	

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

Cont	inuous Flexing	Control a	and Signal	Cable CF211	Series (S	hielded)	
Part Number	Number of Twisted Pairs	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
					i	ans chơ	inflex*
CF211-02-01-02-1	1			0.20		0.21	\$56x?:
CF211-02-02-02-1	2	24	32	0.24		0.28	\$;56x,:
CF211-02-04-02-1	4			0.31		0.48	\$56y1:
CF211-03-03-02-1	3	22	42	0.31	20	0.54	\$56y2:
CF211-05-01-02-1	1			0.22	20	0.28	\$56y4:
CF211-05-02-02-1	2	20	28	0.28		0.48	\$56y5:
CF211-05-03-02-1	3	20	28	0.35		0.70	\$56y6:
CF211-05-04-02-1	4			0.37		0.86	\$56y7:

<sup>\*</sup> See web store for maximum cut lengths





Please Note: Our prices on Flexing Control Cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

www.automationdirect.com

**Wires Cords and Cables** 

#### **GUS** Continuous Flexing Control and Signal Cable CF211-PUR Series (Shielded)

Continuous Fle	xing Control and Signal Ca		Series (Shielded)	
Conductors Gauge & Stranding	24AWG ( 0.25 mm²) to 20AWG ( 0.50 mm²) bare copper	Conductor Markings	Color code in accordance with DIN 47100	
Voltage Ratings	300V per UL	Overall Shield	Aluminum/Polyester tape and extremely bend-resistant braiding made of tinned copper wires. Coverage approx. 70% linear, approx. 90% optical	
	Tested to 1500V	Outer Jacket	Pressure extruded PUR mixture	
	e-Chain®, 6.8 x diameter	UV Resistance	Yes	
Min. Bend Radius	Flexible, 5 x diameter	Oil Resistance	Yes (following DIN EN 50363-10-2), Class 3	
	Fixed, 4 x diameter	Flame Retardant	Yes	
	e-Chain, -31°F to +212°F (-35°C to +100°C)	Silicone-free	Yes	
Temperature Ratings	Flexible, -58°F to +212°F (-50°C to +100°C) Fixed, -67°F to +212°F (-55°C to +100°C)		cURus AWM Style 20233 CSA	
Max. Velocity	Unsupported, 32.9 ft/s (10m/s) Gliding, 19.7 ft/s (6m/s)	Approvals	Halogen-free Following DIN EN 60754 REACH RoHS-II	
Max. Acceleration	328.1 ft/s² ( 100m/s²)		Cleanroom According to ISO Class 1.	
Length of Travel	Unsupported travels and up to 400m for gliding applications, Class 6		igus chainflex CF211.PUR.02.04.02 (4x(2x0.25)) E310776 caUus AWM Style 20233 VW-1 AWM I/II A/B 80°C 300V	
Conductor Insulation	TPE mixture	Sample Print Legend	FT1 DNV-GL 13 656-14 HH EAC/CTP CE RoHS-II conform www.igus.de +++ chainflex cable works +++	

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

Continu	ous Flexing C	ontrol and	Signal Ca	ble CF211-Pl	JR Series	(Shielded)	
Part Number	Number of Twisted Pairs	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
					MILITARY TO A STATE OF THE STAT	isus	chain:
CF211-P-02-01-02-1	1			0.20		0.20	\$56y8:
CF211-P-02-02-02-1	2	24	32	0.24		0.23	\$56yb:
CF211-P-02-03-02-1	3	24	32	0.28		0.42	\$56yc:
CF211-P-02-04-02-1	4			0.30	20	0.44	\$56yd:
CF211-P-05-01-02-1	1			0.22		0.27	\$;56yf:
CF211-P-05-02-02-1	2	20	28	0.28		0.40	\$56yg:
<u>CF211-P-05-04-02-1</u>	4			0.37		0.80	\$-56yi:

<sup>\*</sup> See web store for maximum cut lengths







# 16AWG (1.5 mm<sup>2</sup>) Flexing Control Cable CF140US Series Shielded

16AWG (1.5 mm²) Tray Rated Multi-Conductor Flexing Control Cable Specifications (Shielded)								
Conductors Gauge & Stranding	16AWG (1.5 mm²) 30/30 Finely stranded bundled bare copper wires. Designed in accordance with ASTM B174-95		"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
	6001/ 2021/	Inner Jacket	Low-adhesion PVC					
Voltage Ratings	600V per UL	Overall Shield	Tinned copper braid. 85% optical coverage					
vuitaye natinys	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.					
	e-Chain®, 10.0 x diameter	UV Resistance	Medium					
Min. Bend Radius	Flexible, 8.0 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4					
	Fixed, 7.5 x diameter	Flame Resistance	CSA AWM: FT4					
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992					
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C)		UL; 22-10 AWG: UL Type MTW (Machine Tool					
	Fixed, -4°F to +194°F (-20°C to +90°C)		Wire) 18-10 AWG: UL Type TC (Tray Cable) Lead Free; 2002/95/EC					
Max. Velocity	Unsupported, 9.84 ft/s (3 m/s)	Approvals	CE; In accordance with European Council Directive 73/23/EEC					
тах. Velocny	Gliding, 6.56 ft/s (2 m/s)		UL AWM: 2587 90 °C 600V					
Max. Acceleration	65.6 ft/s² (20 m/s²)		CSA AWM: I/II A/B 90 °C 600V FT4					
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF140US-15-## 16 AWG XX/C SHIELDED E223775 (UL) TYPE TC-ER 90C					
Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one green-yellow	Sample Print Legend	DRY 75°C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY					

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

16AWG (1.5 mm²) Tray Rated Multi-Conductor Flexing Control Cable (Shielded)							
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
					_		
<u>CF140US-15-03-1</u>	3	16AWG (1.5 mm²)	30 x 30	0.41	20	0.09	\$4ayh:
<u>CF140US-15-04-1</u>	4	16AWG (1.5 mm²)	30 x 30	0.43	20	0.11	\$;;4bff:

<sup>\*</sup> For 7 conductor cable with travel distance ≥ 5m (16.4ft) requires bending radius ≥ 17 x diameter





<sup>\*\*</sup> See web store for maximum cut lengths



## 14AWG (2.5 mm<sup>2</sup>) Flexing Control Cable CF140US Series Shielded

14AWG (2.5 mm²) Tray Rated Multi-Conductor Flexing Control Cable Specifications (Shielded)								
Conductors Gauge & Stranding	14AWG (2.5 mm²) 50/30 Finely stranded bundled bare copper wires. Designed in accordance with ASTM B174-95		"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
	6001/ 2011	Inner Jacket	Low-adhesion PVC					
Voltago Patingo	600V per UL	Overall Shield	Tinned copper braid. 85% optical coverage					
Voltage Ratings	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.					
	e-Chain <sup>®</sup> , 10.0 x diameter	UV Resistance	Medium					
Min. Bend Radius	Flexible, 8.0 x diameter	Oil Resistance	Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4					
	Fixed, 7.5 x diameter	Flame Resistance	CSA AWM: FT4					
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992					
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C)		UL; 22-10 AWG: UL Type MTW (Machine Tool					
	Fixed, -4°F to +194°F (-20°C to +90°C)		Wire) 18-10 AWG: UL Type TC (Tray Cable) Lead Free: 2002/95/EC					
May Valacity	Unsupported, 9.84 ft/s (3 m/s)	Approvals	CE; In accordance with European Council					
Max. Velocity	Gliding, 6.56 ft/s (2 m/s)		Directive 73/23/EEC UL AWM: 2587 90 °C 600V					
Max. Acceleration	65.6 ft/s² (20 m/s²)		CSA AWM: I/II A/B 90 °C 600V FT4					
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF140US-25-## 14 AWG XX/C SHIELDED E223775 (UL) TYPE TC-ER 90C					
Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one greenyellow	Sample Print Legend	DRY 75°C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY					

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

14AWG (2.5 mm²) Tray Rated Multi-Conductor Flexing Control Cable (Shielded)								
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
<u>CF140US-25-04-1</u>	4	14AWG (2.5 mm²)	50 x 30	0.46	20	0.14	\$-4ауј:	

<sup>\*</sup> See web store for maximum cut lengths







## 12AWG (4.0 mm<sup>2</sup>) Flexing Control Cable CF140US Series Shielded

12AWG (4.0 mm²) T	12AWG (4.0 mm²) Tray Rated Multi-Conductor Flexing Control Cable Specifications (Shielded)							
Conductors Gauge & Stranding	12AWG (4.0 mm²) 56/28 Finely stranded bundled bare copper wires. Designed in accordance with ASTM B174-95		"#1-ONE", "2-TWO", "3-THREE", etc @ 4.5 inch intervals, ICEA Method 4					
	600V nor III	Inner Jacket	Low-adhesion PVC					
Voltage Ratings	600V per UL	Overall Shield	Tinned copper braid. 85% optical coverage					
vonaye nannys	Tested to 3300V	Outer Jacket	Oil-resistant UV-resistant Gray PVC, low- adhesion blend, adapted to the requirements of the Energy Chain®.					
	e-Chain®, 10.0 x diameter	UV Resistance	Medium					
Min. Bend Radius	Flexible, 8.0 x diameter <i>Oil Resistance</i>		Oil resistant (according to DIN EN 60811-2-1, DIN EN 50363-4-1, Class 4					
	Fixed, 7.5 x diameter	Flame Resistance	CSA AWM: FT4					
	e-Chain, +41°F to +176°F (5°C to +80°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992					
Temperature Ratings	Flexible, +23°F to +176°F (-5°C to +80°C)		UL; 22-10 AWG: UL Type MTW (Machine Tool					
	Fixed, -4°F to +194°F (-20°C to +90°C)		Wire) 18-10 AWG: UL Type TC (Tray Cable) Lead Free; 2002/95/EC					
May Valaaity	Unsupported, 9.84 ft/s (3 m/s)	Approvals	CE; In accordance with European Council					
Max. Velocity	Gliding, 6.56 ft/s (2 m/s)		Directive 73/23/EEC UL AWM: 2587 90 °C 600V					
Max. Acceleration	65.6 ft/s² (20 m/s²)		CSA AWM: I/II A/B 90 °C 600V FT4					
Length of Travel	Unsupported travel distances and for gliding applications up to 30ft (9m)		IGUS P/N CF140US-40-## 12AWG XX/C SHIELDED E223775 (UL) TYPE TC-ER 90C					
Conductor Insulation	Mechanically high-quality, PVC/Nylon, black with white numbers, one green-yellow	Sample Print Legend	DRY 75°C WET 600V SUN RES DIR BUR OIL RES I OR MTW OR WTTC 1000V OR AWM 2587 LL257958 CSA AWM I/II A/B 90C 600V FT4 - CE J DDD/YY					

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

12AWG (4.0 mm²) Tray Rated Multi-Conductor Flexing Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
<u>CF140US-40-04-1</u>	4	12AWG (4.0 mm²)	56 x 28	0.57	20	0.20	\$4ayk:		

<sup>\*</sup> See web store for maximum cut lengths





#### igus

#### **Profibus-DP Cable-Shielded**









AutomationDirect is pleased to offer the igus CFBUS series PVC cable for continuous flexing applications. This cable is available in a 24AWG twisted pair. Individual conductors are bare copper and stranded for flexing applications. Conductor insulation is a mechanically high-quality red and green TPE mixture. The cable's outer jacket is a low-adhesion pressure extruded Purple PVC mixture that provides resistance to sunlight, oil penetration, and is flame retardant.

The igus CFBUS Profibus-DP cable is specifically designed, tested, and manufactured for bus connection for machining units/packaging machines, handling and indoor cranes.

#### **Features**

- For medium mechanical load applications
- · Outer jacket: PVC
- Overall shield
- Oil-resistant
- Flame resistance
- UV-resistant
- Indoor applications recommended, can be used in outdoor applications with temperatures >41°F
- Unsupported travel distances and for gliding applications up to 66ft (20m)
- · Low 20 foot minimum length
- 3 year warranty





Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

Cycles					1 million	3 million	5 million
Temperature,	V max	r. [ft/s]	A max.	A max. Travel distance [ft]		R min.	R min.
from/to [°F]	Unsupported	Gliding	[ft/s]	maver distance [it]	[factor x d]	[factor x d]	[factor x d]
+41 / +59					15	16	17
+59 / +140	9.84	6.56	98.43	≤ 65.62	12.5	13.5	14.5
+140 / +158					15	16	17



# 24AWG (0.25 mm<sup>2</sup>) Flexing Control Cable CFBUS-PVC Series Shielded

24AWG (0.25 mm <sup>2</sup> )	CFBUS-PVC Flexing Co	ontrol Cable Spec	ifications (Shielded)
Conductors Gauge & Stranding	24AWG (0.25 mm²) 14/34 bare copper (according to EN 60228)	Conductor Markings	None
	30V per UL	Overall Shield	Overall aluminized polyester foil shield 100% coverage, bending-resistant tinned copper braid. 80% optical coverage
Voltage Ratings	Tested to 500V	Outer Jacket	Low-adhesion, oil-resistant mixture on the basis of PVC, adapted to suit the requirements in E-Chains® (following DIN VDE 0281 Part 13). Color: Purple (similar to RAL 4001)
	e-Chain <sup>®</sup> , 12.5 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible, 10.0 x diameter	Oil Resistance	Oil-resistant (following DIN EN 50363-4-1), Class 2
	Fixed, 7.0 x diameter	Flame Resistance	According to IEC 60332-1-2, CEI 20-35, FT-1, VW-1
	e-Chain, +41°F to +158°F (5°C to +70°C)	Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
Temperature Ratings	Flexible, +23°F to +158°F (-5°C to +70°C) Fixed, +5°F to +158°F (-15°C to +70°C)		UL/CSA Style 1598 and 2571, 30 V, 80 °C NFPA 79; Complies to NFPA 79-2015 chapter 12.9 EAC; Certified according to no. TC RU C-DE.
	Unsupported, 9.84 ft/s (3 m/s)		ME77.B.01218
Max. Velocity	Gliding, 6.56 ft/s (2 m/s)		CTP; Certified according to no. C-DE. B49.B.00416
Max. Acceleration	98.4 ft/s² (30 m/s²)	Approvals	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 1. Outer jacket material complies with CF240- 02-24, tested by IPA according to standard 14644-1 CE; Following 2014/35/EG
Length of Travel	Unsupported travel distances and for gliding applications up to 66ft (20m), Class 3	Sample Print Legend	igus chainflex CFBUS.PVC.001 E310776 I cRUus AWM Style 2571 VW-1 AWM I/II A/B 80°C 30 V FT1 EAC/CTP CE conform
Conductor Insulation	Red, Green PVC with blue filler material	,	RoHS-II conform www.igus.de +++ chainflex cable works

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

24AWG (0.25 mm²) CFBUS-PVC Flexing Control Cable (Shielded)								
Part Number	Number of Twisted Pairs	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Cut Length	Approximate Weight (lb/ft)	Price per foot	
<u>CFBUS-PVC-001-1</u>	1	24AWG (0.25 mm²)	14 x 34	0.33	20	0.2	\$-4ayl:	

<sup>\*</sup> See web store for maximum cut lengths







#### **Motor Supply Cable**









Click on the above thumbnail or go to https://www.automationdirect.com/vID-WD-0016 for a short introduction on our cut to length cable

#### **Overview**

AutomationDirect is pleased to offer the igus CF30 and CF31 Series Motor Supply cable for continuous flexing applications. These cables are available in sizes from 16AWG to 2AWG with 4 unshielded (CF30 series) or 4 shielded (CF31 series) conductors. Individual conductors are bare copper and stranded for flexing applications. Conductor insulation is a mechanically high-quality black TPE mixture and individual conductors are marked with white numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has green-yellow insulation. The cable's outer jacket is a low-adhesion pressure extruded PVC mixture that provides resistance to sunlight, oil penetration, and is flame retardant.

Unshielded Chainflex<sup>®</sup> cables have a tear strip underneath the outer jacket, shielded Chainflex<sup>®</sup> cables have it underneath the inner jacket. With a few easy steps, the jacket can be opened like a zipper to the desired length by pulling on the special tear strip. The outer jacket/inner jacket can then be removed from conductors. This not only saves time and effort for assemblers and electricians, but also means they have no need for additional tools. Cables are designed such that the strip does not cause damage to the jacket or conductors, even after millions of motion cycles.

The igus CF30 and CF31 motor supply cables are specifically designed, tested, and manufactured for continuous flexing, high mechanical load application requirements, and will provide a guaranteed service life between 5 million and 10 million cycles when operated within specified conditions\*.

#### **Features**

- 1.5 mm² to 35.0 mm² (16AWG to 2AWG), 4 conductors including ground
- Unshielded and shielded constructions
- Individual conductors have black TPE insulation and are marked with white identification numbers
- Low adhesion pressure extruded PVC mixture outer jacket that is sunlight and oil resistant and flame retardant
- · Green/yellow ground wire included
- Rated for continuous flexing applications with high mechanical load requirements
- Guaranteed service life between 5 million and 10 million cycles when operated within specified conditions
- UL Recognized type AWM (appliance wiring material)
- Cut to length in 1 foot increments
- 3 year warranty\* (see note 1)



 Strip cables 50% faster: The tear strip is in the outer jacket for unshielded cables and inner jacket for shielded

	Cycles					7.5 million	10 million
Temperature,	v max. [	ft/s]	a max.	Travel distance [ft]	R min.	R min.	R min.
from/to [°F]	Unsupported	Gliding	[ft/s²]	marer anetanee [m]	[factor x d]	[factor x d]	[factor x d]
+41 / +59					10	11	12
+59 / +140	32.81	16.41	262.48	≤ 328.1	7.5	8.5	9.5
+140 / +158					10	11	12

Note 1

<sup>\*</sup> CF30 and CF31 Series Guaranteed lifetime according to guarantee conditions



#### Motor Supply Cable CF30 Series Unshielded

4 Conductor Mo	tor Supply Cable CF30 S	eries Specification	ons (Unshielded)
Conductors Gauge & Stranding	16AWG (30/30 bare copper strands) to 2AWG (280/26 bare copper strands) following EN 60228	Conductor Insulation	Black TPE with green/yellow ground
Voltage Ratings	1000V per UL	Conductor Markings	1. U/L1/C/L+, 2. V/L2, 3. W/L3/D/L-, 4. green/yellow
	Tested to 4000V	Outer Jacket	Jet Black PVC
	e-Chain®, 7.5 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 6.0 x diameter	Oil Resistance	DIN EN50363-1, Class 2
	Fixed, 4.0 x diameter	, 4.0 x diameter Flame Retardant	
	e-Chain, +41°F to +158°F (+5°C to +70°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 10492 and 2570, 1000V, 80°C NFPA 79; Following NFPA 79-2012 chapter
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9 EAC: Certified to no. TC RU C-DE.
Max. Velocity	Unsupported, 32.81 ft/s (10 m/s)		ME77.B.01218
man Polocity	Gliding, 16.41 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00416
Max. Acceleration	262.5 ft/s² (80 m/s²)	7,7,7,7,7	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, outer jacket material, tested by IPA according to standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)		igus chainflex CF30.xx.xx 4Gxx 600/1000V E310776 cRUus AWM Style 2570 VW-1
Torsion	90° rotation with 3.281 ft (1m) of cable length	Sample Print Legend	AWM I/II A/B 80°C 1000V FT1 CE RoHS-II conform www.igus.de +++chainflex cable works+++

<sup>\*</sup> Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

		Notor Supply	4-Conduc	tor Cable Se	election		
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
	W/13			igus chainfle	x° CF30		
<u>CF30-15-04-1</u>	4	16AWG (1.5 mm²)	30x30	0.33	20	0.07	\$2exy:
CF30-25-04-1	4	14AWG (2.5 mm²)	50x30	0.41	20	0.11	\$2exz:
CF30-40-04-1	4	12AWG (4.0 mm²)	56x28	0.47	20	0.17	\$;2ex]:
CF30-60-04-1	4	10AWG (6.0 mm²)	84x28	0.55	20	0.24	\$;2ex[:
CF30-100-04-1	4	8AWG (10.0 mm²)	80x26	0.69	10	0.41	\$2ex_:
CF30-160-04-1	4	6AWG (16.0 mm²)	128x26	0.83	10	0.62	\$2exs:
CF30-250-04-1	4	4AWG (25 mm²)	200x26	1.00	10	0.95	\$;2ext:
CF30-350-04-1	4	2AWG (35 mm²)	280x26	1.14	10	1.30	\$2exu:

<sup>\*</sup> See web store for maximum cut length







#### Motor Supply Cable CF31 Series Shielded

4 Conductor N	<b>Totor Supply Cable CF31</b>	<b>Series Specifica</b>	tions (Shielded)
Conductors Gauge & Stranding	16AWG (30/30 bare copper strands) to 2AWG (280/26 bare copper strands) following EN 60228	Conductor Markings	1. U/L1/C/L+, 2. V/L2, 3. W/L3/D/L-, 4. green/ yellow
	1000V per UL	Inner Jacket	Tan PVC
Voltage Ratings	1000V per OL	Shield	Copper braid 90% coverage
	Tested to 4000V	Outer Jacket	Jet Black PVC
	e-Chain <sup>®</sup> , 7.5 x diameter	UV Resistance	Yes
Min. Bend Radius	Flexible*, 6.0 x diameter	Oil Resistance	DIN EN50363-1, Class 2
IIII. Della Hadias	Fixed, 4.0 x diameter	Flame Retardant	According to IEC 60332-1-2, CEI 20-35, VW-1, FT-1
	e-Chain, +41°F to +158°F (+5°C to +70°C)	Silicone-free	Yes
Temperature Ratings	Flexible*, +23°F to +158°F (-5°C to +70°C)		UL/CSA Style 10492 and 2570, 1000V, 80°C NFPA 79; Following NFPA 79-2012 chapter
	Fixed, +5°F to +158°F (-15°C to +70°C)		12.9
Max. Velocity	Unsupported, 32.81 ft/s (10 m/s)		EAC; Certified to no. TC RU C-DE. ME77.B.01255
max. Velocity	Gliding, 16.41 ft/s (5 m/s)	Approvals	CTP; Certified to no. C-DE. PB49.B.00420
Max. Acceleration	262.5 ft/s² (80 m/s²)	<b>тррготи</b> о	Lead Free; Following 2011/65/EU (RoHS-II) CEI; Following CEI 20-35 Clean Room; According to ISO Class 2, outer jacket material, tested by IPA according to standard 14644-1 CE; Following 2014/35/EU
Length of Travel	Unsupported travel distances and for gliding applications up to 328ft (100m)		igus chainflex CF31.xx.xx (4Gxx) 600/1000V E310776 cRUus AWM Style 2570 VW-1
Conductor Insulation	Black PVC with green/yellow ground	Sample Print Legend	AWM I/II A/B 80°C 1000V FT1 CE RoHS-II conform www.igus.de +++chainflex cable works+++

Per EN 60811-504 standard

e-Chain® is a trademarked flexible cable carrier by igus®. igus® cable can be used in any suitable cable carrier.

		Notor Supply	4-Conduc	tor Cable So	election		
Part Number	Number of Conductors (includes ground)	AWG	Strand (## x AWG)	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
1072	W/13			iaus chainflex°C	F31		_
<u>CF31-15-04-1</u>	4	16AWG (1.5 mm²)	30x30	0.41	20	0.11	\$2exv:
CF31-25-04-1	4	14AWG (2.5 mm²)	50x30	0.47	20	0.16	\$2exx:
CF31-40-04-1	4	12AWG (4.0 mm²)	56x28	0.53	20	0.23	\$2ex#:
CF31-60-04-1	4	10AWG (6.0 mm²)	84x28	0.63	20	0.33	\$;2ex!:
CF31-100-04-1	4	8AWG (10.0 mm²)	80x26	0.81	10	0.56	\$2ex?:
CF31-160-04-1	4	6AWG (16.0 mm²)	128x26	0.93	10	0.76	\$;2ex,:
CF31-250-04-1	4	4AWG (25 mm²)	200x26	1.12	10	1.15	\$2ey0:
CF31-350-04-1	4	2AWG (35 mm²)	280x26	1.28	10	1.54	\$2ey1:

<sup>\*</sup> See web store for maximum cut length





#### LUTZE SUPERFLEX® PVC Control Cable







Unshielded High Flexing Control Cable

Shielded High Flexing Control Cable

LUTZE SUPERFLEX® control cable from AutomationDirect is available in sizes from 21AWG to 12AWG with 3 to 34 unshielded conductors. Individual conductors are bare copper and stranded for flexibility, with black PVC/Nylon insulation and marked with numbers for easy identification. A convenient insulated ground conductor, green with a yellow stripe, is included in the conductor count of each cable.

Well suited for articulated drag chain (C-tracks) installations where moderate to high performance is required. Designed for flexing in short to medium length drag chains.

LUTZE SUPERFLEX® PVC is offered with High Glide TPE insulation and with a specially formulated PVC jacket. The PVC outer jacket is resistant to sunlight, oil, and moisture penetration, making this cable suitable for indoor wet and dry applications or outdoor installations.

With multiple ratings and approvals, LUTZE SUPERFLEX® PVC multiconductor control cable has the versatility to meet a wide range of industrial applications. These flexible multi-conductor cables provide an economical way to organize and simplify control wiring in machines and facilities. Suitable for continuous flexing applications, these cables are ideal for both stationary and flexing applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements.

Available cut to length in 1 foot increments with a 20 foot minimum length.

#### **Features**

- 21AWG to 12AWG, 3 to 34 conductors including an equal size green/yellow ground
- · Unshielded and shielded constructions
- Individual conductors have black PVC/TPE insulation and are marked with identification numbers
- · Oil resistant PVC outer jacket
- UV resistant PVC outer jacket
- Multiple ratings and approvals include cUL AWM Style 2586; CE, RoHS, REACH
- Flexible for ease of installation
- · Designed for linear constant motion
- Ideal for C-Track dragchain installations
- Cut to length in 1 foot increments
- Low 20 foot minimum length
- Made in the USA

Flex Cycles								
	Traveling Distances	Bending Radius	Speed	Acceleration	Cycles			
A140 Carios	< 16ft / 5m	> 12 Ø	< 3m/s	< 5m/s²	10,000,000			
A148 Series	< 49ft / 15m	> 10 Ø	< 5m/s	< 10m/s²	5,000,000			
	< 16ft / 5m	> 15 Ø	< 3m/s	< 5m/s²	10,000,000			
A149 Series	< 49ft / 15m	> 12 Ø	< 5m/s	< 10m/s²	5,000,000			







## 0.5 mm<sup>2</sup> (21AWG) Unshielded Continuous Flexing Control Cable

0.5 mm <sup>2</sup> (21AW)	0.5 mm² (21AWG) Continuous Flexing Control Cable Specifications (Unshielded)								
Conductors Gauge & Stranding	0.5 mm² (21AWG) 28x0.15 bare copper	Outer Jacket	Gray PVC						
Voltage Ratings	600V per UL	UV Resistance	Yes, UL 1581						
voitage natings	Tested to 3000V	Oil Resistance	Yes						
Min Dand Dadius	Moving, 7.5 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1						
Min. Bend Radius	Fixed, 4.0 x diameter	Silicone-free	Yes						
Temperature Ratings	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH						
Temperature natings	Fixed, -40°F to +221°F (-40°C to +105°C)		LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/						
Conductor Insulation	TPE High Glide with green/yellow ground	Sample Print Legend	PVC A14820XX XG0.5 MM2 (AWG21/XC) E197090 cURus AWM STYLE 2586 105C						
Conductor Markings	Black with White numbers		600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40						

	0.5	mm² (21AWG)	Contin	uous Fle	xing Control	Cable (U	nshielded)	
Part Number		Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
								Two 2
				LÜTZE	SUPERFLEX*			One I
4 <u>1482003-1</u>		3	0.5 mm <sup>2</sup> (21AWG)	28	0.205	20	0.029	\$2dc6:
								Two 2
				LÛTZE	SUPERFLEX*			Three 3
A1482004-1		4	0.5 mm <sup>2</sup> (21AWG)	28	0.220	20	0.034	\$2dc7:
					LOTZE SUPER	FLEX*	Ξ	Three 3
A1482005-1		5	0.5 mm <sup>2</sup> (21AWG)	28	0.240	20	0.042	\$2dc8:
					LOTZE S	UPERFLEX	-	There 3 1992
A1482007-1		7	0.5 mm <sup>2</sup> (21AWG)	28	0.283	20	0.058	\$5_43:
			, ,	1				
					LOTZE SUPERFL	EX*		Beven 11 Insec a — <sup>2</sup> 02 å* One 1 — ° us 2
A1482012-1		12	0.5 mm <sup>2</sup> (21AWG)	28	0.339	20	0.083	\$5_44:

<sup>\*</sup> See web store for maximum cut lengths





#### SYSTEMATIC TECHNOLOGY

## © 0.5 mm<sup>2</sup> (21AWG) Unshielded Continuous Flexing Control Cable

0.5 n	nm² (21AWG)	Continu	ous Flex	ing Control C	able (Uns	hielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
				LOTZE	SUPERFLEX*		Column of The Co
							1902
<u>A1482018-1</u>	18	0.5 mm <sup>2</sup> (21AWG)	28	0.406	20	0.125	\$5_3_:
				LOTZI	E SUPERFLEX*		Twenty Four 28
							These 3 Four 4
<u>A1482025-1</u>	25	0.5 mm <sup>2</sup> (21AWG)	28	0.496	20	0.177	\$5_3#:

<sup>\*</sup> See web store for maximum cut lengths







## 1.0 mm<sup>2</sup> (18AWG) Unshielded Continuous Flexing Control Cable

1.0 mm <sup>2</sup> (18AW)	1.0 mm² (18AWG) Continuous Flexing Control Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	1.0 mm² (18AWG) 56x0.15 bare copper	Outer Jacket	Gray PVC					
Voltago Patings	600V per UL	UV Resistance	Yes, UL 1581					
Voltage Ratings	Tested to 3000V	Oil Resistance	Yes					
Min. Bend Radius	Moving, 7.5 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1					
Imm. Dena Naulas	Fixed, 4.0 x diameter	Silicone-free	Yes					
Tomporoturo Potingo	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH					
Temperature Ratings	Fixed, -40°F to +221°F (-40°C to +105°C)		LUTZE SUPERFLEX® N PVC CONSTANT					
Conductor Insulation	TPE High Glide with green/yellow ground	Sample Print Legend	FLEXING CABLE OIL RESISTANT FRPP/ PVC A14818XX XG0.5 MM2 (AWG18/XC) E197090 cURus AWM STYLE 2586 105C					
Conductor Markings	Black with White numbers		600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40					

	1.0 mm <sup>2</sup> (18AWG)	Continu	ous Flexi	ng Control Ca	ble (Unsh	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
							Disc v
			LÜTZE SUPER	RFLEX*		,	THE Z
<u>A1481803-1</u>	3	1.0 mm² (18AWG)	56	0.240	20	0.044	\$;5_3!:
						Thre	3 IWOZ
			LOTZE SUPER	FLEX*			· ·
<u>A1481804-1</u>	4	1.0 mm² (18AWG)	56	0.264	20	0.053	\$5_3?:
				LOTZE SUPERFLEX			Foor 4
		4.0 2	T		T	T	
<u>A1481805-1</u>	5	1.0 mm² (18AWG)	56	0.283	20	0.065	\$;5_3,:
				LOTZE SUPERFLEX			Sxt
			_	COURS SUPERFEEN			These 3 1902
<u>A1481807-1</u>	7	1.0 mm² (18AWG)	56	0.335	20	0.092	\$5_45:
							Beven 11
				LUTZE SUPERFLEX			1709 0 - 702 \$** Cost 1 - 102
<u>A1481812-1</u>	12	1.0 mm² (18AWG)	56	0.417	20	0.141	\$5_46:

<sup>\*</sup> See web store for maximum cut lengths







#### 1.0 mm<sup>2</sup> (18AWG) Unshielded Continuous Flexing Control Cable

	1.0 mm <sup>2</sup> (18AWG	) Continu	ous Flexi	ng Control Ca	ble (Unsh	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
			-	LOT	ZE SUPERFLEX*		Colone 17  Secretary 17  Secretary 17  Secretary 17  Secretary 17  Text 2
<u>A1481818-1</u>	18	1.0 mm <sup>2</sup> (18AWG)	56	0.500	20	0.211	\$5_47:
	_			LÜTZI	E SUPERFLEX*		Twenty Four a
<u>A1481825-1</u>	25	1.0 mm <sup>2</sup> (18AWG)	56	0.602	20	0.291	\$5_48:
				LOTZ	E SUPERFLEX*		They Tree 3
<u>A1481834-1</u>	34	1.0 mm² (18AWG)	56	0.685	20	0.392	\$5_49:

<sup>\*</sup> See web store for maximum cut lengths







## 1.5 mm<sup>2</sup> (16AWG) Unshielded Continuous Flexing Control Cable

1.5 mm² (16AWG) Continuous Flexing Control Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	1.5 mm² (16AWG) 82x0.15 bare copper Outer Jacket		Gray PVC				
Voltage Ratings	600V per UL	UV Resistance	Yes, UL 1581				
vullage natiligs	Tested to 3000V	Oil Resistance	Yes				
Min. Bend Radius	Moving, 7.5 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1				
MIII. DEIIU NAUIUS	Fixed, 4.0 x diameter	Silicone-free	Yes				
Townsystems Detines	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH				
Temperature Ratings	Fixed, -40°F to +221°F (-40°C to +105°C)		LUTZE SUPERFLEX® N PVC CONSTANT				
Conductor Insulation	TPE High Glide with green/yellow ground	Sample Print Legend	FLEXING CABLE OIL RESISTANT FRPP/ PVC A14816XX XG1.5 MM2 (AWG16/XC) E197090 cURus AWM STYLE 2586 105C				
Conductor Markings	Black with White numbers		600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40				

1.	.5 mm <sup>2</sup> (16AWG)	Continu	ous Flex	ing Control Ca	ble (Unsh	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
							Twp 2
		_	LOTZE S	UPERFLEX*			One I
<u>A1481603-1</u>	3	1.5 mm² (16AWG)	82	0.276	20	0.059	\$5_4a:
		_	LÜTZE SUPE	RELEX*		Three	3 1W0 Z
							-
<u>A1481604-1</u>	4	1.5 mm <sup>2</sup> (16AWG)	82	0.303	20	0.073	\$5_4b:
				LOTZE SUPERFLEX			Four 4
			1	I		T	T
<u>A1481605-1</u>	5	1.5 mm² (16AWG)	82	0.331	20	0.090	\$5_4c:
				LOTZE SUPERFLE	×		Sr.6
							Phone 3 [100.2]
<u>A1481607-1</u>	7	1.5 mm <sup>2</sup> (16AWG)	82	0.402	20	0.132	\$5_4d:
				LOTZE SUFERFLEY			Beven 11
							One 1 42
<u>A1481612-1</u>	12	1.5 mm² (16AWG)	82	0.500	20	0.203	\$5_4e:

<sup>\*</sup> See web store for maximum cut lengths







## 1.5 mm<sup>2</sup> (16AWG) Unshielded Continuous Flexing Control Cable

1.5	mm² (16AWG)	Continu	ous Flexi	ng Control Ca	ble (Unsh	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
			_	LOTZ	E SUPERFLEX*		There 3
<u>A1481618-1</u>	18	1.5 mm² (16AWG)	82	0.583	20	0.294	\$;5_4f:
							Teachy Four 24
				LOTZE	SUPERFLEX*		Three 3 Four 4
<u>A1481625-1</u>	25	1.5 mm² (16AWG)	82	0.717	20	0.417	\$5_4g:

<sup>\*</sup> See web store for maximum cut lengths







### 2.5 mm<sup>2</sup> (14AWG) Unshielded Continuous Flexing Control Cable

2.5 mm² (14AWG) Continuous Flexing Control Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	2.5 mm² (14AWG) 134x0.15 bare copper	Gray PVC					
Voltage Ratings	600V per UL	UV Resistance	Yes, UL 1581				
Voltage nathigs	Tested to 3000V	Oil Resistance	Yes				
Min. Bend Radius	Moving, 7.5 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1				
IVIIII. DEIIU NAUIUS	Fixed, 4.0 x diameter	Silicone-free	Yes				
Towns of the Bullion	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH				
Temperature Ratings	Fixed, -40°F to +221°F (-40°C to +105°C)		LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/				
Conductor Insulation	TPE High Glide with green/yellow ground	Sample Print Legend	PVC A14814XX XG2.5 MM2 (AWG14/XC)				
Conductor Markings	Black with White numbers	,	E197090 cURus AWM STYLE 2586 105C 600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40				

2.5	mm² (14AWG)	Continu	ous Flexi	ng Control Ca	ble (Unsh	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
			LOTZE	SUPERFLEX*			Three 3
<u>A1481404-1</u>	4	2.5 mm <sup>2</sup> (14AWG)	134	0.339	20	0.102	\$5_4h:
				LOTZE SUPERFLEX			Foor 4
<u>A1481405-1</u>	5	2.5 mm² (14AWG)	134	0.382	20	0.132	\$-5_4i:
				LOTZE SU	PERFLEX <sup>4</sup>	-	Sx6 Our 1
<u>A1481407-1</u>	7	2.5 mm² (14AWG)	134	0.469	20	0.194	\$-5_4j:

<sup>\*</sup> See web store for maximum cut lengths







# 4mm<sup>2</sup> (12AWG) Unshielded Continuous Flexing Control Cable

4mm <sup>2</sup> (12AWG) Continuous Flexing Control Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	4mm² (12AWG) 224x0.15 bare copper	Outer Jacket	Gray PVC				
Voltage Ratings	600V per UL	UV Resistance	Yes, UL 1581				
Voltage Hattings	Tested to 3000V	Oil Resistance	Yes				
Min. Bend Radius	Moving, 7.5 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1				
	Fixed, 4.0 x diameter	Silicone-free	Yes				
Temperature Ratings	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH				
Temperature natings	Fixed, -40°F to +221°F (-40°C to +105°C)		LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/				
Conductor Insulation	TPE High Glide with green/yellow ground	Sample Print Legend	PVC A14812XX XG4.0 MM2 (AWG12/XC)				
Conductor Markings	Black with White numbers	20g0nu	E197090 cURus AWM STYLE 2586 105C 600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40				

4m	4mm <sup>2</sup> (12AWG) Continuous Flexing Control Cable (Unshielded)						
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		_	LOTZE	E SUPERFLEX			Three 3
<u>A1481204-1</u>	4	4mm² (12AWG)	224	0.433	20	0.180	\$5_4k:
					SUPERFLEX		Shi 6
				LOIZE	SUPERFLEX		These 1 Fe/02
<u>A1481207-1</u>	7	4mm² (12AWG)	224	0.591	20	0.328	\$-5_4I:

<sup>\*</sup> See web store for maximum cut lengths







# 0.5mm<sup>2</sup> (20AWG) Shielded Continuous Flexing Control Cable

0.5mm² (20AWG) Continuous Flexing Control Cable Specifications (Shielded)							
Conductors Gauge & Stranding	0.5 mm2 (20AWG) 28×0.15 bare copper	Conductor Insulation	TPE High Glide with green/yellow ground				
Voltage Ratings	600V per UL	Conductor Markings	Black with White numbers				
Voltage natilitys	Tested to 3000V	Outer Jacket	Gray PVC				
	Moving, 10.0 x diameter	UV Resistance	Yes, UL 1581				
Min. Bend Radius		Oil Resistance	Yes				
	Fixed, 6.0 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1				
		Silicone-free	Yes				
	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH				
Temperature Ratings	Fixed, -40°F to +221°F (-40°C to +105°C)	Sample Print Legend	LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/ PVC A14920XX XG0.5 MM2 (AWG20/XC) E197090 cURus AWM STYLE 2586 105C 600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40				

0.5	mm² (20AWG	<b>Contin</b>	uous Flex	king Control	Cable (Shi	ielded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		LOTZE	SUPERFLEX* (0	) Y		One i	NO 2
		20122	JOI ENI EEN TO	<u> </u>			
<u>A1492003-1</u>	3	20	28	0.264	20	0.053	\$;5!d?:
				***			Six 6
			LOTZE	SUPERFLEX* (C)Y		Olid I Three 3	I wo 2
<u>A1492004-1</u>	4	20	28	0.280	20	0.060	\$;;5!d,:
			LOTZE S	UPERFLEX* (C) Y		Three	Four 4
<u>A1492005-1</u>	5	20	28	0.307	20	0.074	\$;5!e0:
				LÖTZE SUPERFLEX* (C)Y			Six 6 Circ i , oi <u>r 4</u> Three 2   1W0 2
<u>A1492007-1</u>	7	20	28	0.354	20	0.098	\$;5!e1:

<sup>\*</sup> See web store for maximum cut lengths







## 0.5mm<sup>2</sup> (20AWG) Shielded ContinuousFlexing Control Cable

0.5	mm² (20AWG	) Contin	uous Fle	king Control	Cable (Shi	elded)	
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
-	-		LÜTZE SUPERFL	EX. (C) A		Vite 1	Ten 10
<u>A1492012-1</u>	12	20	28	0.429	20	0.141	\$;5!e2:
LÛTZE SUPERFLEX* (C) Y							
<u>A1492018-1</u>	18	20	28	0.492	20	0.194	\$;5!e3:

<sup>\*</sup> See web store for maximum cut lengths







# 1.0 mm<sup>2</sup> (18AWG) Shielded Continuous Flexing Control Cable

1.0 mm <sup>2</sup> (18AV	1.0 mm <sup>2</sup> (18AWG) Continuous Flexing Control Cable Specifications (Shielded)							
Conductors Gauge & Stranding	1.0 mm² (18AWG) 56×0.15 bare copper	Conductor Insulation	TPE High Glide with green/yellow ground					
Voltage Ratings	600V per UL	Conductor Markings	Black with White numbers					
Voltage natings	Tested to 3000V	Outer Jacket	Gray PVC					
	Moving, 10.0 x diameter	UV Resistance	Yes, UL 1581					
Min. Bend Radius		Oil Resistance	Yes					
	Fixed, 6.0 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1					
		Silicone-free	Yes					
	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH					
Temperature Ratings	Fixed, -40°F to +221°F (-40°C to +105°C)	Sample Print Legend	LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/ PVC A14918XX XG1.0 MM2 (AWG18/XC) E197090 cURus AWM STYLE 2586 105C 600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40					

1.0 m	nm² (18AWG) l	Multi-Co	nductor F	lexing Control	Cable (S	hielded)		
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
LÜTZE SUPERFLEX* (C) Y								
<u>A1491803-1</u>	3	18	56	0.303	20	0.074	\$;5!e9:	
		LOTZE S	UPERFLEX* (C) Y			Three 3	-	
<u>A1491804-1</u>	4	18	56	0.331	20	0.089	\$;;5!ef:	
	-		LÜTZE SUPERF	LEX. (C)A		Four	<del>-</del>	
<u>A1491805-1</u>	5	18	56	0.354	20	0.105	\$;5!eg:	
LOTZE SUPERFLEM (C)Y								
<u>A1491807-1</u>	7	18	56	0.429	20	0.151	\$;5!en:	

<sup>\*</sup> See web store for maximum cut lengths







# 1.0 mm<sup>2</sup> (18AWG) Shielded Continuous Flexing Control Cable

1.0 mm² (18AWG) Continuous Flexing Control Cable (Shielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot				
LÜTZE SUPERFLEX' (C)Y										
<u> 41491812-1</u>	12	18	56	0.508	20	0.213	\$;5!e4:			
LOTZE SUPERFLEX*(C)Y										
<u> </u>	18	18	56	0.579	20	0.293	\$;5!e5:			

<sup>\*</sup> See web store for maximum cut lengths







## 1.5 mm<sup>2</sup> (16AWG) Shielded Continuous Flexing Control Cable

1.5 mm² (16AWG) Continuous Flexing Control Cable Specifications (Shielded)									
Conductors Gauge & Stranding	1.5mm2 (16AWG) 82×0.15 bare copper	Conductor Insulation	TPE High Glide with green/yellow ground						
Voltage Ratings	600V per UL	Conductor Markings	Black with White numbers						
voltage Hattings	Tested to 3000V	Outer Jacket	Gray PVC						
	Moving, 10.0 x diameter	UV Resistance	Yes, UL 1581						
Min. Bend Radius	3, 11 11	Oil Resistance	Yes						
	Fixed, 6.0 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1						
		Silicone-free	Yes						
	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH						
Temperature Ratings	Fixed, -40°F to +221°F (-40°C to +105°C)	Sample Print Legend	LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/ PVC A14916XX XG1.5 MM2 (AWG16/XC) E197090 cURus AWM STYLE 2586 105C 600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40						

1.5 mm² (16AWG) Continuous Flexing Control Cable (Shielded)										
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)			Price per foot			
						Tw	52			
		LÜTZE	SUPERFLEX* ((	DY X		One i				
<u>A1491603-1</u>	3	16	82	0.346	20	0.098	\$;5!e6:			
		1				Tw	02			
		LÛ*	TZE SUPERFLEX	(C) Y		Three 3				
A1491604-1	4	16	82	0.378	20	0.118	\$;5!e7:			
							Four 4			
			LOTZE S	UPERFLEX* (C)Y		Three 3				
<u>A1491605-1</u>	5	16	82	0.421	20	0.147	\$;5!e8:			
			LOT	ZE SUPERFLEX* (C)Y		Olio :	Six 6 Cupr 4 I wa 2			
<u>A1491607-1</u>	7	16	82	0.488	20	0.201	\$;5!ea:			
			10225 0005			VIII	Ten 10			
			LOTZE SUPE	RFLEX* (C)Y			Ywo Z			
<u>A1491612-1</u>	12	16	82	0.579	20	0.285	\$;5!eb:			

<sup>\*</sup> See web store for maximum cut lengths







## 2.5 mm<sup>2</sup> (14AWG) Shielded Continuous Flexing Control Cable

2.5 mm² (14AWG) Continuous Flexing Control Cable Specifications (Shielded)									
Conductors Gauge & Stranding	tors Gauge & Stranding 2.5 mm² (14AWG) 132 x 0.15 bare copper Conductor Insulation		TPE High Glide with green/yellow ground						
Voltage Ratings	600V per UL	Conductor Markings	Black with White numbers						
voltaye natings	Tested to 3000V	Outer Jacket	Gray PVC						
	Moving, 10.0 x diameter	UV Resistance	Yes, UL 1581						
Min. Bend Radius	3,	Oil Resistance	Yes						
	Fixed, 6.0 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1						
		Silicone-free	Yes						
	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH						
Temperature Ratings			LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/						
, ,	Fixed, -40°F to +221°F (-40°C to +105°C)	Sample Print Legend	PVC A14914XX XG2.5 MM2 (AWG14/XC) E197090 cURus AWM STYLE 2586 105C						
	1.000, 10 1.00 1.00 0,		600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40						

2	2.5 mm² (14AWG) Continuous Flexing Control Cable (Shielded)									
Part Number	Number of Conductors (includes ground)	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
	_	-	LÜTZE SUPE	RFLEXT (C) Y		Three 3	-			
<u>A1491404-1</u>	4	14	134	0.433	20	0.146	\$;5!ec:			
			LÜT	ZE SUPERFLEX* (C)Y		Three 3	ur 4 0 2			
<u>A1491405-1</u>	5	14	134	0.472	20	0.200	\$;5!ed:			
	_		L	OTZE SUPERFLEX (C)Y		Vio I Three 3	Siz 6			
<u>A1491407-1</u>	7	14	134	0.551	20	0.271	\$;5!ee:			

<sup>\*</sup> See web store for maximum cut lengths







## 4mm<sup>2</sup> (12AWG) Shielded Continuous Flexing Control Cable

4mm² (12AWG)	4mm² (12AWG) Continuous Flexing Control Cable Specifications (Shielded)									
Conductors Gauge & Stranding	4 mm2 (12AWG) 224×0.15 bare copper	Conductor Insulation	TPE High Glide with green/yellow ground							
Voltage Ratings	600V per UL	Conductor Markings	Black with White numbers							
vonaye namys	Tested to 3000V	Outer Jacket	Gray PVC							
	Moving, 10.0 x diameter	UV Resistance	Yes, UL 1581							
Min. Bend Radius	<b>3</b> ,	Oil Resistance	Yes							
	Fixed, 6.0 x diameter	Flame Retardant	Per UL VW-1, FT-1, DIN EN 50265-2-1 FT1							
		Silicone-free	Yes							
	Moving, 5°F to +194°F (-15°C to +90°C)	Approvals	cUL AWM Style 2586, CE, RoHS, REACH							
Temperature Ratings			LUTZE SUPERFLEX® N PVC CONSTANT FLEXING CABLE OIL RESISTANT FRPP/							
, omportuni e namigo	Fixed, -40°F to +221°F (-40°C to +105°C)	Sample Print Legend	PVC A14812XX XG4.0 MM2 (AWG12/XC) E197090 cURus AWM STYLE 2586 105C 600V VW-1 AWM I/II A/B 105C 600V FT1 ROHS DATE CODE CE-40							

4mm² (12AWG) Continuous Flexing Control Cable (Shielded)										
Part Number	Number of Conductors (includes ground)	AWG Strand Maximum O.D. (Inches ±10%)		Minimum Cut Length (ft) *	Approximate Weight (lb/ft)	Price per foot				
LÜTZE SUPERFLEX' (C)Y										
<u>A1491204-1</u>	4	12) 224 0.520 20 0.254								

<sup>\*</sup> See web store for maximum cut lengths







#### **Industrial Ethernet Cable**





#### **Features**

- Available in Category 5e and 6/6a
- In compliance with TIA 568-C.2 and TIA 1005
- Designed for use in EtherNet/IP systems \*\*
- 26 AWG & 24AWG stranded or 22 AWG solid
- 2 or 4 twisted pairs
- Unshielded or overall braid and foil shields
- Rugged jacket for excellent chemical, moisture, and flame resistance, and exceptional low temperature flexibility
- UL Type CMX OUTDOOR CM and UL AWM Style 2463 (80°C, 600V)
- Cut to length in 1 foot increments
- Low 20 foot minimum length
- · Made in the USA
- \* DataMax is a registered trademark of Quabbin Wire and Cable Corporation.
- \*\* EtherNet/IP is a trademark of ODVA, Inc.

#### Quabbin DataMax® Extreme Industrial Ethernet Cable \*

Many industrial applications expose cables to hazards not present in commercial data cabling installations. Although a cable suited for commercial applications may initially work in a harsh industrial environment, it could quickly fail when used in an industrial applications. While commercial grade cables may have a low initial product cost, downtime due to premature failure can be avoided by using a cable that is specifically designed and tested for industrial applications.

Quabbin DataMax Extreme Industrial Ethernet cable jackets were developed to survive the many industrial hazards that commercial jackets will not.

Furthermore, commercial ethernet cables have a tube jacket surrounding the conductor pairs with room within for the pairs to move around and even untwist in flexing applications resulting in early mechanical or electrical failure of the cable.

DataMax Extreme continuous flexing cable jackets are pressure extruded over the cable core, effectively "locking" the conductor pairs in place. This type of jacket construction provides very stable electrical performance, even when the cable is impacted, bent, or repeatedly flexed. Pressure extrusion also provides a very smooth, round, and firm jacket profile that is crush resistant and ideal for obtaining a reliable termination and seal when installing connectors.

Quabbin has performed extensive testing on their pressure extruded jacketed DataMax Extreme Continuous Flexing Industrial Ethernet cables. Samples are subjected to 10 million cycles in a flex testing device that simulates an unsupported bend, simulating a situation the cable would be exposed to on a robotic arm. The unsupported bend test is much more abusive than a C-Track or Tick-tock test, both of which add protection to the cable by supporting the bend. Quabbin DataMax Extreme Industrial Ethernet cable provides superior design and construction that will withstand the rigors of continuous flexing applications and the harsh environments found in industrial installations. Quabbin DataMax Extreme Continuous Flexing Industrial Ethernet cable performs above industry standards, thereby reducing downtime and increasing productivity.

DataMax Extreme Industrial Ethernet cables fully comply with TIA 568-C.2 and TIA 1005 industrial communication specifications and are designed for use in EtherNet/IP systems.

#### Description

AutomationDirect offers Quabbin DataMax Extreme Industrial Ethernet cable in 2 and 4 pair, unshielded and shielded constructions. Conductors are color coded high density polyethylene insulation. Shielded constructions include both a tinned copper braid shield and aluminized polyester foil overall shield. All constructions feature a rugged jacket with excellent moisture, chemical, UV and weathering resistance, exceptional low-temperature flexibility, and good flame and fire resistance. Some are specifically designed and constructed for continuous flexing applications. The DataMax Extreme Continuous Flexing cables have been tested for a minimum of 1 million cycles (10x cable O.D. minimum radius), a minimum of 10 million cycles (20x cable O.D. minimum radius), and a minimum of 3 million cycles torsion test. Agency approvals include UL Type CMX OUTDOOR - CM, and UL AWM Style 2463 (80°C, 600V).

Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable





#### **Cat5e Industrial Ethernet**



			Q5941-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q5941-1 Cat5e industrial Ethernet		Semi-flexible	25	0.04	\$-4I7n:	
			Physi	cal Properties				
Conductor G	auge	22	AWG	Conductor Stra	nding	Solid Bar	re Copper	
Conductor N	laterial	Bare	Copper	Conductor Insu Thickness	ılation Wall	0.010 in	nominal	
Conductor A	ssembly	4 twist	ted pairs	Bare Conducto	r Diameter	0.025 in	nominal	
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.045 in	nominal	
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.090 in	nominal	
Color Code	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.267 in	nominal	
	Pair 4	Brown, W	/hite/Brown	Jacket Color		Bla	ack	
Voltage Rati	ng	6	00V	Jacket Thickne	ss	0.037 in	nominal	
Temperature	Rating	-20 to 75 °C (-4 to 167 °F)		Jacket Material	1	PVC		
Plenum		No		Sunlight Resist	tant	Y	es	
Shield		Unsh	nielded	Oil Resistance		Y	es	
Drain		l	No	Flame Retardar	nt	Yı	es	
Conductor II Material		Polyethylene 2.67in				U/UTP HORIZONTAL CAE	TREME CAT 5E 350 MHZ BLE P/N (P/N PER CHART COIL RES I FT4 OR C(UL)	
Minimum Be			93 in	Sample Print Lo	egend	ÚŜ CMX OUTDOOR-CMR 75C SUN RES OR AWN 2463 80C 600V CAT 5e TIA-568.2-D CE ROHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)		
		l	Electrical Characteris	stics (for 100 meter	rs of cable)	7.	,	
Impedance		100Ω ±15Ω	), 1 - 350MHz	UL Classification	on	Type CMX Outdoor - 0	CM or AWM Style 2463	
Capacitance		13.5 pF/ft @	1MHz; Nominal	Approvals**		UL E118830 for CMX, CM; UL E69976 for AWM, UL E70148 for PLTC, RoHS		
Resistance,	Мах.	17.2 Ω DC	C, per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 350 \text{ MHz: } 23.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric Wi Min.	ithstanding,	1500	V RMS	Insertion Loss		Per C	hart 2	
Return Loss		10 ≤ f < 20 N	) + 5 LOG(f) dB MIN MHz 25 dB MIN - 8.6 LOG(f/20) dB MIN	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		1 ≤ $f$ ≤ 350 MHz: 20.8 - 20 LOG( $f$ /100) dB MIN		
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 350 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ f ≤ 350 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN					
TCL		١	N/A					
ELTCTL		N/A		Cross Section				
Velocity of P	ropagation	0	.68					
Delay		1 ≤ f ≤ 350 M	Hz: 534 + 36/√ <i>f</i>					
Delay Skew		1 ≤ f < 350	MHz: < 25ns					
* 0		onDirect com for maxim	and the state of t		<b>CUT TO LENGTH</b>	/ Please Note: Our pri	ces on Ethernet Cable	

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths \*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com





#### **Cat5e Industrial Ethernet**



			Q5942-1 Ca	ble Specifications					
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
		Q5942-1	Cat5e industrial Ethernet	Semi-flexible	25	0.04	\$-4I7o:		
			Physi	cal Properties					
Conductor C	auge	22	AWG	Conductor Stra	nding	Solid Bar	e Copper		
Conductor N	faterial (	Bare	Copper	Conductor Insu Thickness	ılation Wall	0.010 in	nominal		
Conductor A	ssembly	4 twist	ted pairs	Bare Conducto	r Diameter	0.025 in	nominal		
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.045 in	nominal		
Color Codo	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.090 in	nominal		
Color Code	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.267 in	nominal		
	Pair 4	Brown, W	/hite/Brown	Jacket Color		T€	eal		
Voltage Rati	ng	6	00V	Jacket Thickne	ss	0.037 in	nominal		
Temperature	Rating	-20 to 75 °C (-4 to 167 °F)		Jacket Material	1	PVC			
Plenum		I	No	Sunlight Resist	tant	Y	es		
Shield		Unsh	nielded	Oil Resistance		Y	es		
Drain		I	No	Flame Retardar	nt	Y	es		
Conductor II		Polyethylene				U/UTP HORIZONTAL CAE	TREME CAT 5E 350 MHZ BLE P/N (P/N PER CHART COIL RES I FT4 OR C(UL)		
Minimum Be		2.67in 0.193 in		Sample Print Lo	egend	US CMX OUTDOOR-CMR 75C SUN RES OR AWN 2463 80C 600V CAT 5e TIA-568.2-D CE ROHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)			
			Electrical Characteris	stics (for 100 meter	rs of cable)				
Impedance		100Ω ±15Ω	Ω, 1 - 350MHz	UL Classification	on	Type CMX Outdoor - 0	CM or AWM Style 2463		
Capacitance	)	13.5 pF/ft @	1MHz; Nominal	Approvals**		UL E118830 for CMX, CM; UL E69976 for AWM, UL E70148 for PLTC, RoHS			
Resistance,	Мах.	17.2 Ω DC	C, per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 350 \text{ MHz: } 23.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$			
Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss	Insertion Loss		Per Chart 2		
Return Loss		10 ≤ f < 20 N	) + 5 LOG(f) dB MIN MHz 25 dB MIN - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ $f$ ≤ 350 MHz: 20.8 - 20 LOG( $f$ /100) dB MIN			
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 350 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN						
Power Sum Crosstalk (P		1 ≤ f ≤ 350 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN						
TCL		١	N/A						
ELTCTL		1	N/A	Cross Section					
Velocity of F	Propagation	0	1.68						
Delay		1 ≤ f ≤ 350 M	Hz: 534 + 36/√ <i>f</i>						
Delay Skew		1 ≤ f < 350	) MHz: < 25ns						
* 0		onDirect com for maxim			CUT TO LENGTH	Places Note: Our pri	ces on Ethernet Cable		

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths \*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com





#### **Cat5e Industrial Ethernet**



			Q5730-1 Cal	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q5730-1	Cat5e industrial Ethernet	Semi-flexible	20	0.03	\$;5!eh:	
			Physi	cal Properties				
Conductor (	Gauge Gauge	26	AWG	Conductor Stra	nding	7-Stranded T	inned Copper	
Conductor N	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.010 in,	nominal	
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.016 in	nominal	
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.039 in	nominal	
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.078 in	nominal	
Color Code	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.220 in	nominal	
	Pair 4	Brown, W	/hite/Brown	Jacket Color		Bla	ack	
Voltage Rati	ing	300V		Jacket Thickness		0.010 in, nominal		
Temperature	e Rating	-40 to 75 °C (	-40 to +167 °F)	Jacket Material		polyurethane		
Plenum		1	No	Sunlight Resist	tant	Y	es	
Shield		Shi	elded	Oil Resistance		N	lo	
Drain		Y	'es	Flame Retardar	nt	N	lo	
Conductor II Material	nsulation	Polyolefin		Commis Brint!	d		EXTREME DURABLE	
Minimum Be	end Radius	2.:	22in	Sample Print Lo	egena	SF/UTP P/N xxxxCE RoHS(LOT DESIGNATOR (SEQUENTIAL FOOTAGE)		
Cabled Core	Diameter	0.149 in		tice (for 400 maters of cable)		(OEQUENTIALT OUTAGE)		
			Electrical Characteris					
Impedance			11 -100 MHz	UL Classification	on	N/A		
Capacitance	•	13.5 pF/ft @	1MHz; Nominal	Approvals**		MEETS EU DIRECTIVE 2011/65/EU (RoHS II)		
Resistance,		42.6 Ω DC	c, per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 100 \text{ MHz}$ : 23.8 - 20 LOG( $f/100$ ) dB MIN		
Dielectric W Min.	ithstanding,		V RMS	Insertion Loss			$7\sqrt{f} + 0.023(f) + 0.050/\sqrt{f}$ MAX	
Return Loss	•	10 ≤ f < 20 N	) + 5 LOG(f) dB MIN 1Hz: 25 dB MIN -8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 20.8 -	20 LOG(f/100) dB MIN	
Near End Cr (NEXT)	rosstalk	$1 \le f \le 100 \text{ MHz: } 35.3$	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ f ≤ 100 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN					
TCL		N	I/A					
ELTCTL		N	I/A	Cross Section				
Velocity of F	Propagation		.68					
Delay			Hz: 534 + 36/√ <i>f</i>					
Delay Skew		1 ≤ <i>f</i> < 100	MHz: < 25ns					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







Q5772-1 Cable Specifications										
			Q5//2-1 Ca	ible Specific	ations					
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
		Q5772-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.02	\$2dd_:			
		l	Phys	ical Properties	ı		ı			
Conductor G	auge	24	AWG	Conductor Stra	nding	7/32-Stranded	Tinned Copper			
Conductor N	laterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.008 in	nominal			
Conductor A	ssembly	2 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	nominal			
	Pair 1	<u> </u>	/hite/Orange	Insulated Cond	luctor Diameter		nominal			
Color Code	Pair 2	,	/hite/Green	Twisted Condu			nominal			
	Pair 3		I/A	Overall Cable D	Diameter		nominal			
	Pair 4		I/A	Jacket Color			eal			
Voltage Rati	ng	60	00V	Jacket Thickne	SS		nominal			
Temperature	Rating	, , ,		Jacket Material		flame retardant thermoplastic elastomer (FR-TPE)  pressure extruded				
Plenum			No	Sunlight Resist	tant		es			
Shield			nielded	Oil Resistance			es			
Drain		1	No	Flame Retardar	nt		es			
Conductor II Material		High-density Polyethylene (HDPE)					EXTREME HIGH FLEX IP PATCH CORD CAT5e U/ STYPE CMX OUTDOOR -			
Minimum Be Cabled Core		2.40in 0.176 in		Sample Print Legend		CM 4PR 24 AWG 75C SUN RES OR AWM 2463 80C 600V RoHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE				
			Electrical Character	istics (for 100 mate	are of cable)	FUU	IAGE			
Impedance		1000	±15Ω	UL Classification		Type CMX Outdoor - (	CM or AWM Style 2463			
Capacitance			1MHz; Nominal	Approvals**		Type CMX Outdoor - CM or AWM Style 2463  UL E118830 for CMX, CM; UL E69976 for AWM, RoHS				
Resistance,			c, per 1000ft	Attenuation Cro		$1 \le f \le 100 \text{ MHz}$ : 23.8 - 20 LOG( $f$ /100) dB MIN				
Dielectric Wi Min.	ithstanding,	2000	V RMS	Insertion Loss			967 SQRT(f) + 0.023(f) + (f)) dB Max			
Return Loss		10 ≤ f < 20 N	+ 6 LOG (f) dB MIN* IHz: 26dB MIN* - 5 LOG(f/20) dB MIN*	Power Sum Att Crosstalk Ratio (PSACRF)		N/A				
Near End Cr (NEXT)	osstalk	$1 \le f \le 100 \text{ MHz: } 35.3$	- 15 LOG( <i>f</i> /100) dB MIN							
Power Sum Crosstalk (P		N	I/A							
TCL ELTCTL		, ,	10*LOG( <i>f</i> /100) dB; 40dB lax							
		1 ≤ f < 30 MHz: >35 - 20*LOG(f/100) dB		Cross Section						
Velocity of P	ropagation	0	.68							
Delay		$1 \le f \le 100 \text{ MHz: } 534 + 36/\sqrt{f}$								
Delay Skew			MHz: < 25ns							
* See web store	www.Automati	onDirect.com for maximi	im cut langthe		CUT TO LENGTH	Please Note: Our pri	E			

 $<sup>\</sup>hbox{$^*$ See web store $\underline{www.AutomationDirect.com}$ for maximum cut lengths}$ 

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			<u> </u>						
	Q5752-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
	T	Q5752-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.03	\$;2dd[:		
		1	Phys	sical Properties	l				
Conductor	Gauge	24 /	AWG	Conductor Stranding		7/32-Stranded Tinned Copper			
Conductor	Material	Tinned Copper		Conductor Insulation Wall Thickness		0.008 in, nominal			
Conductor	Assembly	4 twist	ed pairs	Bare Conductor Diameter		0.024 in, nominal			
	Pair 1	Blue, W	hite/Blue	Insulated Conductor Diameter		0.039 in	, nominal		
Color	Pair 2	Orange, W	hite/Orange	Twisted Conductor Diameter		0.080 in, nominal			
Code	Pair 3	Green, W	hite/Green	Overall Cable L	Diameter	0.248 in	, nominal		
	Pair 4	Brown, W	hite/Brown	Jacket Color		Teal			
Voltage Ra	ting	600V		Jacket Thickness		0.032 in, nominal			
Temperatu	re Rating	-40 to 80 °C (-40 to 176 °F)		Jacket Material		flame retardant thermoplastic elastomer (FR-TPE) pressure extruded			
Plenum		No		Sunlight Resistant		Yes			
Shield		Unshielded		Oil Resistance		Yes			
Drain		No		Flame Retardant		Yes			
Conductor Material Minimum E		High-density Polyethylene (HDPE)		Sample Print Legend		QUABBIN DATAMAX EXTREME HIGH FLEX INDUSTRIAL ETHERNET/IP PATCH CORD CAT5e U/ UTP P/N xxxx C(UL)US TYPE CMX OUTDOOR - CM 4PR 24 AWG 75C SUN RES OR AWM 2463 80C 600V RoHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE			
Radius	re Diameter	2.48in 0.184 in							
Cabled Col	e Diameter	0.1	Electrical Character	istics (for 100 met	ers of cable)	F00	IAGE		
Impedance	<u> </u>	1000	±15Ω	UL Classification		Type CMX Outdoor - (	CM or AWM Style 2463		
Capacitano			1MHz; Nominal	Approvals**		UL E118830 for CMX, CM; UL E69976 for AWM, RoH			
Resistance		-	, per 1000ft	Attenuation Crosstalk Ratio, Far End (ACRF)		$1 \le f \le 100 \text{ MHz}$ : 23.8 - 20 LOG( $f$ /100) dB MIN			
Dielectric Withstandi	ng, Min.	1500\	V RMS	Insertion Loss		$1 \le f < 100 \text{ MHz: } 1.2^*(1.967 \text{ SQRT}(f) + 0.023(f) + 0.05/\text{SQRT}(f)) \text{ dB Max}$			
Return Los	ss	10 ≤ f < 20 M	+ 6 LOG (f) dB MIN* IHz: 26dB MIN* - 5 LOG(f/20) dB MIN*	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		1 ≤ $f$ ≤ 100 MHz: 20.8 - 20 LOG( $f$ /100) dB MIN			
Near End C (NEXT)	Crosstalk	1 ≤ <i>f</i> ≤ 100 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN						
Power Sum Near End Crosstalk (PSNEXT)		$1 \le f \le 100 \text{ MHz}$ : 32.3 - 15 LOG( $f/100$ ) dB MIN $1 \le f \le 30 \text{ MHz}$ : 73 - 15 Log( $f$ ) dB MIN, (40dB MAX)* $30 \le f \le 100 \text{ MHz}$ : 80.4 - 20 LOG( $f$ ) dB MIN $1 \le f \le 30 \text{ MHz}$ : 50 - 20 LOG( $f$ ) dB MIN, (40dB Max)*							
TCL				Cross Section		600			
ELTCTL									
Velocity of Propagation		0.	68			00			
Delay		1 ≤ f ≤ 100 MI	Hz: 534 + 36/√ <i>f</i>						
Delay Skev	v	1 ≤ f < 100	MHz: < 25ns						
		ationDirect com for mayir		oping-orox	CUT TO LENGTH	Please Note: Our pr	ices on Ethernet Cable		

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com



are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.



	OFFOR A Oable Organities								
	Q5025-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
		Q5025-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.04	\$2ddv:		
			Phys	ical Properties					
Conductor G	auge	24 AWG		Conductor Stranding		7/32-Stranded Tinned Copper			
Conductor N	laterial	Tinned Copper		Conductor Insulation Wall Thickness		0.011 in, nominal			
Conductor A	ssembly	2 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	nominal		
	Pair 1	Orange, White/Orange		Insulated Cond	uctor Diameter	0.047 in	nominal		
Color Code	Pair 2	Green, W	/hite/Green	Twisted Conductor Diameter		0.092 in, nominal			
35.37 5006	Pair 3		I/A	Overall Cable Diameter			nominal		
	Pair 4	N/A		Jacket Color		Teal			
Voltage Rati	ng	600V		Jacket Thickne	ss	0.036 in, nominal			
Temperature	Rating	-40 to 80 °C (-40 to 176 °F)		Jacket Material		flame retardant thermoplastic elastomer (FR-TPE) pressure extruded			
Plenum		No		Sunlight Resistant		Yes			
Shield		Shielded		Oil Resistance		Yes			
Drain		No		Flame Retardant		Yes			
Conductor II Material		High-density Polyethylene (HDPE)		Sample Print Legend		QUABBIN DATAMAX EXTREME HIGH FLEX INDUSTRIAL ETHERNET/IP PATCH CORD CAT5e SF/ UTP P/N P/N xxxx C(UL)US TYPE CMX OUTDOOR - CM 4PR 24 AWG 75C SUN RES OR AWM 2463 80C 600V RoHS (LOT DESIGNATOR) (SEQUENTIAL			
Minimum Be Cabled Core		2.65in 0.160 in							
Cablea Core	Diameter					FOOTAGE)			
		4000	Electrical Characteri			T OMY O	DNA ANA/NA OL 1- 0400		
Impedance		100Ω ±15Ω 12.8 pF/ft @ 1MHz; Nominal		UL Classification Approvals**		Type CMX Outdoor - CM or AWM Style 2463  UL E118830 for CMX, CM; UL E69976 for AWM, RoHS			
Capacitance Resistance,			00ft @ 20°C (68°F)	Attenuation Crosstalk Ratio,		$1 \le f \le 100 \text{ MHz}$ : 23.8 - 20 LOG( $f/100$ ) dB MIN			
Dielectric W	ithstanding,	2000	V RMS	Far End (ACRF) Insertion Loss		$1 \le f \le 100 \text{ MHz}$ :			
Min. Return Loss		10 ≤ f < 20 M	+ 6 LOG (f) dB MIN* Hz: 26 dB MIN* - 5 LOG(f/20) dB MIN*	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		1.2[1.967 $\sqrt{f}$ + 0.023( $f$ ) + 0.050/ $\sqrt{f}$ ] dB MAX			
Near End Crosstalk (NEXT)		1 ≤ f ≤ 100 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN	(Controller)					
Power Sum Near End Crosstalk (PSNEXT)		N/A							
TCL		N/A							
ELTCTL		N	I/A	Cross Section					
Velocity of Propagation		0	.68						
Delay		1 ≤ <i>f</i> ≤ 100 MHz:	534 + 36/ $√f$ ns Max						
Delay Skew		$1 \le f \le 100$	) MHz: <25ns						

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths \*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com







	Q5090-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
		Q5090-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.04	\$2ddx:		
		L	Phys	ical Properties					
Conductor G	auge	24 AWG		Conductor Stranding		7/32-Stranded Tinned Copper			
Conductor M	laterial	Tinned Copper		Conductor Insulation Wall Thickness		0.011 in, nominal			
Conductor A	ssembly	4 twist	ed pairs	Bare Conductor Diameter		0.024 in	nominal		
	Pair 1	Blue, White/Blue		Insulated Conductor Diameter		0.047 in	nominal		
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Conductor Diameter		0.092 in, nominal			
	Pair 3	,	hite/Green	Overall Cable Diameter		0.290 in			
	Pair 4	Brown, White/Brown		Jacket Color		Teal			
Voltage Ratii	ng	600V		Jacket Thickness		0.036 in, nominal			
Temperature	Rating	-40 to 80 °C (-40 to 176 °F)		Jacket Material		flame retardant thermoplastic elastomer (FR-TPE) pressure extruded			
Plenum		No		Sunlight Resistant		Yes			
Shield		Shielded		Oil Resistance		Yes			
Drain		No		Flame Retardant Sample Print Legend		Yes			
Conductor Ir Material		High-density Polyethylene (HDPE)				QUABBIN DATAMAX EXTREME HIGH FLEX INDUSTRIAL ETHERNET/IP PATCH CORD CAT5e SF/ UTP P/N P/N xxxx C(UL)US TYPE CMX OUTDOOR - CM 4PR 24 AWG 75C SUN RES OR AWM 2463 80C 600V RoHS (LOT DESIGNATOR) (SEQUENTIAL			
Minimum Be Cabled Core		2.90in 0.197 in							
		Electrical Character		istics (for 100 meters of cable)		F001	AGE)		
Impedance		1000	±15Ω	UL Classification		Type CMX Outdoor - (	CM or AWM Style 2463		
Capacitance		13.5 pF/ft @ 1MHz; Nominal		Approvals**		Type CMX Outdoor - CM or AWM Style 2463  UL E118830 for CMX, CM; UL E69976 for AWM, RoHS			
Resistance,			per 1000ft	Attenuation Crosstalk Ratio, Far End (ACRF)		$1 \le f \le 100 \text{ MHz: } 23.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$			
Dielectric Wi Min.	ithstanding,	2000	V RMS	Insertion Loss		1 ≤ $f$ ≤ 100 MHz: 1.2[1.967 $\sqrt{f}$ + 0.023( $f$ ) + 0.050( $\sqrt{f}$ ] dB MAX			
Return Loss		10 ≤ f < 20 M	+ 6 LOG (f) dB MIN* Hz: 26 dB MIN* - 5 LOG(f/20) dB MIN*	Power Sum Att Crosstalk Ratio (PSACRF)		$1 \le f \le 100 \text{ MHz: } 20.8 - 20 \text{ LOG}(f/100) \text{ dB MII}$			
Near End Crosstalk (NEXT)		1 ≤ f ≤ 100 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN						
Power Sum Near End Crosstalk (PSNEXT)		$1 \le f \le 100 \text{ MHz: } 32.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ N/A				800			
TCL									
ELTCTL		N	I/A	Cross Section					
Velocity of Propagation		0.	68						
Delay		4 4 5 4 400 1411	!						
Delay		$1 \le j \le 100 \text{ MHz}$ :	534 + 36/√ <i>f</i> ns Max						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths
\*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com







	Q5026-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
		Q5026-1	Cat6/6a industrial Ethernet	Continuous Flexing	25	0.04	\$-417p:		
			Physi	ical Properties					
Conductor G	auge	26 AWG		Conductor Stranding		7-Stranded Tinned Copper			
Conductor N	laterial	Tinned Copper		Conductor Insulation Wall Thickness		0.009 in, nominal			
Conductor A	ssembly	4 twist	ed pairs	Bare Conductor Diameter		0.019 in	nominal		
	Pair 1	Blue, White/Blue		Insulated Conductor Diameter		0.036 in	nominal		
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Conductor Diameter		0.072 in, nominal			
	Pair 3	,	hite/Green	Overall Cable Diameter		0.275 in, nominal			
	Pair 4	Brown, White/Brown		Jacket Color		Teal			
Voltage Rati		300V		Jacket Thickness		0.040 in, nominal			
Temperature	Rating	-40 to 75 °C (-40 to 167 °F)		Jacket Material		TPE			
Plenum		No No		Sunlight Resistant		Yes			
Shield		Shielded		Oil Resistance		Yes Yes			
Drain Conductor I	nculation	No		Flame Retardant		QUABBIN DATAMAX EXTREME HIGH FLEX			
Conductor Insulation Material		Polyethylene				INDUSTRIAL ETHERNET/IP PATCH CORD CAT			
Minimum Be	nd Radius	2.75in		Sample Print Legend		6/6a SF/UTP P/N 5026 C(UL)US TYPE CMX OUTDOOR - CM 4PR 26 AWG 75C SUN RES CE RoHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)			
Cabled Core	Diameter	0.176 in							
			Electrical Characteris	stics (for 100 meter	rs of cable)				
Impedance		100Ω ±15Ω (1-100 MHz),		UL Classification		Type CMX Outdoor - CM or AWM Style 2463			
Capacitance		13.5 pF/ft @ 1MHz; Nominal		Approvals**		UL E118830 for CMX, CM, RoHS			
Resistance,	Мах.	42.6 Ω DC per 1000ft		Attenuation Crosstalk Ratio, Far End (ACRF)		1 ≤ $f$ ≤ 500 MHz: 27.8 - 20 LOG( $f$ /100) dB MIN			
Dielectric Wi Min.	ithstanding,	1500\	/ RMS	Insertion Loss		1 ≤ $f$ ≤ 500 MHz: 1.5[1.82 $\sqrt{f}$ + 0.0091( $f$ ) + 0.25/ $\sqrt{f}$ ] dB MAX			
Return Loss		$10 \le f < 20 \text{ M}$ $20 \le f \le 100 \text{ MHz: } 26$	+ 6 LOG (f) dB MIN* Hz: 26 dB MIN* - 5 LOG(f/20) dB MIN* - 8.6 LOG(f/20) dB MIN	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		1 ≤ f ≤ 500 MHz: 24.8 - 20 LOG(f/100) dB MIN			
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN						
Power Sum Near End Crosstalk (PSNEXT)		$1 \le f \le 500 \text{ MHz: } 32.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$							
TCL		N	/A	Cross Section					
ELTCTL		N	//A						
Velocity of Propagation		0.	68						
Delay		4 ≤ f ≤ 500 MHz:	$534 + 36/\sqrt{f}$ ns Max						
Delay Skew		$1 \le f \le 500$	MHz: <45ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







05022 1 Cable Specifications								
Q5922-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q5922-1	Cat6/6a industrial Ethernet	Continuous Flexing 25		0.05	\$-417q:	
			Phys	ical Properties	I .			
Conductor Ga	auge	24 A	WG	Conductor Stranding		7-Stranded Tinned Copper		
Conductor Ma	aterial	Tinned Copper		Conductor Insulation Wall Thickness		0.011 in, nominal		
Conductor As	sembly	4 twiste	d pairs	Bare Conductor Diameter		0.024 in,	nominal	
	Pair 1	Blue, Wh	nite/Blue	Insulated Conductor Diameter		0.046 in,	nominal	
Color Code	Pair 2	Orange, Wh	nite/Orange	Twisted Condu	ctor Diameter	0.092 in, nominal		
Color Code	Pair 3	Green, Wh	nite/Green	Overall Cable L	Diameter	0.325 in,	nominal	
	Pair 4	Brown, Wh	nite/Brown	Jacket Color		Teal		
Voltage Ratin	g	600V		Jacket Thickness		0.040 in, nominal		
Temperature	Rating	-40 to 75 °C (-40 to 167 °F)		Jacket Material		TPE		
Plenum		No		Sunlight Resistant		Yes		
Shield		Shielded		Oil Resistance		Yes		
Drain		No		Flame Retardant		Yes  QUABBIN DATAMAX EXTREME HIGH FLEX		
Conductor Ins   Material	sulation	Polyethylene		Sample Print Legend			P CAT 6/6a SF/UTP PATCH	
Minimum Ben Cabled Core		3.25in 0.228 in				CORD P/N xxxx U.S. PATENT NO. US 8,487,184 B2 C(UL)US TYPE CMX OUTDOOR - CM 24 AWG 75C SUN RES OR AWM 2463 80C 600V CAT 6a TIA-568.2-D CE RoHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)		
			Electrical Characteri	stics (for 100 mete	ers of cable)		,	
Impedance		100Ω ±15Ω (	1-100 MHz),	UL Classification		Type CMX Outdoor - CM or AWM Style 2463		
Capacitance		13.5 pF/ft @ 1	MHz; Nominal	Approvals**		UL E118830 for CMX, CM; UL E69976 for AWM, RoHS		
Resistance, N		26.2 Ω DC	per 1000ft	Attenuation Crosstalk Ratio, Far End (ACRF)		$1 \le f \le 500 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric Wit Min.	hstanding,	2000V		Insertion Loss		1 ≤ $f$ ≤ 500 MHz: 1.2[1.82 $\sqrt{f}$ + 0.0091( $f$ ) + 0.25/ $\sqrt{f}$ ] dB MAX		
Return Loss		$1 \le f < 10 \text{ MHz: } 20 + 10 \le f < 20 \text{ MHz: } 20 \le f \le 100 \text{ MHz: } 26 - 100 \le f \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \text{ MHz: } 25 - 100 \le 60 \le 250 \le 250 \text{ MHz: } 25 - 100 \le 250 \le 250 \text{ MHz: } 25 - 100 \le 250 \le 25$	lz: 26 dB MIN* - 5 LOG(ƒ/20) dB MIN*	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		1 ≤ $f$ ≤ 500 MHz: 24.8 - 20 LOG( $f$ /100) dB MIN		
Near End Crosstalk (NEXT)		$1 \le f \le 500 \text{ MHz}$ : 42.3 - 15 LOG( $f$ /100) dB MIN						
Power Sum Near End Crosstalk (PSNEXT)		$1 \le f \le 500 \text{ MHz: } 32.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$						
TCL		N/	'A	Cross Section				
ELTCTL		N/	'A			008		
Velocity of Propagation		0.6	68					
Delay		4 ≤ f ≤ 500 MHz: 5	$34 + 36/\sqrt{f}$ ns Max					
Delay Skew		1 ≤ <i>f</i> ≤ 500	MHz: <45ns					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# Cat6/6A Industrial Ethernet Continuous Flexing



	Q5919-1 Cable Specifications									
			<b>43919-1 Ca</b>	pie Specific	ativiis					
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
		Q5919-1	Cat6/6a industrial Ethernet	Continuous Flexing	20	0.03	\$;-5!ei:			
			Physi	cal Properties			<u> </u>			
Conductor G	auge	26 AWG		Conductor Stra	nding	7-Stranded T	inned Copper			
Conductor N	laterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.009 in,	nominal			
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in,	nominal			
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.036 in,	nominal			
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.072 in,	nominal			
20.0. 0000	Pair 3	Green, W	hite/Green	Overall Cable D	Diameter	0.239 in,	nominal			
	Pair 4	,	hite/Brown	Jacket Color			ack			
Voltage Rati			00V	Jacket Thickne		0.022 in,	nominal			
Temperature	Rating		(-40 to 167 °F)	Jacket Material		, ,	ethane			
Plenum		-	lo	Sunlight Resist	tant		es			
Shield			elded	Oil Resistance			lo			
Drain Conductor II	aculation	No		Flame Retardar	nt		O STREME LIIGH ELEV			
Material		High-density Polyethylene (HDPE)  2.39in		Sample Print L	egend	QUABBIN DATAMAX EXTREME HIGH FLEX INDUSTRIAL ETHERNET/IP PATCH CORD CAT 6/6a SF/UTP P/N 5919 4PR 26AWG U.S				
Minimum Be		2.39in 0.176 in			3	PATENT NO. US 8,487,	184 B2 RoHS (LOT			
Cabled Core	Diameter	U.176 In Electrical Characteris		stics (for 100 meter	rs of cable)	DESIGNATOR) (SEQ	UENTIAL FOOTAGE)			
		100Ω ±15Ω (1-100 MH:	z), 100 ± 20 Ω 100 - 500		,	N.	/^			
Impedance Capacitance		` M	Hz IMHz; Nominal	UL Classification Approvals**	on		/A  RoHS			
Resistance,			per 1000ft	Attenuation Cre		,	· 20 LOG( <i>f</i> /100) dB MIN			
Dielectric Wi	ithstanding,	1500\	/ RMS	Far End (ACRF) Insertion Loss	)	1 ≤ f ≤ 5	500 MHz: (f) + 0.25/ $\sqrt{f}$ ] dB MAX			
Return Loss		$10 \le f < 20 \text{ M}$ $20 \le f \le 100 \text{ MHz: } 26$	+ 6 LOG (f) dB MIN* Hz: 26 dB MIN* - 5 LOG(f/20) dB MIN* - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)			20 LOG(f/100) dB MIN			
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 44.3	- 15 LOG( <i>f</i> /100) dB MIN							
Power Sum Crosstalk (P		1 ≤ <i>f</i> ≤ 500 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN							
TCL ELTCTL		N	I/A							
		N	I/A	Cross Section						
Velocity of P	ropagation	0.68								
Delay		1 ≤ f ≤ 500 MHz:	534 + 36/ $√f$ ns Max							
Delay Skew		1 ≤ <i>f</i> ≤ 500	MHz: <45ns							
+0		onDirect com for maximu		·	<b>CUT TO LENGTH</b>	Please Note: Our pri	ces on Ethernet Cable			

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat6/6A Industrial Ethernet Continuous Flexing**



			Q5936-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q5936-1	Cat6/6a industrial Ethernet	Continuous Flexing	20	0.05	\$;-5!ej:	
			Physi	ical Properties	<u>I</u>			
Conductor Gauge		24 /	AWG	Conductor Stra	anding	7-Stranded T	inned Copper	
Conductor I	/laterial	Tinned	Copper	Conductor Insu Thickness	ulation Wall	0.011 in	nominal	
Conductor A	Ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	nominal	
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.046 in	nominal	
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter		nominal	
20.07 Oode	Pair 3	· ·	hite/Green	Overall Cable D	Diameter		nominal	
	Pair 4	,	hite/Brown	Jacket Color		Black		
Voltage Rati			10V	Jacket Thickne		0.022 in, nominal		
Temperature	Rating		(-40 to 167 °F)	Jacket Material		polyurethane		
Plenum		-	lo	Sunlight Resist	tant		es	
Shield			elded lo	Oil Resistance	4	-	lo	
Drain Conductor Insulation Material		High-density Polyethylene (HDPE)		Flame Retardar	nt	QUABBIN DATAMAX I	IO EXTREME HIGH FLEX INET/IP CAT 6/6a SF/	
Minimum Be		2.91in 0.228 in		Sample Print L	egend	UTP PATCH CORD P U.S. PATENT NO. U 6a TIA-568.2-D RoHS	/N 5936 4PR 24 AWG S 8,487,184 B2 CAT (LOT DESIGNATOR)	
			Electrical Characteris	stics (for 100 meter	rs of cable)	(OL&OLIVIII	er contac)	
Impedance			z), 100 ± 20 Ω 100 - 500 Hz	UL Classification		N	/A	
Capacitance	)	13.5 pF/ft @ 1	MHz; Nominal	Approvals**	vals** CE, RoHS		RoHS	
Resistance,	Мах.	26.2 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF)		1 ≤ f ≤ 500 MHz: 27.8	- 20 LOG(f/100) dB MIN	
Dielectric W Min.	ithstanding,	1500\	/ RMS	Insertion Loss			500 MHz: $f$ ) + 0.25/ $\sqrt{f}$ ] dB MAX	
Return Loss		$10 \le f < 20 \text{ M}$ $20 \le f \le 100 \text{ MHz: } 26$	+ 6 LOG (f) dB MIN* Hz: 26 dB MIN* - 5 LOG(f/20) dB MIN* - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 500 MHz: 24.8	- 20 LOG(f/100) dB MIN	
Near End Cr (NEXT)		$1 \le f \le 500 \text{ MHz: } 44.3$	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ f ≤ 500 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN					
TCL  ELTCTL  Velocity of Propagation		N	/A					
		N	//A	Cross Section				
		0.	68					
Delay		1 ≤ f ≤ 500 MHz:	$534 + 36/\sqrt{f}$ ns Max					
Delay Skew		1 ≤ <i>f</i> ≤ 500	MHz: <45ns					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Continuous Flexing**



	Q5077-1 Cable Specifications									
			QJUII-I Gal	pie Specific	ations					
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
		Q5077-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.03	\$;5v!e:			
			Physic	cal Properties	ı					
Conductor G	auge	26 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper			
Conductor N	laterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.009 in,	nominal			
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in,	nominal			
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.037 in,	nominal			
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.143 in,	nominal			
30,0, 0006	Pair 3	Green, W	hite/Green	Overall Cable D	Diameter	0.245 in,	nominal			
	Pair 4	Brown, W	hite/Brown	Jacket Color		Te	eal			
Voltage Rati	ng		00V	Jacket Thickne	ss		nominal			
Temperature	Rating	-40 to 75 °C	(-40 to 167 °F)	Jacket Material	1	Zero Halogen Flam	e Retardant (ZHFR)			
Plenum		1	No	Sunlight Resist	tant	N	lo			
Shield		Shielded		Oil Resistance			es			
Drain		No		Flame Retardar	nt		es			
Conductor II Material		High-density Polyethylene (HDPE)		Sample Print Lo	egend		REME HIGH FLEX ZERO L ETHERNET/IP PATCH P/N C(ETL)US TYPE			
Minimum Be		1.00in				CMX OIL RES I 26 AW	G 75C RoHS (LOT			
Cabled Core	Diameter	0.143 in		stice (for 100 meter	vo of ooblo)	DESIGNATOR) (SEQ	UENTIAL FOOTAGE)			
Impedance		100 + 15 0	1 – 100 MHz	stics (for 100 meters of cable) UL Classification		NEC (ETL) Type CMX, CEC C(ETL) Type CMX				
Capacitance			1MHz; Nominal	Approvals**		cETLus, CE, RoHS				
Resistance,			per 1000ft	Attenuation Cro		,	- 20 LOG( <i>f</i> /100) dB MIN			
Dielectric Wi	ithstanding,	1500	V RMS	Insertion Loss	,		[1.967 √f + 0.023(f) +			
Return Loss		10 ≤ f < 20 M	+ 6 LOG(f) dB MIN* Hz: 26 dB MIN* – 5 LOG(f/20) dB MIN*	Power Sum Atte Crosstalk Ratio (PSACRF)		$1 \le f \le 100 \text{ MHz: } 20.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$				
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 100 MHz: 35.3	– 15 LOG( <i>f</i> /100) dB MIN							
Power Sum Crosstalk (P		$1 \le f \le 100 \text{ MHz: } 32.3$	– 15 LOG( <i>f</i> /100) dB MIN							
TCL  ELTCTL  Velocity of Propagation		N	I/A							
		N	I/A	Cross Section						
			.68							
Delay		<u> </u>	$534 + 36/\sqrt{f}$ ns MAX							
Delay Skew		1 ≤ <i>f</i> ≤ 100	MHz: <25 ns							

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Continuous Flexing**



	Q5082-1 Cable Specifications									
			QJUUZ-1 Gal	ore opering	attivita					
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
		Q5082-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.03	\$;;5v!f:			
			Physic	cal Properties						
Conductor G	auge	26 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper			
Conductor N	laterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.009 in,	nominal			
Conductor A	ssembly	2 twist	ed pairs	Bare Conducto	r Diameter	0.019 in,	nominal			
	Pair 1	Orange, W	hite/Orange	Insulated Cond	luctor Diameter	0.037 in,	nominal			
Color Code	Pair 2	Green, W	hite/Green	Twisted Condu	ctor Diameter	0.120 in,	nominal			
Color Code	Pair 3	N	I/A	Overall Cable D	Diameter	0.233 in,	nominal			
	Pair 4	N	I/A	Jacket Color		Тє	eal			
Voltage Ratio	ng	30	00V	Jacket Thickne	ss	0.046 in,	nominal			
Temperature	Rating	-20 to 75 °C	(-4 to 167 °F)	Jacket Material	1	Zero Halogen Flam	e Retardant (ZHFR)			
Plenum		N	No	Sunlight Resist	tant	N	0			
Shield		Shie	elded	Oil Resistance		Ye	es			
Drain		No		Flame Retardar	nt		es			
Conductor In Material	nsulation	High-density Polyethylene (HDPE)		Samula Brint I	a wa wad		L ETHERNET/IP PATCH			
Minimum Be	nd Radius	1.00in		Sample Print Lo	egena		P/N C(ETL)US TYPE 75C CE RoHS (LOT			
Cabled Core	Diameter	0.120 in		stice (for 100 meters of eable)		DESIGNATOR) (SEQ	UENTIAL FOOTAGÈ)			
				stics (for 100 meters of cable)		NEC (ETI.) Type CMY CEC C/ETI.) Type CMY				
Impedance		100 ± 15 Ω 1 – 100 MHz		UL Classification		NEC (ETL) Type CMX, CEC C(ETL) Type CMX cETLus, CE, RoHS				
Capacitance		13.5 pF/ft @ 1	1MHz; Nominal	Approvals**		cETLus, 0	CE, RoHS			
Resistance,		42.6 Ω DC	C per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 100 \text{ MHz: } 23.8 -$				
Dielectric Wi Min.	ithstanding,	1500 <sup>v</sup>	V RMS	Insertion Loss		$1 \le f \le 100 \text{ MHz: } 1.5[$ $0.050/\sqrt{f}$	$(1.967 \sqrt{f} + 0.023(f) + 1.967 \sqrt{f} + 0.023(f) + 0.$			
Return Loss		10 ≤ f < 20 M	+ 6 LOG(f) dB MIN* Hz: 26 dB MIN* – 5 LOG(f/20) dB MIN*	Power Sum Att Crosstalk Ratio (PSACRF)		N/A				
Near End Cro (NEXT)	osstalk	$1 \le f \le 100 \text{ MHz: } 35.3$	– 15 LOG( <i>f</i> /100) dB MIN							
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL Velocity of Propagation		N	I/A							
		N	I/A							
		N	I/A	Cross Section						
		0	.68							
Delay		1 ≤ f ≤ 100 MHz: {	$534 + 36/\sqrt{f}$ ns MAX							
Delay Skew		1 ≤ <i>f</i> ≤ 100	MHz: <25 ns							

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Continuous Flexing**



	Q5088-1 Cable Specifications										
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot				
		Q5088-1	Cat5e industrial Ethernet	Continuous Flexing	20	0.04	\$;5v!g:				
			Physi	cal Properties							
Conductor G	auge	26	AWG	Conductor Stra	nding	7-Stranded T	inned Copper				
Conductor N	laterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.009 in,	nominal				
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in,	nominal				
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	uctor Diameter	0.037 in,	nominal				
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.143 in,	nominal				
25.5. 5000	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.245 in,	nominal				
	Pair 4	Brown, W	/hite/Brown	Jacket Color			eal				
Voltage Rati			00V	Jacket Thickne		0.037 in,					
Temperature	Rating	-40 to 75 °C	(-40 to 167 °F)	Jacket Material			PE				
Plenum		-	No	Sunlight Resist	tant		lo				
Shield		Shielded No		Oil Resistance			es				
Drain		1.0		Flame Retardar	nt .		O STREME HIGH ELEV				
Conductor II Material	rsulation	High-density Pol	yethylene (HDPE)				EXTREME HIGH FLEX ET/IP PATCH CORD CAT				
Minimum Be	nd Radius	1.00in		Sample Print Lo	egend	5e SF/UTP P/N (xxxx) U.S. PATENT NO. US 8,487,184 B2 C(UL)US TYPE CMX OUTDOOF - CM 4PR 26 AWG 75C SUN RES RoHS (LO					
Cabled Core	Diameter	0.143 in					SUN RES RoHS (LOT UENTIAL FOOTAGE)				
			Electrical Characteris								
Impedance		100 ± 15 Ω 1 – 100 MHz		UL Classification		NEC (UL) Type CMX, CEC C(UL) Type CMX cULus, CE, RoHS					
Capacitance		13.5 pF/ft @	1MHz; Nominal	Approvals**		cULus, C	CE, RoHS				
Resistance,		42.6 Ω DC	C per 1000ft	Attenuation Cro Far End (ACRF)			- 20 LOG(f/100) dB MIN				
Dielectric Wi Min.	ithstanding,	1500	V RMS	Insertion Loss			[1.967 $\sqrt{f}$ + 0.023( $f$ ) + ] dB MAX				
Return Loss		10 ≤ f < 20 M	+ 6 LOG(f) dB MIN* Hz: 26 dB MIN* – 5 LOG(f/20) dB MIN*	Power Sum Atto Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 20.8 -	- 20 LOG( <i>f</i> /100) dB MIN				
Near End Cr (NEXT)	osstalk	$1 \le f \le 100 \text{ MHz: } 35.3$	– 15 LOG( <i>f</i> /100) dB MIN								
Power Sum Crosstalk (P		$1 \le f \le 100 \text{ MHz: } 32.3$	– 15 LOG( <i>f</i> /100) dB MIN								
TCL  ELTCTL  Velocity of Propagation		N	I/A								
		N	I/A	Cross Section							
		0	68								
Delay		1 ≤ f ≤ 100 MHz:	$534 + 36/\sqrt{f}$ ns MAX								
Delay Skew		1 ≤ <i>f</i> ≤ 100	MHz: <25 ns								

<sup>\*</sup> See web store <u>www.AutomationDirect.com</u> for maximum cut lengths
\*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com





# Cat6a Industrial Ethernet Continuous Flexing



			Q5123-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q5123-1	Cat6a industrial Ethernet	Continuous Flexing	20	0.04	\$;5v!h:
			Physi	cal Properties			
Conductor (	Gauge	26	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor I	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.009 in	nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	nominal
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.036 in	nominal
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.072 in	nominal
30.07 0006	Pair 3	Green, W	hite/Green	Overall Cable L	Diameter	0.269 in	nominal
	Pair 4	Brown, W	/hite/Brown	Jacket Color		Black	
Voltage Rati	ing		00V	Jacket Thickne	ss	0.037 in, nominal	
Temperature	e Rating	-40 to 75 °C	(-40 to 167 °F)	Jacket Material	1	Zero Halogen Flame Retardant (ZHFR	
Plenum			No	Sunlight Resist	tant	No	
Shield	Shield		elded	Oil Resistance		-	es
Drain		1	No	Flame Retardar	nt		es
Conductor I Material		High-density Polyethylene (HDPE)				HAOGEN INDUSTRIAL	REME HIGH FLEX ZERO ETHERNET/IP PATCH 123 (QWC 5123C(ETL)
Minimum Be		1.00in 0.176 in		Sample Print Lo	egend	US TYPE CMX OIL RES 26 AWG 75C CE RoH	S I 26 AWG 75C CM 4PR S (LOT DESIGNATOR) JL FOOTAGE)
		Electrical Characteris		tics (for 100 meters of cable)		(02 02 11 11	
Impedance		100 ± 15 Ω	1 – 100 MHz	UL Classification	•	NEC (ETL) Type CMX,	CEC C(ETL) Type CMX
Capacitance	)	13.5 pF/ft @	1MHz; Nominal	Approvals**			CE, RoHS
Resistance,	Max.	42.6 Ω DC	per 1000ft	Attenuation Cro Far End (ACRF)		1 ≤ f ≤ 500 MHz: 27.8	- 20 LOG(f/100) dB MIN
Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss			1.82 $\sqrt{(f)}$ + 0.0091( $f$ ) + ] dB MAX
Return Loss	•	$10 \le f < 20 \text{ N}$ $20 \le f \le 100 \text{ MHz:}26$	+ 6 LOG(f) dB MIN* IHz:26 dB MIN* - 5 LOG(f/20) dB MIN* - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 500 MHz: 24.8	- 20 LOG(ƒ/100) dB MIN
Near End Cr (NEXT)	rosstalk	1≤ <i>f</i> ≤ 500 MHz: 44.3 -	15 LOG ( <i>f</i> /100) dB MIN				
Power Sum Crosstalk (P		1≤ f ≤ 500 MHz: 42.3 -	15 LOG ( <i>f</i> /100) dB MIN				
TCL  ELTCTL  Velocity of Propagation		N	I/A				
		N	I/A	Cross Section			
		0	.68				
Delay		4 ≤ f ≤ 500 MHz:	$534 + 36/\sqrt{f}$ ns MAX				
Delay Skew		1 ≤ f ≤ 500	MHz: <45 ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







### **DataMax® Ethernet Cables**

#### **Quabbin DataMax Ethernet Cable**

The Quabbin DataMax® Category network cables are proudly made in the USA and are available in Cat5e, 6, 6a or 6e. These cables are offered in 26AWG or 24AWG stranded tinned copper or bare solid copper in shielded or unshielded constructions. Designed to be round and smooth, Quabbin DataMax® Category network cables are compatible with most popular plugs for quick termination and easy installation.

When it comes to network cable, flexibility can mean many different things. The first and most obvious is the ease with which it bends. The importance behind having a pliable cable has to do with installation and cabinet routing. Flexibility allows easy manipulation between devices while increasing the durability, which is important when considering a lifetime of "moves & changes" that can occur in a dynamic network environment. Durability is paramount in allowing these changes to take place without compromising the cable.

The Quabbin DataMax® Category network cables exceed the requirements of ANSI/TIA-568-C.2, are compatible with Cat 5e and 5 hardware, and are suitable for applications from 10 Base-T to 1000 Base-T (Gigabit Ethernet).

Also available are Quabbin DataMax® MIL-spec Cat6 cables with black low smoke PVC jacket and special conductor insulations colors.

- \* DataMax is a registered trademark of Quabbin Wire and Cable Corporation.
- \*\* EtherNet/IP is a trademark of ODVA, Inc.

#### **Features**

- Available in Category 5e, 6, 6e, and 6a
- In compliance with TIA 568-C.2 and TIA 1005
- Designed for use in EtherNet/IP systems \*\*
- 4 twisted pairs
- · Unshielded or overall foil shields
- UL Type CM and UL AWM Style 2463 (80°C, 600V)
- Some cables available with conductor color code for MIL spec applications
- Cut to length in 1 foot increments
- Low 20 foot minimum length
- · Made in the USA



Click on the thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable





### **Cat5e Ethernet**



			Q2906-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q2906-1	Cat5e Ethernet	Semi-flexible	20	0.02	\$5gu8:
			Physi	ical Properties			
Conductor (	Gauge -	26	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor I	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.010 in	nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	nominal
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.039 in	nominal
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.078 in	nominal
Color Code	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.212 in	nominal
	Pair 4	Brown, W	/hite/Brown	Jacket Color		BI	ue
Voltage Rati	ing	30	00V	Jacket Thickne	ss	0.024 in	nominal
Temperature	e Rating	-20 to 75 °C	(-4 to 167 °F)	Jacket Material	1	P\	/C
Plenum		1	No	Sunlight Resist	tant	N	lo
Shield		Shi	elded	Oil Resistance		N	lo
Drain		Y	'es	Flame Retardar	nt	N	lo
Conductor I		Polyethylene		Sample Print L	eaend	PATCH CORD ISO 1180	SCREENED 100 OHM 1 P/N xxxx TYPE CMR C ETL VERIFIED TO
Minimum Be		2.22in		-	-g <u>-</u>	TIA568.2-D CAT 5e Rol	HS (LOT DESIGNATOR)
Cabled Core	Diameter	0.162 in		tics (for 100 meters of cable)		(SEQUENTIA	L FOOTAGE)
Impedance		1000 - 150		UL Classification		(UL) Type CMR	
Impedance			1, 1 - 100MHz	Approvals**	) ii		
Resistance,			1MHz; Nominal C per 1000ft	Attenuation Cro			TL, RoHS - 20 LOG( <i>f</i> /100) dB MIN
Dielectric W Min.	ithstanding,	1500'	V RMS	Insertion Loss			$7\sqrt{f} + 0.023(f) + 0.050/\sqrt{f}$ MAX
Return Loss	;	10 ≤ f < 20 N	) + 5 LOG(f) dB MIN 1Hz: 25 dB MIN - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 200 MHz: 20.8 -	- 20 LOG(f/100) dB MIN
Near End Cr (NEXT)	rosstalk	$1 \le f \le 200 \text{ MHz: } 35.3$	- 15 LOG( <i>f</i> /100) dB MIN				
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL		1 ≤ f ≤ 200 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN				
		N	I/A				
		N	I/A	Cross Section			
Velocity of F	Propagation	0	.68				
Delay		1 ≤ f ≤ 100 MHz: \$	$534 + 36/\sqrt{f}$ ns MAX	-			
Delay Skew		1 ≤ <i>f</i> < 100	MHz: < 25 ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





### **Cat5e Ethernet**



			Q5506-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q5506-1	Cat5e Ethernet	Semi-flexible	20	0.02	\$;5guf:
			Physi	ical Properties	cal Properties		
Conductor (	Gauge	26	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor I	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.007 in	nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	nominal
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.038 in	nominal
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.076 in	nominal
COIOI COUC	Pair 3	Green, W	hite/Green	Overall Cable L	Diameter	0.215 in	nominal
	Pair 4	Brown, W	/hite/Brown	Jacket Color		ВІ	ue
Voltage Rati	ing	30	00V	Jacket Thickne	ss	0.039 in	nominal
Temperature	e Rating	-20 to 75 °C	(-4 to 167 °F)	Jacket Material	1	P	/C
Plenum		1	No	Sunlight Resis	tant	N	lo
Shield		Unsh	ielded	Oil Resistance		N	lo
Drain		1	No	Flame Retarda	nt		lo
Conductor I Material Minimum Be		Polyethylene 1.00in		Sample Print L	egend	PATCH CORD P/N xxxx	5E 350 MHZ ISO 11801 (UL) TYPE CMR 24 AWG E CMG 60CETL VERIF.
Cabled Core				-	ŭ		HS(LOT DESIGNATOR)
Cabled Core	Diameter	0.162 in		stics (for 100 meters of cable)		(SEQUENTIAL FOOTAGE)	
Impedance		1000 +150	, 1 - 350MHz	UL Classification	,	(UL) Type CMR, (CSA) Type CMG	
Capacitance			1MHz; Nominal	Approvals**	<i>)</i>		ETL, RoHS
Resistance,			per 1000ft	Attenuation Cre Far End (ACRF			20 LOG(f/100) dB MIN
Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss			$7\sqrt{f} + 0.023(f) + 0.050/\sqrt{f}$
Return Loss	;	10 ≤ f < 20 N	) + 5 LOG(f) dB MIN IHz: 25 dB MIN - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 200 MHz: 20.8	- 20 LOG(f/100) dB MIN
Near End Cr (NEXT)	rosstalk	$1 \le f \le 200 \text{ MHz: } 35.3$	- 15 LOG( <i>f</i> /100) dB MIN				
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL		1 ≤ f ≤ 200 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN				
		N	I/A	-			
		N	I/A	Cross Section			
Velocity of F	Propagation		.68	-			
Delay			$534 + 36/\sqrt{f}$ ns MAX	-			
Delay Skew		1 ≤ <i>f</i> < 100	MHz: < 25 ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





### **Cat5e Ethernet**



			Q5943-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q5943-1	Cat5e Ethernet	Semi-flexible	20	0.03	\$5gug:
			Physi	ical Properties			
Conductor G	auge	24 /	AWG	Conductor Stra	nding	Solid Bar	re Copper
Conductor N	faterial (	Bare	Copper	Conductor Insu Thickness	ılation Wall	0.008 in	nominal
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.022 in	nominal
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.038 in	nominal
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.076 in	nominal
30,0, 0006	Pair 3	Green, W	hite/Green	Overall Cable D	Diameter	0.230 in	nominal
	Pair 4	Brown, W	hite/Brown	Jacket Color			ack
Voltage Rati	ng		00V	Jacket Thickne	ss	0.033 in	nominal
Temperature	Rating	-40 to 75 °C	(-40 to 167 °F)	Jacket Material	1	PVC	
Plenum		1	lo	Sunlight Resist	tant	Yes	
Shield		Unsh	ielded	Oil Resistance		N	lo
Drain		No		Flame Retardar	nt	N	lo
Conductor II Material		Polyethylene		Sample Print L	eaend	PATCH CORD P/N xxxx	5E 350 MHZ ISO 11801 (UL) TYPE CMR 24 AWG E CMG 60CETL VERIF.
Minimum Be		2.30in		-	-9	TIA-568-C.2 CAT 5eRol	HS(LOT DESIGNATOR)
Cabled Core	Diameter	0.164 in		tics (for 100 meters of cable)		(SEQUENTIA	L FOOTAGE)
Impedance		100 ± 200 O	(1 - 200 MHz)	UL Classification		(UL) Type CMR, & CMX	
Capacitance	<u> </u>		1MHz; Nominal	Approvals**	<i>511</i>	. , , , ,	TL, RoHS
Resistance,			per 1000ft	Attenuation Cre Far End (ACRF)			- 20 LOG( <i>f</i> /100) dB MIN
Dielectric W	ithstanding,	1500	/ RMS	Insertion Loss	,		$\sqrt{f} + 0.023(f) + 0.050/\sqrt{f}$ MAX
Return Loss		10 ≤ f < 20 N	+ 5 LOG(f) dB MIN IHz: 25 dB MIN 5 - 7 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 200 MHz: 20.8 -	- 20 LOG(f/100) dB MIN
Near End Cr (NEXT)	osstalk	$1 \le f \le 200 \text{ MHz: } 35.3$	- 15 LOG( <i>f</i> /100) dB MIN				
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL Velocity of Propagation		$1 \le f \le 200 \text{ MHz: } 32.3$	- 15 LOG( <i>f</i> /100) dB MIN				
		N	I/A	_			
		N	I/A	Cross Section			
		0	68				
Delay		1 ≤ f ≤ 200 MHz: 5	$534 + 36/\sqrt{f}$ ns MAX				
Delay Skew		1 ≤ <i>f</i> ≤ 200	MHz: <25 ns				

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





## **Cat5e Industrial Ethernet**



	Q5944-1 Cable Specifications									
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
		Q5944-1	Cat5e industrial Ethernet	Flexible	20	0.03	\$;5v!d:			
			Physi	cal Properties						
Conductor G	auge	24.	AWG	Conductor Stra	nding	7-Stranded T	inned Copper			
Conductor N	faterial	Tinned	l Copper	Conductor Insu Thickness	ılation Wall	0.008 in	, nominal			
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	, nominal			
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.039 in	, nominal			
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.078 in	, nominal			
00.0. 0000	Pair 3	Green, W	/hite/Green	Overall Cable L	Diameter	0.234 in	, nominal			
	Pair 4	Brown, W	/hite/Brown	Jacket Color		Bla	ack			
Voltage Rati	ng	30	00V	Jacket Thickne	ss	0.033 in	, nominal			
Temperature	Rating	-40 to 75 °C	(-40 to 167 °F)	Jacket Material	1	P\	VC			
Plenum		1	No	Sunlight Resist	tant	N	lo			
Shield		Unshielded		Oil Resistance		N	lo			
Drain		No		Flame Retardar	nt		lo			
Conductor II Material		High-density Polyethylene (HDPE)		Sample Print L	ogond	350MHZ U/UTP PATCH	(TREME TOUGH CAT 5e CABLE P/N 5944 C(UL) CMR 24 AWG 75C SUN			
Minimum Be		1.00in		Sample Fill L	egenu	RES CAT 5e TIA - 568.2-D CE ROHS (LOT DESIGNATOR)(SEQUENTIAL FOOTAGE)				
Cabled Core	Diameter	0.168 in		etics (for 100 meters of cable)		DESIGNATOR)(SEQ	UENTIAL FOOTAGE)			
		400 45 0	Electrical Characteristics (for 100 meters of cable)			NEC (III ) Type CMY CEC C(III ) Type CMY				
Impedance		100 ± 15 Ω (1 - 350 MHz)		UL Classification		NEC (UL) Type CMX, CEC C(UL) Type CMX cULus, CE, RoHS				
Capacitance	!	13.5 pF/ft @	1MHz; Nominal	Approvals**	a a a talle Datio	cULus, C	JE, Rohs			
Resistance,		26.5 Ω DO	C per 1000ft	Attenuation Cre Far End (ACRF)			- 20 LOG(f/100) dB MIN			
Dielectric Wi Min.	ithstanding,		V RMS	Insertion Loss			[1.967 $\sqrt{f}$ + 0.023( $f$ ) + ] dB MAX			
Return Loss		$10 \le f < 20 \text{ N}$	) + 5 LOG(f) dB MIN MHz: 25 dB MIN - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 350 MHz: 20.8 -	- 20 LOG(f/100) dB MIN			
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 350 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN							
Power Sum Crosstalk (P		1 ≤ f ≤ 350 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN							
TCL		N	N/A							
ELTCTL		N	N/A	Cross Section						
Velocity of P	Propagation	0	.68							
Delay		1 ≤ f ≤ 350 MHz:	534 + 36/√ <i>f</i> ns MAX							
Delay Skew		1 ≤ f ≤ 350	) MHz: <25ns							

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2206-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q2206-1	Cat6e Ethernet	Semi-flexible	20	0.02	\$5gu7:
			Physi	ical Properties			
Conductor (	Gauge	24 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor I	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.007 in	nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	nominal
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.039 in	nominal
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.078 in	nominal
COIOI COUC	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.220 in	nominal
	Pair 4	Brown, W	/hite/Brown	Jacket Color		ВІ	ue
Voltage Rati	ing	30	00V	Jacket Thickne	ss	0.024 in	nominal
Temperature	e Rating	-20 to 75 °C	(-4 to 167 °F)	Jacket Material	1	P	/C
Plenum		1	No	Sunlight Resist	tant	N	lo
Shield		Unsh	nielded	Oil Resistance		No	
Drain		١	No	Flame Retardar	nt	N	lo
Conductor I		Polyethylene		Sample Print L	eaend	PATCH CORDP/N xxxx -	E 600 MHZ ENHANCED (UL) TYPE CMR 24 AWG TYPE CMG 60C TIA-
Minimum Be		2.67in 0.160 in		_			(LOT DESIGNATOR)
				tics (for 100 meters of cable)			
Impedance		100 ± 15 Ω	(1 - 100 MHz)	UL Classification	on	(UL) Type CMR/CMG, (CSA) Type CMG	
Capacitance	<del></del>	13.5 pF/ft @	1MHz; Nominal	Approvals**		cULus, C	SA, RoHS
Resistance,	Мах.	42.6 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF)		1 ≤ f ≤ 500 MHz: 27.8	- 20 LOG(f/100) dB MIN
Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss			$08 \sqrt{f} + 0.017(f) + 0.2/\sqrt{f}$ MAX
Return Loss	<b>i</b>	10 ≤ f < 20 N	) + 5 LOG(f) dB MIN 1Hz: 25 dB MIN 8.6 LOG(f/20) dB MINPS	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 500 MHz: 24.8	- 20 LOG(f/100) dB MIN
Near End Cr (NEXT)	rosstalk		- 15 LOG(f/100) dB MIN 3 - 15 LOG(f/100) dB MIN				
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL			- 15 LOG( <i>f</i> /100) dB MIN 3 - 15 LOG( <i>f</i> /100) dB MIN				
		1 ≤ f ≤ 500 MHz: 30 -	10 LOG(f/100) dB MIN				
		1 ≤ f ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section			
Velocity of F	Propagation		.68				
Delay		1 ≤ f ≤ 500 MHz: §	$534 + 36/\sqrt{f}$ ns MAX				
Delay Skew		1 ≤ f ≤ 500 MI	Hz: <45 ns MAX				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2936-1 Ca	ble Specific	ations		
	_	Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q2936-1	Cat6 Ethernet	Semi-flexible	20	0.02	\$5gu9:
			Phys	ical Properties			
Conductor C	auge	26 AWG		Conductor Stra	nding	7-Stranded T	inned Copper
Conductor Material		Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.009 in	nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter		nominal
	Pair 1	-	/hite/Blue	Insulated Cond	luctor Diameter	0.036 in	nominal
Color Code	Pair 2	3 1	hite/Orange	Twisted Condu			nominal
	Pair 3	,	hite/Green	Overall Cable D	Diameter	0.235 in	
	Pair 4		/hite/Brown	Jacket Color			ue
Voltage Rati			V00V	Jacket Thickne			nominal
Temperature Plenum	Rating		(-4 to 167 °F)	Jacket Material		-	/C
Shield			No No	Sunlight Resistance	tant	No No	
Drain		Shielded Yes		Flame Retardar	nt		es
Conductor II	nsulation	Polyethylene		Transcricturuur		QUABBIN DATAMAX 6	F/UTP 100 OHM PATCH CMR C(UL) US CMG 4 PR
Minimum Be		2.35in		Sample Print L	egend	26 AWG SHIELDED 75C 6 TIA-568.2-D RoHS	FT4/IEÉE 1202 CAT (LOT DESIGNATOR)
Cabled Core	Diameter	0.208 in		otice (for 100 meter	ra of achla)	(SEQUENTIA	AL FOOTAGE
Impedance		Electrical Characteris		UL Classification		(III.) Type	CMP/CMG
Capacitance		100 ± 15 Ω (1 - 350 MHz) 13.5 pF/ft @ 1MHz; Nominal		Approvals**		(UL) Type CMR/CMG cETLus, RoHS	
Resistance,			per 1000ft	Attenuation Cre Far End (ACRF	· · · · ,	$1 \le f \le 250 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$	
Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss	,		$08\sqrt{f} + 0.017(f) + 0.2/\sqrt{f}$ MAX
Return Loss		$10 \le f < 20 \text{ N}$ $20 \le f \le 250 \text{ MHz}$ : 25	+ 5 LOG (f) dB MIN IHz: 25 dB MIN - 8.6 LOG(f/20) dB MIN - 15 LOG(f/100) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ $f$ ≤ 250 MHz: 24.8 – 20 LOG( $f$ /100) dB MIN	
Near End Cr (NEXT)	osstalk						
Power Sum Crosstalk (P		1 ≤ <i>f</i> ≤ 250 MHz: 42.3	– 15 LOG( <i>f</i> /100) dB MIN				
TCL  ELTCTL  Velocity of Propagation		N	I/A	_			
			I/A	Cross Section			
		0	.68	-			
Delay		1 ≤ f ≤ 250 MHz: 5	$534 + 36/\sqrt{f}$ ns MAX	-			
Delay Skew		1 ≤ <i>f</i> ≤ 250	MHz: <45ns				

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths

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			Q2045-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q2045-1	Cat6 Ethernet	Semi-flexible	20	0.02	\$;5!ep:	
			Physi	ical Properties				
Conductor C	auge	28 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper	
Conductor N	flaterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.008 in	nominal	
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.015 in	nominal	
	Pair 1	Natural	, Orange	Insulated Cond	luctor Diameter	0.031 in	nominal	
Color Code	Pair 2	Gray,	Brown	Twisted Condu	ctor Diameter	0.062 in	nominal	
Oolor Oode	Pair 3	Natura	l, Green	Overall Cable D	Diameter	0.186 in	nominal	
	Pair 4	Gray	, Blue	Jacket Color		Bla	ack	
Voltage Rati	ng	300V		Jacket Thickness		0.021 in, nominal		
Temperature	Rating	-20 to 105 °C	C (-4 to 221 °F)	Jacket Material	1	PVC		
Plenum		Y	'es	Sunlight Resist	tant	N	lo	
Shield			elded	Oil Resistance			es	
Drain		Y	'es	Flame Retardar	nt	N	lo	
Conductor Insulation Material		Foamed FEP		Sample Print L	agand	P/N xxxx PATENT PEN	NI-6 F/UTP PATCH CORD IDING C(ETL)US TYPE	
Minimum Be		1.86in		- Sample Time E	egena	CMP 28 AWG 105C RoHS (LOT DESIGNATOF (SEQUENTIAL FOOTAGE)		
Cabled Core	Diameter	0.145 in		ation (for 100 mate	re of coble)	(02402.11.11		
Impedance		Electrical Characteristics (for 100 meters of cable)  100 ± 15 \( \Omega (1 - 250 \text{ MHz}) \)  UL Classification				NEC (ETL) TYPE CMP CEC C(ETL) TYPE CMP		
Capacitance			1MHz; Nominal	UL Classification Approvals**		cETLus, RoHS		
Resistance,			C per 1000ft	Attenuation Cre Far End (ACRF		$1 \le f \le 250 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric W.	ithstanding,	1500\	V RMS	Insertion Loss	,		$308 \sqrt{f} + 0.017(f) + 0.2/\sqrt{f}$ MAX	
Return Loss		$2 \le f < 10 \text{ MHz: } 20$ $10 \le f < 20 \text{ M}$	+ 9.5 LOG(f) dB MIN ) + 5 LOG(f) dB MIN IHz: 25 dB MIN 5 - 8.6 LOG(f) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 250 MHz: 24.8 ·	· 20 LOG( <i>f</i> /100) dB MIN	
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 250 MHz: 44.3	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ $f$ ≤ 250 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN					
TCL		1 ≤ f ≤ 250 MHz: 30 -	10 LOG(f/100) dB MIN					
ELTCTL		1 ≤ f ≤ 30 MHz: 35	- 20 LOG(f) dB MIN	Cross Section				
Velocity of F	Propagation	0.	.68					
Delay		1 ≤ f ≤ 250 MHz: 5	534 + 36/ $√f$ ns MAX					
Delay Skew		1 ≤ <i>f</i> ≤ 250 M	Hz: <45ns MAX					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2067-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
	-	Q2067-1	Cat6 Ethernet	Semi-flexible	20	0.03	\$;5!eq:	
			Physi	ical Properties				
Conductor C	auge	26 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper	
Conductor N	flaterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.010 in	nominal	
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	nominal	
	Pair 1	Natural	, Orange	Insulated Cond	luctor Diameter	0.039 in	nominal	
Color Code	Pair 2	Gray,	Brown	Twisted Condu	ctor Diameter	0.078 in	nominal	
30.0. 0006	Pair 3		I, Green	Overall Cable D	Diameter	0.223 in	nominal	
	Pair 4		, Blue	Jacket Color		Bla	ack	
Voltage Rati			300V		Jacket Thickness		0.021 in, nominal	
Temperature Rating			C (-4 to 221 °F)	Jacket Material		PVC No		
Plenum			es	Sunlight Resist	tant		-	
Shield			elded ,	Oil Resistance			es	
Drain Conductor li	novlotion	Y	'es	Flame Retardar	าt	N	lo	
Material		Foamed FEP 2.23in		Sample Print L	egend	P/N xxxx PATENT PEN	T 6 F/UTP PATCH CORD IDING C(ETL)US TYPE	
Minimum Be		0.181 in		-	J	CMP 26 AWG 105C RoHS (LOT DESIGNATOF (SEQUENTIAL FOOTAGE)		
Cabled Core	Diameter	Electrical Characteristics (for 1		stics (for 100 meter	rs of cable)	,	,	
Impedance		100 ± 15 Ω (1 - 250 MHz) <b>UL Classification</b>				NEC (ETL) TYPE CMP CEC C(ETL) TYPE CMP		
Capacitance	<u> </u>		1MHz; Nominal	Approvals**		cETLus, RoHS		
Resistance,			C per 1000ft	Attenuation Crosstalk Ratio, Far End (ACRF)		$1 \le f \le 250 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric W Min.	ithstanding,	1500\	V RMS	Insertion Loss			$08 \sqrt{f} + 0.017(f) + 0.20/\sqrt{f}$ MAX	
Return Loss		$10 \le f < 20 \text{ M}$ $20 \le f \le 250 \text{ MHz: } 25$	) + 5 LOG(f) dB MIN 1Hz: 25 dB MIN - 8.6 LOG(f/20) dB MIN 5 - 8.6 LOG(f) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 250 MHz: 24.8 ·	· 20 LOG(ƒ/100) dB MIN	
Near End Cr (NEXT)	osstalk		- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		$1 \le f \le 250 \text{ MHz: } 42.3$	- 15 LOG( <i>f</i> /100) dB MIN					
TCL		1 ≤ f ≤ 250 MHz: 30 -	10 LOG(f/100) dB MIN					
ELTCTL		1 ≤ f ≤ 30 MHz: 35	- 20 LOG(f) dB MIN	Cross Section				
Velocity of F	Propagation	0.	.68					
Delay		1 ≤ f ≤ 250 MHz: 5	534 + 36/ $√f$ ns MAX					
Delay Skew		1 ≤ f ≤ 250 M	Hz: <45ns MAX					

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2948-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q2948-1	Cat6a Ethernet	Semi-flexible	20	0.02	\$5gua:	
			Physi	ical Properties				
Conductor C	Bauge	267	AWG	Conductor Stra	nding	7-Stranded T	inned Copper	
Conductor N	Material	Tinned	Copper	Conductor Insu Thickness	ulation Wall	0.009 in	nominal	
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	nominal	
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.036 in	nominal	
Color Code	Pair 2		/hite/Orange	Twisted Condu		0.072 in		
	Pair 3		/hite/Green	Overall Cable D	Diameter	0.235 in	nominal	
	Pair 4		/hite/Brown	Jacket Color			ue	
Voltage Rati			00V	Jacket Thickne		0.024 in, nominal		
Temperature	Rating		(-4 to 167 °F)	Jacket Material		PVC No		
Plenum		-	No	Sunlight Resist	tant		-	
Shield			elded	Oil Resistance			lo	
Drain		Y	'es	Flame Retardar	nt		es	
Conductor II Material		Polyethylene 2.35in		Sample Print L	eaend	CORD P/N xxxx TYPE (	F/UTP 100 OHM PATCH CMR C(UL) US CMG 4 PR FT4/IEEE 1202 CAT	
Minimum Be		0.208 in		-	- <b>3</b>	6a TIA-568.2-D RoHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE		
Cabled Core	Diameter	Electrical Characteristics (for 100 meters of cable)		re of cable)	(SEQUENTIA	AL FOOTAGE		
Impedance		100 ± 15 Ω (1 - 200 MHz)  UL Classification				(UL) Type CMR/CMG		
Capacitance	<u> </u>		1MHz; Nominal	Approvals**	<i></i>	cULus, RoHS		
Resistance,			per 1000ft	Attenuation Cre Far End (ACRF		1 $\leq f \leq$ 500 MHz: 27.8 – 20 LOG( $f$ /100) dB MIN		
Dielectric W.	ithstanding,	1500	V RMS	Insertion Loss	,		1.82√(f) + 0.0091(f) +	
Return Loss		$10 \le f < 20 \text{ N}$ $20 \le f \le 500 \text{ MHz: } 25 \text{ MHz}$	) + 5 LOG(f) dB MIN 1Hz: 25 dB MIN - 8.6 LOG(f/20) dB MIN - 15 LOG(f/100) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		N/A		
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 42.3	– 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ f ≤ 500 MHz: 24.8	– 20 LOG(f/100) dB MIN					
TCL		N	I/A					
ELTCTL		N	I/A	Cross Section				
Velocity of F	Propagation	0	.68	-				
Delay		1 ≤ f ≤ 500 MHz: 5	$34 + 36/\sqrt{(f)}$ ns MAX					
Delay Skew		1 ≤ f ≤ 500 M	Hz: <45ns MAX					

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2034-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q2034-1	Cat6a Ethernet	Semi-flexible	20	0.02	\$;5!ek:
			Phys	ical Properties			
Conductor G	auge	28 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor M	laterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.008 in,	nominal
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter		nominal
	Pair 1	Natural	, Orange	Insulated Cond	luctor Diameter	0.031 in,	
Color Code	Pair 2		Brown	Twisted Condu		0.062 in,	
	Pair 3		l, Green	Overall Cable D	Diameter	0.186 in,	
	Pair 4	-	y, Blue	Jacket Color			ack 
Voltage Ratir		300V		Jacket Thickness		0.021 in, nominal	
Temperature Rating			C (-4 to 221 °F)	Jacket Material Sunlight Resistant		PVC No	
Plenum			es		tant		
Shield Drain			elded 'es	Oil Resistance Flame Retardar			es lo
Conductor Insulation			ed FEP	riaille Retaidal	ıı		II-6a F/UTP PATCH CORD
Material Minimum Be	nd Radius	1.86in		Sample Print L	egend	P/N xxxx PATENT PENDING C(ETL)US TYPE CMP 28 AWG 105C RoHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)	
Cabled Core	Diameter	0.145 in				(SEQUENTIA	AL FOOTAGE)
			Electrical Characteri	stics (for 100 meter	rs of cable)		
Impedance		100 ± 15 Ω (1 - 500 MHz)		UL Classification		NEC (ETL) TYPE CMP CEC C(ETL) TYPE CMP	
Capacitance		13.5 pF/ft @ 1	1MHz; Nominal	Approvals**		cETLus, RoHS	
Resistance, l	Мах.	68.2 Ω DC	per 1000ft	Attenuation Cro Far End (ACRF)		1 ≤ $f$ ≤ 500 MHz: 27.8 - 20 LOG( $f$ /100) dB MIN	
Dielectric Wi Min.	ithstanding,	1500	V RMS	Insertion Loss			$\sqrt[3]{1.82} \sqrt[3]{f} + 0.0091(f) + \sqrt[3]{f}$ dB
Return Loss		$2 \le f < 10 \text{ MHz: } 20$ $10 \le f < 20 \text{ N}$	+ 9.5 LOG(f) dB MIN ) + 5 LOG(f) dB MIN IHz: 25 dB MIN 5 - 8.6 LOG(f) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 500 MHz: 24.8 -	- 20 LOG( <i>f</i> /100) dB MIN
Near End Cro (NEXT)	osstalk	$1 \le f \le 500 \text{ MHz: } 44.3$	- 15 LOG( <i>f</i> /100) dB MIN				
Power Sum I Crosstalk (PS		1 ≤ f ≤ 500 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN				
TCL		$1 \le f \le 500 \text{ MHz: } 30 -$	10 LOG(f/100) dB MIN				
ELTCTL		1 ≤ f ≤ 30 MHz: 35	- 20 LOG(f) dB MIN	Cross Section			
Velocity of P	ropagation	0.	.68				
Delay		1 ≤ f ≤ 500 MHz: {	534 + 36/ $√f$ ns MAX				
	1 ≤ f ≤ 500 MHz: <45ns MAX						

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2056-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q2056-1	Cat6a Ethernet	Semi-flexible	20	0.02	\$;5!eo:
			Phys	ical Properties			
Conductor G	Bauge	26 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor N	faterial (	Tinned	Copper	Conductor Inst Thickness	ulation Wall	0.010 in	, nominal
Conductor A	ssembly	4 twiste	ed pairs	Bare Conducto	r Diameter	0.019 in	, nominal
	Pair 1	Natural	, Orange	Insulated Cond	luctor Diameter	0.039 in	, nominal
Color Code	Pair 2	Gray,	Brown	Twisted Condu	ctor Diameter	0.078 in	, nominal
Color Code	Pair 3	Natura	I, Green	Overall Cable L	Diameter	0.223 in	nominal
	Pair 4	Gray	, Blue	Jacket Color		Bla	ack
Voltage Rati	ng	30	00V	Jacket Thickne	ess	0.021 in, nominal	
Temperature	Temperature Rating -20 to 105 °		(-4 to 221 °F)	Jacket Material		PVC	
Plenum	Plenum		es	Sunlight Resis	tant	N	lo
Shield		Shie	elded	Oil Resistance		Y	es
Drain	Drain		es	Flame Retarda	nt	N	lo
Conductor II Material	nsulation	Foamed FEP		Sample Print L	agand		T 6a F/UTP PATCH CORD IDING C(ETL)US TYPE
Minimum Be			2.33in		egena		HS (LOT DESIGNATOR) AL FOOTAGE)
Cabled Core	Diameter	0.18	81 in			(SEQUENTIA	all oolage)
		400 45 0	Electrical Character	istics (for 100 mete	ers of cable)		
Impedance			(1 - 100 MHz) 00 - 500 MHz)	UL Classification	on	NEC (ETL) TYPE CMP CEC C(ETL) TYPE CMP	
Capacitance	!	13.5 pF/ft @ 1	IMHz; Nominal	Approvals**		cETLus, RoHS	
Resistance,	Max.	42.6 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF		$1 \le f \le 500 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$	
Dielectric Wi Min.	ithstanding,	1500\	/ RMS	Insertion Loss			$2\sqrt{f} + 0.0091(f) + 0.25/\sqrt{f}$ B
Return Loss		10 ≤ f < 20 M	+ 5 LOG(f) dB MIN lHz: 25 dB MIN - 8.6 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 500 MHz: 24.8	- 20 LOG(f/100) dB MIN
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 44.3	- 15 LOG( <i>f</i> /100) dB MIN				
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL		$1 \le f \le 500 \text{ MHz: } 42.3$	- 15 LOG( <i>f</i> /100) dB MIN				
		1 ≤ f ≤ 500 MHz: 30 -	10 LOG(f/100) dB MIN				
		1 ≤ <i>f</i> ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section			
Velocity of P	Propagation	0.	68				
Delay		1 ≤ f ≤ 500 MHz: 5	$534 + 36/\sqrt{f}$ ns MAX				
Delay Skew		$1 \le f \le 500 \text{ M}$	Hz: <45ns MAX				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2025-1 Ca	ble Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
		Q2025-1	Cat6 Ethernet	Semi-flexible	20	0.02	\$;5!ev:
			Physi	ical Properties			
Conductor (	Gauge	26 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper
Conductor I	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.011 in	nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	nominal
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.041 in	nominal
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.081 in	nominal
COIOI COUC	Pair 3	Green, W	hite/Green	Overall Cable D	Diameter	0.230 in	nominal
	Pair 4	Brown, W	hite/Brown	Jacket Color		Bla	ack
Voltage Rati	ing	30	00V	Jacket Thickne	ss	0.023 in, nominal	
Temperature	e Rating	-20 to 75 °C	(-4 to 167 °F)	Jacket Material		low smoke zero halogen (LSZH)	
Plenum		1	No	Sunlight Resist	tant	No	
Shield		Shie	elded	Oil Resistance		N	lo
Drain	Yes		Flame Retardar	nt	Y	es	
Conductor I Material	nsulation	High-density Pol	yethylene (HDPE)				H 6 F/ UTP PATCH CORD
Minimum Be	end Radius	2.30in		Sample Print L	egena	CM-LS 26 AWG 75C Ro	HS (LOT DESIGNATOR)
Cabled Core	Diameter	0.177 in				(SEQUENTIA	L FOOTAGE)
			Electrical Characteris	· ·	,		
Impedance			(1 - 250 MHz)	UL Classification	on	NEC (UL) TYPE CM-LS; CEC C(UL) TYPE CM-LS	
Capacitance	•	13.5 pF/ft @ 1	1MHz; Nominal	Approvals**		cULus, RoHS	
Resistance,		42.6 Ω DC	per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 250 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$	
Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss			$08\sqrt{(f + 0.017(f + 0.2)\sqrt{(f)})}$
Return Loss	•	10 ≤ f < 20 N	) + 5 LOG(f) dB MIN IHz: 25 dB MIN 8.6 LOG(f/20) dB MINPS	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 250 MHz: 24.8	20 LOG(f/100) dB MIN
Near End Cr (NEXT)	rosstalk	$1 \le f \le 250 \text{ MHz: } 44.3$	- 15 LOG( <i>f</i> /100) dB MIN				
	Sum Near End $1 \le f \le 250 \text{ MHz: } 42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$						
TCL		1 ≤ f ≤ 250 MHz:	30 - 10 LOG( <i>f</i> /100)				
ELTCTL	ELTCTL $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f)$ CrossVelocity of Propagation $0.68$		Cross Section				
Velocity of F			.68				
Delay		1 ≤ f ≤ 250 MHz: 5	$634 + 36/\sqrt{(f \text{ ns MAX})}$				
Delay Skew		1 ≤ f ≤ 250	MHz: <45ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2260-1 Ca	ble Specific	ations				
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
		Q2260-1	Cat6 Ethernet	Semi-flexible	20	0.01	\$;5!eu:		
			Physi	ical Properties					
Conductor C	auge	28 /	AWG	Conductor Stra	anding	7-Stranded T	inned Copper		
Conductor N	faterial	Tinned	Copper	Conductor Insu Thickness	ulation Wall	0.005 in	, nominal		
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.015 in	, nominal		
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.025 in	, nominal		
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.049 in	, nominal		
30.0. 0000	Pair 3	Green, W	/hite/Green	Overall Cable L	Diameter	0.155 in	, nominal		
	Pair 4	- ,	/hite/Brown	Jacket Color			ack		
Voltage Rati	ng	300V		Jacket Thickness		0.020 in, nominal			
Temperature	Rating	, ,		Jacket Material		low smoke zero halogen (LSZH)			
Plenum		1	No	Sunlight Resis	tant	N	lo		
Shield		Unsh	nielded	Oil Resistance		N	lo		
Drain		1	No	Flame Retarda	nt	Y	es		
Conductor II Material	nsulation	High-density Polyethylene (HDPE)		Samula Drint I	arrand	QUABBIN DATAMAX LSZH MINI-6 U/UTP PATCH CORD P/N xxxx C(UL)US TYPE CM-LS 28 AWG			
Minimum Be	nd Radius	1.50in		Sample Print L	egena		SIGNATOR) (SEQUENTIAL		
Cabled Core	Diameter	0.118 in		L'ac (faced00 material trackts)		FOOTAGE)			
			Electrical Characteris		•				
Impedance		100 ± 15 Ω	100 ± 15 Ω (1 - 250 MHz) <b>UL Classification</b>				NEC (UL) TYPE CM-LS; CEC C(UL) TYPE CM-LS		
Capacitance	!	13.5 pF/ft @ 1	1MHz; Nominal	Approvals**		cULus, RoHS			
Resistance,		68.2 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF		-	- 20 LOG(f/100) dB MIN		
Dielectric W Min.	ithstanding,	1500 <sup>1</sup>	V RMS	Insertion Loss			$0.08\sqrt{(f + 0.017(f + 0.2)/(f))}$ MAX		
Return Loss		10 ≤ f < 20 N	) + 5 LOG(f) dB MIN IHz: 25 dB MIN 8.6 LOG(f/20) dB MINPS	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 250 MHz: 24.8	- 20 LOG(f/100) dB MIN		
Near End Cr (NEXT)		$1 \le f \le 250 \text{ MHz: } 44.3$	- 15 LOG( <i>f</i> /100) dB MIN						
Power Sum Crosstalk (P		$1 \le f \le 250 \text{ MHz: } 42.3$	- 15 LOG( <i>f</i> /100) dB MIN						
TCL		1 ≤ f ≤ 250 MHz:	30 - 10 LOG( <i>f</i> /100)						
ELTCTL		1 ≤ f ≤ 30 MHz	z: 35 - 20 LOG( <i>f</i> )	Cross Section					
Velocity of F	Propagation	0.	.68						
Delay		-	$534 + 36/\sqrt{(f \text{ ns MAX})}$						
Delay Skew		1 ≤ f ≤ 250	) MHz: <45ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







			Q2270-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
	-	Q2270-1	Cat6a Ethernet	Semi-flexible	20	0.02	\$;5!es:	
			Physi	ical Properties				
Conductor (	Gauge	28 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper	
Conductor N	Material	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.008 in	nominal	
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.015 in	nominal	
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.033 in	nominal	
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.064 in	nominal	
Color Code	Pair 3	Green, W	hite/Green	Overall Cable D	Diameter	0.190 in	nominal	
	Pair 4	Brown, W	hite/Brown	Jacket Color		Bla	ack	
Voltage Rati	ing	30	00V	Jacket Thickness		0.023 in, nominal		
Temperature	Temperature Rating -20		(-4 to 167 °F)	Jacket Material		low smoke zero halogen (LSZH)		
Plenum	Plenum		lo	Sunlight Resist	tant	N	lo	
Shield		Shie	elded	Oil Resistance		N	lo	
Drain		Y	es	Flame Retardar	nt	Y	es	
Conductor I Material	nsulation	High-density Polyethylene (HDPE)		Sample Print L	agand		ZH MINI-6a F/UTP PATCH NT NO. US 9,355,759 B2-	
Minimum Be		1.90in		- Campio i inic 20gona			BAWG 75CRoHS(LOT (UENTIAL FOOTAGE)	
Cabled Core	Diameter	0.146 in		stics (for 100 meters of cable)		DESIGNATOR) (SEG	OLIVITAL I OO IAGL)	
luanadanaa		400 - 45 0		1	•	NEC (III.) TYPE CM I C.	OFO CALLATARE CM LC	
Impedance			(1 - 500 MHz)	UL Classificatio	on	NEC (UL) TYPE CM-LS; CEC C(UL) TYPE CM-LS		
Capacitance		13.5 pF/π @	1MHz; Nominal	Approvals** Attenuation Cre	nestalk Patio	cULus, RoHS		
Resistance,	Мах.	68.2 Ω DC	per 1000ft	Far End (ACRF)		$1 \le f \le 500 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric W Min.	ithstanding,	1500\	V RMS	Insertion Loss			5[1.82√(ƒ + 0.0091(ƒ +   dB MAX	
Return Loss	<b>i</b>	$2 \le f < 10 \text{ MHz: } 20$	- 9.5 LOG( <i>f</i> ) dB MIN   + 5 LOG( <i>f</i> ) dB MIN  HZ: 25 dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 500 MHz: 24.8	- 20 LOG(f/100) dB MIN	
Near End Cr (NEXT)	rosstalk	$1 \le f \le 500 \text{ MHz: } 44.3$	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		$1 \le f \le 500 \text{ MHz: } 42.3$	- 15 LOG( <i>f</i> /100) dB MIN					
TCL			0 LOG(f/100) dB MIN, 40 MIN					
ELTCTL		1 ≤ f ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section				
Velocity of Propagation		0.	68					
Delay		1 ≤ f ≤ 500 MHz: 5	$34 + 36/\sqrt{(f \text{ ns MAX})}$					
Delay Skew		1 ≤ <i>f</i> ≤ 500	MHz: <45ns					

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths
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			Q2279-1 Ca	ble Specific	ations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		Q2279-1	Cat6a Ethernet	Semi-flexible	20	0.02	\$;;5!et:	
			Phys	ical Properties				
Conductor G	auge	26 /	AWG	Conductor Stra	nding	7-Stranded T	inned Copper	
Conductor N	faterial	Tinned	Copper	Conductor Insu Thickness	ılation Wall	0.011 in,	nominal	
Conductor A	ssembly		ed pairs	Bare Conducto	r Diameter	0.019 in,		
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.041 in,		
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.081 in,	nominal	
	Pair 3	,	/hite/Green	Overall Cable D	Diameter	0.230 in,		
	Pair 4		/hite/Brown	Jacket Color			ack	
Voltage Ratio		300V -20 to 75 °C (-4 to 167 °F)		Jacket Thickness		0.023 in, nominal		
Temperature	Rating			Jacket Material			halogen (LSZH)	
Plenum			10	Sunlight Resist	tant		0	
Shield Drain			elded	Oil Resistance Flame Retardar	n#		o es	
Conductor Insulation Material			yethylene (HDPE)	Trame Netardar	n.	QUABBIN DATAMAX LSZI	H 6a F/UTP PATCH CORD	
Minimum Be		2.30in 0.180 in		Sample Print L	egend	P/N xxxx PATENT PENDING C(UL)US TYPE CM-LS 26 AWG 75C RoHS (LOT DESIGNATOR (SEQUENTIAL FOOTAGE)		
Cabled Core	Diameter			otion (for 100 motor	ro of ooblo)	(02402:11:		
Impedance			(1 - 100 MHz) 100 - 500 MHz)			NEC (UL) TYPE CM-LS; CEC C(UL) TYPE CM-LS		
Capacitance		,	1MHz; Nominal	Approvals**		cULus. RoHS		
Resistance,		, ,	per 1000ft	Attenuation Cre Far End (ACRF		$1 \le f \le 500 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric Wi	ithstanding,	1500	V RMS	Insertion Loss	<i>,</i>	1 ≤ f ≤ 500 MHz: 1.5[1.82 dB N	$\sqrt{(f + 0.0091(f + 0.25)/\sqrt{(f)})}$	
Return Loss		10 ≤ f < 20 N	) + 5 LOG(f) dB MIN IHz: 25 dB MIN 8.6 LOG(f/20) dB MINPS	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 500 MHz: 24.8 -	20 LOG(f/100) dB MIN	
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 44.3	- 15 LOG( <i>f</i> /100) dB MIN					
	Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/1)$		- 15 LOG( <i>f</i> /100) dB MIN					
TCL		,	0 LOG(f/100) dB MIN, 40 MIN					
ELTCTL		1 ≤ f ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section				
Velocity of P	Propagation	0	68	_				
Delay		1 ≤ f ≤ 500 MHz: 5	$634 + 36/\sqrt{(f \text{ ns MAX})}$					
Delay Skew		1 ≤ <i>f</i> ≤ 500	MHz: <45ns					

<sup>\*</sup> See web store <u>www.AutomationDirect.com</u> for maximum cut lengths
\*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com







# **Continuous Flexing Profinet Cable**





#### **Features**

- Designed and tested for continuous flexing Industrial applications
- Profinet Type B & C
- Designed for EtherNet/IP™ systems \*\*
- 22AWG, 2 twisted pairs with color coded high density polyethylene insulation
- · Overall braid and foil shields
- Pressure extruded TPE jacket for excellent chemical, moisture, and exceptional low temperature flexibility
- Mechanical properties tests include:
  - » minimum of 1 million cycles (10x cable O.D. minimum radius)
  - minimum of 10 million cycles (20x cable O.D. minimum radius)
  - » minimum of 3 million cycles torsion test
- UL Type PLTC
- Cut to length in 1 foot increments
- Low 20 foot minimum length
- Made in the USA
- \* DataMax is a registered trademark of Quabbin Wire and Cable Corporation.
- \*\* EtherNet/IP is a trademark of ODVA, Inc.

#### **Quabbin DataMax® Extreme Profinet Cable\***

Many industrial applications expose cables to hazards not present in commercial data cabling installations.

Although a cable suited for commercial applications may initially work in a harsh industrial environment, it will quickly fail when used in continuous flexing applications. While commercial grade cables may have a low initial product cost, downtime due to premature failure can be avoided by using a cable that is specifically designed and tested for continuous flexing industrial applications.

Typical Profinet cables have a tube jacket surrounding the conductor pairs with room within for the pairs to move around and even untwist in flexing applications, resulting in early mechanical or electrical failure of the cable. Quabbin DataMax Industrial Profinet cable jackets were developed to survive the many industrial hazards that commercial jackets will not. DataMax cable jackets are pressure extruded over the cable core, effectively "locking" the conductor pairs in place. This type of jacket construction provides very stable electrical performance, even when the cable is impacted, bent, or repeatedly flexed. Pressure extrusion also provides a very smooth, round, and firm jacket profile that is crush resistant and ideal for obtaining a reliable termination and seal when installing connectors.

Quabbin has performed extensive testing on their pressure extruded jacketed DataMax Industrial Profinet cables. Samples are subjected to up to 10 million cycles in a flex testing device that simulates an unsupported bend, simulating a situation the cable would be exposed to on a robotic arm. The unsupported bend test is much more abusive than a C-Track or Tick-tock test, both of which add protection to the cable by supporting the bend.

Quabbin DataMax Industrial Profinet cable provides superior design and construction that will withstand the rigors of continuous flexing applications and the harsh environments found in industrial installations. Quabbin DataMax Industrial Profinet cable performs above industry standards, thereby reducing downtime and increasing productivity. DataMax Industrial Profinet cables fully comply POE and CAT 5e industrial communication specifications.

#### Description

DataMax Extreme Industrial Profinet cables are a two pair shielded construction with 22AWG twisted pair conductors and 7/30 stranded tinned copper with color coded high density polyethylene insulation. polyethylene insulation. Shielded constructions include both a tinned copper braid shield and aluminized polyester foil overall shield. Available in a pressure extruded Thermoplastic Elastomer (TPE) jacket with excellent moisture, chemical, UV and weathering resistance, exceptional low-temperature flexibility, and good flame and fire resistance. Specifically designed and constructed for continuous flexing applications, DataMax Extreme cables have been tested for a minimum of 1 million cycles (10x cable O.D. minimum radius), a minimum of 10 million cycles (20x cable O.D. minimum radius), and a minimum of 3 million cycles torsion test. Agency approvals include UL Type CMX OUTDOOR - CM, and UL AWM Style 2463 (80°C, 600V).

Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable





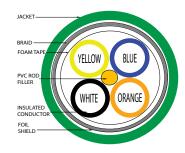
# **Continuous Flexing PROFINET Cable**

			Contin	nous F	lexing PROFIN	NET Cable Selection		
Part Number	Wiring Standard	Minimum Cut Length (ft)*	Shield	No. of Pairs	Pair Colors	Description	Approximate Weight (lb/ft)	Price per foot
<u>Q5094-1</u>	Cat5e	20ft (6m)	Foil	2	Pair 1 - White / Blue Pair 2 - Yellow / Orange	Quabbin continuous flexing Profinet cable, shielded, PLTC and CL3, 4 conductors, 22 AWG, tinned copper, polyethylene conductor insulation material, white, blue, yellow and orange, TPE jacket, green, cut to length.	0.0390	\$4c1e:
<u>Q5099-1</u>	Calbe	20ft (6m)	FOII	2	Pair 1 - White / Blue Pair 2 - Yellow / Orange	Quabbin continuous flexing Profinet cable, shielded, PLTC-ER and CM, 4 conductors, 22 AWG, tinned copper, polyethylene conductor insulation material, white, blue, yellow and orange, TPE jacket, green, cut to length.	0.0569	\$;4c1f:

<sup>\*</sup> See web store for maximum cut lengths

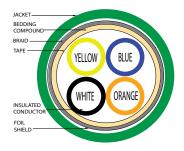
#### Q5094 Series





#### Q5099 Series









# **Continuous Flexing PROFINET Cable -Shielded**

	Cont	inuous Flexing PROFINET Cable	<b>Specifications</b>				
		Physical I	Properties				
		Q5094 Series	Q5099 Series				
Conductor Gauge and S	Stranding	22 AWG 7/30 stranded tinned copper; 2 twisted pairs	22 AWG 7/30 stranded tinned copper; 2 twisted pairs				
Assembly		(4) color coded wires cabled together with a Polyvinylchloride (PVC) rod fill (0.27" ± 0.005") and wrapped with a foam Polypropylene (PP) tape to form a cable core	(4) color coded wires cabled together wrapped with a clear Polyester tape embedded within a core of Thermoplastic Elastomer.				
Jacket		Thermoplastic Elastomer, Green (CR #70)					
Jacket Insulation Thickness		0.035 inch; Nominal	0.047 inch; Nominal				
Shield			min. coverage), shall be applied over the cable core. A d (foil in, 100% coverage) shall be applied over the braid				
Cable Overall Diameter	•	0.250 inch; Nominal	0.305 inch; Nominal				
Temp/Voltage		75°C & 80°C (167°F & 176°F)	75°C (167°F)				
Minimum Temperature	Rating	-40°C	(-40°F)				
Plenum		No					
Sunlight Resistant		Y	/es				
Static Minimum Bend R	Radius	8 x cat	ole O.D.				
Conductor Insulation		High Density Pol	yethylene (HDPE)				
Color Code	Pair 1	White & Blue	White & Blue				
Color Code	Pair 2	Yellow & Orange	Yellow & Orange				
Bare Conductor Diamet	ter	0.030 inch; Nominal					
Conductor Insulation TI	hickness	0.018 inch; Nominal	0.010 inch; Nominal				
Insulated Conductor Dia	ameter	0.066 ± 0.001 inch; Nominal	0.050 ± 0.001 inch; Nominal				
Cabled Core Diameter		0.160 inch; Nominal	0.190 inch; Nominal				
Shield + Cabled Core L	Diameter	0.180 inch; Nominal	0.208 inch; Nominal				
Print Legend		QUABBIN DATAMAX INDUSTRIAL PROFINET TYPE B AND C CAT 5E SHIELDED P/N 5094 (UL) TYPE PLTC OR CL3 4C 22 AWG SF/QUAD 75C SUNLIGHT RESISTANT OIL RES I & II OR AWM 2463 80C 600V CE ROHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)	QUABBIN DATAMAX EXTREME HIGH FLEX PROFINET TYPE B AND C CAT 5E SHIELDED P/N 5099 (UL) TYPE PLTC-ER 4C 22 AWG SF/QUAD 75C SUN RES -40C OR C(UL)US TYPE CM CE ROHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)				
		Perfor	rmance				
		1 million cycles minimum (10	x cable O.D. minimum radius)				
Flex Life *			cles minimum minimum radius)				
Torsion Test**		3 million cyc	cles minimum				
Cutting/ Machine Oil Resistance ***		Tensile strength retention 80%; Nominal Elongation retention 100%; Nominal	N/A				

<sup>\* 126</sup> Cycles per minute, @ 20°C

<sup>\*\* 1</sup>lb load, 360 degrees, 71 cycles per minute, @20C \*\*\* Per Quabbin test report #TR 08-0001

# **Continuous Flexing PROFINET Cable - Shielded**

Continuous Flexing PROFINET Cable Specifications							
E	lectrical Characteristics (for 100 meters o	f cable)					
	Q5094 Series	Q5099 Series					
Impedance, Characteristic	1 ≤ <i>f</i> ≤ 100	0 MHz 100 ±15 Ω TYPICAL					
Impedance,	N/A	$1 \le f \le 100 \text{ MHz}$ $10f \text{ m}\Omega/\text{m}$					
Mutual Capacitance (max)	5.6 nF/	100m @ 1 kHz @ 20°C					
Capacitance Unbalanced (max)	Pair-to-ground 330 pF/100m AT 1 kHz @ 20°C						
DC Resistance (max)	17.5 Ω per 1000ft @ 20°C (68°F)						
DC Resistance Unbalanced (max)	5% @ 20°C (68°F)						
Voltage Rating (max)	600V	300V					
Dielectric Withstand, Min.	2000V RMS 1500V RMS						
Return Loss	$1 \le f < 10 \text{ MHz}  20 + 5 \text{ LOG } (f) \text{ dB MIN*}$ $10 \le f < 20 \text{ MHz}  25 \text{ dB MIN*}$ $20 \le f \le 100 \text{ MHz}  25 - 8.6 \text{ LOG} (f/20) \text{ dB MIN*}$						
Near End Crosstalk (NEXT)	$1 \le f \le 100 \text{ N}$	MHz 35.3 - 15 LOG(f/100) dB MIN					
Power Sum Near End Crosstalk (PSNEXT)		N/A					
Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		N/A					
Attenuation Crosstalk Ratio, Far End (ACRF)	1 ≤ f ≤ 100 MH:	z 23.8 - 20 LOG(f/100) dB MIN					
Insertion Loss	$1 \le f \le 100 \text{ MHz}$ 1.02(	$(1.967 \ \sqrt{f} + 0.023(f) + 0.050/\sqrt{f} \ \mathrm{dB}) \ \mathrm{MAX^{**}}$					
Propagation Delay	1 ≤ <i>f</i> ≤ 100	MHz 534 + 36/ $\sqrt{f}$ ns MAX					
Propagation Delay Skew	1≤	f ≤ 100 MHz < 20ns					
Coupling Attenuation Per IEC 62153-4-9	30 ≤ f	≤ 100 MHz ≥ 60dB MIN					
Tested Length	P. O. E. Compliant (802.3af) to 100 meters (328 feet) when installed per recommendations in TIA TSB-184 Cable will meet CAT5e channel requirements up to 100 meter length						
Agency Approvals	NEC (UL) TYPE PLTC NEC (UL) TYPE CL3 UL AWM 2463	NEC (UL) TYPE PLTC-ER NEC (UL) TYPE CM CEC C(UL) TYPE CM					

<sup>\*</sup> Per ODVA Volume 2 EtherNet/IP

NOTE: All testing conducted off the reel.

<sup>\*\* 2%</sup> HIGHER THAN HORIZONTAL CABLE SPECIFICATION PER TIA 568-C.2

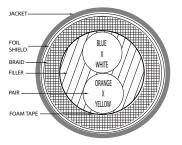
# **Continuous Flexing PROFINET Cable**

			Conti	nous l	Flexing PROFINE	T Cable Selection		
Part Number	Wiring Standard	Minimum Cut Length (ft)*	Shield	No. of Pairs	Pair Colors	Description	Approximate Weight (lb/ft)	Price per foot
<u>Q5924-1</u>	Cat5e	20ft (6m)	Foil	2	Pair 1 - Blue - While Pair 2 - Orange - Yellow		0.0494	\$;-5v!i:

<sup>\*</sup> See web store for maximum cut lengths

#### Q5924 Series









# **Continuous Flexing PROFINET Cable - Shielded**

Continuous	Flexing P	ROFINET Cable Specifications		
		Physical Properties		
		Q5924 Series		
Conductor Gauge and S	Stranding	22 AWG 19/.0058 stranded tinned copper; 2 twisted pairs		
Assembly		Assembly Individual conductors twisted into pairs		
Jacket		Green Thermoplastic Elastomer, (TPE)		
Jacket Insulation Thickness		0.042 inch; Nominal		
Shield		38AWG tinned copper braid, aluminized polyester foil shield (100% coverage)		
Cable Overall Diameter	•	0.233 inch; Nominal		
Temp/Voltage		75°C & 80°C (167°F & 176°F)		
Minimum Temperature	Rating	-40°C (-40°F)		
Plenum		Yes		
Sunlight Resistant		Yes		
Static Minimum Bend F	Radius	8 x cable O.D.		
Conductor Insulation		High Density Polyethylene (HDPE)		
Color Code	Pair 1	White & Blue		
00/0/ 0000	Pair 2	Yellow & Orange		
Bare Conductor Diame	ter	0.028 inch; Nominal		
Conductor Insulation T	hickness	0.013 inch; Nominal		
Insulated Conductor Di	ameter	0.054 ± 0.001 inch; Nominal		
Cabled Core Diameter		0.233 inch; Nominal		
Shield + Cabled Core	Diameter	0.180 inch; Nominal		
Print Legend		QUABBIN DATAMAX INDUSTRIAL PROFINET TYPE B AND C CAT 5E SHIELDED P/N 5924 U.S. PATENT NO. US 8,487,184 B2 (UL) TYPE PLTC 2PR 22 AWG SF/UTP 75C SUNLIGHT RESISTANT OIL RES I & II OR ITC OR AWM 2463 80C 600V P-07- KA140018-MSHA CE ROHS (LOT DESIGNATOR) (SEQUENTIAL FOOTAGE)		
	ı	Performance		
Flex Life *		1 million cycles minimum (10x cable O.D. minimum radius)		
Silv		10 million cycles minimum (20x cable O.D. minimum radius)		
Torsion Test**		3 million cycles minimum		
Cutting/ Machine Oil Resistance ***		Tensile strength retention 80%; Nominal Elongation retention 100%; Nominal		

<sup>\* 126</sup> Cycles per minute, @ 20°C

<sup>\*\* 1</sup>lb load, 360 degrees, 71 cycles per minute, @20C

<sup>\*\*\*</sup> Per Quabbin test report #TR 08-0001

# **Continuous Flexing PROFINET Cable - Shielded**

Continuous Flexing PROF	Continuous Flexing PROFINET Cable Specifications					
Electrical Characteristics	(for 100 meters of cable)					
	Q5924 Series					
Impedance 1-100 MHz	100 ±15 Ω TYPICAL					
Mutual Capacitance (max)	13.5 pF/ft @ 1 MHz					
Capacitance Unbalanced (max)	Pair-to-ground 330 pF/100m AT 1 kHz @ 20°C					
DC Resistance (max)	15.9 Ω per 1000ft @ 20°C (68°F)					
Voltage Rating (max)	600V					
Dielectric Withstand, Min.	2000V RMS					
Return Loss	$1 \le f < 10 \text{ MHz}  20 + 5 \text{ LOG } (f) \text{ dB MIN*} $ $10 \le f < 20 \text{ MHz}  25 \text{ dB MIN*} $ $20 \le f \le 100 \text{ MHz}  25 - 7 \text{ LOG} (f/20) \text{ dB MIN*} $					
Near End Crosstalk (NEXT)	$1 \le f \le 100 \text{ MHz}$ 35.3 - 15 LOG(f/100) dB MIN					
Power Sum Near End Crosstalk (PSNEXT)	N/A					
Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)	N/A					
Attenuation Crosstalk Ratio, Far End (ACRF)	$1 \le f \le 100 \text{ MHz}$ 23.8 - 20 LOG(f/100) dB MIN					
Insertion Loss	$1 \le f \le 100 \text{ MHz}$ $1.02(1.967 \sqrt{f} + 0.023(f) + 0.050/\sqrt{f} \text{ dB) MAX}^{**}$					
Propagation Delay	$1 \le f \le 100 \text{ MHz}$ 534 + 36/ $\sqrt{f}$ ns MAX					
Propagation Delay Skew	$1 \le f \le 100 \text{ MHz}$ < 20ns per IEC 61156-5					
Coupling Attenuation Per IEC 62153-4-9	30 ≤ f ≤ 100 MHz ≥ 80dB MIN					
Tested Length	P. O. E. Compliant (802.3af) to 100 meters (328 feet) when installed per recommendations in TIA TSB-184 Cable will meet CAT5e channel requirements up to 100 meter length					
Agency Approvals	UL AWM 2463 (80C 600V)  NEC (UL) TYPE PLTC  NEC (UL) TYPE ITC  Pennsylvania D.E.P MSHA  EU CE MARK: MEETS EU DIRECTIVE 2011/65/E  (RoHS II)					

<sup>\*</sup> Per ODVA Volume 2 EtherNet/IP

NOTE: All testing conducted off the reel.

<sup>\*\* 2%</sup> HIGHER THAN HORIZONTAL CABLE SPECIFICATION PER TIA 568-C.2



# **LUTZE Industrial Ethernet Cables**

#### **LUTZE Industrial Ethernet Cables**

Many industrial applications expose cables to hazards that are not present in commercial data cabling installations. Although a cable suited for commercial applications may initially work in a harsh industrial environment, it could quickly fail when used in an industrial application. While commercial grade cables may have a low initial product cost, downtime due to premature failure can be avoided by using a cable that has been designed and tested for the industrial environment. LUTZE's Industrial Ethernet cables were developed to survive the many industrial hazards that commercial cables will not, such as oils, harsh chemicals and cleaning agents often associated with the factory floor.

There are more than just physical hazards to overcome in an industrial application; electrical threats pose an issue for Ethernet cables as well. The presence of EMF/EMI can create a real issue for communication networks and where you can use a shielded commercial product. In most cases, the shielding provided is a single layer of foil which is adequate for installation away from the factory floor. However, when dealing with electrical noise generated by motors and switching equipment, commercial cables struggle to meet the demands of a typical industrial environment. The Industrial Ethernet cables from LUTZE are made with both a foil layer and a tinned copper braid to provide superior noise rejection compared to the commercial counterparts.

Furthermore, commercial Ethernet cables have a tube jacket surrounding the conductor pairs with room within for the pairs to move around and even untwist in applications requiring constant motion. This results in early mechanical or electrical failure of the cable. LUTZE continuous flexing Industrial Ethernet cable have a jacket that is pressure extruded over the cable core, effectively "locking" the conductor pairs in place. This type of jacket construction provides very stable electrical performance, even when the cable is impacted, bent, or repeatedly flexed. Pressure extrusion also provides a very smooth, round, and firm jacket profile that is crush resistant and ideal for obtaining a reliable termination and seal when installing connectors.





#### **Features**

- Available in Category 5e, 6 and 6a
- In compliance with TIA 568-C.2 and TIA 1005
- $\bullet$  Designed for use in EtherNet/IP systems  $^{\star}$
- 26-22 AWG stranded or 22 AWG solid
- 2 or 4 twisted pairs
- Shielded constructions
- Rugged TPE and PVC jacket options
- UL Type CMX OUTDOOR CM and UL AWM Style 2463 (80°C, 600V)
- · Cut to length in 1-foot increments
- · Low 20-foot minimum length
- \* EtherNet/IP is a trademark of ODVA, Inc.

#### Description

AutomationDirect offers Lutze Industrial Ethernet cable in 2 and 4 pair, unshielded and shielded constructions. Conductors are color coded high density polyethylene insulation. Shielded constructions include both a tinned copper braid shield and aluminized polyester foil overall shield. All constructions feature a rugged jacket with excellent moisture, chemical, UV and weathering resistance, exceptional low-temperature flexibility, and good flame and fire resistance. Some are specifically designed and constructed for continuous flexing applications. Agency approvals include UL Type CMX OUTDOOR, UL Type CMG/PLTC, UL AWM Style 2570, and UL AWM Style 20201.

Click on the thumbnail to the right or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable





# **Cat6a Industrial Ethernet Cable Continuous Flexing**



Part Number   Wire/Cable Type   Flexibility   Minimum Cut Length (ft)*   Approximate Weight (bitt)   Price per foot (bitt)	A1040030-1 Cable Specifications								
Alusurable   Conductor   Floring   20   0.05   S.5.xy;			Part Number	Wire/Cable Type	Flexibility			Price per foot	
Conductor Gauge			A1040030-1	Cat6a industrial Ethernet		20	0.05	\$;5,xy:	
Conductor   Material   Tinned Copper   Conductor   Insulation   Wall   Thickness   District   D				Physi	ical Properties				
Conductor Masterial	Conductor C	Bauge	24 /	AWG			7-stranded ti	nned copper	
Pair 1   Blue, White/Blue   Insulated Conductor Diameter   0.045 in; nominal	Conductor N	/laterial	Tinned	Copper		ulation Wall	0.011 in;	nominal	
Color Code         Pair 2 Pair 3	Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	or Diameter	0.023 in;	nominal	
Pair 3   Green, White/Green   Overall Cable Diameter   0.322 in; nominal     Pair 4   Brown, White/Brown   Jacket Color   Teal     Voltage Rating   600V   Jacket Thickness   0.033 in; nominal     Temperature Rating   40 to 80 °C (40 to 176 °F)   Jacket Material     Plenum		Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.045 in;	nominal	
Pair 3   Green, White/Green   Overall Cable Diameter   0.322 in; nominal	Calar Cada	Pair 2	Orange, W	hite/Orange	Twisted Condu	ıctor Diameter	0.090 in;	nominal	
Voltage Rating $600V$ Jacket Thickness $0.033 \text{ in; nominal}$ Temperature Rating $40 \text{ to } 80 \text{ °C } (-40 \text{ to } 176 \text{ °F})$ Jacket MaterialTPEPlenumNoSunlight ResistantYesShieldShieldedOil ResistanceYesDrainNoFlame RetardantYesConductor Insulation MaterialHigh-density Polyethylene (HDPE)William RetardantYesMinimum Bend RadiusMoving: 3.22in Fixed: 2.42inSample Print LegendWilliam Resistance Part # A1040030 LUTZE MOTIONELEX ETHERNET CATGA SFUTP TPE (4-PAIR AWG24)E319350 c(UL) CMX OUTDOO CMX 75C SUN RES OR AWM STYLE 2463 80C 800 V OIL RES II ROTE SUN RES OR AWM STYLE 2463 80	Color Code	Pair 3	Green, W	/hite/Green	Overall Cable L	Diameter	0.322 in;	nominal	
Temperature Rating       .40 to 80 °C (-40 to 176 °F)       Jacket Material       TPE         Plenum       No       Sunlight Resistant       Yes         Shield       Shielded       Oil Resistance       Yes         Drain       No       Flame Retardant       Yes         Conductor Insulation Material       High-density Polyethylene (HDPE)       Americal       Www.lutze.com Part# A1040030 LUTZE MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SUN RES OR AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SUN RES OR AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SUN RES OR AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SUN TES OR AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SW AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SW AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SW AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SW AWM STYLE 2463 80C 600 V       OIL RES II MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24)       E319350 c(UL) CMX OUTDOO CMX F3C SW AWM STYLE 24		Pair 4	Brown, W	hite/Brown	Jacket Color		Τε	al	
Plenum	Voltage Rati	ng	60	00V	Jacket Thickne	ess	0.033 in;	nominal	
ShieldShieldedOil ResistanceYesDrainNoFlame RetardantYesConductor Insulation MaterialHigh-density Polyethylene (HDPE)www.lutze.com Part# A1040030 LUTZE MOTION-ILEX ETHERNET CATAS AF/UTP TPE (4-PAIR AWG24)www.lutze.com Part# A1040030 LUTZE MOTION-ILEX ETHERNET CATAS AF/UTP TPE (4-PAIR AWG24)www.lutze.com Part# A1040030 LUTZE MOTION-ILEX ETHERNET CATAS AF/UTP TPE (4-PAIR AWG24)e319350 c(UL) CMX OUTDOOL CMR 75C SUN RES OR AVM STYLE 2463 80C 600 V OIL RES II ROHS Cabled Core Diameter0.256 inSample Print LegendcHeart Catas of Color of Catas of	Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material	I	TF	PE	
DrainNoFlame RetardantYesConductor Insulation MaterialHigh-density Polyethylene (HDPE)www.lutze.com Part# A1040030 LUTZE MOTIONFLEX ETHERNET CATEA SF/UTP TPE (4-PAIR AWG24)www.lutze.com Part# A1040030 LUTZE MOTIONFLEX ETHERNET CATEA SF/UTP TPE (4-PAIR AWG24)E319350 (UL) CMX OUTDOOL CMR 75C SUN RES OR AVM STYLE 2463 80C 600 V OL RES II RoHs Cybar Code YYWW> CE-59 <seq. ft="" mark="">Electrical Characteristics (for 100 meters of cable)Impedance (1-100 MHz)100 Ω 1 − 100 MHzUL Classification(cULus) TYPE CMX Outdoor/CMR; (cURus) TYPE CMGCapacitance17.2 pF/ft @ 1MHz; NominalApprovals**cULus, uURus, CE, RoHSResistance, Max.24.5 Ω DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF)1 ≤ f ≤ 500 MHz: 27.8 - 20 LOG(f/100) dB MINDielectric Withstanding, Min.1 s f &lt; 10 MHz: 20 + 5 LOG(f) dB MIN 10 ≤ f &lt; 20 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 24.3 - 15 LO</seq.>	Plenum		١	No	Sunlight Resis	tant	Ye	es	
Conductor Insulation MaterialHigh-density Polyethylene (HDPE)Minimum Bend RadiusMoving: $3.22$ in Fixed: $2.42$ inSample Print LegendWww.lutze.com Part# A1040030 LUTZE MOTIONFLEX ETHERNET CATEA SF/UTP TPE ( $4$ -PAIR AWG24)E319350 c(UL) CMX OUTDOOR CMR 75C SUN RES OR AWM STYLE 2463 80C 600 V OLI RES II ROHS -Quate Code VyrWW> CE-59 <seq. ft="" mark="">Electrical Characteristics (for 100 meters of cable)Impedance (<math>1</math>-100 MHz)UL Classification(cULus) TYPE CMX Outdoor/CMR; (cURus) TYPE CMGCapacitance<math>17.2</math> pF/ft @ 1MHz; NominalApprovals** Approvals**cULus, uURus, CE, RoHSResistance, Max.<math>24.5</math> <math>\Omega</math> DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF)<math>1 \le f \le 500</math> MHz: <math>27.8 - 20</math> LOG(<math>f</math>/100) dB MINDielectric Withstanding, Min.10 S f &lt; 20 MHz: <math>25</math> dB MIN <math>20 \le f \le 500</math> MHz: <math>25</math> -7.0 LOG(<math>f</math>/20) dB MINPower Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)<math>1 \le f \le 500</math> MHz: <math>24.8 - 20</math> LOG(<math>f</math>/100) dB MINNear End Crosstalk (NEXT)<math>1 \le f \le 500</math> MHz: <math>44.3 - 15</math> LOG(<math>f</math>/100) dB MINPower Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)<math>1 \le f \le 500</math> MHz: <math>24.8 - 20</math> LOG(<math>f</math>/100) dB MINPower Sum Near End Crosstalk (PSNEXT)<math>1 \le f \le 500</math> MHz: <math>42.3 - 15</math> LOG(<math>f</math>/100) dB MINTCL<math>1 \le f \le 500</math> MHz: <math>30 - 10</math> LOG(<math>f</math>/100) dB MIN</seq.>	Shield		Shie	elded	Oil Resistance		Yes		
MaterialMinimum Bend RadiusMotion: 3.22in Fixed: 2.42inCabled Core Diameter0.256 inSample Print LegendMotion Fixed: 2.42inElectrical Characteristics (for 100 meters of cable)Impedance (1-100 MHz) $100 \Omega 1 - 100 \text{ MHz}$ UL Classification(cULus) TYPE CMX Outdoor/CMR; (cURus) TYPE CMGCapacitance $17.2 \text{ pF/ft} @ 1\text{MHz}$ ; NominalApprovals**cULus, uURus, CE, RoHSResistance, Max. $24.5 \Omega$ DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 500 \text{ MHz}$ : $21.82 \sqrt{(f)} + 0.0091(f) + 0.25 \sqrt{(f)}$ dB MIN $10 \le f \le 20 \text{ MHz}$ : $25 \text{ dB MiN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ dB MiN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ dB MiN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ dB MiN}$ $20 \le f \le 500 \text{ MHz}$ : $24.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)Near End Crosstalk (NEXT) $1 \le f \le 500 \text{ MHz}$ : $44.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$	Drain		١	No	Flame Retarda	nt	Yes		
Minimum Bend RadiusFixed: 2.42in Fixed: 2.42inSample Print LegendCMR 75C SUN RES OR AWM STYLE 2463 800 600 V OIL RES II RoHS ROHS CD14C 300 600 V OIL RES II ROHS ROHS CE-59 <seq. ft="" mark="">Electrical Characteristics (for 100 meters of cable)Impedance (1-100 MHz)100 <math>\Omega</math> 1 – 100 MHzUL Classification(cULus) TYPE CMX Outdoor/CMR; (cURus) TYPE CMGCapacitance17.2 pF/ft @ 1MHz; NominalApprovals**cULus, uURus, CE, RoHSResistance, Max.24.5 <math>\Omega</math> DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF)<math>1 \le f \le 500</math> MHz: 27.8 - 20 LOG(f/100) dB MINDielectric Withstanding, Min.100 f &lt; 200 MHz: 20 + 5 LOG(f) dB MIN 20 f &lt; 200 MHz: 25 dB MIN 20 f &lt; 200 MHz: 25 dB MIN 20 f &lt; 500 MHz: 25 -7.0 LOG(f/120) dB MIN</seq.>		nsulation	High-density Polyethylene (HDPE)				MOTIONFLEX ETHERNET CAT6A SF/UTP TPE (4-PAIR AWG24) E319350 c(UL) CMX OUTDOOL CMR 75C SUN RES OR AWM STYLE 2463 80C 600 V OIL RES II ROHS < Date Code YYWW>		
Electrical Characteristics (for 100 meters of cable)         Impedance (1-100 MHz)       100 Ω 1 – 100 MHz       UL Classification       (cULus) TYPE CMX Outdoor/CMR; (cURus) TYPE CMG         Capacitance       17.2 pF/ft @ 1MHz; Nominal       Approvals***       cULus, uURus, CE, RoHS         Resistance, Max.       24.5 Ω DC per 1000ft       Attenuation Crosstalk Ratio, Far End (ACRF)       1 ≤ $f \le 500$ MHz: 1.82 $\sqrt{f}$ + 0.0091( $f$ ) + 0.25/ $\sqrt{f}$ ) dB MIN Insertion Loss         Dielectric Withstanding, Min.       1 ≤ $f < 10$ MHz: 20 + 5 LOG( $f$ ) dB MIN 10 ≤ $f < 20$ MHz: 25 dB MIN 20 ≤ $f < 500$ MHz: 25 dB MIN 20 ≤ $f < 500$ MHz: 25 - 7.0 LOG( $f$ /100) dB MIN PACRF)       Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)       1 ≤ $f < 500$ MHz: 24.8 - 20 LOG( $f$ /100) dB MIN PACRF         Near End Crosstalk (PSNEXT)       1 ≤ $f < 500$ MHz: 42.3 - 15 LOG( $f$ /100) dB MIN       1 ≤ $f < 500$ MHz: 42.3 - 15 LOG( $f$ /100) dB MIN         TCL       1 ≤ $f < 500$ MHz: 30 - 10 LOG( $f$ /100) dB MIN	Minimum Be	end Radius							
Impedance (1-100 MHz) $100 \Omega 1 - 100 \text{ MHz}$ UL Classification(cULus) TYPE CMX Outdoor/CMR; (cURus) TYPE CMGCapacitance $17.2 \text{ pF/ft} \textcircled{0} \text{ 1MHz}; \text{ Nominal}$ Approvals**cULus, uURus, CE, RoHSResistance, Max. $24.5 \Omega DC \text{ per } 1000 \text{ft}$ Attenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 500 \text{ MHz}: 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$ Dielectric Withstanding, Min. $2000V \text{ RMS}$ Insertion Loss $1 \le f \le 500 \text{ MHz}: 1.82 \sqrt{f} + 0.0091(f) + 0.25/\sqrt{f}$ Return Loss $1 \le f < 10 \text{ MHz}: 20 + 5 \text{ LOG}(f) \text{ dB MIN}$ $10 \le f < 20 \text{ MHz}: 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN}$ Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)Near End Crosstalk (NEXT) $1 \le f \le 500 \text{ MHz}: 44.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}: 42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 250 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$	Cabled Core	Diameter	0.256 in						
Capacitance 17.2 pF/ft @ 1MHz; Nominal Approvals** cULus, uURus,CE, RoHS  Resistance, Max. 24.5 $\Omega$ DC per 1000ft Attenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 500$ MHz: 27.8 - 20 LOG(f/100) dB MIN  Dielectric Withstanding, Min. $1 \le f < 10$ MHz: 20 + 5 LOG(f) dB MIN $10 \le f < 20$ MHz: 25 + 5 LOG(f) dB MIN $10 \le f < 20$ MHz: 25 - 7.0 LOG(f/20) dB MIN $10 \le f < 500$ MHz: 25 - 7.0 LOG(f/100) dB MIN  Near End Crosstalk (NEXT) $1 \le f \le 500$ MHz: 42.3 - 15 LOG(f/100) dB MIN  TCL $1 \le f \le 250$ MHz: 30 - 10 LOG(f/100) dB MIN			ı	Electrical Characteris	stics (for 100 mete	rs of cable)	ı		
Resistance, Max.         24.5 Ω DC per 1000ft         Attenuation Crosstalk Ratio, Far End (ACRF)         1 ≤ f ≤ 500 MHz: 27.8 - 20 LOG(f/100) dB MIN           Dielectric Withstanding, Min.         2000V RMS         Insertion Loss         1 ≤ f ≤ 500 MHz: 1.82 √(f) + 0.0091(f) + 0.25/√(f) dB MIN           Return Loss         1 ≤ f < 10 MHz: 20 + 5 LOG(f) dB MIN 10 ≤ f < 20 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 - 7.0 LOG(f/20) dB MIN	Impedance (	(1-100 MHz)	100 Ω 1 -	- 100 MHz	UL Classification	on			
Resistance, Max.       24.5 Ω DC per 1000ft       Far End (ACRF)       1 ≤ $f$ ≤ 500 MHz: 27.8 - 20 LOG( $f$ /100) dB MIN         Dielectric Withstanding, Min.       2000V RMS       Insertion Loss       1 ≤ $f$ ≤ 500 MHz: 1.82 $\sqrt{(f)}$ + 0.0091( $f$ ) + 0.25/ $\sqrt{(f)}$ dB MIN         Return Loss       1 ≤ $f$ < 10 MHz: 20 + 5 LOG( $f$ ) dB MIN       Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)       1 ≤ $f$ ≤ 500 MHz: 24.8 - 20 LOG( $f$ /100) dB MIN         Near End Crosstalk (NEXT)       1 ≤ $f$ ≤ 500 MHz: 44.3 - 15 LOG( $f$ /100) dB MIN       1 ≤ $f$ ≤ 500 MHz: 42.3 - 15 LOG( $f$ /100) dB MIN         TCL       1 ≤ $f$ ≤ 250 MHz: 30 - 10 LOG( $f$ /100) dB MIN	Capacitance	!	17.2 pF/ft @ 1MHz; Nominal				cULus, uURus,CE, RoHS		
Min.         2000V RNS         Insertion Loss         dB MAX           Return Loss $1 \le f < 10 \text{ MHz: } 20 + 5 \text{ LOG}(f) \text{ dB MIN} \\ 10 \le f < 20 \text{ MHz: } 25 \text{ dB MIN} \\ 20 \le f \le 500 \text{ MHz: } 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN} $ Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF) $1 \le f \le 500 \text{ MHz: } 24.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$ Near End Crosstalk (NEXT) $1 \le f \le 500 \text{ MHz: } 44.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $1 \le f \le 500 \text{ MHz: } 42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz: } 42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 500 \text{ MHz: } 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$	Resistance,	Мах.	24.5 Ω DC	per 1000ft			1 ≤ f ≤ 500 MHz: 27.8 -	20 LOG(f/100) dB MIN	
Return Loss       10 ≤ f < 20 MHz: 25 dB MIN       Crosstalk Ratio, Far End (PSACRF)         Near End Crosstalk (NEXT)       1 ≤ f ≤ 500 MHz: 44.3 - 15 LOG(f/100) dB MIN         Power Sum Near End Crosstalk (PSNEXT)       1 ≤ f ≤ 500 MHz: 42.3 - 15 LOG(f/100) dB MIN         TCL       1 ≤ f ≤ 250 MHz: 30 - 10 LOG(f/100) dB MIN		ithstanding,	2000	V RMS	Insertion Loss				
(NEXT) $1 \le f \le 500 \text{ MHz}$ : $44.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 250 \text{ MHz}$ : $30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$	Return Loss		10 ≤ f < 20 N	$10 \le f < 20 \text{ MHz: } 25 \text{ dB MIN}$			1 ≤ $f$ ≤ 500 MHz: 24.8 - 20 LOG( $f$ /100) dB MIN		
Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz: } 42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 250 \text{ MHz: } 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$									
Cross Section			1 ≤ f ≤ 500 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN					
<b>ELTCTL</b> $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$ <b>Cross Section</b>	TCL		1 ≤ f ≤ 250 MHz: 30 - 10 LOG(f/100) dB MIN		Cross Section				
	ELTCTL  Velocity Of Propagation		1 ≤ f ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN					
Velocity Of Propagation 0.67			0.	.67					
<b>Delay</b> $4 \le f \le 500 \text{ MHz: } 534 + 36/\sqrt{(f \text{ ns MAX})}$	Delay		4 ≤ f ≤ 500 MHz: 5	$634 + 36/\sqrt{(f \text{ ns MAX})}$					
<b>Delay Skew</b> 1 ≤ f ≤ 500 MHz: <45ns/100m	Delay Skew		1 ≤ f ≤ 500 MI	Hz: <45ns/100m					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Cable**



			A104349-1 C	able Specifi	cations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		<u>A104349-1</u>	Cat5e industrial Ethernet	Flexible	20	0.06	\$;5,xz:	
			Physi	cal Properties	ı			
Conductor G	auge	22.	AWG	Conductor Stra	nding	7-stranded ti	inned copper	
Conductor N	laterial	Tinned	l Copper	Conductor Insu Thickness	ılation Wall	0.013 in	nominal	
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.029 in	nominal	
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.055 in	nominal	
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.110 in;	nominal	
00.0. 0000	Pair 3	,	/hite/Green	Overall Cable L	Diameter	0.338 in:	nominal	
	Pair 4		/hite/Brown	Jacket Color		-	eal	
Voltage Ration			00V	Jacket Thickness		0.039 in; nominal		
Temperature	Rating	-40 to 80 °C (-40 to 176 °F)		Jacket Material		PVC		
Plenum		No		Sunlight Resistant		Yes		
Shield		Shielded		Oil Resistance		Yes Yes		
Drain Conductor I	aculatia n	No		Flame Retardar	nt		HERNET (C) PVC 104349	
Material Minimum Be		Special Polyolefin 2.03in		Sample Print L	egend	(4×(2×AWG22/1) Cat 5e	E331628 (UL) TYPE PLTC PE CMX OUTDOOR-CMR	
Cabled Core		0.258 in				75°C or c(UR)us AWM STYLE 2570 80°C 600V I/II A/B FT1 RoHS YYWW CE-44 Meters		
Oubled Core	Diameter	Electrical Characteris		tics (for 100 meter	rs of cable)	AND IT KONS II	VVVV CL-44 Weters	
Impedance (	1-100 MHz)	100 Ω 1 – 100 MHz		UL Classification		(cULus) TYPE CMX Outdoor/CMG/PLTC or AWM Style 2570; NEC (cURus) Class I and II, Div. 2; Clas 1 Div. 2		
Capacitance		13.72 pF/ft @	1MHz; Nominal	Approvals**		cULus, cURus,CE, RoHS		
Resistance,	Мах.	32.4 Ω DC per 1000ft		Attenuation Crosstalk Ratio, Far End (ACRF)		$1 \le f \le 100 \text{ MHz: } 23.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Dielectric Wi Min.	ithstanding,	1500V RMS		Insertion Loss		$1 \le f \le 100 \text{ MHz: } 1.967 \ \sqrt{f} + 0.023(f) + 0.050/\sqrt{f}$ dB MAX		
Return Loss		10 ≤ f < 20 N	) + 5 LOG(f) dB MIN MHz: 25 dB MIN - 7.0 LOG(f/20) dB MIN	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		$1 \le f \le 100 \text{ MHz: } 20.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Near End Crosstalk (NEXT)		1 ≤ f ≤ 100 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ f ≤ 100 MHz: 32.3	- 15 LOG( <i>f</i> /100) dB MIN					
TCL		1 ≤ f ≤ 100 MHz: 30 -	10 LOG(f/100) dB MIN					
ELTCTL  Velocity Of Propagation		,	5 - 20 LOG( <i>f</i> ) dB MIN	Cross Section				
			.72					
Delay		-	534 + 36/√( <i>f</i> ns MAX	-				
Delay Skew		$1 \le f \le 100 \text{ M}$	Hz: <25ns/100m					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





## **Cat6a Industrial Ethernet Cable**



Doub Number Willer (D. 11. T.						
Part Number Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
A104338-1 Cat6a industrial Ethern	et Flexible	20	0.04	\$;;5,x]:		
Př	ysical Properties	1				
Conductor Gauge 26 AWG	Conductor Stra	anding	7-stranded	bare copper		
Conductor Material Bare Copper	Conductor Inst Thickness	ulation Wall	0.019 in	; nominal		
Conductor Assembly 4 twisted pairs	Bare Conducto	or Diameter	0.010 in	; nominal		
Pair 1 Blue, White/Blue	Insulated Cond	ductor Diameter	0.048 in	; nominal		
Color Code Pair 2 Orange, White/Orange	Twisted Condu	ıctor Diameter	0.096 in	; nominal		
Pair 3 Green, White/Green	Overall Cable I	Diameter	0.252 in	nominal		
Pair 4 Brown, White/Brown	Jacket Color	Jacket Color		een		
Voltage Rating 300V	Jacket Thickne	Jacket Thickness		0.030 in; nominal		
Temperature Rating -40 to 80 °C (-40 to 176 °F)	Jacket Materia	I	PVC			
<b>Plenum</b> No	Sunlight Resis	tant	No			
Shield Shielded	Oil Resistance		Yes			
<b>Drain</b> No	Flame Retarda	nt	Y	es		
Conductor Insulation Material Special Polyolefin	Commis Brint I		<lütze logo=""> ELECTRONIC ETHERNET (C) PVC 104338 (4x(2xAWG26/7)) Cat 6A E331628 c(UL)us CMG 75°C RoHS <dat YYWW&gt; UKCA CE-44 <metermarking>m</metermarking></dat </lütze>			
Minimum Bend Radius 1.51in	Sample Print L	.egena				
Cabled Core Diameter 0.192 in			THE STOCK OL-44 SHIELEHIIAKINGSIN			
	eristics (for 100 mete		/ \ -	VDE 0110		
Impedance (1-100 MHz) 100 Ω 1 – 100 MHz	UL Classificati	on	` '	YPE CMG		
Capacitance 14.94 pF/ft @ 1MHz; Nominal	Approvals**		cULus, (	CE, RoHS		
Resistance, Max.         76.8 Ω DC per 1000ft	Attenuation Cr Far End (ACRF		$1 \le f \le 500 \text{ MHz: } 27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$			
Dielectric Withstanding, Min. 1500V RMS	Insertion Loss		1 ≤ $f$ ≤ 500 MHz: 1.82 $\sqrt{(f)}$ + 0.0091( $f$ ) + 0.25/ $\sqrt{(f)}$ dB MAX			
$ \begin{array}{c} 1 \leq f < 10 \text{ MHz: } 20 + 5 \text{ LOG}(f) \text{ dB MIN} \\ 10 \leq f < 20 \text{ MHz: } 25 \text{ dB MIN} \\ 20 \leq f \leq 500 \text{ MHz: } 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN} \\ \end{array} $	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 500 MHz: 24.8 - 20 LOG(f/100) dB MIN			
Near End Crosstalk (NEXT) $1 \le f \le 500 \text{ MHz: } 44.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$	I					
<b>Power Sum Near End</b> $1 \le f \le 500 \text{ MHz}$ : 42.3 - 15 LOG( $f/100$ ) dB MIN	I					
<b>TCL</b> $1 \le f \le 250 \text{ MHz}$ : 30 - 10 LOG( $f/100$ ) dB MIN						
<b>ELTCTL</b> $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$	Cross Section		000			
Velocity Of Propagation 0.77%						
<b>Delay</b> $4 \le f \le 500 \text{ MHz: } 534 + 36/\sqrt{(f \text{ ns MAX})}$						
<b>Delay Skew</b> $1 \le f \le 500 \text{ MHz: } <25 \text{ns/} 100 \text{m}$						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Profinet Type B Cable**



Electrical Characteristics (for 100 meters of cable)       Impedance (1-100 MHz)     100 Ω 1 − 100 MHz     UL Classification     (cULus) TYPE CMG/PLTC or AWM Style 20201; (cURus) Class I and II, Div. 2; Class 1 Div. 2       Capacitance     15.2 pF/ft @ 1MHz; Nominal     Approvals**     cULus, cURus, CURus, CE, RoHs       Resistance, Max.     29.5 Ω DC per 1000ft     Attenuation Crosstalk Ratio, Far End (ACRF)     1 ≤ f ≤ 100 MHz: 23.8 - 20 LOG(f/100) dB MIN							SYSTEMATI	C TECHNOLOGY	
A104307-1				A104307-1 C	able Specifi	cations			
Physical Properties			Part Number	Wire/Cable Type	Flexibility		1.	Price per foot	
Conductor Gauge			A104307-1	Profinet Type B	Flexible	20	0.04	\$;;5,x[:	
Conductor Material   Tinned Copper   Conductor Insulation Wall Thickness   D. 0.015 in, nominal				Physi	ical Properties				
Thickness   Use in mominal   Pair 1   White, Blue   Insulated Conductor Diameter   0.029 in; nominal   0.039 in; nominal	Conductor G	auge	22 /	AWG	Conductor Stra	anding	7-stranded to	inned copper	
Pair 1	Conductor N	laterial	Tinned	Copper		ulation Wall	0.015 in	nominal	
Pair 2   Yellow, Orange   Twisted Conductor Diameter   0.116 in, nominal   0.25 in, no	Conductor A	ssembly	1 sta	r quad	Bare Conducto	r Diameter	0.029 in:	nominal	
NA   Overall Cable Diameter   0.256 in; nominal		Pair 1	White	e, Blue	Insulated Cond	luctor Diameter	0.059 in	nominal	
Pair 3	Color Code	Pair 2	Yellow,	Orange	Twisted Condu	ctor Diameter			
Voltage Rating   G00V   Jacket Thickness   D.039 in; nominal	00.07 0000	Pair 3	N	/A	Overall Cable L	Diameter	0.256 in:	nominal	
Femous				·	Jacket Color		Gre	een	
Plenum									
Drain	•	Rating		,				C	
Similar   No	Plenum		114		Sunlight Resistant		Yes		
Conductor Insulation Material  Special Polyolefin  Minimum Bend Radius  1.54in  Sample Print Legend  Sample Print Legend  Sample Print Legend  Cabled Core Diameter  0.182 in  Electrical Characteristics (for 100 meters of cable)  Impedance (1-100 MHz)	Shield		Copper Braid						
Material Special Polybellin Minimum Bend Radius 1.54in Sample Print Legend $1.54in$ Sample Print Legend $1.54in$ TYPE B Cats be 3.8438 (Jul.) TYPE DIC TF4 or cJUL.) us TYPE CMG 75°C or 4 logo cJURus> AWM STYLE 2020 160°C 800V JUL AB FT1 RoHS 4 date PYWb. UKCA CE 44 4 determarking> $1.54in$ RoHS 4 date PYWb. UKCA CE 44 5 date PYWb. UKCA CE 45 can be determined by Coultus and FT1 RoHS 4 date PYWb. UKCA CE 45 can be determined by Coultus and FT1 RoHS 4 date PYWb. UKCA CE 45 can be determined by Coultus and III. Div. 2; Class 1 Div. 2 Capacitance 15.2 pF/ft @ 1MHz; Nominal Approvals** cJUL. Style Class 1 and II. Div. 2; Class 1 Div. 2 Class 1 Div			No		Flame Retardant		<lütze logo=""> ELECTRONIC ETHERNET (C) PVC 104307 (2x2xAWG22/7) PROFINET TYPE B Cat 5e E336436 (UL) TYPE PLTC FT4 or c(UL)us TYPE CMG 75°C or <logo curus=""> AWM STYLE 20201 60°C 600V I/II A/B FT1 RoHS <date yyww=""> UKCA CE</date></logo></lütze>		
Cabled Core Diameter  0.182 in  Electrical Characteristics (for 100 meters of cable)  Electrical Characteristics (for 100 meters of cable)  Impedance (1-100 MHz)  100 $\Omega$ 1 - 100 MHz  UL Classification  (cULus) TYPE CMG/r92TC or AWM Style 20201; (cURus) Class I and II, Div. 2; Class 1 Div. 2  Capacitance  15.2 pF/fit @ 1MHz; Nominal  Approvals**  Resistance, Max.  29.5 $\Omega$ DC per 1000ft  Attenuation Crosstalk Ratio, Far End (ACRF)  1500V RMS  Insertion Loss  1 $\leq f \leq 100$ MHz: 23.8 - 20 LOG(f/100) dB MIN  10 $\leq f < 20$ MHz: 25 - 7.0 LOG(f/20) dB MIN  20 $\leq f \leq 100$ MHz: 35.3 - 15 LOG(f/100) dB MIN  Near End Crosstalk (PSNEXT)  1 $\leq f \leq 100$ MHz: 30 - 10 LOG(f/100) dB MIN  Power Sum Near End Crosstalk (PSNEXT)  1 $\leq f \leq 100$ MHz: 30 - 10 LOG(f/100) dB MIN  Cross Section  Cross Section  Cross Section  Cross Section	Material		, ,		Sample Print Legend				
Electrical Characteristics (for 100 meters of cable)         Impedance (1-100 MHz) $100 \Omega 1 - 100 \text{ MHz}$ UL Classification       (cULus) TYPE CMG/PLTC or AWM Style 20201; (cURus) Class I and II, Div. 2; Class 1 Div. 2         Capacitance $15.2 \text{ pF/ft}$ @ 1MHz; Nominal       Approvals**       cULus, cURus, CE, RoHs         Resistance, Max. $29.5 \Omega$ DC per 1000ft       Attenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 100 \text{ MHz}$ : 23.8 - 20 LOG(f/100) dB MIN         Dielectric Withstanding, Min.       1500V RMS       Insertion Loss       1 ≤ f ≤ 100 MHz: 1.967 √f + 0.023(f) + 0.050/√f dB MIN         Return Loss       1 ≤ f < 100 MHz: 20 + 5 LOG(f) dB MIN 20 ≤ f < 20 MHz: 25 + 7.0 LOG(f/20) dB MIN 20 ≤ f < 100 MHz: 25 - 7.0 LOG(f/20) dB MIN 20 ≤ f < 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 20 ≤ f < 100 MHz: 32.3 - 15 LOG(f/100) dB MIN 20 ≤ f < 100 MHz: 32.3 - 15 LOG(f/100) dB MIN 20 ≤ f < 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 20 ≤ f < 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 20 ≤ f < 100 MHz: 35.4 + 36/√(f ns MAX) 20 ≤ f < 100 MHz: 35.4 + 36/√(f ns MAX) 20 ≤ f < 100 MHz: 534 + 36/√(f ns MAX) 20 ≤ f < 100 MHz: <0.0000 4 ≤ f <0.0000 4 ≤ f < 100 MHz: <0.0000 4 ≤ f <0.00000 4 ≤ f <0.0000 4									
Capacitance         15.2 pF/ft @ 1MHz; Nominal         Approvals***         cULus, cURus, Class 1 and II, Div. 2; Class 1 Div. 2           Resistance, Max.         29.5 $\Omega$ DC per 1000ft         Attenuation Crosstalk Ratio, Far End (ACRF)         1 $\leq f \leq 100$ MHz: 23.8 - 20 LOG(f/100) dB MIN           Dielectric Withstanding, Min.         1500V RMS         Insertion Loss         1 $\leq f \leq 100$ MHz: 2.9 + 5 LOG(f/) dB MIN         Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)           Return Loss         1 $\leq f \leq 100$ MHz: 25 -7.0 LOG(f/20) dB MIN         Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)         1 $\leq f \leq 100$ MHz: 20.8 -20 LOG(f/100) dB MIN           Near End Crosstalk (NEXT)         1 $\leq f \leq 100$ MHz: 32.3 - 15 LOG(f/100) dB MIN         Cross Section           Power Sum Near End Crosstalk (PSNEXT)         1 $\leq f \leq 100$ MHz: 30 - 10 LOG(f/100) dB MIN           TCL         1 $\leq f \leq 100$ MHz: 30 - 10 LOG(f/100) dB MIN           Velocity Of Propagation         65%           Delay         4 $\leq f \leq 100$ MHz: 534 + 36/\(\left(f)\) is MAX           Delay Skew         1 $\leq f \leq 100$ MHz: $\leq 20$ ns/100m				Electrical Characteris	stics (for 100 meter	rs of cable)			
Resistance, Max.         29.5 Ω DC per 1000ft         Attenuation Crosstalk Ratio, Far End (ACRF)         1 ≤ f ≤ 100 MHz: 23.8 - 20 LOG(f/100) dB MIN           Dielectric Withstanding, Min.         1500V RMS         Insertion Loss         1 ≤ f ≤ 100 MHz: 1.967 √f + 0.023(f) + 0.050/√f dB MIN           Return Loss         1 ≤ f < 100 MHz: 20 + 5 LOG(f) dB MIN 10 ≤ f < 20 MHz: 25 dB MIN 20 ≤ f ≤ 100 MHz: 25 - 7.0 LOG(f/20) dB MIN	Impedance (	1-100 MHz)	100 Ω 1 -	- 100 MHz	UL Classification	on			
Resistance, Max. 29.5 Ω DC per 1000ft Far End (ACRF) 1≤ $f \le 100$ MHz: 23.8 - 20 LOG( $f/100$ ) dB MIN 1500V RMS 1 sertion Loss 1≤ $f \le 100$ MHz: 1.967 $\sqrt{f} + 0.023(f) + 0.050 \sqrt{f}$ dB MAX 1≤ $f \le 100$ MHz: 20 + 5 LOG( $f/100$ ) dB MIN 20 ≤ $f \le 100$ MHz: 25 - 7.0 LOG( $f/100$ ) dB MIN 20 ≤ $f \le 100$ MHz: 35.3 - 15 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 32.3 - 15 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 32.3 - 15 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 32.3 - 15 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 30 - 10 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 30 - 10 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f \le 100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f/100$ ) dB MIN 1≤ $f/100$ MHz: 35 - 20 LOG( $f$	Capacitance		15.2 pF/ft @ 1	IMHz; Nominal	Approvals**		cULus, cURus,CE, RoHs		
Min.       13000 kms       Insertion Loss       dB MAX         Return Loss       1 ≤ $f$ < 10 MHz: 20 + 5 LOG( $f$ ) dB MIN 10 ≤ $f$ < 20 MHz: 25 dB MIN 20 ≤ $f$ ≤ 100 MHz: 25 - 7.0 LOG( $f$ /20) dB MIN       Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)       1 ≤ $f$ ≤ 100 MHz: 20.8 - 20 LOG( $f$ /100) dB MIN         Near End Crosstalk (NEXT)       1 ≤ $f$ ≤ 100 MHz: 35.3 - 15 LOG( $f$ /100) dB MIN       Power Sum Near End Crosstalk (PSNEXT)       1 ≤ $f$ ≤ 100 MHz: 30 - 10 LOG( $f$ /100) dB MIN         TCL       1 ≤ $f$ ≤ 100 MHz: 30 - 10 LOG( $f$ /100) dB MIN       Cross Section         ELTCTL       1 ≤ $f$ ≤ 100 MHz: 534 + 36/ $f$ ( $f$ ns MAX         Delay       4 ≤ $f$ ≤ 100 MHz: 534 + 36/ $f$ ( $f$ ns MAX         Delay Skew       1 ≤ $f$ ≤ 100 MHz: <20ns/100m	Resistance,	Мах.	29.5 Ω DC per 1000ft						
Return Loss       10 ≤ $f$ < 20 MHz: 25 dB MIN 20 ≤ $f$ ≤ 100 MHz: 25 - 7.0 LOG( $f$ /20) dB MIN       Crosstalk Ratio, Far End (PSACRF)       1 ≤ $f$ ≤ 100 MHz: 20.8 - 20 LOG( $f$ /100) dB MIN         Near End Crosstalk (NEXT)       1 ≤ $f$ ≤ 100 MHz: 35.3 - 15 LOG( $f$ /100) dB MIN       Crosstalk Ratio, Far End (PSACRF)       1 ≤ $f$ ≤ 100 MHz: 35.3 - 15 LOG( $f$ /100) dB MIN         Power Sum Near End Crosstalk (PSNEXT)       1 ≤ $f$ ≤ 100 MHz: 30 - 10 LOG( $f$ /100) dB MIN       Cross Section         TCL       1 ≤ $f$ ≤ 30 MHz: 35 - 20 LOG( $f$ ) dB MIN       Cross Section         Velocity Of Propagation       65%         Delay       4 ≤ $f$ ≤ 100 MHz: 534 + 36/√( $f$ ns MAX         Delay Skew       1 ≤ $f$ ≤ 100 MHz: <20ns/100m		ithstanding,	1500\	/ RMS	Insertion Loss		1 ≤ $f$ ≤ 100 MHz: 1.967 $\sqrt{f}$ + 0.023( $f$ ) + 0.050/ $\sqrt{f}$ dB MAX		
(NEXT) $1 \le f \le 100 \text{ MHz: } 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 100 \text{ MHz: } 32.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 100 \text{ MHz: } 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ ELTCTL $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Velocity Of Propagation $65\%$ Delay $4 \le f \le 100 \text{ MHz: } 534 + 36/\sqrt{f} \text{ ns MAX}$ Delay Skew $1 \le f \le 100 \text{ MHz: } < 20 \text{ ns}/100 \text{ m}$	Return Loss		10 ≤ f < 20 MHz: 25 dB MIN		Crosstalk Ratio, Far End		1 ≤ f ≤ 100 MHz: 20.8 - 20 LOG(f/100) dB MIN		
Crosstalk (PSNEXT) $1 \le f \le 100 \text{ MHz: } 32.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 100 \text{ MHz: } 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ ELTCTL $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Velocity Of Propagation $65\%$ Delay $4 \le f \le 100 \text{ MHz: } 534 + 36/\sqrt{f} \text{ ns MAX}$ Delay Skew $1 \le f \le 100 \text{ MHz: } < 20 \text{ ns}/100 \text{ m}$			1 ≤ f ≤ 100 MHz: 35.3	- 15 LOG( <i>f</i> /100) dB MIN					
ELTCTL $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Cross SectionVelocity Of Propagation $65\%$ Delay $4 \le f \le 100 \text{ MHz: } 534 + 36/\sqrt{f} \text{ ns MAX}$ Delay Skew $1 \le f \le 100 \text{ MHz: } <20 \text{ns}/100 \text{m}$			$1 \le f \le 100 \text{ MHz: } 32.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$						
Velocity Of Propagation $65\%$ Delay $4 \le f \le 100 \text{ MHz}$ : $534 + 36/\sqrt{(f \text{ ns MAX})}$ Delay Skew $1 \le f \le 100 \text{ MHz}$ : $<20 \text{ns}/100 \text{m}$	TCL		1 ≤ f ≤ 100 MHz: 30 - 10 LOG(f/100) dB MIN						
Delay $4 \le f \le 100 \text{ MHz: } 534 + 36/\sqrt{f \text{ ns MAX}}$ Delay Skew $1 \le f \le 100 \text{ MHz: } <20 \text{ns}/100 \text{m}$			1 ≤ f ≤ 30 MHz: 35 - 20 LOG(f) dB MIN		Cross Section				
<b>Delay Skew</b> 1 ≤ f ≤ 100 MHz: <20ns/100m	, , ,		65%						
			•						
DIAGO NATAL LINE BEIGGS ON CONTINUES							Plane Nata O	rices on Continuers	

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths \*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com





## **Cat6 Industrial Ethernet Cable**



	SYSTEMATIC TECHNOLOGY							
			A1040006-1 C	able Specif	ications			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot	
		A1040006-1	Cat6 industrial Ethernet	Semi-flexible	20	0.06	\$;5,x_:	
			Physi	ical Properties				
Conductor (	Gauge	22.	AWG	Conductor Stra	anding	solid bar	e copper	
Conductor I	Material	Bare	Copper	Conductor Inst Thickness	ulation Wall	0.017 in	nominal	
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.025 in	nominal	
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.059 in	nominal	
Color Code	Pair 2	_	hite/Orange	Twisted Condu	ctor Diameter	0.118 in	nominal	
	Pair 3		/hite/Green	Overall Cable L	Diameter		nominal	
	Pair 4		/hite/Brown	Jacket Color			eal	
Voltage Rati			00V	Jacket Thickness		0.040 in; nominal		
Temperature	e Rating	, , ,		Jacket Material		PVC		
Plenum		No		Sunlight Resistant		Yes Yes		
Shield		Shielded		Oil Resistance Flame Retardant		Yes		
Drain Conductor I Material	nsulation	No High-density Polyethylene (HDPE)		Flame Retarda	Sample Print Legend		# A1040006 LUTZE T CAT6 FTP PVC 4-PAIR	
Minimum Be		2.76in 0.288 in		Sample Print L			US CMX OUTDOOR CMR E PLTC OR AWM STYLE OIL RESISTANT ROHS 59 1000FT	
		Electrical Characteris		stics (for 100 mete	rs of cable)	1300 02-4	33 100011	
Impedance (	(1-100 MHz)	100 Ω 1 -	- 100 MHz	UL Classification	-	Style 21695; (cURus) Cla	X Outdoor/PLTC or AWM iss I and II, Div. 2; Class 1 v. 2	
Capacitance	)	15.5 pF/ft @	1MHz; Nominal	Approvals**		cULus, cURus,CE, RoHs		
Resistance,	Мах.	16.6 Ω DC	per 1000ft	Attenuation Crosstalk Ratio, Far End (ACRF)		1 ≤ f ≤ 250 MHz: 27.8 - 20 LOG(f/100) dB MIN		
Dielectric W Min.	ithstanding,	2000	V RMS	Insertion Loss		$1 \le f \le 250 \text{ MHz: } 1.808 \sqrt{f} + 0.017(f) + 0.20/\sqrt{f} \text{ dl}$ MAX		
Return Loss		10 ≤ f < 20 N	) + 5 LOG(f) dB MIN IHz: 25 dB MIN - 7.0 LOG(f/20) dB MIN	Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)		$1 \le f \le 250 \text{ MHz: } 24.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$		
Near End Crosstalk (NEXT)		1 ≤ f ≤ 250 MHz: 44.3	- 15 LOG( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (F		1 ≤ f ≤ 250 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN					
TCL		1 ≤ f ≤ 250 MHz: 30 - 10 LOG(f/100) dB MIN						
ELTCTL  Velocity Of Propagation		1 ≤ f ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section				
		0	.61					
Delay		4 ≤ f ≤ 250 MHz: 5	$634 + 36/\sqrt{(f \text{ ns MAX})}$					
Delay Skew		1 ≤ f ≤ 250 M	Hz: <45ns/100m					

<sup>\*</sup> See web store <u>www.AutomationDirect.com</u> for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Cable Continuous Flexing**



Parl Number   Wire/Cable Type   Flaxibility   Minimum Cut Length (ft)   Approximate Weight (lo/ft)   Price per foot (l	A1040020-1 Cable Specifications								
Physical Properties			Part Number			Minimum Cut		Price per foot	
Conductor Gauge         24 AWG         Conductor Insulation Wall Tineed Copper         Conductor Insulation Wall Thickness         7-stranded tinned copper           Conductor Assembly         4 twisted pairs         Bare Conductor Diameter         0.021 in; nominal           Pair 1         Blue, White/Blue         Insulated Conductor Diameter         0.046 in; nominal           Pair 2         Orange, White/Green         Overall Cable Diameter         0.092 in; nominal           Pair 3         Green, White/Green         Overall Cable Diameter         0.299 in; nominal           Voltage Rating         600 V         Jacket Thickness         0.033 in; nominal           Temperature Rating         -40 to 80 °C (-40 to 176 °F)         Jacket Material         TPE           Pienum         No         Sunlight Resistant         Yes           Shield         Shielded         Oil Resistance         Yes           Oral Resistance         Yes         Yes           Conductor Insulation         Minimum Bend Radius         Moving; 2:98in         Sample Print Legend           Minimum Bend Radius         Moving; 2:98in         Sample Print Legend         Moving; 2:98in         CRES Cable Code Type Capacitance         CRES Capacitance         15.2 pFift @ 1MHz; Nominal         Approvals**         LEPAIR AWGV)         1 ≤ f ≤ 100 MHz; 20 CARROW			A1040020-1	Cat5e industrial Ethernet		20	0.05	\$;5,xs:	
Conductor Material   Timed Copper   Conductor Insulation Wall   Timed Copper   Conductor Diameter   0.024 in; nominal   0.011 in; nominal   0.024 in; nominal   0.025 in; nominal   0.0				Physi	cal Properties				
Immed Copper   Thickness   UU11 III's, nominal	Conductor G	Bauge	24 /	AWG	Conductor Stra	anding	7-stranded t	inned copper	
Pair 1   Blue, Whitel/Blue   Insulated Conductor Diameter   0.046 int, nominal   0.092 in	Conductor N	laterial (	Tinned	Copper		ulation Wall	0.011 in	nominal	
Color Code         Pair 2 pair 3 pair 3 pair 3 pair 4 pair 4 pair 4 pair 4 pair 4 pair 5 pair 4 pair 4 pair 5 pair 4 pair 5 pair 5 pair 6 pair 5 pair 6 pair 5 pair 6 pair 6 pair 7 pair 6 pair 7 pair 6 pair 7	Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	; nominal	
Pair 3   Green, Whitel/Green   Overall Cable Diameter   0.299 in; nominal		Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.046 in	; nominal	
Pair 3   Green, Whitel/Green   Overall Cable Diameter   0.299 lin; nominal	Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	0.092 in	; nominal	
Voltage Rating       600V       Jacket Thickness       0.033 in; nominal         Temperature Rating       40 to 80 °C (40 to 176 °F)       Jacket Material       TPE         Plenum       No       Sunlight Resistant       Yes         Shield       Shielded       Oil Resistance       Yes         Drain       No       Flame Retardant       Yes         Conductor Insulation Material       High-density Polyethylene (HDPE)       Www.lutze com Part# A1040020 LUTZE MOTION-LEX ETHERNIET CATS STUTP TEMPER CATS STU	Color Code	Pair 3	Green, W	/hite/Green	Overall Cable L	Diameter	0.299 in	; nominal	
Temperature Rating		Pair 4	Brown, W	/hite/Brown	Jacket Color		Te	eal	
Plenum No Sunlight Resistant Yes Shieldd Shieldd Oil Resistance Yes Drain No Flame Retardant Yes Conductor Insulation High-density Polyethylene (HDPE) Material Moving: 2.99in Fixed: 2.24in No Sample Print Legend Sample Print Legend Moving: 2.99in Fixed: 2.24in Sample Print Legend Samp	Voltage Rati	ng	60	00V	Jacket Thickne	ess	0.033 in	; nominal	
Shield Shielded Oil Resistance Yes  Conductor Insulation High-density Polyethylene (HDPE)  Minimum Bend Radius   High-density Polyethylene (HDPE)    Minimum Bend Radius   Moving: 2.99in Fixed: 2.24in    Cabled Core Diameter   0.234 in    Electrical Characteristics (for 100 meters of cable)    Impedance (1-100 MHz)   100 $\Omega$ 1 – 100 MHz   UL Classification    Capacitance   15.2 pF/ft @ 1MHz; Nominal    Resistance, Max.   24.5 $\Omega$ DC per 1000ft    Far End (ACRF)    Minimum Bend Radius   1 $\leq f \leq 100$ MHz: 25 + 7.0 LOG(f) dB MIN    Noar End Crosstalk (NEXT)   1 $\leq f \leq 100$ MHz: 30 - 10 LOG(f/100) dB MIN    Power Sum Near End Crosstalk (PSNEXT)   1 $\leq f \leq 100$ MHz: 30 - 10 LOG(f/100) dB MIN    Power Sum Near End Crosstalk (PSNEXT)   1 $\leq f \leq 100$ MHz: 35 - 20 LOG(f/100) dB MIN    Total	Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material	1	TPE		
Drain         No         Flame Retardant         Yes           Conductor Insulation Material         High-density Polyethylene (HDPE)           Minimum Bend Radius         Moving: 2.99in Fixed: 2.24in         Sample Print Legend         Www.lutze.com Part# A1040020 LUTZE MOTIONFLEX ETHERNET CAT's s SFUTP TPE (4-PAIR AWG24) = 183930 (qtl.) CMX OUTDOOF CMR 75C SUN RES OR AWM STYLE 2463 30C 600 V OIL RES II Rolls Capacitance           Electrical Characteristics (for 100 meters of cable)           Impedance (1-100 MHz)         100 Ω 1 – 100 MHz         UL Classification         (cULus) TYPE CMR/CMX Outdoor or AWM Style 2463; (cURus) TYPE CMG           Capacitance         15.2 pF/ft @ 11MHz; Nominal         Approvals**         cULus, cURus, CE, RoHs           Resistance, Max.         24.5 Ω DC per 1000ft         Attenuation Crosstalk Ratio, Far End (ACRF)         1 ≤ f ≤ 100 MHz: 23.8 - 20 LOG(f/100) dB MIN 10 ≤ f ≤ 20 MHz: 25 dB MIN 20 ≤ f ≤ 00 MHz: 25 dB MIN 20 ≤ f ≤ 00 MHz: 25 dB MIN 20 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 20 MHz: 25 dB MIN 20 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MIN 10 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) d	Plenum		١	No	Sunlight Resis	tant	Y	es	
Conductor Insulation MaterialHigh-density Polyethylene (HDPE)Minimum Bend RadiusMoving: 2.99in Fixed: 2.24inSample Print LegendWww.lutze.com Part# A1040020 LUTZE MOTIONELEX ETHERNET CATSe SF/UTP TPE (4-PAIR AWC24) CMR 75C SUN RES OR AWM STYLE 2463 80C 600 V ROTHS - Quale Code YYWW> CE-59 SEQ. FT MARK>Electrical Characteristics (for 100 meters of cable)Impedance (1-100 MHz)100 $\Omega$ 1 – 100 MHzUL Classification(cULus) TYPE CMR/CMX Outdoor or AWM Style 2463: (cURus) TYPE CMGCapacitance15.2 pF/ft @ 1MHz; NominalApprovals** Attenuation Crosstalk Ratio, Far End (ACRF)CULus, cURus, CE, RoHsResistance, Max.24.5 $\Omega$ DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 100$ MHz: 23.8 - 20 LOG(f/100) dB MIN 10 $\le f \le 20$ MHz: 25 dB MIN 20 $\le f \le 100$ MHz: 25 dB MIN 10 $\le f \le 20$ MHz: 25 dB MIN 20 $\le f \le 100$ MHz: 35.3 - 15 LOG(f/100) dB MINPower Sum Attenuation to Crosstalk Ratio, Far End (PSACRF) $1 \le f \le 100$ MHz: 20.8 - 20 LOG(f/100) dB MINNear End Crosstalk (NEXT) $1 \le f \le 100$ MHz: 35.3 - 15 LOG(f/100) dB MINCross SectionPower Sum Near End Crosstalk (PSNEXT) $1 \le f \le 100$ MHz: 35.3 - 10 LOG(f/100) dB MINCross SectionPower Sum Near End Crosstalk (PSNEXT) $1 \le f \le 100$ MHz: 35.3 - 20 LOG(f/100) dB MINCross Section	Shield		Shi	elded	Oil Resistance		Yes		
MaterialHigh-density Polyemylene (HDPE)Minimum Bend RadiusMoving: 2.99in Fixed: 2.24inSample Print LegendMOTIONFLEX ETHERNET CATSe SFUTP TPE (4-PAIR AWG24)E319350 c(UL) CMX OUTDOOF CMR 75C SUN RES OR AVM STYLE 2463 80C 600 V OL RES II RoHS - Oate Code YYVWW CE-59 <seq. ft="" mark="">Electrical Characteristics (for 100 meters of cable)Impedance (1-100 MHz)100 Ω 1 − 100 MHzUL Classification(cULus) TYPE CMR/CMX Outdoor or AVM Style 2463; (cURus) TYPE CMG 2463; (cURus) TYPE CMGCapacitance15.2 pF/R @ 1MHz; NominalApprovals**cULus, cURus, CE, RoHsResistance, Max.24.5 Ω DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF)1 ≤ f ≤ 100 MHz: 23.8 - 20 LOG(f/100) dB MINDielectric Withstanding, Min.1 ≤ f &lt; 100 MHz: 20.5 5 LOG(f) dB MIN 10 ≤ f &lt; 20 MHz: 25 5 dB MIN 20 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MINPower Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)Power Sum Near End Crosstalk (PSNEXT)1 ≤ f ≤ 100 MHz: 35.3 - 15 LOG(f/100) dB MINCross SectionTCL1 ≤ f ≤ 100 MHz: 35.2 - 10 LOG(f/100) dB MINCross SectionVelocity Of Propagation4 ≤ f ≤ 100 MHz: 53.4 + 36/√(f ns MAX)</seq.>	Drain		1	No	Flame Retarda	nt	Y	es	
Cabled Core DiameterRoHS <date code="" yyww=""> CE-59 <seq. ft="" mark="">Electrical Characteristics (for 100 meters of cable)Impedance (1-100 MHz)<math>100 \Omega 1 - 100 \text{ MHz}</math>UL Classification(cULus) TYPE CMR/CMX Outdoor or AWM Style 2463, (cURus) TYPE CMGCapacitance<math>15.2 \text{ pF/ft} @ 1\text{MHz}</math>; NominalApprovals**cULus, cURus, CE, RoHsResistance, Max.<math>24.5 \Omega</math> DC per <math>1000\text{ft}</math>Attenuation Crosstalk Ratio, Far End (ACRF)<math>1 \le f \le 100 \text{ MHz}</math>: <math>23.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}</math>Dielectric Withstanding, Min.<math>10.5 \le 7.0 \text{ LOG}(f) \text{ dB MIN}</math>Insertion Loss<math>1 \le f \le 100 \text{ MHz}</math>: <math>1.967 \sqrt{f} + 0.023(f) + 0.050/\sqrt{f}</math>Return Loss<math>1 \le f \le 100 \text{ MHz}</math>: <math>20.5 \le 100 \text{ MHz}</math>: <math>25.7.0 \text{ LOG}(f/20) \text{ dB MIN}</math>Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)Near End Crosstalk (NEXT)<math>1 \le f \le 100 \text{ MHz}</math>: <math>35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}</math><math>1 \le f \le 100 \text{ MHz}</math>: <math>35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}</math>Power Sum Near End Crosstalk (PSNEXT)<math>1 \le f \le 100 \text{ MHz}</math>: <math>35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}</math>Cross SectionTCL<math>1 \le f \le 100 \text{ MHz}</math>: <math>35.3 - 20 \text{ LOG}(f/100) \text{ dB MIN}</math>Cross Section</seq.></date>	Material		Moving: 2.99in		Sample Print Legend		MOTIONFLEX ETHERNET CAT5e SF/UTP TPE (4-PAIR AWG24) E319350 c(UL) CMX OUTDOO CMR 75C SUN RES OR AWM STYLE 2463 80C 600 V OIL RES II RoHS <date code="" yyww=""></date>		
Electrical Characteristics (for 100 meters of cable)         Impedance (1-100 MHz) $100 \Omega 1 - 100 \text{ MHz}$ UL Classification       (cULus) TYPE CMR/CMX Outdoor or AWM Style 2463; (cURus) TYPE CMG         Capacitance $15.2 \text{ pF/ft}$ @ 1MHz; Nominal       Approvals**       cULus, cURus, CE, RoHs         Resistance, Max. $24.5 \Omega$ DC per 1000ft       Attenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 100 \text{ MHz}: 23.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$ Dielectric Withstanding, Min.       2000V RMS       Insertion Loss $1 \le f \le 100 \text{ MHz}: 2.0 + 5 \text{ LOG}(f) \text{ dB MIN}$ Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)         Return Loss $1 \le f \le 100 \text{ MHz}: 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN}$ Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)         Near End Crosstalk (NEXT) $1 \le f \le 100 \text{ MHz}: 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $1 \le f \le 100 \text{ MHz}: 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ Cross Section         TCL $1 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ Cross Section         Velocity Of Propagation $0.66$	Cabled Core	Diameter	0.234 in						
The pedatice (1-100 MHz) $100\Omega$   $100\Omega$			l	Electrical Characteris	stics (for 100 meter	rs of cable)			
Resistance, Max. $24.5 \Omega\text{DC per }1000\text{ft} \qquad \qquad \text{Attenuation Crosstalk Ratio,} \\ \text{Dielectric Withstanding,} \qquad 2000\text{V RMS} \qquad \qquad 1 \leq f \leq 100 \text{MHz: }23.8 - 20 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f < 100 \text{MHz: }20 + 5 \text{LOG}(f) \text{dB MIN}} \\ 1 \leq f < 100 \text{MHz: }20 + 5 \text{LOG}(f) \text{dB MIN}} \\ 20 \leq f \leq 100 \text{MHz: }25 \text{dB MIN}} \\ 20 \leq f \leq 100 \text{MHz: }25 \text{dB MIN}} \\ 20 \leq f \leq 100 \text{MHz: }25 - 7.0 \text{LOG}(f/20) \text{dB MIN}} \\ 20 \leq f \leq 100 \text{MHz: }35.3 - 15 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 15 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }32.3 - 15 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 15 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 15 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) \text{dB MIN}} \\ 1 \leq f \leq 100 \text{MHz: }35.3 - 10 \text{LOG}(f/100) d$	Impedance (	1-100 MHz)	100 Ω 1 -	- 100 MHz	UL Classification	on			
Resistance, Max.       24.5 Ω DC per 1000 lt       Far End (ACRF)         Dielectric Withstanding, Min.       2000V RMS       Insertion Loss       1 ≤ f ≤ 100 MHz: 1.967 √f + 0.023(f) + 0.050/√f         Return Loss       1 ≤ f < 100 MHz: 20 + 5 LOG(f) dB MIN	Capacitance	•	15.2 pF/ft @ 1MHz; Nominal		Approvals**		cULus, cURus,CE, RoHs		
Min. $1 \le f < 10 \text{ MHz}: 20 + 5 \text{ LOG}(f) \text{ dB MIN}$ $1 \le f < 20 \text{ MHz}: 25 \text{ dB MIN}$ $10 \le f < 20 \text{ MHz}: 25 \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 35.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 100 \text{ MHz}: 30 - 10 \text{ LOG}(f/100)  dB$	Resistance,	Мах.	24.5 Ω DC	per 1000ft			1 ≤ f ≤ 100 MHz: 23.8	- 20 LOG(f/100) dB MIN	
Return Loss $10 \le f < 20 \text{ MHz: } 25 \text{ dB MIN} \\ 20 \le f \le 100 \text{ MHz: } 25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN} \\ Near End Crosstalk \\ (NEXT)                                    $	Dielectric Wi Min.	ithstanding,	2000	V RMS	Insertion Loss				
(NEXT) $1 \le f \le 100 \text{ MHz}$ : 35.3 - 15 LOG(f/100) dB MIN  Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 100 \text{ MHz}$ : 32.3 - 15 LOG(f/100) dB MIN  TCL $1 \le f \le 100 \text{ MHz}$ : 30 - 10 LOG(f/100) dB MIN  ELTCTL $1 \le f \le 30 \text{ MHz}$ : 35 - 20 LOG(f) dB MIN  Velocity Of Propagation $0.66$ Delay $4 \le f \le 100 \text{ MHz}$ : 534 + 36/\(\lambda(f \text{ ns MAX})\)	Return Loss		10 ≤ f < 20 N	1Hz: 25 dB MIN	Crosstalk Ratio		1 ≤ f ≤ 100 MHz: 20.8	- 20 LOG( <i>f</i> /100) dB MIN	
Crosstalk (PSNEXT) $1 \le f \le 100 \text{ MHz}$ : 32.3 - 15 LOG(f/100) dB MIN         TCL $1 \le f \le 100 \text{ MHz}$ : 30 - 10 LOG(f/100) dB MIN         ELTCTL $1 \le f \le 30 \text{ MHz}$ : 35 - 20 LOG(f) dB MIN         Velocity Of Propagation $0.66$ Delay $4 \le f \le 100 \text{ MHz}$ : 534 + 36/\(\frac{1}{30}\) f ns MAX	Near End Crosstalk (NEXT)								
ELTCTL $1 \le f \le 30 \text{ MHz}$ : $35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Velocity Of Propagation $0.66$ Delay $4 \le f \le 100 \text{ MHz}$ : $534 + 36/\sqrt{f} \text{ ns MAX}$	Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL Velocity Of Propagation		$1 \le f \le 100 \text{ MHz: } 32.3$	- 15 LOG( <i>f</i> /100) dB MIN					
Velocity Of Propagation $0.66$ Delay $4 \le f \le 100 \text{ MHz}: 534 + 36/\sqrt{(f \text{ ns MAX})}$			1 ≤ f ≤ 100 MHz: 30 -	10 LOG(f/100) dB MIN					
<b>Delay</b> $4 \le f \le 100 \text{ MHz}: 534 + 36/\sqrt{(f \text{ ns MAX})}$			1 ≤ f ≤ 30 MHz: 35	- 20 LOG(f) dB MIN	Cross Section				
			0	.66					
Delay Skew 1 < f < 100 MHz; <45ns/100m	Delay		4 ≤ f ≤ 100 MHz: 5	$534 + 36/\sqrt{(f \text{ ns MAX})}$					
1 = ) = 100 MILE. MODIFICATION	Delay Skew		1 ≤ f ≤ 100 M	Hz: <45ns/100m					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# Cat6a Industrial Ethernet/Profinet



Part Number   Wire/Cable Type   Flexibility   Minimum Cut Length (ft)   Approximate Weight (fb/ft)   Price per foot (fb		A104397-1 Cable Specifications										
Physical Properties   Conductor Gauge   22 AWG   Conductor Stranding   solid bare copper			Part Number			Minimum Cut		Price per foot				
Conductor Gauge   22 AWG   Conductor Stranding   Solid bare copper			A104397-1		Flexible	20	0.09	\$;;5,xt:				
Conductor Material   Bare Copper   Conductor Insulation Wall   Do. 17 in; nominal				Physi	cal Properties							
Sale Copper   Thickness   D.017 it; nominal	Conductor C	Bauge	22 /	AWG	Conductor Stra	nding	solid bar	e copper				
Pair 1   Blue, White/Blue   Insulated Conductor Diameter   0.059 in; nominal   0.0	Conductor N	Material	Bare	Copper	Thickness 0.017 in; nom		nominal					
Pair 2   Orange, White/Orange   Twisted Conductor Diameter   0.118 in, nominal   0.78	Conductor A	Ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.025 in	nominal				
Pair 3   Green, White/Green   Overall Cable Diameter   0.378 in, nominal		Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.059 in	nominal				
Pair 3   Green, White/Green   Overall Cable Diameter   0.376 in, nominal	Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	0.118 in	nominal				
Voltage Rating         600V         Jacket Thickness         0.028 in; nominal           Temperature Rating         -40 to 80 °C (-40 to 176 °F)         Jacket Material         PVC           Plenum         No         Sunlight Resistant         Yes           Shield         Sheided         Oll Resistance         Yes           Drain         No         Flame Retardant         Yes           Conductor Insulation Material         Special Polyolefin         LUTZE ELECTRONIC® ETHERNET (C) PVC (104397 (4x/2x/MG22)) CATEA E331083 XX (ILL) TYPE PTLOT F14 or KM7 5° °C or (UR)s AWM STYLE 2570 600 V RoHS          Catlod Core Diameter         LUTZE ELECTRONIC® ETHERNET (C) PVC (104397 (4x/2x/MG22)) CATEA E331083 XX (ILL) TYPE PTLOT F14 or KM7 5° °C or (UR)s AWM STYLE 2570 600 V RoHS          Catlod Core Diameter         LUTZE ELECTRONIC® ETHERNET (C) PVC (104397 (4x/2x/MG22)) CATEA E331083 XX (ILL) TYPE PTLOT F14 or KM7 5° °C or (UR)s AWM STYLE 2570 600 V RoHS          CATE AWA STYLE 257 600 V RoHS          CATE AWA STYLE 257 600 V RoHS          CATE AWA STYLE 257 600 V ROHS          COLULS, URL STYLE 257 00 MHz. 2570; (C) URL STYLE 257 00 MHz. 27 00 00 MHz. 25 00 MHz. 27 00 MHz. 25 00 MHz.	Color Code	Pair 3	Green, W	hite/Green	Overall Cable D	Diameter	0.378 in	nominal				
Temperature Rating  -40 to 80 °C (-40 to 176 °F)  Plenum  No  Sunlight Resistant  Yes  Shield  Shield  Shielded  Oil Resistance  Yes  Conductor Insulation  Material  Special Polyolefin  Special Polyolefin  Sample Print Legend  Sample Print Legend  LUTZE ELECTRONIC® ETHERNET (C) PVC  104/397 (4x/2x/M022)) CATGA E3/31083 XX  Minimum Bend Radius  2.27in  Sample Print Legend  Sample Print Legend  LUTZE ELECTRONIC® ETHERNET (C) PVC  104/397 (4x/2x/M022)) CATGA E3/31083 XX  (UL) TYPE PLTIC FT 40 **CMIG 75 °C or CIJRN)us  AWM STYLE 2570 600 V RoHS < Date Code  YYWN's CE-XX <ft mark<="" td="">   **CODE CATGA E3/31083 XX  **CUL) TYPE PLTIC FT 40 **CMIG 75 °C or CIJRN)us  AWM STYLE 2570 600 V RoHS &lt; Date Code  YYWN's CE-XX <ft mark<="" td="">  **CULUS AWM STYLE 2570 600 V RoHS &lt; Date Code  YYWN's CE-XX <ft mark<="" td="">  **CULUS AWM STYLE 2570 600 V RoHS &lt; Date Code  YYWN's CE-XX <ft mark<="" td="">  **CULUS CHARGE TO CIJRN, us  AWM STYLE 2570 600 V RoHS &lt; Date Code  YYWN's CE-XX <ft mark<="" td="">  **CULUS CHARGE TO CIJRN, us  AWM STYLE 2570 600 V RoHS   **Code Code Code Code Code Code Code Code</ft></ft></ft></ft></ft>		Pair 4	Brown, W	hite/Brown	Jacket Color		Gre	een				
Plenum No Sunlight Resistant Yes Shield Shielded Oil Resistance Yes Oil Resistance Oil Oil Resistance Oil Oil Resistance Oil	Voltage Rati	ng	60	00V	Jacket Thickness		0.028 in; nominal					
Shield Shield Shielded Oil Resistance Yes  Drain No Flame Retardant Yes  Conductor Insulation Material Special Polyolefin  Special Polyolefin Special Polyolefin Minimum Bend Radius 2.27in Cabled Core Diameter 0.248 in  Electrical Characteristics (for 100 meters of cable)  Impedance (1-100 MHz) 100 $\Omega$ 1 – 100 MHz  UL Classification (cUlus) TYPE PLTC FT4 or CMG 75 °C or c(UR)s AWM STYLE 2570 600 V RoHS *CDate Code YYWW> CE-XX < FT MARK>  Electrical Characteristics (for 100 meters of cable)  Impedance (1-100 MHz) 100 $\Omega$ 1 – 100 MHz  UL Classification (cUlus) TYPE CMG/PLTC or AWM Shyle 2570; (cURs) TYPE CMG/PLTC or AWM Shyle 2570; (cURs) Class 1 and II, Div. 2; Class 1 Div. 2  Capacitance 13.1 pF/ft @ 1MHz; Nominal Approvals**  Resistance, Max. 33.1 $\Omega$ DC per 1000ft Attenuation Crosstalk Ratio, Far End (ACRF) 1 $\leq f \leq 500$ MHz: 27.8 - 20 LOG(ff)100) dB MIN 10 $\leq f \leq 20$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 25 dB MIN 20 $\leq f \leq 500$ MHz: 30 - 10 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 30 - 10 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 30 - 10 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 30 - 10 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 30 - 10 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 30 - 10 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 53 - 20 LOG(f/100) dB MIN 20 $\leq f \leq 500$ MHz: 25 -	Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material	1	P	/C				
Drain         No         Flame Retardant         Yes           Conductor Insulation Material         Special Polyolefin         LUTZE ELECTRONIC® ETHERNET (C) PVC 104397 (4x/2xAW0529), CATGA E331083 XX (UL) TYPE PLTC F14 or CMG7 75 cor or (UR) value AWM STYLE 2570 680 V RoHs CDate Code YYWW> CE-XX < FT MARK>           Cabled Core Diameter         0.248 in         Electrical Characteristics (for 100 meters of cable)           Impedance (1-100 MHz)         100 Ω 1 – 100 MHz         UL Classification         (cULus) TYPE CMG/PLTC or AWM Style 2570; (cURs) Class I and II, Div. 2; Class 1 Div. 2           Capacitance         13.1 pF/ft @ 1MHz; Nominal         Approvals**         cULus, uURus,CE, RoHS           Resistance, Max.         33.1 Ω DC per 1000ft         Attenuation Crosstalk Ratio, Far End (ACRF)         1 ≤ f ≤ 500 MHz: 27.8 - 20 LOG(f/100) dB MIN           Dielectric Withstanding, Min.         1 s f ≤ 10 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 44.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 42.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 30 - 10 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 30 - 10 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 30 - 10 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 30 - 10 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 30 - 10 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 30 - 10 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 53 + 36 N(f ns MAX)         Cross Section	Plenum		١	No	Sunlight Resist	tant	Y	es				
Conductor Insulation Material       Special Polyolefin       Sample Print Legend       LUTZE ELECTRONIC® ETHERNET (C) PVC 104397 (4x/2xAWG22) CAT6A E331083 xX (UL) TYPE PLIC FT4 or CMG f5° °C or C(UR)us AWM STYLE 2570 600 V RoHS < CDate Code YYWW> CE-XX <ft mark="">         Electrical Characteristics (for 100 meters of cable)         Impedance (1-100 MHz)       UL Classification       (cULus) TYPE CMG/PLTC or AWM Style 2570; (cURus) Class I and II, Div. 2; Class 1 Div. 2         Capacitance       13.1 pF/ft @ 1MHz; Nominal       Approvals***       cULus, uURus, CE, RoHS         Resistance, Max.       33.1 Ω DC per 1000ft       Attenuation Crosstalk Ratio, Far End (ACRF)         Dielectric Withstanding, Min.       1 ≤ f &lt; 10 MHz: 20 + 5 LOG(f) dB MIN 10 ≤ f &lt; 20 MHz: 25 + 7.0 LOG(f/20) dB MIN 20 ≤ f ≤ 500 MHz: 25 - 7.0 LOG(f/20) dB MIN 20 ≤ f ≤ 500 MHz: 25 - 7.0 LOG(f/20) dB MIN 20 ≤ f ≤ 500 MHz: 42.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 42.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 42.3 - 15 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 20 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 20 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 20 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 20 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 30 MHz: 35 - 30 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 30 MHz: 35 - 30 MHz: 35 - 30 LOG(f/100) dB MIN 20 ≤ f ≤ 500 MHz: 35 - 30 MHz: 35 - 30</ft>	Shield		Shie	elded	Oil Resistance		Y	es				
Material         Special Polydielin         Sample Print Legend         104397 (4x)2xMWG22)) CAT6A E331083 XX           Minimum Bend Radius         2.27in         Sample Print Legend         104397 (4x)2xMWG22)) CAT6A E331083 XX           Cabled Core Diameter         Electrical Characteristics (for 100 meters of cable)           Impedance (1-100 MHz)         UL Classification         (cULus) TYPE CMG/PLTC or AWM Style 2570; (cURus) Class I and II, Div. 2; Class 1 Div. 2           Capacitance         13.1 pF/ft @ 1MHz; Nominal         Approvals***         cULus, uURus, CE, RoHS           Resistance, Max.         33.1 Ω DC per 1000ft         Attenuation Crosstalk Ratio, Far End (ACRF)         1 ≤ f ≤ 500 MHz: 27.8 - 20 LOG(f/100) dB MIN           Dielectric Withstanding, Min.         1 ≤ f < 500 MHz: 20 + 5 LOG(f) dB MIN	Drain	Drain		No	Flame Retardar	nt						
Cabled Core Diameter       0.248 in       AVM SIYLE 25/0 600 Y RORS 3-Date Code YYYWW> CE:XX <ft mark="">         Electrical Characteristics (for 100 meters of cable)         Impedance (1-100 MHz)       100 Ω 1 – 100 MHz       UL Classification       (cULus) TYPE CMG/PLTC or AWM Style 2570; (cURus) Class 1 and II, Div. 2; Class 1 Div. 2         Capacitance       13.1 pF/ft @ 1MHz; Nominal       Approvals**       cULus, uURus, CE, RoHS         Resistance, Max.       33.1 Ω DC per 1000ft       Attenuation Crosstalk Ratio, Far End (ACRF)       1 ≤ f ≤ 500 MHz: 27.8 - 20 LOG(f/100) dB MIN         Dielectric Withstanding, Min.       1500V RMS       Insertion Loss       1 ≤ f ≤ 500 MHz: 182 <math>\sqrt{(f)}</math> + 0.0991(f) + 0.25/<math>\sqrt{(f)}</math> dB MIN         Return Loss       1 ≤ f &lt; 100 MHz: 20 + 5 LOG(f) dB MIN</ft>	Material			-	Sample Print Legend		104397 (4x(2xAWG22)	) CAT6A E331083 XX				
Impedance (1-100 MHz)   100 $\Omega$ 1 - 100 MHz   UL Classification   (cULus) TYPE CMG/PLTC or AWM Style 2570; (cURus) Class 1 and II, Div. 2; Class 1 Div. 2							AWM STYLE 2570 600	V RoHS <date code<="" th=""></date>				
Impedance (1-100 MHz) $100 \Omega 1 - 100 \text{ MHz}$ UL Classification(cULus) TYPE CMG/PLTC or AWM Style 2570; (cURus) Class 1 and II, Div. 2; Class 1 Div. 2Capacitance $13.1 \text{ pF/ft}$ (a) 1MHz; NominalApprovals**cULus, uURus, CE, RoHSResistance, Max. $33.1 \Omega$ DC per 1000ftAttenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 500 \text{ MHz}$ : 27.8 - 20 LOG(f/100) dB MINDielectric Withstanding, Min. $1500V$ RMSInsertion Loss $1 \le f \le 500 \text{ MHz}$ : $1.82 \sqrt{f} + 0.0091(f) + 0.25/\sqrt{f}$ ) dB MINReturn Loss $1 \le f < 10 \text{ MHz}$ : $20 + 5 \text{ LOG}(f)$ dB MINPower Sum Attenuation to Crosstalk Ratio, Far End (PSACRF) $1 \le f \le 500 \text{ MHz}$ : $24.8 - 20 \text{ LOG}(f/100)$ dB MINNear End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $44.3 - 15 \text{ LOG}(f/100)$ dB MINPower Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100)$ dB MINTCL $1 \le f \le 500 \text{ MHz}$ : $35 - 20 \text{ LOG}(f/100)$ dB MINCross SectionVelocity Of Propagation $74\%$ Cross Section	Cabled Core	Diameter	0.2		etics (for 100 mater	re of cable)	YYVVV> CE-X	X <fi wark=""></fi>				
Capacitance $13.1 \text{ pF/ft} \oplus 1 \text{MHz}$ ; NominalApprovals**cULus, uURus,CE, RoHSResistance, Max. $33.1 \Omega DC \text{ per } 1000 \text{ft}$ Attenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 500 \text{ MHz}$ : $27.8 - 20 \text{ LOG}(f/100) \text{ dB MIN}$ Dielectric Withstanding, Min. $1500 \text{V RMS}$ Insertion Loss $1 \le f \le 500 \text{ MHz}$ : $1.82 \sqrt{f} + 0.0091(f) + 0.25/\sqrt{f}$ ) dB MIN dB MAXReturn Loss $1 \le f < 10 \text{ MHz}$ : $20 + 5 \text{ LOG}(f) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 - 7.0 \text{ LOG}(f/20) \text{ dB MIN}$ Power Sum Attenuation to Crosstalk Ratio, Far End (PSACRF)Near End Crosstalk (NEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Cross SectionTCL $1 \le f \le 500 \text{ MHz}$ : $35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Cross SectionVelocity Of Propagation $74\%$ Cross Section	Impedance (	(1-100 MHz)	100 Ω 1 -		,	,						
Resistance, Max. $33.1\Omega\mathrm{DC}$ per 1000ft Attenuation Crosstalk Ratio, Far End (ACRF) $1 \le f \le 500\mathrm{MHz}$ : $27.8 - 20\mathrm{LOG}(f/100)\mathrm{dBMIN}$ $1 \le f \le 500\mathrm{MHz}$ : $27.8 - 20\mathrm{LOG}(f/100)\mathrm{dBMIN}$ $1 \le f \le 500\mathrm{MHz}$ : $27.8 - 20\mathrm{LOG}(f/100)\mathrm{dBMIN}$ $1 \le f \le 500\mathrm{MHz}$ : $20 + 5\mathrm{LOG}(f)\mathrm{dBMIN}$ $10 \le f < 20\mathrm{MHz}$ : $25 + 6\mathrm{BMIN}$ $20 \le f \le 500\mathrm{MHz}$ : $25 + 7.0\mathrm{LOG}(f/20)\mathrm{dBMIN}$ $20 \le f \le 500\mathrm{MHz}$ : $25 + 7.0\mathrm{LOG}(f/20)\mathrm{dBMIN}$ $20 \le f \le 500\mathrm{MHz}$ : $25 + 7.0\mathrm{LOG}(f/20)\mathrm{dBMIN}$ $20 \le f \le 500\mathrm{MHz}$ : $25 + 7.0\mathrm{LOG}(f/20)\mathrm{dBMIN}$ $20 \le f \le 500\mathrm{MHz}$ : $25 + 7.0\mathrm{LOG}(f/20)\mathrm{dBMIN}$ $25 + 20\mathrm{BMMz}$ $2$	Capacitance	)	13.1 pF/ft @	1MHz; Nominal	Approvals**		, ,					
Min. $1 \le f < 10 \text{ MHz}$ : $20 + 5 \text{ LOG}(f) \text{ dB MIN}$ $10 \le f < 20 \text{ MHz}$ : $25 \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/20) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $25 \text{ -}7.0 \text{ LOG}(f/100) \text{ dB MIN}$ $20 \le f \le 500 \text{ MHz}$ : $20 \le f \le 500 \text{ MHz}$ : $20 \le f$	Resistance,	Мах.		·	Attenuation Cre							
Return Loss       10 ≤ f < 20 MHz: 25 dB MIN 20 ≤ f ≤ 500 MHz: 25 - 7.0 LOG(f/20) dB MIN	Dielectric W Min.	ithstanding,	1500	V RMS	Insertion Loss							
(NEXT) $1 \le f \le 500 \text{ MHz}$ : $44.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz}$ : $42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 250 \text{ MHz}$ : $30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ ELTCTL $1 \le f \le 30 \text{ MHz}$ : $35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Velocity Of Propagation $74\%$ Delay $4 \le f \le 500 \text{ MHz}$ : $534 + 36/\sqrt{(f \text{ ns MAX})}$	Return Loss		10 ≤ f < 20 N	IHz: 25 dB MIN	Crosstalk Ratio		1 ≤ f ≤ 500 MHz: 24.8	- 20 LOG(f/100) dB MIN				
Crosstalk (PSNEXT) $1 \le f \le 500 \text{ MHz: } 42.3 - 15 \text{ LOG}(f/100) \text{ dB MIN}$ TCL $1 \le f \le 250 \text{ MHz: } 30 - 10 \text{ LOG}(f/100) \text{ dB MIN}$ ELTCTL $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Velocity Of Propagation $74\%$ Delay $4 \le f \le 500 \text{ MHz: } 534 + 36/\sqrt{(f \text{ ns MAX})}$	Near End Cr (NEXT)	osstalk	$1 \le f \le 500 \text{ MHz: } 44.3$	- 15 LOG( <i>f</i> /100) dB MIN								
ELTCTL $1 \le f \le 30 \text{ MHz: } 35 - 20 \text{ LOG}(f) \text{ dB MIN}$ Cross SectionVelocity Of Propagation $74\%$ Delay $4 \le f \le 500 \text{ MHz: } 534 + 36/\sqrt{f} \text{ ns MAX}$			1 ≤ f ≤ 500 MHz: 42.3	- 15 LOG( <i>f</i> /100) dB MIN								
Velocity Of Propagation $74\%$ Delay $4 \le f \le 500 \text{ MHz: } 534 + 36/\sqrt{(f \text{ ns MAX})}$	TCL		$1 \le f \le 250 \text{ MHz: } 30 -$	10 LOG(f/100) dB MIN								
<b>Delay</b> $4 \le f \le 500 \text{ MHz: } 534 + 36/\sqrt{(f \text{ ns MAX})}$	ELTCTL		1 ≤ f ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section							
	Velocity Of Propagation		7.	4%								
<b>Delay Skew</b> $1 \le f \le 500 \text{ MHz: } <20 \text{ns}/100 \text{m}$	Delay		4 ≤ f ≤ 500 MHz: 5	$634 + 36/\sqrt{(f \text{ ns MAX})}$								
	Delay Skew		1 ≤ f ≤ 500 MI	Hz: <20ns/100m								

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





## **Profinet Type A Cable**



	SYSTEMATIC TECHNOLOGY								
			A104301-1 C	able Specifi	cations				
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot		
		<u>A104301-1</u>	Profinet Type A	Flexible	20	0.04	\$;5,xu:		
			Physi	ical Properties					
Conductor G	auge	22 /	AWG	Conductor Stra	anding	solid bar	e copper		
Conductor M	laterial	Bare (	Copper	Conductor Insu Thickness	ulation Wall	0.015 in;	nominal		
Conductor A	-	1 sta	r quad	Bare Conducto	or Diameter	0.029 in;	nominal		
	Pair 1		e, Blue		luctor Diameter		nominal		
Color Code	Pair 2	-	Orange	Twisted Condu		· · · · · · · · · · · · · · · · · · ·	nominal		
	Pair 3		I/A	Overall Cable L	Diameter	0.256 in;	-		
	Pair 4		I/A 00V	Jacket Color			een		
Voltage Ratin			(-40 to 176 °F)	Jacket Thickness  Jacket Material		0.037 in; nominal			
Plenum			No	Sunlight Resis			es		
Shield		Overall Aluminized Po	olyester Foil And Tinned er Braid	Oil Resistance	<del></del>		es		
Drain			No	Flame Retarda	nt	Ye	es		
Conductor Insulation Material		Special	Polyolefin			104301 (2x2xAWG22	NIC ETHERNET (C) PVC /1) PROFINET TYPE A		
Minimum Bei			54in	Sample Print L	egend	Cat 5e E336436 (UL us TYPE CMG 75°C or <  20201 60°C 600V I/II A/B	) TYPE PLTC FT4 or c(UL) ogo cURus> AWM STYLE FT1 RoHS <date< th=""></date<>		
Cabled Core	Diameter	0.16	81 in			YYWW> UKCA CI	E-44 <metermarking></metermarking>		
			Electrical Characteris	stics (for 100 meter	rs of cable)	/ III	TO ANAMA OL 1 00004		
Impedance (1	1-100 MHz)		- 100 MHz	UL Classification	on	(cULus) TYPE CMG/PLTC or AWM Style 20201; (cURus) Class I and II, Div. 2; Class 1 Div. 2			
Capacitance		15.85 pF/ft @	1MHz; Nominal	Approvals**		cULus, uURus,CE, RoHS			
Resistance, I		32.7 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF		•	20 LOG(f/100) dB MIN		
Dielectric Wit Min.	thstanding,	1500\	V RMS	Insertion Loss		$1 \le f \le 100 \text{ MHz: } 1.967$	$\sqrt{f} + 0.023(f) + 0.050/\sqrt{f}$ MAX		
Return Loss		10 ≤ f < 20 M	) + 5 LOG(f) dB MIN IHz: 25 dB MIN - 7.0 LOG(f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 20.8 -	- 20 LOG( <i>f</i> /100) dB MIN		
Near End Cro (NEXT)	osstalk	$1 \le f \le 100 \text{ MHz: } 35.3$	- 15 LOG( <i>f</i> /100) dB MIN						
Power Sum N Crosstalk (PS		$1 \le f \le 100 \text{ MHz: } 32.3$	- 15 LOG( <i>f</i> /100) dB MIN						
TCL  ELTCTL  Velocity Of Propagation  Delay		$1 \le f \le 100 \text{ MHz: } 30 -$	10 LOG(f/100) dB MIN						
		1 ≤ <i>f</i> ≤ 30 MHz: 35	- 20 LOG( <i>f</i> ) dB MIN	Cross Section					
		6	5%	-					
		4 ≤ f ≤ 100 MHz: 5	$634 + 36/\sqrt{(f \text{ ns MAX})}$						
Delay Skew		1 ≤ f ≤ 100 MI	Hz: <20ns/100m						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







### **LUTZE Profibus Cable**









#### **Overview**

AutomationDirect is pleased to offer the LUTZE Profibus cable for stationary and continuous flexing applications. This cable is available in a 24 AWG or 22 AWG twisted pair. Individual conductors are bare copper or stranded for flexing applications. Conductor insulation is a special polyolefin. The cable's outer jacket is either a PUR construction or special PVC construction, utilizing a violet color similar to RAL 4001. The LUTZE Profibus cable is specifically designed, tested, and manufactured for automation technology, transport and conveyor technology, and machine tool manufacturing.

#### **Features**

- For wiring of industrial field bus systems like PROFIBUS DP, SINEC L2, F.I.P
- Outer jacket: PVC or PUR
- Overall shield
- High protection against electromagnetic interferences (EMI)
- Compliant with NFPA 79 requirements
- Silicone free

For continuous flexing options:

- Compatible with all major drag chain brands
- Flame-retardant
- Abrasion-resistant, nick-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Coolant and lubricant resistant
- Low 20 foot minimum length





Click on the above thumbnail or go to https://www.automationdirect.com/vID-WD-0016 for a short introduction on our cut to length cable

www.automationdirect.com



# **Continuous Flexing Profibus Cable**

A10	04265-1 Profibus Cable Spe	cifications (Shiel	ded)	
Conductors Gauge & Stranding	24 AWG (0.25mm²) 19 stranded bare copper	Conductor Markings	Red and green	
	300V per UL	Overall Shield	Foil shield with braided tinned copper wires, optical cover approx. 85 %	
Voltage Ratings	Tested to 1500V	Outer Jacket	PUR	
		UV Resistance	Yes	
Min. Bend Radius	5 x diameter	Oil Resistance	Yes	
		Flame Resistance	Yes	
Temperature Ratings	-40F to 176F (-40C to 80C)	Silicone-free	Yes	
Temperature natings	-400 (0 1700 (-400 (0 000)			
Velocity	9.84 ft/s (3 m/s)		(cULus) TYPE CL 3/CMG or AWM Style	
Acceleration	9.84 ft/s <sup>2</sup> (3 m/s <sup>2</sup> )	Approvals	20201; (cURus) Meets NEC 392,800	
Length of Travel	≤11.5ft (3.5 m)		LÜTZE SUPERFLEX® BUS (C) PUR 104265 (1x2xAWG24/19) E331628 -44 < c(UL)us listed	
Conductor Insulation	Special Polyolefin	Sample Print Legend	Type CMX 75°C or c(RU)us AWM Style 21198 I/ II A/B 80°C 300V FT1 HALOGEN-FREE RoHS <date code="" yyww=""> CE-44</date>	

A104265-1 Profibus Cable (Shielded)									
Part Number									
LOTZE SUPERFLEXBUS* (C) PUR									
A104265-1 1 24 19 0.315 20 0.04 \$;5,xv:									

<sup>\*</sup> See web store for maximum cut lengths





Please Note: Our prices on
Flexing Control Cable are closely tied to the
market price for copper. This allows us to offer the best
savings possible if conditions are favorable; however, it
also means that our prices may increase if market
conditions warrant.

www.automationdirect.com



## **Profibus Cable**

SYSTEMATIC TECHNOLOGY

A104293-1 Profibus Cable Specifications (Shielded)								
Conductors Gauge & Stranding	22 AWG solid bare copper	Conductor Markings	Red and green					
	600V per UL	Overall Shield	Foil shield with braided tinned copper wires, optical cover approx. 70%					
Voltage Ratings	Tested to 1500 V	Outer Jacket	PVC					
		UV Resistance	No					
Min. Bend Radius	Fixed, 7.5 x diameter	Oil Resistance	No					
		Flame Resistance	Yes					
		Silicone-free	Yes					
Temperature Ratings	-40F to 176F (-40C to 80C)	Approvals	(cULus) TYPE CL 3/CMG or AWM Style 20201; (cURus) Meets NEC 392,800					
Conductor Insulation	Special Polyolefin	Sample Print Legend	LÜTZE ELECTRONIC BUS (C) PVC 104293 (1x2xAWG22) E331628 -44 c(UL)us listed Type CMG 75°C or (UL) listed Type CL3 or AWM Style 21694 60°C 600V I A/B 1214 CE-44 15m					

	A104293-1 Profibus Cable (Shielded)										
Part Number	Number of AWG Strand Maximum O.D. Cut Length Wisted Pairs AWG Strand (Inches ±10%)  Number Of Twisted Pairs AWG Strand (Inches ±10%)						Price per foot				
LÛTZE ELECTRONIC PROFIBUS FC											
<u>A104293-1</u>	1	22	solid	0.307	20	0.05	\$;5,xx:				

<sup>\*</sup> See web store for maximum cut lengths





# **Cat5 Industrial Ethernet Continuous Flexing**



H800067-1 Cable Specifications										
Part Number Wire/Cable Type Flexibility Minimum Cut Length (ft)* Approximate Weight (lb/ft)	Price per foot									
H800067-1 Cat5 industrial Ethernet Continuous flexing 20 0.02	\$-6glg:									
Physical Properties										
Conductor Gauge   26 AWG   Conductor Stranding   19-stranded bare	e copper									
Conductor Material Bare copper Conductor Insulation Wall Thickness 0.009 in, nom	ninal									
Conductor Assembly 4 twisted pairs Bare Conductor Diameter 0.020 in, nom	ninal									
Pair 1   Blue, White   Insulated Conductor Diameter   0.038 in, nome	ninal									
Color Code Pair 2 Orange, White Twisted Conductor Diameter N/A										
Pair 3 Green, White Overall Cable Diameter 0.295 in, nom	minal									
Pair 4 Brown, White Jacket Color Green										
	0.030 in, nominal									
Temperature Rating -40 to 80 °C (-40 to 176 °F)  Jacket Material  PUR										
Plenum No Sunlight Resistant No Overall copperized polyester foil and tinned copper										
braid Oil Resistance Yes										
Drain No Flame Retardant Yes										
Conductor Insulation Material  Polypropylene  Sample Print Legend  Moving: 2.36in  Minimum Bend Radius  Moving: 2.36in  Sample Print Legend  Winimum Bend Radius	4x2xAWG26-100 FR- 315-058 <logo c(ur)<="" th=""></logo>									
Fixed: 1.48in lot no.> <ce-logo> &lt;</ce-logo>										
Electrical Characteristics (for 100 meters of cable)										
	AWM Style 21161									
Capacitance 15.2 pF/ft Approvals** cURus, CE, RoHS, Halo	cURus, CE, RoHS, Halogen-free, EAC									
Resistance, Max.   42.7 Ω DC per 1000π   Far End (ACRF)   1 ≤ f ≤ 100 MHz: 64 - 20 LOC										
Dielectric Withstanding, Min.2000V RMSInsertion Loss $1 \le f \le 100 \text{ MHz}$ : $2,866 \times \sqrt{f} + \text{dB MAX}$										
Return Loss $1 \le f < 10$ MHz: $20 + 5$ LOG10 (f) dB MIN       Power Sum Attenuation to Crosstalk Ratio, Far End $1 \le f \le 100$ MHz: $61 - 20$ LOC (PSACRF)	OG10 (f/100) dB MIN									
Near End Crosstalk (NEXT) $1 \le f \le 100 \text{ MHz: } 65.3 - 15 \text{ LOG10 } (f/100) \text{ dB MIN}$										
Power Sum Near End Crosstalk (PSNEXT) $1 \le f \le 100 \text{ MHz}$ : 62,3 - 15 LOG10 ( $f/100$ ) dB MIN	9									
TCL N/A										
ELTCTL N/A Cross Section										
Velocity of Propagation 0.67	2									
<b>Delay</b> $4 \le f \le 100 \text{ MHz: } 534 + 36/\sqrt{f} \text{ ns Max}$										
<b>Delay Skew</b> $4 \le f \le 100 \text{ MHz: Max } 45 \text{ns}$										

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







#### **HELUKABEL**®

			H800068-1 C	able Specifi	cations				
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
		H800068-1	Cat5e industrial Ethernet	Flexible	20	0.03	\$-6glb:		
			Physi	ical Properties					
Conductor (	auge	267	AWG	Conductor Stra	anding	7-stranded	bare copper		
Conductor I	flaterial	Bare	copper	Conductor Insu Thickness	ulation Wall	0.009 in	, nominal		
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	, nominal		
	Pair 1	Blue, W	hite/Blue	Insulated Cond	luctor Diameter	0.037 in	, nominal		
Color Code	Pair 2	Orange, W	hite/Orange	Twisted Condu	ctor Diameter	N	/A		
Color Code	Pair 3	Green, W	hite/Green	Overall Cable L	Diameter	0.228 in	, nominal		
	Pair 4	Brown, W	hite/Brown	Jacket Color		G	ray		
Voltage Rati	ng	10	00V	Jacket Thickne	ess	0.030 in	, nominal		
Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material		PUR			
Plenum		1	No	Sunlight Resis	tant	N	lo		
Shield		' '	ster foil and tinned copper aid	Oil Resistance		Y	es		
Drain		١	No	Flame Retarda	nt	Y	es		
Conductor I	nsulation	Polyolefin		Sample Print L	egend	4x2xAWG26/7 PUR	NT® 200IND SF/UTP 200 MHz / 800068 *		
Minimum Be	end Radius		g: 1.82in : 0.91in	Sample Fillit L	egena	E170315 <logo ru=""> AWM 21576 80°C 1000V * <fert.nr.> <month year=""> CE marking</month></fert.nr.></logo>			
			Electrical Characteris	stics (for 100 mete	rs of cable)				
Impedance			, 100 Ω ± 15 Ω z, 100 Ω ± 20 Ω	UL Classification	on	AWM Style 21576			
Capacitance	<u> </u>	14.3	pF/ft	Approvals**		UR, CE, RoHs, Halogen-free, EAC			
Resistance,	Max.	42.7 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF		1 ≤ f ≤ 100 MHz: 64 - 2	0 LOG10 (f/100) dB MIN		
Dielectric W Min.	ithstanding,	3000	V RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX		
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN Hz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 2	0 LOG10 (f/100) dB MIN		
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 ( <i>f</i> /100) dB MIN						
Power Sum Crosstalk (P		$1 \le f \le 100 \text{ MHz: } 62,3 -$	15 LOG10 (f/100) dB MIN						
TCL ELTCTL		N	I/A						
		N	I/A	Cross Section					
Velocity of F	Propagation	0	67						
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/ $√f$ ns Max						
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>









H805702-1 Cable Specifications										
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot			
		H805702-1	Cat5e industrial Ethernet	Flexible	20	0.01	\$-6glc:			
			Physi	ical Properties						
Conductor G	Bauge	26 /	AWG	Conductor Stra	anding	7-stranded	bare copper			
Conductor N	faterial	Bare	copper	Conductor Insu Thickness	ulation Wall	0.009 in	, nominal			
Conductor A	ssembly	2 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	, nominal			
	Pair 1	Orange, W	/hite/Orange	Insulated Cond	luctor Diameter	0.037 in	, nominal			
Color Code	Pair 2	Green, W	/hite/Green	Twisted Condu	ctor Diameter	N	/A			
Color Code	Pair 3	N	I/A	Overall Cable L	Diameter	0.224 in	, nominal			
	Pair 4	N	I/A	Jacket Color		В	ue			
Voltage Rati	ng	10	00V	Jacket Thickness		0.030 in, nominal				
Temperature	Rating	-30 to 70 °C	(-22 to 158 °F)	Jacket Material	!	P	JR			
Plenum		1	No	Sunlight Resis	tant	١	lo			
Shield		Overall aluminum	foil and tinned braid	Oil Resistance		Y	es			
Drain		1	No	Flame Retarda	nt	Y	es			
Conductor II Material	nsulation	Foam Polyethylene		Samula Brint I	anand	(Litze) PUI	ND SF/UTP 2x2xAWG26/7 R 100 MHz/			
Minimum Be	end Radius		g: 1.79in : 1.12in	Sample Print L	egena	805702 E170315 cULus AWM STYLE 21576_AWM I/ II A/B 1000V 80°C FT2_prod.lot.no.> CE <helu date=""></helu>				
			Electrical Characteris	stics (for 100 mete	rs of cable)					
Impedance		100 Ω	± 15 Ω	UL Classification	on	AWM Style 21576				
Capacitance	!	15.2	2 pF/ft	Approvals**		cULus, CE, RoHS, Halogen-free				
Resistance,	Max.	42.7 Ω DC	C per 1000ft	Attenuation Cre Far End (ACRF		1 ≤ f ≤ 100 MHz: 64 - 2	0 LOG10 (f/100) dB MIN			
Dielectric W Min.	ithstanding,	1000'	V RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX			
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN 1Hz: 25 dB MIN 8,6 LOG10 ( <i>f</i> /20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 2	0 LOG10 ( <i>f</i> /100) dB MIN			
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 (f/100) dB MIN							
Power Sum Crosstalk (P		1 ≤ f ≤ 100 MHz: 62,3 -	15 LOG10 (f/100) dB MIN							
TCL ELTCTL		N/A								
			I/A	Cross Section						
Velocity of P	Propagation	0	.74							
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/√ $f$ ns Max							
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns							

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Continuous Flexing**



	H82838-1 Cable Specifications									
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot			
		H82838-1	Cat5e industrial Ethernet	et Continuous flexing 20		0.01	\$-6glh:			
			Physi	ical Properties						
Conductor (	Bauge	26	AWG	Conductor Stra	nding	19-stranded	bare copper			
Conductor I	Material	Bare	copper	Conductor Insu Thickness	ılation Wall	0.009 in	nominal			
Conductor A	Ssembly	1 sta	ır quad	Bare Conducto	r Diameter	0.020 in	nominal			
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.038 in	nominal			
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	N	/A			
ooioi oodc	Pair 3	N/A		Overall Cable D	Diameter	0.189 in	nominal			
	Pair 4	N	N/A	Jacket Color		Gre	een			
Voltage Rati	ng	3	60V	Jacket Thickne	ss	0.027 in, nominal				
Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material		Pl	JR			
Plenum			No	Sunlight Resist	tant	N	lo			
Shield		Overall aluminum	foil and tinned braid	Oil Resistance			es			
Drain		ľ	No	Flame Retardar	nt	Yı	es			
Conductor II Material		Polyolefin  Moving: 1.51		Sample Print Lo	egend	<b>INDUSTRIAL ETHERNE</b>	SE) HELUKAT 100S ECO T SF/UTP 4x1x0,15mm2 S RU AWM 20963 80C 30V			
Minimum Be	end Radius		: 0.95in				3368 CE DH			
			Electrical Characteris	stics (for 100 meter	rs of cable)					
Impedance		100 Ω	! ± 15 Ω	UL Classification	on	AWM Style 20963				
Capacitance		15.5	5 pF/ft	Approvals**		UR, RoHS, Hal	ogen-free, EAC			
Resistance,	Max.	42.7 Ω DO	C per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 100 \text{ MHz: } 64 - 20$				
Dielectric W Min.	ithstanding,	500\	/ RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX			
Return Loss	:	10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN MHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Atto Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 2	0 LOG10 ( <i>f</i> /100) dB MIN			
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 (f/100) dB MIN							
Power Sum Crosstalk (P		1 ≤ f ≤ 100 MHz: 62,3 -	15 LOG10 (f/100) dB MIN							
TCL ELTCTL		١	N/A							
		N	N/A	Cross Section						
Velocity of F	Propagation	0	.67							
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/ $√f$ ns Max							
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns							

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat5e Industrial Ethernet Continuous Flexing**



			H82839-1 Ca	ible Specific	ations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot
	-	H82839-1	Cat5e industrial Ethernet	t Continuous flexing 20		0.02	\$;-6glf:
			Physi	ical Properties			
Conductor C	Gauge	26	AWG	Conductor Stra	nding	19-stranded	bare copper
Conductor N	Material	Bare	copper	Conductor Insu Thickness	ılation Wall	0.009 in	nominal
Conductor A	Assembly	4 twist	ted pairs	Bare Conducto	r Diameter	0.020 in	nominal
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.038 in	nominal
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	N	/A
ooioi oodc	Pair 3	Green, W	/hite/Green	Overall Cable D	Diameter	0.260 in	nominal
	Pair 4	Brown, W	/hite/Brown	Jacket Color		Gre	een
Voltage Rati	ng	3	60V	Jacket Thickness		0.030 in, nominal	
Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material		Pl	JR
Plenum			No	Sunlight Resist	tant	N	lo
Shield		Overall alumin	um foil and braid	Oil Resistance			es
Drain		ľ	No	Flame Retardar	nt	Yı	es
Conductor II Material	nsulation	,	Polyolefin Moving: 2.08in		egend	HELUKAT 100S ECO INDUSTRIAL ETHERNET SF/UTP 4x2x0,15mm2 (LITZE) / 82839 * E170315 RU AWM 20963 80C 30V * 0011179447 CE HG	
Minimum Be	end Radius		: 1.30in				L FOOTAGE)
			Electrical Characteris	stics (for 100 meter	rs of cable)		
Impedance		100 Ω	± 15 Ω	UL Classification	on	AWM Style 20963	
Capacitance	)	14.6	6 pF/ft	Approvals**		UR, CE, RoHs, Halogen-free, EAC	
Resistance,	Мах.	38.1 Ω DC	C per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 100 \text{ MHz: } 64 - 20$	
Dielectric W Min.	ithstanding,	500\	/ RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX
Return Loss	;	10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN MHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Atte Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 2	0 LOG10 (f/100) dB MIN
Near End Cr (NEXT)	rosstalk	1 ≤ <i>f</i> ≤ 100 MHz: 65,3 -	15 LOG10 (f/100) dB MIN				
Power Sum Crosstalk (P		1 ≤ f ≤ 100 MHz: 62,3 -	15 LOG10 (f/100) dB MIN				
TCL ELTCTL		1	N/A				
		l l	N/A	Cross Section		000	
Velocity of F	Propagation	0	.67				
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/√ $f$ ns Max				
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns				

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







#### **HELUKABEL**®

			H805655-1 C	able Specifi	cations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot
		<u>H805655-1</u>	Cat6 industrial Ethernet	t Semi-flexible 20		0.03	\$-6glu:
			Physi	ical Properties			
Conductor C	Gauge	24 /	AWG	Conductor Stra	anding	Solid bar	re copper
Conductor N	/laterial	Bare	copper	Conductor Inst Thickness	ılation Wall	0.009 in	, nominal
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.020 in	, nominal
	Pair 1	Blue, W	/hite/Blue	Insulated Cond	luctor Diameter	0.039 in	, nominal
Color Code	Pair 2	Orange, W	/hite/Orange	Twisted Condu	ctor Diameter	N	/A
Soloi Code	Pair 3	Green, W	/hite/Green	Overall Cable L	Diameter	0.315 in	, nominal
	Pair 4	Brown, W	/hite/Brown	Jacket Color		Gr	een
Voltage Rati	ng		00V	Jacket Thickness		0.030 in, nominal	
Temperature	Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Materia		P	/C
Plenum		1	No	Sunlight Resis	tant	N	lo
Shield		Overall alumin	um foil and braid	Oil Resistance		Y	es
Drain		1	No	Flame Retarda	nt	Y	es
Conductor II Material	nsulation	·	Polyethylene  Moving: 2.52in		egend	Ethernet SF/UTP 4x2xA	JKAT® 250IND Industrial WG24/1 PVC / 805655 * 5°C FT4 0158 <pre>production</pre>
Minimum Be	end Radius		: 1.58in			lot nr.> <ce-logo <helu="" date=""></ce-logo>	
		400 0 45 6	Electrical Characteris	stics (for 100 mete	rs of cable)		
Impedance			2 1 to 100 MHz 101 to 250 MHz	UL Classification	on	(cULus) Type CMG	
Capacitance	<b>!</b>	21.9	pF/ft	Approvals**		cULus, CSA, CE, RoHS, Halogen-free	
Resistance,	Мах.	29 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		$1 \le f \le 250 \text{ MHz: } 68 - 20 \text{ LOG10 } (f/100) \text{ dB MIN}$	
Dielectric W. Min.	ithstanding,	1500	V RMS	Insertion Loss			$f + 0.0169 \times (f) + 0.25 / \sqrt{f}$ MAX
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN - 7 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 250 MHz: 65 - 2	0 LOG10 ( <i>f</i> /100) dB MIN
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 250 MHz: 75,3 -	15 LOG10 (f/100) dB MIN				
Power Sum Crosstalk (P		1 ≤ f ≤ 250 MHz: 72,3 -	15 LOG10 (f/100) dB MIN				
TCL ELTCTL		N	I/A	0			
		N	I/A	Cross Section			
Velocity of P	Propagation	0	.62				
Delay		4 ≤ f ≤ 250 MHz:	534 + 36/ $√f$ ns Max				
Delay Skew		4 ≤ f ≤ 250 N	MHz: Max 45ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Cat6 Industrial Ethernet Continuous Flexing**



	H803387-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
		H803387-1	Cat6 industrial Ethernet	Continuous flexing	20	0.02	\$6gli:		
			Physi	cal Properties					
Conductor G	auge	267	AWG	Conductor Stra		19-stranded t	tinned copper		
Conductor N	laterial	Tinned	l copper	Conductor Insu Thickness	ılation Wall	0.009 in,	nominal		
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.020 in,	nominal		
	Pair 1	,	hite/Blue	Insulated Cond	uctor Diameter	0.038 in,	nominal		
Color Code	Pair 2	0 1	hite/Orange	Twisted Condu			/A		
	Pair 3	,	hite/Green	Overall Cable D	Diameter	0.307 in,			
V-14 D-4	Pair 4	,	hite/Brown	Jacket Color			een		
Voltage Ration					Jacket Thickness		0.030 in, nominal		
Plenum	Rauny			Jacket Material Sunlight Resistant		No			
Shield		Overall aluminized polyester foil and tinned copper		Oil Resistance	ane		es		
Drain		-	No	Flame Retardar	 nt	Ye	 es		
Conductor In	nsulation	Polypropylene		Commis Bright	d	<metermarking>m HEL Ethernet SF/UTP 4x2xAV</metermarking>	.UKAT® 250S Industrial NG26/19 PUR / 803387 *		
Minimum Be	nd Radius	Moving: 2.46in Fixed: 1.23in		Sample Print Legend		c(UL)us E31218 CMX 75 80°C 0158 <prod.nr.></prod.nr.>	°C or AWM 21576 1000V CE <month year=""></month>		
		T	Electrical Characteris	stics (for 100 meter	rs of cable)				
Impedance			1 to 100 MHz 101 to 250 MHz	UL Classification		(cULus) Type CMX or AWM Style 21576			
Capacitance		15.2	pF/ft	Approvals**		cULus, CSA, CE, RoHS, Halogen-free, EAC			
Resistance,		42.7 Ω DC	per 1000ft	Attenuation Cro Far End (ACRF)		1 ≤ f ≤ 250 MHz: 68 - 20			
Dielectric Wi Min.	ithstanding,		/ RMS	Insertion Loss		$1 \le f \le 250 \text{ MHz: } 2,73 \text{ x } \sqrt{\text{dB } f}$	$f + 0.026 \times (f) + 0.375 / \sqrt{f}$ MAX		
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Atta Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 250 MHz: 65 - 20	0 LOG10 ( <i>f</i> /100) dB MIN		
Near End Cr (NEXT)		1 ≤ f ≤ 250 MHz: 75,3 -	15 LOG10 ( <i>f</i> /100) dB MIN						
Power Sum I Crosstalk (P		1 ≤ f ≤ 250 MHz: 72,3 -	15 LOG10 ( <i>f</i> /100) dB MIN				670		
TCL		N/A		Cross Sastian					
ELTCTL Velocity of Propagation		N	I/A	Cross Section					
		0.	67						
Delay		4 ≤ f ≤ 250 MHz:	534 + 36/ $√f$ ns Max						
Delay Skew		4 ≤ f ≤ 250 N	MHz: Max 45ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







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			H803693-1 C	able Specifi	cations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot
	A. T.	H803693-1	Cat6a industrial Ethernet	Flexible	20	0.03	\$-6gld:
			Physi	ical Properties			
Conductor G	auge	22.	AWG	Conductor Stra	nnding	Solid bar	e copper
Conductor N	laterial	Bare	copper	Conductor Inst Thickness	ılation Wall	0.018 in	nominal
Conductor Assembly		4 twist	ed pairs	Bare Conducto	r Diameter	0.025 in	nominal
	Pair 1	Blue	, White	Insulated Cond	luctor Diameter	0.061 in	nominal
Color Code	Pair 2	Orang	e, White	Twisted Condu	ctor Diameter	N	/A
Color Code	Pair 3	Greer	n, White	Overall Cable L	Diameter	0.378 in	nominal
	Pair 4	Browr	n, White	Jacket Color			een
Voltage Ratio			00V	Jacket Thickne	ss	0.027 in	nominal
Temperature	Rating		(-40 to 176 °F)	Jacket Materia			/C
Plenum			No	Sunlight Resis	tant	N	lo
Shield		aluminized polyester for	polyester foil with overall il and tinned copper braid	Oil Resistance			es
Drain		Υ	'es	Flame Retarda	nt	-	es
Conductor In Material Minimum Be		Foam Polyethylene 1.51in		Sample Print Legend		ETHERNET STANDAR 4x2xAWG22/1 CAT6A c(I FR ICE60332-3 OIL RES	UKABEL® INDUSTRIAL D CABLE SK TP S/FTP JL)us CMG FT4 E312184 SUN RES ART.NR.803693
		Flectrical Characteris		stics (for 100 meters of cable)		0158 <pre>of one of the control of th</pre>	
Impedance		100 Ω	± 15 Ω	UL Classification		(cULus) Type CMG	
Capacitance			pF/ft	Approvals**	<del>-</del>		CE, EAC, CC-Link-IE
Resistance,	Мах.	17.2 Ω DC	C per 1000ft	Attenuation Cr Far End (ACRF		1 ≤ f ≤ 500 MHz: 68 - 2	0 LOG10 (f/100) dB MIN
Dielectric Wi Min.	ithstanding,	2000	V RMS	Insertion Loss			$f + 0.0091 \times (f) + 0.25 / \sqrt{f}$ MAX
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN MHz: 25 dB MIN - 7 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 500 MHz: 65 - 2	0 LOG10 (f/100) dB MIN
Near End Cro (NEXT)		1 ≤ f ≤ 500 MHz: 75,3 -	15 LOG10 (f/100) dB MIN				
Power Sum I Crosstalk (P		1 ≤ f ≤ 500 MHz: 72,3 -	15 LOG10 (f/100) dB MIN				
TCL ELTCTL		N	I/A				
		N	N/A	Cross Section			
Velocity of P	ropagation	0	.76			Q.O	
Delay		4 ≤ f ≤ 500 MHz:	534 + 36/ $√f$ ns Max				
Delay Skew		4 ≤ f ≤ 500 N	MHz: Max 45ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>









			H805548-1 C	able Specifi	cations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot	
		<u>H805548-1</u>	Cat6a industrial Ethernet	Flexible	20	0.02	\$6gII:	
		Physic		ical Properties				
Conductor Gauge		26	AWG	Conductor Stra	anding	7-stranded t	inned copper	
Conductor Material		Tinnec	d copper	Conductor Inst Thickness	ılation Wall	0.009 in	, nominal	
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	, nominal	
	Pair 1	Blue	, White	Insulated Cond	luctor Diameter	0.037 in	, nominal	
Color Code	Pair 2	Orang	e, White	Twisted Condu	ctor Diameter	N	/A	
Color Code	Pair 3	Greer	n, White	Overall Cable L	Diameter	0.260 in	, nominal	
	Pair 4	Brown	n, White	Jacket Color		Gr	een	
Voltage Ratii	ng	30	00V	Jacket Thickne	ess	0.028 in, nominal		
Temperature	Rating	-10 to 70 °C	(14 to 158 °F)	Jacket Materia	!	PUR		
Plenum		1	No	Sunlight Resis	tant	No		
Shield		Overall aluminum foil	and tinned copper braid	Oil Resistance		Y	es	
Drain		1	No	Flame Retarda	nt		es	
Conductor In Material Minimum Be		Foam Polyethylene  Moving: 2.08in Fixed: 1.30in		Sample Print L	egend	SF/FTP 4x2xAWG2 Kat. 6A / 805548 c(UL)u <logo c(ur)us=""> AWM 21</logo>	AT® 500 Industrial Ethernet 26-100 PUR 500MHz Is E312184 CMX 75°C or 576 80°C 1000V I A/B FT2	
				stics (for 100 meters of cable)		0158 <production lot="" nr.=""> <ce-logo> <helu date<="" th=""></helu></ce-logo></production>		
Impedance			1 to 100 MHz 101 to 500 MHz	UL Classification	,	(cULus) Type CMX or AWM Style 21576		
Capacitance		15.2	2 pF/ft	Approvals**		cULus, cURus, CE, RoHS, Halogen-free		
Resistance,	Max.	45.8 Ω DO	C per 1000ft	Attenuation Cr Far End (ACRF		1 ≤ f ≤ 500 MHz: 68 - 2	0 LOG10 (f/100) dB MIN	
Dielectric Wi Min.	ithstanding,	2000	V RMS	Insertion Loss		$1 \le f \le 500 \text{ MHz: } 2,73$ $0.375/\sqrt{3}$	$5 \times \sqrt{f} + 0.01365 \times (f) + 6 \times (f) \times (f) + 6 \times (f) \times$	
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN MHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 500 MHz: 65 - 20 LOG10 (f/100) dB MIN		
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 75,3 -	15 LOG10 (f/100) dB MIN					
Power Sum I Crosstalk (P		1 ≤ f ≤ 500 MHz: 72,3 -	15 LOG10 (f/100) dB MIN					
TCL  ELTCTL  Velocity of Propagation		N	I/A					
		N	I/A	Cross Section				
		0	.76			QO		
Delay		4 ≤ f ≤ 500 MHz:	534 + 36/√ $f$ ns Max					
Delay Skew		4 ≤ f ≤ 500 N	MHz: Max 45ns					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







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	H805703-1 Cable Specifications							
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot	
		<u>H805703-1</u>	Cat6a industrial Ethernet	Flexible	20	0.03	\$-6glk:	
			Physi	ical Properties				
Conductor (	auge	24 /	AWG	Conductor Stra	anding	7-stranded t	inned copper	
Conductor N	Material	Tinnec	l copper	Conductor Inst Thickness	ulation Wall	0.013 in	, nominal	
Conductor A	Ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.024 in	, nominal	
	Pair 1	Blue,	White	Insulated Cond	luctor Diameter	0.050 in	, nominal	
Color Code	Pair 2	Orango	e, White	Twisted Condu	ctor Diameter	N	/A	
Color Code	Pair 3	Green	, White	Overall Cable L	Diameter	0.343 in	, nominal	
	Pair 4	Brown	ı, White	Jacket Color		Gr	een	
Voltage Rati	ng	30	00V	Jacket Thickne	ess	0.028 in	, nominal	
Temperature	Rating	-10 to 70 °C	(14 to 158 °F)	Jacket Materia	<u> </u>	PI	JR	
Plenum		1	No	Sunlight Resis	tant	N	lo	
Shield			with overall aluminum foil copper braid	Oil Resistance		Υ	es	
Drain		1	No	Flame Retarda	nt	Y	es	
Conductor In Material  Minimum Be		Foam Polyethylene  Moving: 2.74in Fixed: 1.72in		Sample Print Legend		INDUSTRIAL ETHERNE PUR 500 MHz / 805703 75C or cRUus AWM 215	AGE) HELUKAT 600S T SF/FTP 4x2xAWG24/7 * c(UL)us E312184 CMX 576 I A/B 80C 1000V FT2 7586 0219	
				stics (for 100 meters of cable)		00301041	7300 0219	
Impedance			2 1 to 100 MHz 101 to 500 MHz	UL Classification	· · · · · · · · · · · · · · · · · · ·	(cULus) Type CMX	or AWM Style 21576	
Capacitance	<u> </u>		PF/ft	Approvals**		cULus, cURus, CE, CS	SA, RoHS, Halogen-free	
Resistance,	Мах.	26.7 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		1 ≤ f ≤ 500 MHz: 68 - 2	0 LOG10 (f/100) dB MIN	
Dielectric W Min.	ithstanding,	3000	V RMS	Insertion Loss			$x \sqrt{f} + 0.01365 x (f) + dB MAX$	
Return Loss	:	10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN 8,6 LOG10 ( <i>f</i> /20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 500 MHz: 65 - 2	0 LOG10 (f/100) dB MIN	
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 75,3 -	15 LOG10 ( <i>f</i> /100) dB MIN					
Power Sum Near End Crosstalk (PSNEXT)		$1 \le f \le 500 \text{ MHz: } 72,3 -$	15 LOG10 (f/100) dB MIN					
TCL		N	I/A					
ELTCTL		N	I/A	Cross Section				
Velocity of F	Propagation	0	.75			QO		
Delay		4 ≤ f ≤ 500 MHz:	534 + 36/√ $f$ ns Max					
Delay Skew		4 ≤ f ≤ 500 N	//Hz: Max 45ns					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







#### **HELUKABEL**®

			H805704-1 C	able Specifi	cations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot
		H805704-1	Cat6a industrial Ethernet	Flexible	20	0.03	\$-6gle:
			Physi	ical Properties			
Conductor G	auge	24 /	AWG	Conductor Stra	anding	7-stranded t	inned copper
Conductor N	faterial	Tinnec	d copper	Conductor Insu Thickness	ulation Wall	0.013 in	nominal
Conductor A	ssembly	4 twist	ed pairs	airs Bare Conductor Diameter		0.024 in	nominal
	Pair 1	Blue,	White	Insulated Cond	luctor Diameter	0.050 in	nominal
Color Code	Pair 2	Orango	e, White	Twisted Condu	ctor Diameter	N	/A
Color Code	Pair 3	Greer	n, White	Overall Cable L	Diameter	0.343 in	nominal
	Pair 4	Brown	n, White	Jacket Color		Gr	een
Voltage Rati	ng	10	00V	Jacket Thickne	ess	0.027 in, nominal	
Temperature	Rating	-10 to 70 °C	(14 to 158 °F)	Jacket Material	!	PVC	
Plenum			No	Sunlight Resis	tant	N	lo
Shield			with overall aluminum foil copper braid	Oil Resistance		Y	es
Drain		١	No	Flame Retarda	nt	Y	es
Conductor II Material	nsulation	Foam Polyethylene		Sample Print L	egend	INDUSTRIAL ETHERNE	AGE) HELUKAT 500S T SF/FTP 4x2xAWG24/7
Minimum Be	end Radius	Moving: 2.74in Fixed: 1.72in				PVC 500MHz / 805704 * c(UL)us E312184 CM 750 015813018168 DF CE	
			Electrical Characteris	i i			
Impedance			± 15 Ω	UL Classification	on	(cULus) Type CM	
Capacitance	! 	15.2	2 pF/ft	Approvals**		cULus, CSA	A, CE, RoHS
Resistance,		26.7 Ω DC	C per 1000ft	Attenuation Cre Far End (ACRF		,	0 LOG10 (f/100) dB MIN
Dielectric Wi Min.	ithstanding,		V RMS	Insertion Loss			$x \sqrt{f} + 0.01365 x (f) + 6 dB MAX$
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 500 MHz: 65 - 2	0 LOG10 ( <i>f</i> /100) dB MIN
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 500 MHz: 75,3 -	15 LOG10 (f/100) dB MIN				
Power Sum Crosstalk (P		1 ≤ f ≤ 500 MHz: 72,3 -	15 LOG10 (f/100) dB MIN				
TCL		N	I/A				
ELTCTL			I/A	Cross Section			
Velocity of P	Propagation	0	.75			Q.O	
Delay		4 ≤ f ≤ 500 MHz:	534 + 36/√ $f$ ns Max				
Delay Skew		$4 \le f \le 500 \text{ N}$	MHz: Max 45ns				

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







### **HELUKABEL**®

	H805614-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
		H805614-1	Cat7 industrial Ethernet	Flexible	20	0.03	\$-6glo:		
		Physi		ical Properties					
Conductor Gauge		24 /	AWG	Conductor Stra	anding	7-stranded t	inned copper		
Conductor N	faterial (	Tinned	Copper	Conductor Inst Thickness	ulation Wall	0.015 in	, nominal		
Conductor Assembly		4 twist	ed pairs	Bare Conducto	or Diameter	0.024 in	, nominal		
	Pair 1	Blue,	White	Insulated Cond	luctor Diameter	0.054 in	, nominal		
Color Code	Pair 2	Orango	e, White	Twisted Condu	ictor Diameter	N	/A		
COIOI COUC	Pair 3	Green	, White	Overall Cable L	Diameter	0.343 in	, nominal		
	Pair 4	Brown	, White	Jacket Color		Gr	een		
Voltage Rati	ng	60	00V	Jacket Thickne	ess	0.030 in	, nominal		
Temperature	Rating	-30 to 70 °C (-22 to 158 °F)		Jacket Material		PUR			
Plenum			No	Sunlight Resis	tant	N	lo		
Shield			with overall aluminum foil copper braid	Oil Resistance		Y	es		
Drain		1	No	Flame Retarda	nt	Y	es		
Conductor II Material  Minimum Be		Foam Polyethylene  Moving: 2.74in Fixed: 1.72in		Sample Print Legend		<metermarking>m HELUKAT® 600S Industrial Ethernet SF/FTP 4x2xAWG24/7 PUR 600 MHz 805614_ *_ E312184-058 c(UL)us CMX 75°C or <logo c(ur)us=""> AWM 20940 I A/B 80°C 600V FT2 0158<pre>production lot no.&gt;</pre></logo></metermarking>			
		Electrical Characteris		stics (for 100 meters of cable)		-			
Impedance			1 to 100 MHz 101 to 600 MHz	UL Classificati	on	(cULus) Type CMX or AWM Style 20940			
Capacitance		r	ı/a	Approvals**		cULus, cURuc, CE, RoHS, Halogen-free, CC-Link IE			
Resistance,	Мах.	26.7 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		1 ≤ f ≤ 600 MHz: 94 - 2	0 LOG10 (f/100) dB MIN		
Dielectric W Min.	ithstanding,	2000	V RMS	Insertion Loss		$1 \le f \le 600 \text{ MHz: } 2.7 \text{ x } \sqrt{g}$	$f + 0.015 \times (f) + 0.3 / \sqrt{f} \text{ dB}$		
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 600 MHz: 91 - 2	0 LOG10 ( <i>f</i> /100) dB MIN		
Near End Cr (NEXT)	osstalk		4 - 15 LOG10 ( <i>f</i> /100) dB IIN						
Power Sum Near End Crosstalk (PSNEXT)		$1 \le f \le 600 \text{ MHz: } 99,4 -$	15 LOG10 ( <i>f</i> /100) dB MIN						
TCL ELTCTL		N	I/A						
		N	I/A	Cross Section					
Velocity of P	Propagation	0.	74			Q.O			
Delay		4 ≤ f ≤ 600 MHz:	534 + 36/√ $f$ ns Max						
Delay Skew		4 ≤ f ≤ 600 N	MHz: Max 25ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







#### **ELUKABEL®**

	H802184-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
	A Property of the Parket of th	H802184-1	Cat7 industrial Ethernet	Flexible	20	0.02	\$-6gln:		
			Physi	ical Properties					
Conductor (	Gauge	26	AWG	Conductor Stra	anding	7-stranded	bare copper		
Conductor I	Material	Bare	copper	Conductor Inst Thickness	ulation Wall	0.009 in	, nominal		
Conductor A	Assembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.019 in	, nominal		
	Pair 1	Blue,	White	Insulated Cond	luctor Diameter	0.037 in	, nominal		
Color Code	Pair 2	Orang	e, White	Twisted Condu	ctor Diameter	N	/A		
Color Code	Pair 3	Greer	n, White	Overall Cable L	Diameter	0.252 in	, nominal		
	Pair 4	Brown	n, White	Jacket Color		Gr	een		
Voltage Rati	ng	3	0V	Jacket Thickne	ess	0.020 in	, nominal		
Temperature	e Rating	-40 to 80 °C	(-40 to 176 °F)	Jacket Material	!	PI	JR		
Plenum		١	No	Sunlight Resis	Sunlight Resistant No		lo		
Shield		Individual polyester foil with overall polyester foil and aluminum-lined copper braid		Oil Resistance		Υ	es		
Drain		No		Flame Retarda	nt	Y	es		
Conductor I Material	nsulation	Foam Polyethylene		Sample Print L	eaend	4x2xAWG26/7 PUR / 8	JKAT® 600IND S/FTP 02184 * E170315 <logo< th=""></logo<>		
Minimum Be	end Radius	Moving: 2.02in Fixed: 1.26in					80°C 30V I A/B FT2 * eichen> <helu datum=""></helu>		
			Electrical Characteris	stics (for 100 mete	rs of cable)				
Impedance			2 1 to 100 MHz 101 to 600 MHz	UL Classification		AWM Style 20963			
Capacitance	)	12.8	3 pF/ft	Approvals**		cURus, CE, RoHS, Halogen-free, EAC			
Resistance,	Мах.	42.7 Ω DC	C per 1000ft	Attenuation Cr Far End (ACRF			0 LOG10 (f/100) dB MIN		
Dielectric W Min.	ithstanding,	2000	V RMS	Insertion Loss			$f + 0.015 \times (f) + 0.3/\sqrt{f}  dB$		
Return Loss	;	10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN 1Hz: 25 dB MIN 8,6 LOG10 ( <i>f</i> /20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 600 MHz: 91 - 2	0 LOG10 ( <i>f</i> /100) dB MIN		
Near End Cr (NEXT)			4 - 15 LOG10 ( <i>f</i> /100) dB //IN						
Power Sum Near End Crosstalk (PSNEXT)		1 ≤ f ≤ 600 MHz: 99,4 -	15 LOG10 (f/100) dB MIN						
TCL ELTCTL		N	I/A						
		N	N/A	Cross Section					
Velocity of F	Propagation	0	.75			QO			
Delay		$4 \le f \le 600 \text{ MHz}$ :	534 + 36/ $√f$ ns Max						
Delay Skew		4 ≤ f ≤ 600 N	MHz: Max 25ns						

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths \*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at www.AutomationDirect.com







### **HELUKABEL**®

	H805680-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
	A Prince of the	H805680-1	Cat7a industrial Ethernet	Semi-flexible	20	0.03	\$-6glv:		
		Physic		ical Properties					
Conductor G	auge	23 /	AWG	Conductor Stra	anding	Solid bar	re copper		
Conductor Material		Bare	copper	Conductor Inst Thickness	ulation Wall	0.016 in	, nominal		
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.023 in	, nominal		
	Pair 1	Blue,	Blue, White Insulated Conductor Diameter		0.055 in	, nominal			
Color Code	Pair 2	Orange	e, White	Twisted Condu	ctor Diameter	N	/A		
Soloi Code	Pair 3	Green	, White	Overall Cable L	Diameter	0.307 in	, nominal		
	Pair 4	Brown	, White	Jacket Color		Gr	een		
Voltage Rati	ng		00V	Jacket Thickne	ess		, nominal		
Temperature	Rating	-40 to 80 °C (-40 to 176 °F)		Jacket Material		polyurethane (PUR)			
Plenum			10	Sunlight Resis	tant	N	No		
Shield		Individual aluminum foil and overall aluminum-lined copper braid		Oil Resistance		Y	es		
Drain		No		Flame Retarda	nt	Y	es		
Conductor II Material	nsulation	Foam Polyethylene		Sample Print L	eaend	4x2xAWG23 S/FTP PUR	HELUKAT® 1200IND 1200 MHz ART.NR.805680		
Minimum Be	nd Radius		g: 2.46in : 1.54in	Campie Time 2			LE 20549 AWM I A/B 300V		
		T		stics (for 100 meters of cable)		l			
Impedance			1 to 100 MHz 01 to 1200 MHz	UL Classification		AWM Style 20549			
Capacitance	!	13.1	pF/ft	Approvals**		cULus, CE, RoHS, Halogen-free			
Resistance,	Мах.	22.7 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		-	20 LOG10 (f/100) dB MIN		
Dielectric Wi Min.	ithstanding,	700\	'RMS	Insertion Loss			$\sqrt{f} + 0.01 \times (f) + 0.2/\sqrt{f} \text{ dB}$		
Return Loss		$10 \le f < 20 \text{ N}$ $20 \le f \le 600 \text{ MHz: } 25 - 600 \le f \le 1000 \text{ MHz: } 17$	- 5 LOG10 (f) dB MIN Hz: 25 dB MIN 7 LOG10 (f/20) dB MIN ,3 - 10 LOG10 (f/600) dB	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 1000 MHz: 92,3 -	20 LOG10 ( <i>f/</i> 100) dB MIN		
Near End Cr (NEXT)	osstalk		4 - 15 LOG10 (ƒ/100) dB IIN						
Power Sum Crosstalk (P			4 - 15 LOG10 (ƒ/100) dB IIN						
TCL		N	I/A						
ELTCTL		N	I/A	Cross Section					
Velocity of P	Propagation	0.	76						
Delay		4 ≤ f ≤ 1000 MHz:	534 + 36/√ $f$ ns Max						
Delay Skew		4 ≤ f ≤ 1000 l	MHz: Max 25ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>







### **HELUKABEL**®

			H801197-1 C	able Specifi	cations		
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot
		<u>H801197-1</u>	Cat7e industrial Ethernet	Semi-flexible	20	0.02	\$-6glx:
			Physi	cal Properties			
Conductor Gauge		237	AWG	Conductor Stra		Solid bar	e copper
Conductor N	/laterial	Bare	copper	Conductor Insu Thickness	ılation Wall	0.016 in	nominal
Conductor A	ssembly	4 twist	ed pairs	Bare Conducto	r Diameter	0.023 in	nominal
	Pair 1	Blue,	White	Insulated Cond	luctor Diameter	0.056 in	nominal
Color Code	Pair 2	Orango	e, White	Twisted Condu	ctor Diameter		/A
20.5. 0006	Pair 3		, White	Overall Cable L	Diameter	0.323 in	nominal
	Pair 4		n, White	Jacket Color			een
Voltage Rati			00V	Jacket Thickne			nominal
Temperature	Rating		(-40 to 176 °F)	Jacket Material		polyurethane (PUR)	
Plenum		-	No and overall aluminum-lined	Sunlight Resis	tant	N	lo
Shield		copper braid		Oil Resistance		Yı	es
Drain		ı	No	Flame Retarda	nt		es
Material  Minimum Be		Foam Polyethylene Moving: 2.58in Fixed: 1.62in		Sample Print Legend		PUR_1200_MHz_/_8	S/FTP_4x2xAWG23/1_ 01197_E170315_cus_ 80°C_600V_AWM_I_A/ 15800000000CE_ CD
		Electrical Characteris		tics (for 100 meters of cable)			
Impedance			0 1 to 100 MHz 101 to 1000 MHz	UL Classification	on	AWM Sty	rle 21238
Capacitance		13.1	pF/ft	Approvals**		cULus, CE, RoHS, Halog	en-free, EAC, CC-Link IE
Resistance,	Max.	22.7 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		$1 \le f \le 1000 \text{ MHz: } 95,3 -$	20 LOG10 (f/100) dB MIN
Dielectric W. Min.	ithstanding,	2000	V RMS	Insertion Loss			$f + 0.01 \times (f) + 0.2 / \sqrt{f} \text{ dB}$
Return Loss		$10 \le f < 20 \text{ M}$ $20 \le f \le 600 \text{ MHz: } 25 - 600 \le f \le 1000 \text{ MHz: } 17$	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN 7 LOG10 (f/20) dB MIN ,3 - 10 LOG10 (f/600) dB IIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 1000 MHz: 92,3 -	20 LOG10 ( <i>f</i> /100) dB MIN
Near End Cr (NEXT)	osstalk		4 - 15 LOG10 ( <i>f</i> /100) dB IIN				
Power Sum Crosstalk (P			4 - 15 LOG10 (ƒ/100) dB IIN				
TCL		N	I/A				
ELTCTL		N	I/A	Cross Section			
Velocity of F	Propagation	0.	76				
Delay		4 ≤ f ≤ 1000 MHz:	534 + 36/√ $f$ ns Max				
Delay Skew		4 ≤ f ≤ 1000 l	MHz: Max 25ns				

<sup>\*</sup> See web store <u>www.AutomationDirect.com</u> for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





### **Profinet**



			H802293-1 C	able Specifi	cations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot	
		H802293-1	Profinet	Flexible	20	0.02	\$-6gls:	
		Physic		ical Properties				
Conductor (	Gauge	22 /	AWG	Conductor Stra	anding	7-stranded ti	inned copper	
Conductor I	Material	Tinned	copper	Conductor Inst Thickness	ulation Wall	0.015 in,	nominal	
Conductor A	Ssembly	1 sta	rquad	Bare Conducto	r Diameter	0.030 in,	nominal	
	Pair 1	White	e, Blue	Insulated Cond	luctor Diameter	0.060 in	nominal	
Color Code	Pair 2	Yellow,	Orange	Twisted Condu	ctor Diameter		/A	
Color Code	Pair 3	N	/A	Overall Cable L	Diameter	0.256 in,	nominal	
	Pair 4	N	/A	Jacket Color		Bla	ack	
Voltage Rati	ing	30	00V	Jacket Thickne	ess	0.030 in,	nominal	
Temperature	e Rating	-40 to 105 °C	(-40 to 221 °F)	Jacket Materia	1	cross-linked Flame-Re (X-Fl	tardent-Non-Corrosive RNC)	
Plenum		١	lo	Sunlight Resis	tant	N	No	
Shield		' '	ster foil and tinned copper aid	Oil Resistance		Yı	es	
Drain		No		Flame Retarda	nt	Y	es	
Conductor In Material	nsulation	Cross linked polyethylene (XLPE)		Sample Print L	egend	HELUKABEL INDUSTRIA CABLE * PROFINET 1 res. * E170315 UL AW	05 °C CAT 5 PLUS Oil	
Minimum Be	end Radius	Moving: 2.05in Fixed: 1.28in		otice (for 100 meters of cable)			802293 * "month/year" CE	
			Electrical Characteris	1		AVMA CE 1- 04004		
Impedance			1 to 100 MHz	UL Classification	on	AWM Sty		
Capacitance	)	15.8	pF/ft	Approvals**		UL, CE, R	oHS, EAC	
Resistance,		18.3 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		-	0 LOG10 (f/100) dB MIN	
Dielectric W Min.	ithstanding,		/ RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX	
Return Loss		10 ≤ f < 20 M	+ 5 LOG10 (f) dB MIN Hz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ f ≤ 100 MHz: 61 - 20 LOG10 (f/100) dB MIN		
Near End Cr (NEXT)	rosstalk	1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 ( <i>f</i> /100) dB MIN					
Power Sum Crosstalk (P		1 ≤ f ≤ 100 MHz: 62,3 -	15 LOG10 ( <i>f</i> /100) dB MIN					
TCL		N/A						
ELTCTL		N	//A	Cross Section				
Velocity of F	Propagation	0.	69					
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/ $√f$ ns Max					
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns					

<sup>\*</sup> See web store <a href="www.AutomationDirect.com">www.AutomationDirect.com</a> for maximum cut lengths

\*\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>





## **Profinet Type B** (Includes Power Conductors)



	H801651-1 Cable Specifications								
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
		<u>H801651-1</u>	Profinet Type B	Flexible	20	0.06	\$-6glp:		
			Physi	ical Properties					
Conductor (	Gauge		net conductors ver conductors	Conductor Stra	anding	7-stranded	bare copper		
Conductor I	Vlaterial	Bare	copper	Conductor Insu Thickness	ulation Wall	0.015 in	nominal		
Conductor A	Assembly	\ '	pairs, (4) unshielded uctors	Bare Conducto	or Diameter	0.030 in	nominal		
	Pair 1	Blue,	White	Insulated Cond	luctor Diameter	0.060 in	nominal		
Color Code	Pair 2	Yellow,	Orange	Twisted Conductor Diameter		N	/A		
	Pair 3	N	I/A	Overall Cable L	Diameter	0.406 in	nominal		
	Pair 4		I/A	Jacket Color		Gr	een		
Voltage Rati		-	50V	Jacket Thickne			nominal		
Temperature	e Rating		(-40 to 158 °F)	Jacket Material		Flame-Retardent-No			
Plenum			10	Sunlight Resis	tant	N	No		
Shield			polyester foil and tinned id over pairs	Oil Resistance		Y	es		
Drain		1	No	Flame Retarda	nt		es		
Conductor I Material Minimum Be		Polyethylene  Moving: 3.25in		Sample Print Legend		<metermarking>m HELUKAT® PROFInet type hybrid 2x2xAWG22/7 + 4x1,5_(Litze) FRNC 100_MHz / 801651 E170315 <logo c(ur)us=""> A\ 22482 80°C 600V 0158<pre>production lot no.&gt;</pre></logo></metermarking>			
		Fixed: 2.03in		stics (for 100 meters of cable)		CE-LUGUZ CHELU GATEZ			
Impedance		100 O + 15 C	2 1 to 100 MHz	UL Classification		UL Style 21282			
Capacitance	•		pF/ft	Approvals**		,	IS, Halogen-free		
Resistance,			per 1000ft	Attenuation Cr			0 LOG10 (f/100) dB MIN		
Dielectric W Min.	ithstanding,	2000	V RMS	Insertion Loss		1 ≤ f ≤ 100 MHz: 2,866 x dB	$\sqrt{f}$ + 0.0333 x ( $f$ ) + 0.3/ $\sqrt{f}$		
Return Loss	3	10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN IHz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 2	0 LOG10 ( <i>f</i> /100) dB MIN		
Near End Ci (NEXT)		1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 ( <i>f</i> /100) dB MIN						
Power Sum Crosstalk (F		$1 \le f \le 100 \text{ MHz: } 62,3 -$	15 LOG10 ( <i>f</i> /100) dB MIN						
TCL ELTCTL		N	I/A						
		N	I/A	Cross Section					
Velocity of F	Propagation	0.	.74						
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/√f ns Max						
Delay Skew		4 ≤ f ≤ 100 N	/IHz: Max 45ns						

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





## **Profinet Type B**



			H802185-1 C	ahle Snecifi	cations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot	
		H802185-1	Profinet Type B	Flexible	20	0.02	\$;-6glt:	
			Physi	ical Properties				
Conductor C	auge	22 /	AWG	Conductor Stra	anding	7-stranded to	nned copper	
Conductor N	Material	Tinnec	copper	Conductor Inst Thickness	ulation Wall	0.015 in	nominal	
Conductor A	ssembly	1 sta	r quad	Bare Conducto	r Diameter	0.030 in	nominal	
	Pair 1	White	e, Blue	Insulated Cond	luctor Diameter	0.060 in	nominal	
Color Code	Pair 2	Yellow,	Orange	Twisted Condu	ctor Diameter	N	/A	
00.0. 0000	Pair 3	N	I/A	Overall Cable L	Diameter	0.256 in	nominal	
	Pair 4	N	I/A	Jacket Color		Gro	een	
Voltage Rati		-	0V	Jacket Thickne	ess		nominal	
Temperature	Rating	-40 to 70 °C	(-40 to 158 °F)	Jacket Materia	!	Flame-Retardent-No	on-Corrosive (FRNC)	
Plenum		•	10	Sunlight Resis	tant	N	lo	
Shield		Overall aluminized polyester foil and tinned copper braid		Oil Resistance		Yı	es	
Drain		1	lo .	Flame Retarda	nt	Yı	es	
Material  Minimum Be		Moving	g: 2.05in 1.28in	Sample Print L	egend	ETHERNET ES ITP MAF * 22AWG (SHIELDED) VERIFIED (UL) CAT5E Pai LEONI L L-9YH(ST)CH F	UKABEL INDUSTRIAL RINE CABLE CAT5 PLUS (UL) E312184 CM 75°C Ich Cable or PLTC Sun Res FRNC 60V Art.Nr. 802185 ot no.>	
			Electrical Characteris	stics (for 100 mete	rs of cable)			
Impedance		100 Ω ± 15 Ω	1 to 100 MHz	UL Classification		(cULus) Type CM/PLTC		
Capacitance	!	15.8	pF/ft	Approvals**		UL, CE, RoHS, Halo	gen-free, EAC, DNV	
Resistance,	Max.	18.3 Ω DC	per 1000ft	Attenuation Cr Far End (ACRF		1 ≤ f ≤ 100 MHz: 64 - 2	0 LOG10 (f/100) dB MIN	
Dielectric W Min.	ithstanding,	1500	/ RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX	
Return Loss		10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN Hz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 2	0 LOG10 (f/100) dB MIN	
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 (f/100) dB MIN					
Power Sum Crosstalk (P		$1 \le f \le 100 \text{ MHz: } 62,3 -$	15 LOG10 ( <i>f</i> /100) dB MIN					
TCL ELTCTL		N	I/A					
		N	I/A	Cross Section				
Velocity of F	Propagation	0	69					
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/ $√f$ ns Max					
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns					

 $<sup>\</sup>ensuremath{^*}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





## **Profinet Type C**



			H802914-1 C	ahle Snecifi	cations				
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot		
		<u>H802914-1</u>	Profinet Type C	Flexible	20	0.05	\$-6glq:		
			Physi	ical Properties					
Conductor C	auge	22 A	AWG	Conductor Stra	nding	7-stranded ti	nned copper		
Conductor N		Tinned	copper	Conductor Insu Thickness	ılation Wall	0.015 in,	nominal		
Conductor A	ssembly	1 sta	rquad	Bare Conducto	r Diameter	0.030 in,	nominal		
	Pair 1		e, Blue		luctor Diameter		nominal		
Color Code	Pair 2		Orange	Twisted Condu			/A		
	Pair 3		/A	Overall Cable L	Diameter	0.256 in,	-		
	Pair 4		/A	Jacket Color			een		
Voltage Rati		111		Jacket Thickne		0.030 in, nominal			
Temperature	Rating	-10 to 70 °C (14 to 158 °F)		Jacket Material		PVC			
Plenum		No  Overall aluminized polyester foil and tinned copper		Sunlight Resistant		No			
Shield		br	aid	Oil Resistance		Yes			
Drain	<b>Drain</b> No		lo	Flame Retardar	nt	Yes <pre> <metermarking>m</metermarking></pre> HELUKABEL INDUSTRIAL			
Material  Minimum Be		Moving	r: 2.05in 1.54in	Sample Print Legend		ETHERNET TrailingCABLE * PROFINET Type C ES CAT 5 PLUS * 22AWG (SHIELDED) (UL) E312184 CMG 75 °C or PLTC FT4 SUN RES OIL RES or AWM 21694 600V Art.Nr. 802914 * 0058 <pre>cP-Logo</pre>			
			Electrical Characteris	stics (for 100 mete	for 100 meters of cable)				
Impedance		100 Ω	± 15 Ω	UL Classification		(cULus) Type CMG/PLTC or AWM Style 21694			
Capacitance		15.8	pF/ft	Approvals**		UL, CE, RoHS			
Resistance,	Мах.	18.3 Ω DC	per 1000ft	Attenuation Cre Far End (ACRF		1 ≤ f ≤ 100 MHz: 64 - 20	0 LOG10 (f/100) dB MIN		
Dielectric W Min.	ithstanding,	2000\	/ RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX		
Return Loss		10 ≤ f < 20 M	+ 5 LOG10 (f) dB MIN Hz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Att Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 20	0 LOG10 ( <i>f</i> /100) dB MIN		
Near End Cr (NEXT)		$1 \le f \le 100 \text{ MHz: } 65,3 - 65$	15 LOG10 ( <i>f</i> /100) dB MIN						
Power Sum Crosstalk (P		$1 \le f \le 100 \text{ MHz: } 62,3 - 100 \text{ MHz: } 62,3 -$	15 LOG10 ( <i>f</i> /100) dB MIN						
TCL		N	/A						
ELTCTL		N	//A	Cross Section					
Velocity of F	Propagation	0.	67						
Delay		$4 \le f \le 100 \text{ MHz}$ :	534 + 36/√f ns Max						
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns						

 $<sup>^{\</sup>ast}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Profinet Type C Continuous Flexing**



			H802186-1 C	able Specifi	cations			
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot	
		H802186-1	Profinet Type C	Continuous flexing	20	0.02	\$6glj:	
			Physi	cal Properties				
Conductor G	auge	22 /	AWG	Conductor Stra	nding	19-stranded t	inned copper	
Conductor N	laterial	Tinned	copper	Conductor Insu Thickness	lation Wall	0.015 in,	nominal	
Conductor A	ssembly	1 sta	r quad	Bare Conducto	r Diameter	0.031 in,	nominal	
	Pair 1	White	e, Blue	Insulated Cond	uctor Diameter	0.061 in,	nominal	
Color Code	Pair 2		Orange	Twisted Condu			/A	
	Pair 3		/A	Overall Cable D	iameter	0.256 in,		
	Pair 4		/A	Jacket Color			een	
Voltage Ratii		****		Jacket Thickne		0.040 in, nominal		
Temperature	Rating	-40 to 80 °C (-40 to 176 °F)		Jacket Material		PUR		
Plenum Shield		Overall aluminized polyester foil and tinned copper		Sunlight Resistant Oil Resistance		No Yes		
		braid					Yes	
Drain		No		Flame Retardar	nt			
Conductor In Material Minimum Be		Polyethylene  Moving: 2.05in		Sample Print Legend		<metrierung>m HELUKABEL® PROFInet Torsion © 2X2X0,75mm (Litze) * 22AWG E170315 &lt; Logo cRUus&gt; AWM 20549 80°C 300V I A/B FTZ 802186</metrierung>		
wiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	nu Nauius	Fixed: 1.28in		tion (for 400 maters of cable)		0158 <fert.nr.> <ce-zeichen> <helu datum=""></helu></ce-zeichen></fert.nr.>		
		400.0 45.0	Electrical Characteris	· · · · · · · · · · · · · · · · · · ·	•	AVAIM Style 20540		
Impedance			1 to 100 MHz	UL Classificatio	on	AWM Style 20549		
Capacitance		15.8	pF/ft	Approvals** Attenuation Cro	acatalk Batia	cURus, CE, RoHS		
Resistance,		18.1 Ω DC	per 1000ft	Far End (ACRF)		1 ≤ f ≤ 100 MHz: 64 - 20		
Dielectric Wi Min.	ithstanding,		/ RMS	Insertion Loss		1 ≤ $f$ ≤ 100 MHz: 2,866 x $\sqrt{f}$ + 0.0333 x ( $f$ ) + 0.3/ $\sqrt{f}$ dB MAX		
Return Loss		10 ≤ f < 20 M	+ 5 LOG10 (f) dB MIN Hz: 25 dB MIN 3,6 LOG10 (f/20) dB MIN	Power Sum Atto Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 20	O LOG10 (f/100) dB MIN	
Near End Cr (NEXT)	osstalk	1 ≤ f ≤ 100 MHz: 65,3 -	15 LOG10 ( <i>f</i> /100) dB MIN					
Power Sum Near End Crosstalk (PSNEXT) TCL ELTCTL		1 ≤ f ≤ 100 MHz: 62,3 -	15 LOG10 ( <i>f</i> /100) dB MIN					
		N	/A	_				
		N	/A	Cross Section				
Velocity of P	ropagation	0.	74					
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/ $√f$ ns Max					
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns					

<sup>\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





# **Profinet Type R Continuous Flexing**



	H11007800-1 Cable Specifications							
		Part Number	Wire/Cable Type	Flexibility	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price Per Foot	
		H11007800-1	Profinet Type R	Continuous flexing	20	0.04	\$-6gla:	
			Physi	ical Properties				
Conductor C	auge	227	AWG	Conductor Stra	nding	19-stranded t	tinned copper	
Conductor N	Material	Tinned	copper	Conductor Insu Thickness	ılation Wall	0.015 in,	nominal	
Conductor A	ssembly	1 sta	r quad	Bare Conducto	r Diameter	0.031 in,	nominal	
	Pair 1	White	e, Blue	Insulated Cond	luctor Diameter	0.061 in,	nominal	
Color Code	Pair 2	Yellow,	Orange	Twisted Condu	ctor Diameter		/A	
	Pair 3		I/A	Overall Cable D	Diameter	0.283 in,	nominal	
	Pair 4	N/A		Jacket Color			een	
Voltage Rati		1000V		Jacket Thickne		0.040 in, nominal		
Temperature	Rating	-40 to 90 °C (-40 to 194 °F)		Jacket Material		PUR		
Plenum		No  Overall aluminized polyester foil and tinned copper		Sunlight Resistant		No		
Shield			ster foil and tinned copper aid Oil Resistance			Yes		
Drain		No		Flame Retardar	nt		es	
Conductor II Material Minimum Be			Polyolefin  Moving: 2.83in		Sample Print Legend		<meter marking=""> HELUKABEL® INDUSTRIAL ETHERNET ROBOT* PROFINET ® 2x2x0,75mm (Litze) 22AWG E170315 cRUus AWM STYLE 21209 AWM I/II A/B 90°C 1000V FT1 Art.Nr. 11007800</meter>	
William De	and Naulus	Fixed	1.42in			<pre><pre><pre></pre></pre></pre>		
		l	Electrical Characteri	stics (for 100 meter	rs of cable)	AMM 01 : 24222		
Impedance		100 Ω ± 15 Ω	1 to 100 MHz	UL Classification		AWM Style 21209		
Capacitance	•	15.2	pF/ft	Approvals**		cURus, CE, RoHS, CSA, Halogen-free		
Resistance,		18.3 Ω DC	per 1000ft	Attenuation Cro Far End (ACRF)		$1 \le f \le 100 \text{ MHz: } 64 - 20$		
Dielectric W. Min.	ithstanding,	2000	/ RMS	Insertion Loss			$\sqrt{f}$ + 0.0333 x (f) + 0.3/ $\sqrt{f}$ MAX	
Return Loss	:	10 ≤ f < 20 N	+ 5 LOG10 (f) dB MIN Hz: 25 dB MIN 8,6 LOG10 (f/20) dB MIN	Power Sum Atta Crosstalk Ratio (PSACRF)		1 ≤ <i>f</i> ≤ 100 MHz: 61 - 20	0 LOG10 ( <i>f</i> /100) dB MIN	
Near End Cr (NEXT)		$1 \le f \le 100 \text{ MHz: } 65,3 -$	15 LOG10 (f/100) dB MIN					
Power Sum Crosstalk (P		$1 \le f \le 100 \text{ MHz: } 62,3 -$	15 LOG10 ( <i>f</i> /100) dB MIN					
TCL		N	I/A	Cross Section				
ELTCTL		N	I/A	Cross Section				
Velocity of F	Propagation		69					
Delay		4 ≤ f ≤ 100 MHz:	534 + 36/√ <i>f</i> ns Max					
Delay Skew		4 ≤ f ≤ 100 N	MHz: Max 45ns					

 $<sup>^{\</sup>star}$  See web store  $\underline{www.AutomationDirect.com}$  for maximum cut lengths

<sup>\*\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>





### Sensor / Actuator Cable (Unshielded)



**Conductor Colors:** 

- 3 Conductor
- 4 Conductor
- 5 Conductor







#### **Overview**

Flexible multi-conductor sensor/actuator cable from Automation Direct is available in 24AWG and 22AWG with 3, 4 or 5 unshielded conductors. Individual conductors are bare copper and stranded for flexibility, with color coded PVC insulation for easy identification. The cable's outer jacket is a flexible PVC available in either gray or yellow. Although not suitable for continuous flexing applications, these cables are ideal for both stationary and flexible industrial factory automation applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements.

AutomationDirect flexible multi-conductor sensor/actuator cable carries both UL and CSA approvals and can easily be terminated using field wireable connectors also available from AutomationDirect. Eliminate unnecessary expense and waste by ordering only the length needed in 1 foot increments with a low 30 foot minimum.

#### **Features**

- 24AWG and 22AWG, 3, 4 or 5 conductors
- PVC conductor insulation with color code for easy identification
- · PVC outer jacket available in gray or yellow
- · Pressure extruded jacket for optimal roundness
- · Flexibility for easy installation
- · Made in the USA
- UL and CSA approvals
- Order cut to length in 1 foot increments eliminating expense and waste
- Ideal for use with Field Wireable Connectors also available from AutomationDirect







Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable





### **Field Wireable Connectors**

#### **Insulation Displacement** Connectors (IDC)

#### **Features**

- IDC (insulation displacement connection) allows quick termination without stripping conductors
- Various cable gauges and diameters accepted
- M8 and M12 connector types available



See www.AutomationDirect.com for our full offering of Field Wireable Connectors.

#### M12 Field Wireable Screw Connectors

#### **Features**

- IP67 rated once properly assembled
- Various cable gauges and diameters accepted
- Plastic housings with good resistance against chemicals and oils





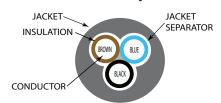


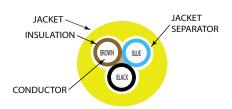
# 24AWG 3-Conductor Sensor / Actuator Cable (Unshielded)

24AWG 3-Conduc	tor Bulk Sensor / Actuato	r Cable Specifica	ations (Unshielded)
Conductors Gauge & Stranding	24AWG 19/36 Stranded bare copper	Insulated Conductor Diameter	0.045 in Nominal
Voltage Rating	300V	Minimum Bend Radius (in.)	10x Diameter
Temperature Rating, Max.	176°F (80°C)	Overall Diameter	0.167 in. Nominal
Temperature Rating, Min.	-4°F (-20°C)	Jacket Color	Gray or Yellow
Cold Bend Test	-40°F (-40°C)	Jacket Thickness	0.032 in. Nominal
Capacitance, Mutual, Nom.	23.13 PF/FT.	Jacket Material	Pressure extruded Polyvinylchloride (PVC)
Impedance	92.62 Ω	Sunlight Resistant	Yes
D.C. Resistance, Max.	23.4 Ω / 1000ft	Oil Resistance	Yes
Conductor Twist / Lay	1.625" Maximum left hand lay	Flame Retardant	FT-1
Filler Material	N/A		
Jacket Separator	Tissue tape 25% overlap	Approvals	UR AWM STYLE 2464 80C 300V CSA AWM I/II A/B 80C 300V
Conductor Insulation Material	Polyvinylchloride (PVC)		
Conductor Identification	Black, Brown, Blue		AutomationDirect - SAC-24-3U-1xx-1
Conductor Insulation Wall Thickness	(1) (11) in Nominal		E505482 AWM 2464 80C 300V LL274638 CSA AWM I/II A/B 80C 300V FT1
Bare Conductor Diameter	0.025 in. Nominal		LLZ14030 CSM AVVIVI I/II A/D OUC 300V FTT

	24AWG 3-Conductor Bulk Sensor / Actuator Cable Selection						
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Approximate Weight (Ib/ft)	Price per foot
SAC-24-3U-1GY-1	Gray	3	24	19/36	30	0.0150	\$4158:
SAC-24-3U-1YL-1	Yellow	3	24	19/36	30	0.0150	\$415d:

<sup>\*</sup> See web store for maximum cut lengths





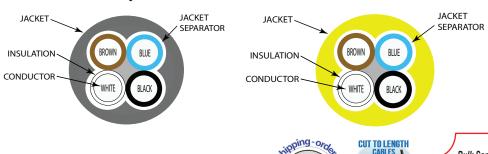


# 24AWG 4-Conductor Sensor / Actuator Cable (Unshielded)

24AWG 4-Conduc	24AWG 4-Conductor Bulk Sensor / Actuator Cable Specifications (Unshielded)						
Conductors Gauge & Stranding	24AWG 19/36 Stranded bare copper	Insulated Conductor Diameter	0.045 in. Nominal				
Voltage Rating	300V	Minimum Bend Radius (in.)	10x Diameter				
Temperature Rating, Max.	176°F (80°C)	Overall Diameter	0.178 in. Nominal				
Temperature Rating, Min.	-4°F (-20°C)	Jacket Color	Gray or Yellow				
Cold Bend Test	-40°F (-40°C)	Jacket Thickness	0.032 in. Nominal				
Capacitance, Mutual, Nom.	23.13 PF/FT.	Jacket Material	Pressure extruded Polyvinylchloride (PVC)				
Impedance	92.62 Ω	Sunlight Resistant	Yes				
D.C. Resistance, Max.	23.4 Ω / 1000ft	Oil Resistance	Yes				
Conductor Twist / Lay	1.8" Maximum left hand lay	Flame Retardant	FT-1				
Filler Material	N/A						
Jacket Separator	Tissue tape 25% overlap	Approvals	UR AWM STYLE 2464 80C 300V CSA AWM I/II A/B 80C 300V				
Conductor Insulation Material	Polyvinylchloride (PVC)						
Conductor Identification	Black, Brown, Blue, White		AutomationDirect – SAC-24-4U-1xx-1 E505482 AWM 2464 80C 300V				
Conductor Insulation Wall Thickness	0.010 in. Nominal	Sample Print Legend					
Bare Conductor Diameter	e Conductor Diameter 0.025 in. Nominal		LL274638 CSA AWM I/II A/B 80C 300V FT1				

2	24AWG 4-Conductor Bulk Sensor / Actuator Cable Selection						
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
<u>SAC-24-4U-1GY-1</u>	Gray	4	24	19/36	30	0.0178	\$4159:
SAC-24-4U-1YL-1	Yellow	4	24	19/36	30	0.0178	\$415e:

<sup>\*</sup> See web store for maximum cut lengths

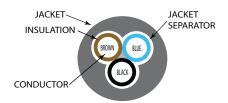


## 22AWG 3-Conductor Sensor / Actuator **Cable (Unshielded)**

22AWG 3-Conduc	22AWG 3-Conductor Bulk Sensor / Actuator Cable Specifications (Unshielded)						
Conductors Gauge & Stranding	22AWG 19/34 Stranded bare copper	Insulated Conductor Diameter	0.050 in. Nominal				
Voltage Rating	300V	Minimum Bend Radius (in.)	10x Diameter				
Temperature Rating, Max.	176°F (80°C)	Overall Diameter	0.177 in. Nominal				
Temperature Rating, Min.	-4°F (-20°C)	Jacket Color	Gray or Yellow				
Cold Bend Test	-40°F (-40°C)	Jacket Thickness	0.032 in. Nominal				
Capacitance, Mutual, Nom.	25 PF/FT.	Jacket Material	Pressure extruded Polyvinylchloride (PVC)				
Impedance	85.64 Ω	Sunlight Resistant	Yes				
D.C. Resistance, Max.	14.6 Ω / 1000ft	Oil Resistance	Yes				
Conductor Twist / Lay	1.75" Maximum left hand lay	Flame Retardant	FT-1				
Filler Material	N/A						
Jacket Separator	Tissue tape 25% overlap	Approvals	UR AWM STYLE 2464 80C 300V CSA AWM I/II A/B 80C 300V				
Conductor Insulation Material	Polyvinylchloride (PVC)						
Conductor Identification	Black, Brown, Blue		AutomationDirect – SAC-22-3U-1xx-1				
Conductor Insulation Wall Thickness	() ()1() in Nominal		E505482 AWM 2464 80C 300V LL274638 CSA AWM I/II A/B 80C 300V FT1				
Bare Conductor Diameter	0.030 in. Nominal		LLZ14030 CSA AVVIVI I/II A/D OUC 300V FTT				

2	22AWG	3-Conductor Bu	lk Senso	r / Actuato	r Cable Sel	ection	
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Approximate Weight (Ib/ft)	Price per foot
SAC-22-3U-1GY-1	Gray	3	22	19/34	30	0.0185	\$415a:
<u>SAC-22-3U-1YL-1</u>	Yellow	3	22	19/34	30	0.0185	\$;415f:

<sup>\*</sup> See web store for maximum cut lengths







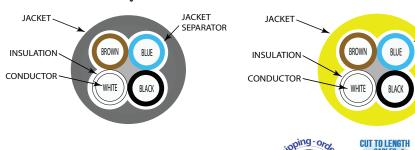


# 22AWG 4-Conductor Sensor / Actuator Cable (Unshielded)

22AWG 4-Conduc	tor Bulk Sensor / Actuato	r Cable Specifica	ations (Unshielded)
Conductors Gauge & Stranding	22AWG 19/34 Stranded bare copper	Insulated Conductor Diameter	0.050 in. Nominal
Voltage Rating	300V	Minimum Bend Radius (in.)	10x Diameter
Temperature Rating, Max.	176°F (80°C)	Overall Diameter	0.190 in. Nominal
Temperature Rating, Min.	-4°F (-20°C)	Jacket Color	Gray or Yellow
Cold Bend Test	-40°F (-40°C)	Jacket Thickness	0.032 in. Nominal
Capacitance, Mutual, Nom.	25 PF/FT.	Jacket Material	Pressure extruded Polyvinylchloride (PVC)
Impedance	85.64 Ω	Sunlight Resistant	Yes
D.C. Resistance, Max.	14.6 Ω / 1000ft	Oil Resistance	Yes
Conductor Twist / Lay	2" Maximum left hand lay	Flame Retardant	FT-1
Filler Material	N/A		
Jacket Separator	Tissue tape 25% overlap	Approvals	UR AWM STYLE 2464 80C 300V CSA AWM I/II A/B 80C 300V
Conductor Insulation Material	Polyvinylchloride (PVC)		
Conductor Identification	nductor Identification Black, Brown, Blue, White		AutomationDirect – SAC-22-4U-1xx-1
Conductor Insulation Wall Thickness	() () 10 in Nominal		E505482 AWM 2464 80C 300V LL274638 CSA AWM I/II A/B 80C 300V FT1
Bare Conductor Diameter	0.030 in. Nominal		LLZ14030 CSMAVVIVI I/II AVB 00C 300V FTT

1	22AWG 4-Conductor Bulk Sensor / Actuator Cable Selection						
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
<u>SAC-22-4U-1GY-1</u>	Gray	4	22	19/34	30	0.0224	\$415b:
SAC-22-4U-1YL-1	Yellow	4	22	19/34	30	0.0224	\$415g:

<sup>\*</sup> See web store for maximum cut lengths



Please Note: Our prices on
Bulk Sensor / Actuator Cable are closely tied to
the market price for copper. This allows us to offer the best
savings possible if conditions are favorable; however, it also
means that our prices may increase if market
conditions warrant.

JACKET

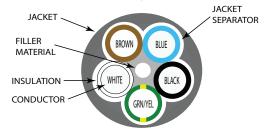
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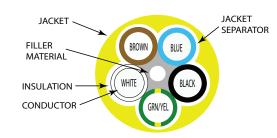
# 22AWG 5-Conductor Sensor / Actuator Cable (Unshielded)

22AWG 5-Conduc	22AWG 5-Conductor Bulk Sensor / Actuator Cable Specifications (Unshielded)							
Conductors Gauge & Stranding	22AWG 19/34 Stranded bare copper	Insulated Conductor Diameter	0.050 in. Nominal					
Voltage Rating	300V	Minimum Bend Radius (in.)	10x Diameter					
Temperature Rating, Max.	176°F (80°C)	Overall Diameter	0.204 in. Nominal					
Temperature Rating, Min.	-4°F (-20°C)	Jacket Color	Gray or Yellow					
Cold Bend Test	-40°F (-40°C)	Jacket Thickness	0.032 in. Nominal					
Capacitance, Mutual, Nom.	acitance, Mutual, Nom. 25 PF/FT. Jacket Material		Pressure extruded Polyvinylchloride (PVC)					
Impedance	85.64	Sunlight Resistant	Yes					
D.C. Resistance, Max.	14.6 Ω / 1000ft	Oil Resistance	Yes					
Conductor Twist / Lay	2" Maximum left hand lay	Flame Retardant	FT-1					
Filler Material	Polypropylene (PP) cord							
Jacket Separator	Tissue tape 25% overlap	Approvals	UR AWM STYLE 2464 80C 300V CSA AWM I/II A/B 80C 300V					
Conductor Insulation Material	Polyvinylchloride (PVC)							
Conductor Identification	Black, Brown, Blue, White, Green/Yellow stripe		AutomationDirect – SAC-22-5U-1xx-1					
Conductor Insulation Wall Thickness	0.010 in. Nominal	Sample Print Legend	E505482 AWM 2464 80C 300V					
Bare Conductor Diameter	0.030 in. Nominal		LL274638 CSA AWM I/II A/B 80C 300V FT1					

22AWG 5-Conductor Bulk Sensor / Actuator Cable Selection										
Part Number	Jacket Color			Strand	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot			
<u>SAC-22-5U-1GY-1</u>	Gray	5	22	19/34	30	0.0265	\$415c:			
SAC-22-5U-1YL-1	Yellow	5	22	19/34	30	0.0265	\$415h:			

<sup>\*</sup> See web store for maximum cut lengths







### LUTZE 🔁 IO-Link PVC - Unshielded

SYSTEMATIC TECHNOLOGY



LUTZE IO-Link cable from AutomationDirect is available in 22AWG to 16AWG with 3, 4 and 5 conductors. This unshielded signal & control cable is ideal for connecting IO-Link devices to a master and can also be used in conventional applications where IO-Link is not required. With multiple ratings and approvals, LUTZE IO-Link cable has the versatility to meet a wide range of industrial applications. Given its Tray Cable Exposed Run rating, UL Type TC-ER or Power Limited Tray Cable Tray Cable, UL Type PLTC-ER, the cable can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor resulting in installation and maintenance savings. Cut-to-length in 1-foot increments with a 20-foot minimum length.

- AWG conductor
- Flexible fine wire stranded tinned copper conductors
- PVC/nylon insulation
- Oil-resistant PVC jacket
- Yellow jacket similar to RAL 1021

#### **Applications**

- Multi-conductor industrial grade IO-Link cable
- Sensors, actuators, digital IO hubs, and field devices used in process instrumentation and controls
- Compliant with NFPA 79 requirements
- TC-ER-JP for use with cable trays without conduit
- WTTC wind turbine tray cable rating for use in wind power generation
- PLTC-ER power limited tray cable exposed run
- ITC-ER instrumentation tray cable
- Dry, damp, or wet locations

#### **Features**

- Flexible for easy installation
- Crush and impact resistant
- Non-wicking fillers
- Color-coded conductors
- · Specially formulated jacket for oil resistance
- · Flame retardant
- Direct burial (AWG 18 and larger)
- · Sunlight resistant
- Gas/vapor-tight sheath per UL 1277 & 13
- Talc and silicone free









Please Note: Our prices on IO-Link cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

#### **Conductor Colors:**

- 1 Blue
- 2 Black
- 3 Bown
- 4 White
- 5 Grey



Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

#### **LUTZE IO-Link Cable Specifications** 22AWG (7 strands) to 16AWG (26 strands), Class K Bending Radius Min. Power Conductors 4 x cable OD Gauge & Stranding flexible stranded bare copper AWG 18-16 AWG 22-20: UL/AWM/CE 300V 90C PLTC-ER 600V 90C TC-ER-JP AWM Style 20886 Voltage Rating 300V 90C ITC-ER 1000V 90V WTTC (UL) Type MTW or DP-1 600V MTW 600V MTW Meets NEC 336, 392, 725, 727 1000V 80C AWM 1000V 80C AWM Approvals\* Class I & II, Div. 2 and Outer Jacket Material PVC (Polyvinyl chloride) Class I Zone 2 per NEC 501, 502, 505 c(UL) TC and CIC FT4 **Outer Jacket Color** Yellow with black print UL 1277 & 13 RoHS, REACH, TSCA Minimum Temperature -40°F (-40°C) www.lutze.com LUTZE XXXXXXX IO-LINK AWGxx-xC -- (UL) Type MTW Temperature Ratings -40°F to +221°F (-40°C to +105°C) "FLEXING" E324458 90C 600V OR PLTC-ER SUN RES OIL RES II -40C Oil Res II OR ITC-ER OR AWM 20886 80C 1000V - LL91737 CSA AMW I/II A/B 90C Oil Resistance 600V FT4 - P07-KA090006-MSHA CE ROHS CE-46 2217 MADE IN USA xxxxxxxxft Sample Print Legend www.lutze.com LUTZE XXXXXXX IO-LINK AWGxx-xC -- (UL) Type TC-Conductor Insulation PVC / Nylon ER-JP 90C 600V SUN RES DIR BUR OIL RES II -40C OR MTW "CLASS K" OR WTTC E324638 1000V 90 DRY OR DP-1 OR ITC-ER OR PLTC-ER c9UL) TYPE CIC PVC/NCONTROL FT4 OR AWM 20886 80C 1000V - P-07-KA090006-MSHA CE ROHS CE-46 2228 MADE IN USA xxxxxxxxft

See web store for maximum cut lengths

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>



# 22AWG IO-Link PVC - Unshielded Cable

22AWG IO-Link PVC - Unshielded Cable										
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Nominal OD (in)	Minimum Bend Radius (in)	Approximate Weight (lb/ft)	Price per Foot	
A1022203-1	Yellow	3	22	7/30	20	0.260	1.04	0.034	\$;;5]7,:	
A1022204-1	Yellow	4	22	7/30	20	0.276	1.10	0.040	\$;5]80:	
A1022205-1	Yellow	5	22	7/30	20	0.300	1.20	0.048	\$;5]81:	

<sup>\*</sup> See web store for maximum cut lengths







# **20AWG IO-Link PVC -**Unshielded Cable

20AWG IO-Link PVC - Unshielded Cable									
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Nominal OD (in)	Minimum Bend Radius (in)	Approximate Weight (lb/ft)	Price per Foot
A1022003-1	Yellow	3	20	10/30	20	0.271	1.08	0.039	\$;5]82:
A1022004-1	Yellow	4	20	10/30	20	0.292	1.17	0.047	\$;5]83:
A1022005-1	Yellow	5	20	10/30	20	0.315	1.26	0.055	\$;5]84:

<sup>\*</sup> See web store for maximum cut lengths







# 18AWG IO-Link PVC - Unshielded Cable

18AWG IO-Link PVC - Unshielded Cable										
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Nominal OD (in)	Minimum Bend Radius (in)	Approximate Weight (lb/ft)	Price per Foot	
<u>A1021803-1</u>	Yellow	3	18	19/30	20	0.295	1.18	0.051	\$;5]85:	
A1021804-1	Yellow	4	18	19/30	20	0.317	1.27	0.062	\$;5]86:	
									-	
A1021805-1	Yellow	5	18	19/30	20	0.345	1.38	0.076	\$;5]87:	

<sup>\*</sup> See web store for maximum cut lengths





## SYSTEMATIC TECHNOLOGY

# 16AWG IO-Link PVC - Unshielded Cable

			16AW	/G 10-L	ink PVC - U	Inshielded C	able		
Part Number	Jacket Color	Number of Conductors	AWG	Strand	Minimum Cut Length (ft)*	Nominal OD (in)	Minimum Bend Radius (in)	Approximate Weight (lb/ft)	Price per Foot
A1021603-1	Yellow	3	16	26/30	20	0.321	1.28	0.062	\$;5]88:
									-
A1021604-1	Yellow	4	16	26/30	20	0.350	1.40	0.077	\$;5]89:
									- Ann
A1021605-1	Yellow	5	16	26/30	20	0.375	1.50	0.092	\$;5]8a:

<sup>\*</sup> See web store for maximum cut lengths









Control and signal cable from Quabbin is available in sizes from 24 AWG to 16 AWG with up to 25 conductors. These are available either in unshielded or shielded constructions. Individual conductors are stranded tinned copper with color coded insulation for easy identification, with an industry standard PVC chrome gray jacket. Shielded versions include an overall aluminum mylar foil tape with a tinned copper drain wire for maximum effectiveness against external electrical noise interference.

With a 300 and 600 volt rating, these cables are ideal for low voltage control signals and audio applications.

The 4-conductor unshielded versions are designed to work directly with our SureStep® STP-DRV drives for applications where a longer cable is required. The cables carry both UL and CSA approvals and are proudly made in the USA. Combining all that with our cut to length ordering, eliminates unnecessary expense and waste by ordering only the length needed, in 1 foot increments with a low 30 foot minimum, makes these cables a great value.

	Oughkin Control and Cinnal Cable Application Everynles
	Quabbin Control and Signal Cable Application Examples
Part Number	Common Application
<u>Q8508-1</u>	Low capacitance, RS-232 computer interconnect, extended distance cable, RoHS compliant materials
<u>Q8215-1</u>	
<u>Q8205-1</u>	RS-232 computer interconnect, instrumentation, audio, broadcast, Class 2 circuits, RoHS compliant materials
Q8200-1	No-232 computer interconnect, instrumentation, addio, bloadcast, olass 2 circuits, Non3 compilant materials
Q8195-1	
<u>Q8190-1</u>	Computer interconnect, instrumentation, audio, broadcast, RoHS compliant materials
<u>Q8185-1</u>	Computer interconnect, instrumentation, audio, broadcast, Norto compilant materials
<u>Q8180-1</u>	
Q8175-1	RS-232 computer interconnect, instrumentation, audio, broadcast, Class 2 circuits, RoHS compliant materials
<u>Q8170-1</u>	
<u>Q8165-1</u>	Instrumentation, audio, control cable
Q8138-1	RS-232 computer interconnect, audio, and instrumentation cable, RoHS compliant materials
<u>Q8110-1</u>	RoHS compliant materials
<u>Q7565-1</u>	
<u>Q7560-1</u>	
<u>Q7555-1</u>	
<u>Q7545-1</u>	Communication, data and control cable, RoHS compliant materials
<u>Q7535-1</u>	
<u>Q7525-1</u>	
<u>Q7465-1</u>	
<u>Q7395-1</u>	Instrumentation, audio, control cable
<u>Q7325-1</u>	Instrumentation, audio, and broadcast cable, RoHS compliant materials
<u>Q7320-1</u>	institution, audio, and broadcast cable, Notice compilate materials
<u>Q7315-1</u>	Instrumentation, audio, control cable
<u>Q7175-1</u>	
<u>Q7170-1</u>	
<u>Q7165-1</u>	RS-232 computer interconnect, control and audio cable, RoHS compliant materials
<u>Q7160-1</u>	170-232 computer interconnect, control and additionally, from to compliant materials
Q7155-1	
<u>Q7150-1</u>	
<u>Q7145-1</u>	Instrumentation, audio, control cable
Q7140-1	

RS-232 computer interconnect, control and audio cable, RoHS compliant materials

Instrumentation, audio, control cable, stepper motor control











Q7135-1

Q7131-1 Q7125-1

0	luabbin Control and Signal Cable Application Examples (continued)
Part Number	Common Application
Q7121-1	Instrumentation, audio, control cable
Q7120-1	RS-232 computer interconnect, control and audio cable, RoHS compliant materials
<u>Q7115-1</u>	Instrumentation, audio, control cable
<u>Q6151-1</u>	Data and computer interconnect cable, RoHS compliant materials
<u>Q6145-1</u>	Instrumentation, audio, broadcast cable, RoHS compliant materials
<u>Q6140-1</u>	Instrumentation, audio, broadcast cable
<u>Q6130-1</u>	Instrumentation, audio and control cable, RoHS compliant materials
<u>Q6100-1</u>	Instrumentation, audio, control cable, stepper motor control
<u>Q4560-1</u>	Instrumentation, audio, broadcast cable
<u>Q4177-1</u>	Instrumentation, audio, broadcast cable, RoHS compliant materials
<u>Q4175-1</u>	instrumentation, addio, broadcast cable, Norro compilant materials
<u>Q4170-1</u>	Instrumentation, audio, broadcast cable
<u>Q4165-1</u>	Instrumentation, audio, broadcast cable
<u>Q4140-1</u>	
<u>Q4135-1</u>	
<u>Q4130-1</u>	
<u>Q4125-1</u>	Instrumentation, audio and control cable, RoHS compliant materials
<u>Q4120-1</u>	
<u>Q4110-1</u>	
<u>Q4105-1</u>	
Q4100-1	Instrumentation, audio, control cable, stepper motor control
<u>Q3130-1</u>	Instrumentation, audio and control cable, RoHS compliant materials
<u>Q3100-1</u>	Instrumentation, audio, control cable, stepper motor control
Q0225-1	Process system interconnect, power limited tray cable, instrumentation tray cable, class 3 circuits, RoHS compliant materials
Q0220-1	Process system interconnect, power limited tray cable, instrumentation tray cable, class 3 circuits
<u>Q0200-1</u>	
<u>Q0195-1</u>	
<u>Q0190-1</u>	Process system interconnect, power limited tray cable, instrumentation tray cable, class 3 circuits, RoHS compliant materials
<u>Q0170-1</u>	
Q0165-1	Process system interconnect, power limited tray cable, instrumentation tray cable, class 3 circuits
Q0160-1	Process system interconnect, power limited tray cable, instrumentation tray cable, class 3 circuits, RoHS compliant materials
<u>Q0140-1</u>	Process system interconnect, power limited tray cable, instrumentation tray cable, class 3 circuits

<u>www.automationdirect.com</u> Wires Cords and Cables tCBL-291

				Contro	l & Signal Ca	ble Cross-Reference	
ADC	Belden	Quabbin	Carol	Alpha	Lake	Description	Colors
<u>Q8508-1</u>		8508				24AWG, 4 twisted pairs, shielded, PVC, chrome gray,	bk-wh/wh-bk/gn-wh/rd-wh
<u>Q8215-1</u>	9543	8215		6309	C2425CST-45BLD	24AWG, 25-conductor, shielded, PVC, chrome gray	bk/wh/rd/gn/or/bu/wh-bk/rd-bk/gn-bk/or-bk/ bu-bk/bk-wh/rd-wh/gn-wh/bu-wh/bk-rd/wh-rd/ or-wh/bu-rd/rd-gn/bk-wh-rd/wh-bk-rd/ rd-bk-wh/gn-bk-wh
<u>Q8205-1</u>	9541	8205		6307	C2415CST-45	24AWG, 15-conductor, shielded, PVC, chrome gray	bk/wh/rd/gn/or/bu/wh-bk/rd-bk/gn-bk/or-bk/ bu-bk/bk-wh/rd-wh/gn-wh/bu-wh
<u>Q8200-1</u>	9540	8200			C2410CST-45	24AWG, 10-conductor, shielded, PVC, chrome gray	bk/wh/rd/gn/br/bu/or/yl/vi/gr
<u>Q8195-1</u>	9539	8195			C2410CST-45	24AWG, 9-conductor, shielded, PVC, chrome gray	bk/wh/rd/gn/br/bu/or/yl/vi
<u>Q8190-1</u>	9538	8190			C2410CST-45	24AWG, 8-conductor, shielded, PVC, chrome gray	bk/wh/rd/gn/br/bu/or/yl
<u>Q8185-1</u>	9537	8185			C247CST-45	24AWG, 7-conductor, shielded, PVC, chrome gray	bk/wh/rd/gn/br/bu/or
<u>Q8165-1</u>	9533	8165	C0741A	6300/3	C243CST-45	24AWG, 3-conductor, shielded, PVC, chrome gray	bk/rd/wh
<u>Q8170-1</u>	9534	8170	C0742A	6300/4	C244CST-BLD	24AWG, 4-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q8175-1</u>	9535	8175	C0753A	6305	C245CST-45	24AWG, 5-conductor, shielded, PVC, chrome gray,	bk/rd/wh/gn/bn
<u>Q8180-1</u>	9536	8180	C0743A	6306	B246CST	24AWG, 6-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/bn/bu
<u>Q8138-1</u>	9508	8138		5478/C	B248PRCST-45	24AWG, 8 twisted pairs, shielded, PVC, chrome gray	bk.rd/bk.wh/bk.gn/bk.bu/bk.yl/bk.br/bk.or/rd.wh
<u>Q8110-1</u>	9502	8110		5472/C	B242PRCS	24AWG, 2 twisted pairs, shielded, PVC, chrome gray	bk.rd/bk.wh
<u>Q7115-1</u>	8442	7115	C6348A	1172C	B222CT	22AWG, 2-conductor, unshielded, PVC, chrome gray	bk/rd
<u>Q7120-1</u>		7120		1173C		22AWG, 3-conductor, unshielded, PVC, chrome gray	bk/rd/wh
<u>Q7121-1</u>	9443	7121	C4062A	1173C	C223CT	22AWG, 3-conductor, unshielded, PVC, chrome gray	bk/rd/gn
<u>Q7125-1</u>	8444	7125	C4063A	1174C	B224CT	22AWG, 4-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q7131-1</u>	8445	7131	C4064	1175C	225CT	22AWG, 5-conductor, unshielded, PVC, chrome gray	bk/wh/rd/gn/br
<u>Q7135-1</u>		7135		1176C		22AWG, 6-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/bu/or
<u>Q7140-1</u>	9430	7140	C4088	1177C		22AWG, 7-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br
<u>Q7145-1</u>	9421	7145	C4065	1178C	B228CT-45	22AWG, 8-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/bn/bu/or/yl
<u>Q7150-1</u>	9423	7150	C4070	1179C		22AWG, 9-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi
<u>Q7155-1</u>	8456	7155	C4071	1180C		22AWG, 10-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr
<u>Q7160-1</u>	8457	7160	C4607	1181C	C2212CT-2464	22AWG, 12-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/bn/bu/or/yl/vi/gr/pk/tn
<u>Q7165-1</u>		7165R		1181/15C		22AWG, 15-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr/pk/tn/ rd-gn/rd-yl/rd-bk
<u>Q7170-1</u>		7170		1181/20C		22AWG, 20-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr/pk/tn/rd-gn/ rd-yl/rd-bk/wh-bk/wh-rd/wh-gn/wh-yl/wh-bl
<u>Q7175-1</u>		7175		1181/25C		22AWG, 25-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr/pk/tn/rd-gn/ rd-yl/rd-bk/wh-bk/wh-rd/wh-gn/wh-yl/wh-bl/ wh-br/wh-or/wh-gr/wh-vi/wh-bk-rd

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				Co	ntrol & Signa	al Cable Cross-Reference	
ADC	Belden	Quabbin	Carol	Alpha	Lake	Description	Colors
Q7315-1	8451	7315	C2516A	2461C	222CSTPP	22AWG, 2-conductor, shielded, PVC, chrome gray	bk/rd
Q7320-1	8761	7320	C2514	2401/C	C222CSTP-45	22AWG, 2-conductor, shielded, PVC, chrome gray	cl/bk
Q7325-1	8771	7325	C2526	1294C	223CSP	22AWG, 3-conductor, shileded, PVC, chrome gray	bk/rd/cl
Q7395-1	8723	7395	C1352	2466C	B222PRT	22AWG, 2 twisted pairs, shielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q7465-1</u>	8724	7465	C1340	2464/C	B222PROT	22AWG, 2 twisted pair, shielded, PVC, chrome gray	bk-rd/wh-gn
<u>Q7565-1</u>		7565		1299/15C		22AWG, 15-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr/pk/tn/ rd-gn/rd-yl/rd-bk
<u>Q7560-1</u>		7560		1299/12C		22AWG, 12-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr/pk/tn
<u>Q7555-1</u>		7555		1299/10C		22AWG, 10-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl/vi/gr
<u>Q7545-1</u>		7545		1298C		22AWG, 8-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/or/bu/br/yl
<u>Q7535-1</u>		7535	C0763	1296C		22AWG, 6-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/bu/or
<u>Q7525-1</u>		7525	C0762	1294C		22AWG, 4-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q6100-1</u>	9444	6100	C6353A	1317C	C204Ct	20AWG, 4-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q6130-1</u>	8205	6130	C6351	1895C	B202CT	20AWG, 1 twisted pair, unshielded, PVC, chrome gray	bk/rd
<u>Q6140-1</u>	8762	6140	C2524A	2411C	202CSP	20AWG, 2-conductor, shielded, PVC, chrome gray	bk/cl
<u>Q6145-1</u>	8772	6145	C2528	2413C	203CSP	20AWG, 3-conductor, shielded, PVC, chrome gray	bk/rd/cl
<u>Q6151-1</u>		6151				20AWG, 2 twisted pair, shielded, PVC, chrome gray	bk/rd x gn/wh
<u>Q4560-1</u>	9740	4560	C8116	1897C	B182CT16	18AWG, 2-conductor, unshielded, PVC, chrome gray	bk/rd
<u>Q4100-1</u>	8489	4100	C2404A	1858/4C	C184T(16)-2598	18AWG, 4-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q4105-1</u>	8465	4105	C2420	1898/5C	B185CT(19)-45	18AWG, 5-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn/bn
<u>Q4110-1</u>	8489	4110	C2404	1898/4C	B184CT(19)-45	18AWG, 7-conductor, unshielded, PVC, chrome gray	bk/wh/rd/gn/bn/bu/or
<u>Q4120-1</u>	8466	4120	C2412	1898/12C	B1812CT(19)-45	18AWG, 12-conductor, unshielded, PVC, chrome gray	bk/wh/rd/gn/bu/wh-bk/ rd-bk/gn-bk/or-bk/bu-bk/bk-wh
<u>Q4125-1</u>	8468	4125	C2423	1898/15C	B1815CT(19)	18AWG, 15-conductor, unshielded, PVC, chrome gray	bk/wh/rd/gn/or/bu/wh-bk/rd-bk/ gn-bk/or-bk/bu-bk/bk-wh/gn-wh/bu-wh
<u>Q4130-1</u>	8619	4130	C2424	1898/19C	B1819CT19-45	18AWG, 19-conductor, unshielded, PVC, chrome gray	bk/wh/rd/gn/or/bn/bu/wh-bk/rd-bk/gn-pk/ or-bk/bu-bk/bk-wh/rd-wh/gn-wh/bu-wh/bk- rd/wh-rd/or-rd/bu-rd
<u>Q4135-1</u>	9626	4135	C2433	1898/25C	C1825CT-45BLD	18AWG, 25-conductor, unshielded, PVC, chrome gray	bk/wh/rd/gn/or/bu/wh-bk/rd-bk/gn-pk/ or-bk/bu-bk/bk-wh/rd-wh/gn-wh/bu-wh/bk- rd/wh-rd/or-rd/bu-rd/rd-gn/or-gn/ bk-wh-rd/wh-bk-rd/rd-bk-wh/gn-bk-wh
<u>Q4140-1</u>	8461	4140	C2830			18AWG, 2-conductor, unshielded, PVC, chrome gray	bk/wh
<u>Q4165-1</u>	8760	4165	C2534A	2421C	C182CSTP(16)-4S	18AWG, 2-conductor, shielded, PVC, chrome gray	bk/cl
<u>Q4170-1</u>	8770	4170	C2535A	2423C	183CSP	18AWG, 3-conductor, shielded, PVC, chrome gray	bk/rd/cl
<u>Q4175-1</u>	9418	4175	C2543	M13244	C184CST(19)-45BL	18AWG, 4-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn
<u>Q4177-1</u>		4177				18AWG, 6-conductor, shielded, PVC, chrome gray	bk/rd/wh/gn/bn/bu
<u>Q3100-1</u>	8620	3100	C2425A		B164T-20811	16AWG, 4-conductor, unshielded, PVC, chrome gray	bk/rd/wh/gn
Q3130-1	8471	3130	C2405	1899C	162CPT19	16AWG, 2-conductor, unshielded, PVC, chrome gray	bk/wh

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	Control & Signal Cable Cross-Reference										
ADC	Belden Quabbin Carol Alpha Lake					Description	Colors				
Q0225-1	9365	0225	C0455	564OB1801	T183ST(19)-BLD	18AWG, 3-conductor, shielded, PVC, chrome gray	bk/rd/wh				
Q0220-1	9364	0220	C0453A	M39116		20AWG, 3-conductor, shielded, PVC, chrome gray	bk/rd/wh				
Q0200-1	9493	0200	C0436	5630B1801	T183T(19)-45	18AWG, 3-conductor, unshielded, PVC, chrome gray	bk/rd/wh				
Q0195-1	9492	0195	C0434	5630B2001		20AWG, 3-conductor, unshielded, PVC, chrome gray	bk/rd/wh				
Q0190-1		0190				22AWG, 3-conductor, unshielded, PVC, chrome gray	bk/rd/wh				
Q0170-1	9318	170	C0454			18AWG, 2-conductor, shielded, PVC, chrome gray	bk/rd				
Q0165-1	9320	0165		M39115		20AWG, 2-conductor, shielded, PVC, chrome gray	bk/rd				
<u>Q0160-1</u>	9322	0160	C0450	561OB2201	B222CST-45	22AWG, 2-conductor, shielded, PVC, chrome gray	bk/rd				
Q0140-1	9409	140	C0435	M39075		18AWG, 2-conductor, unshielded, PVC, chrome gray	bk/rd				

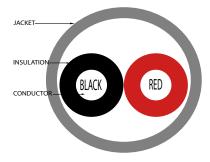
www.automationdirect.com Wires Cords and Cables tCBL-294

Q7115-1	Unshielded 2-Conductor	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.100 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.164 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	26 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		NEC (III.) TVDE CM	
Drain	None	Approvals*	NEC (UL) TYPE CM UL AWM STYLE 2464 CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		COAAVVIII 14	
Conductor Identification	Black, Red		OLIABBIN 7115 (III.) TVDE CM 22 AWC OD	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	QUABBIN 7115 (UL) TYPE CM 22 AWG OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal	4'	la de la constanta de la const	

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q7115-1 Unshielded 2-Conductor 22AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) 1 Minimum Cut Length (Ib/ft) Price per foot											
<u>Q7115-1</u>	2	22	7	0.164 [4.17 mm]	1.64	30	0.0146	\$;43kt:			

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



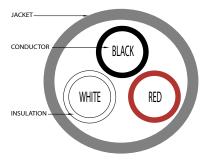


Q0190-1	Unshielded 3-Conductor	22AWG Cable Sp	ecifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.062 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.133 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.224 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	20 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	Yes
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEC (UL) TYPE PLTC 105C 300V NEC (UL) TYPE ITC 105C 300V
Drain	None	Approvals*	UL AWM STYLE 2464 80C 300V CSA FAS 105 FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4 90C 300V
Conductor Identification	Black, red, white		QUABBIN 0190 (UL) TYPE PLTC OR ITC 22 AWG 105C SUN RES OR AWM 2464 CSA
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	LL66965 FAS 105 22 AWG 3 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4
Bare Conductor Diameter	0.030 inch; nominal		RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0190-1 Unshielded 3-Conductor 22AWG Cable Specifications										
Part Number of Conductors AWG Strand Strand D.D.(Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** Approximate Weight per foot											
<u>Q0190-1</u>	3	22	7	0.209 [5.31 mm]	2.09	30	0.0231	\$5uk5:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



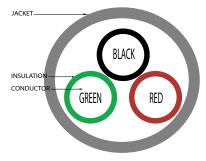


Q7121-1	Unshielded 3-Conductor	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.108 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.172 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	26 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None			
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, Red, Green		QUABBIN 7121R (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 ČSÁ LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATORY	

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7121-1 Unshielded 3-Conductor 22AWG Cable Specifications											
Part Number	Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (Ib/ft) Approximate Price per foot											
<u>Q7121-1</u>	3	22	7	0.172 [4.37 mm]	1.72	30	0.0179	\$43ku:				

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



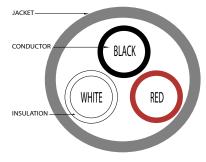


Q7120-1	Unshielded 3-Conductor	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	300V Twisted Conductor Diameter		
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.172 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	27 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None			
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, Red, White		QUABBIN 7120 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7120-1 Unshielded 3-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Approximate Weight (lb/ft) Price per foot										
	1									
<u>Q7120-1</u>	3	22	7	0.227 [5.77 mm]	1.72	30	0.0179	\$4c1o:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



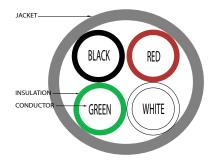


Q7125-1	<b>Unshielded 4-Conductor</b>	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.121 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.185 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None			
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, Red, White, Green		QUABBIN 7125 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR)	

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7125-1 Unshielded 4-Conductor 22AWG Cable Specifications									
Part Number	Part Number of Conductors AWG Strand Maximum 0.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft)** Approximate Weight (lb/ft) Price per foot									
<u>Q7125-1</u>	4	22	10	0.185 [4.70 mm]	1.72	30	0.0224	\$43kv:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



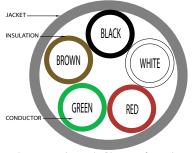


Q7131-1	Unshielded 5-Conductor	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.135 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.199 inch; nominal	
Temperature Rating, Min.	-30°C (-22°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	28 pF/ft	Jacket Thickness	0.010 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		(11) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, white, red, green, brown		QUABBIN 7131 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CŚA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7131-1 Unshielded 5-Conductor 22AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (Ib/ft) Price per foot											
						_					
<u>Q7131-1</u>	5	22	7	0.199 [5.05 mm]	1.99	30	0.0245	\$5uk6:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



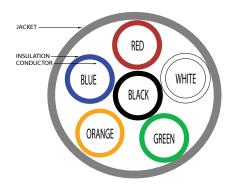


Q7135-1	Unshielded 6-Conductor	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.145 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.209 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	18 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.4 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None			
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, Red, White, Green, Orange, Blue		QUABBIN 7135 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal	(i(i(i	DESIGNATOR)	

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7135-1 Unshielded 6-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Weight (lb/ft) Price per foot										
<u>Q7135-1</u>	6	22	7	0.209 [5.31 mm]	2.09	30	0.0284	\$4c1s:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

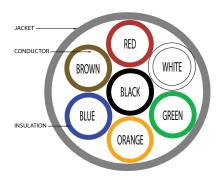


Q7140-1	Unshielded 7-Conductor 2	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding Voltage Rating	22AWG 7/30 Stranded Tinned Copper 300V	Insulated Conductor Diameter	0.050 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.214 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	28 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		(III.) NEO TYPE OM	
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, red, white, green, orange, blue, brown		QUABBIN 7140 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 - `CŚA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7140-1 Unshielded 7-Conductor 22AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot (lb/ft)											
			-								
<u>Q7140-1</u>	7	22	7	0.214 [5.44 mm]	2.14	20	0.0329	\$5uk7:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



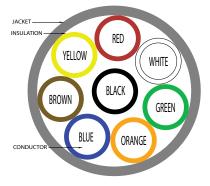


Q7145-1	Unshielded 8-Conductor	22AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.168 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.232 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		(UL) NEC TYPE CM	
Drain	None	Approvals*	CSA AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		MEETS VW-1 FLAME TEST	
Conductor Identification	Black, Red, White, Green, Orange, Blue, Brown, Yellow		QUABBIN 7145 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 VW-1 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATUR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7145-1 Unshielded 8-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Approximate Weight per foot										
<u>Q7145-1</u>	8	22	10	0.232 [5.90 mm]	2.32	30	0.0375	\$4c1u:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



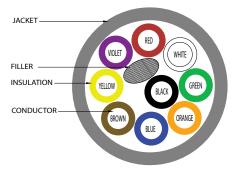


Q7150-1	Unshielded 9-Conductor	22AWG Cable Sp	ecifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.182 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.246 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	28 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple		QUABBIN 7150 (UL) TYPE CM 22 AWG
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATORY

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q7150-1 Unshielded 9-Conductor 22AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (Ib/ft)	Price per foot		
		D-111								
<u>Q7150-1</u>	9	22	7	0.246 [6.24 mm]	2.46	30	0.0422	\$5uk8:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



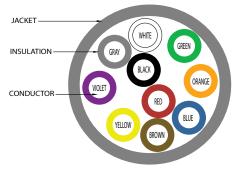


Q7155-1 U	Inshielded 10-Conductor	22AWG Cable Sp	pecifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.185 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.249 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	28 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray		QUABBIN 7155 (UL) TYPE CM 22 AWG
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATORY

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q7155-1 Unshielded 10-Conductor 22AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
<u>Q7155-1</u>	10	22	7	0.249 [6.32 mm]	2.49	30	0.0423	\$5uk9:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



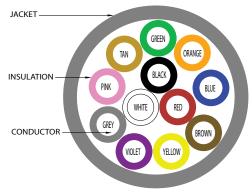


Q7160-1 L	Inshielded 12-Conductor	22AWG Cable S	pecifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.202 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.266 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		
Drain	None	Approvals*	NEC (UL) TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464 80C 300V
Conductor Identification	Black, Red, White, Green, Orange, Blue, Brown, Yellow, Purple, Gray, Pink, Tan		QUABBIN 7160 (UL) TYPE CM 22 OR AWM
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7160-1 Unhielded 12-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot										
<u>Q7160-1</u>	12	22	7	0.266 [6.76 mm]	2.66	30	0.0493	\$-4c1I:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

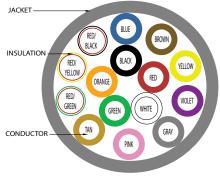


Q7165-1 U	Inshielded 15-Conductor	22AWG Cable Sp	pecifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.234 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.298 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	28 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray, pink, tan, red- green, red-yellow, red-black		QUABBIN 7165 (UL) TYPE CM 22 AWG OR AWM 2464 CSA LL51726 AWM I/
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7165-1 Unshielded 15-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** (Ib/ft) Price per foo								Price per foot		
				_	_	-				
<u>Q7165-1</u>	15	22	7	0.298 [7.57 mm]	2.98	30	0.0621	\$5uk0:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



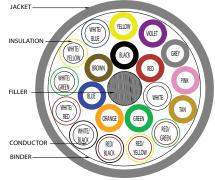


Q7170-1 U	Inshielded 20-Conductor	22AWG Cable Sp	pecifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.276 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.340 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Canacitanaa Mutual Nam	28 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Mutual, Nom.	20 με/π	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Shield	None	Flame Retardant	FT-4
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)	Tippi ovalo	UL STYLE 2464
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray, pink, tan, redgreen, red-yellow, red-black		QUABBIN 7170 (UL) TYPE CM 22 AWG OR AWM 2464 CSA LL51726 AWM I/
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7170-1 Unshelded 20-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft)** Approximate Weight (Ib/ft) Price per foot										
							ı			
<u>Q7170-1</u>	20	22	7	0.340 [8.63 mm]	3.40	30	0.0862	\$5uk1:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



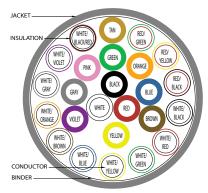


Q7175-1 U	Inshielded 25-Conductor	22AWG Cable S	pecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.290 inch; nominal	
Temperature Rating, Max.			0.354 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	28 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		(UL) NEC TYPE CM	
Drain	None	Approvals*	ČSÁ AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray, pink, tan, redgreen, red-yellow, red-black, white-black, white-red, white-green, white-yellow, white-blue, white-brown, white-orange, white -gray, white-purple, white-black-red	Sample Print Legend	QUABBIN 7175 (UL) TYPE CM 22 AWG OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT	
Conductor Insulation Wall Thickness	0.010 inch; nominal		DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7175-1 Unshielded 25-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Approximate Weight (lb/ft) Price per foot								Price per foot		
					_	_				
<u>Q7175-1</u>	25	22	7	0.354 [8.99 mm]	3.54	30	0.0974	\$5uk2:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter







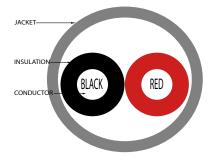


Q6130-1 U	nshielded 1 Twisted Pair	20AWG Cable S	pecifications	
Conductors Gauge & Stranding	20AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.064 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.128 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.192 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	26 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	10.4 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Color coded singles twisted into a pair	Flame Retardant	FT-4	
Shield	None		(11) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464	
Conductor Identification	Black, Red		QUABBIN 6130 (UL) TYPE CM 20 AWG	
Conductor Insulation Wall Thickness	0.013 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.038 inch; nominal		DESIGNATUR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q6130-1 Unshielded 1 Twisted Pair 20AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot										
<u>Q6130-1</u>	1 Twisted Pair	20	7	0.192 [4.88 mm]	1.92	30	0.0192	\$4c1v:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

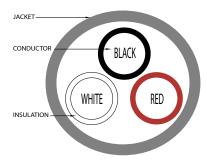


Q0195-1	Unshielded 3-Conductor	20AWG Cable Sp	ecifications
Conductors Gauge & Stranding	20AWG 10/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.148 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.224 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	22 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	Yes
D.C. Resistance, Max.	10.9 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE PLTC 105C 300V NEC (UL) TYPE ITC 105C 300V
Drain	20AWG 10/30 Stranded Tinned Copper	Approvals*	UL AWM STYLE 2464 80C 300V
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA FAS 105 FT4 CSA AWM FT4 90C 300V
Conductor Identification	Black, red, white		QUABBIN 0225 (UL) TYPE PLTC OR ITC 18 AWG 105C SUN RES OR AWM 2464 CSA
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	LL66965 FAS 105 18 AWG 3 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4
Bare Conductor Diameter	0.045 inch; nominal		RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0195-1 Unshielded 3-Conductor 20AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D.(Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot										
		>								
<u>Q0195-1</u>	3	20	10	0.224 [5.68 mm]	2.24	30	0.0274	\$5uk3:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



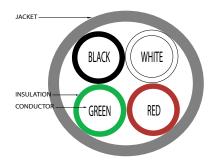


Q6100-1	Unshielded 4-Conductor 2	20AWG Cable Sp	ecifications
Conductors Gauge & Stranding	20AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.064 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.128 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.219 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	26 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	10.4 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		(11) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Drain	None	Approvals*	(UL) NEC TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2464
Conductor Identification	Black, White, Red, Green		QUABBIN 6100 (UL) TYPE CM 20 AWG
Conductor Insulation Wall Thickness	0.013 inch; nominal	Sample Print Legend	OR AWM 2464 CŚA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.037 inch; nominal		DESIGNATOR

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q6100-1 Unshielded 4-Conductor 20AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>Q6100-1</u>	4	20	7	0.227 [5.77 mm]	2.19	30	0.0303	\$43kq:			

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



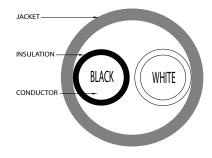


Q4140-1	Unshielded 2-Conductor	18AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	20AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.058 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.160 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.210 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	15 pF/ft	Jacket Thickness	0.025 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	6.54 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None			
Drain	None	Approvals*	NEC (UL) TYPE CM CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL AWM STYLE 2095	
Conductor Identification	Black, White		QUABBIN 4140 (UL) TYPE CM 18 AWG	
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	OR AWM 2095 CSA LL51726 AWM I/ II A/B 90C 300V FT4 RoHS (LOT	
Bare Conductor Diameter	0.048 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4140-1 Unshielded 2-Conductor 18AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Weight (lb/ft) Price per foot											
							_				
<u>Q4140-1</u>	2	18	7	0.210 [5.72 mm]	2.06	30	0.0236	\$5uk4:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



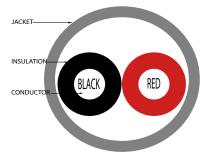


Q4560-1	Unshielded 2-Conductor	18AWG Cable Sp	ecifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.071 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.142 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.206 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEO (III) TI/DE OM
Drain	None	Approvals*	NEC (UL) TYPE CM CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL AWM STYLE 2464
Conductor Identification	Black, Red		QUABBIN 4560 (UL) TYPE CM 18 AWG
Conductor Insulation Wall Thickness	0.013 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.045 inch; nominal		DESIGNATORY

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4560-1 Unshielded 2-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) 1 Cut Length (ft) ** Weight (lb/ft) Price per foot										
<u>Q4560-1</u>	2	18	16	0.219 [5.56 mm]	2.06	30	0.0315	\$43kp:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



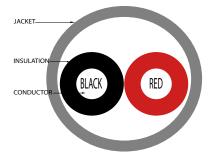


Q0140-1	Unshielded 2-Conductor	18AWG Cable Sp	ecifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.154 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.230 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		UL AWM STYLE 2464 80C 300V
Drain	None	Approvals*	NEC (UL) TYPE PLTC 105C 300V NEC (UL) TYPE ITC 105C 300V
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA FAS 105 FT4 CSA AWM FT4 90C 300V
Conductor Identification	Black, Red		QUABBIN 0140 (UL) TYPE PLTC OR ITC 18
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	AWG 105C SUN RES OR AWM 2464 CSA LL66965 FAS 105 18 AWG 2 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4
Bare Conductor Diameter	0.045 inch; nominal		RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0140-1 Unshielded 2-Conductor 18AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot											
<u>Q0140-1</u>	2	18	16	0.230 [5.84 mm]	2.30	30	0.0293	\$4c1z:			

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



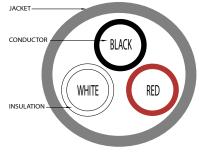


Q0200-1	Unshielded 3-Conductor	18AWG Cable Sp	ecifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.166 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.242 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	Yes
D.C. Resistance, Max.	6.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEC (UL) TYPE PLTC 105C 300V
Drain	None	Approvals*	NEC (UL) TYPE ITC 105C 300V UL AWM STYLE 2464 80C 300V
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA FAS 105 FT4 CSA AWM FT4 90C 300V
Conductor Identification	tor Identification Black, red, white		QUABBIN 0200 (UL) TYPE CM 18 AWG 105C SUN RES OR AWM 2464 CSA
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	LL66965 FAS 105 18AWG 3 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4
Bare Conductor Diameter	0.045 inch; nominal		RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0200-1 Unshielded 3-Conductor 18AWG Cable Specifications									
Part Nilmoer   I //Wii   Strand   II II Inchee   Rond Radiile   I'ili I ondto   Woldnt								Price per foot		
						_				
<u>Q0200-1</u>	3	18	16	0.242 [6.23 mm]	2.42	30	0.0377	\$5uka:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



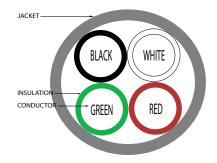


Q4100-1	Unshielded 4-Conductor	18AWG Cable Sp	ecifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	300V (UL AWM 2464) 600V (UL AWM 2586 / CSA AWM I/II A/B)	Twisted Conductor Diameter	0.186 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.245 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEC (UL) TYPE CM
Drain	None	Approvals*	UL STYLE 2464 UL STYLE 2586
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4
Conductor Identification	Black, White, Red, Green		QUABBIN 4100 (UL) TYPE CM 18 AWG OR
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	AWM 2464 80C 300V OR AWM 2586 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.045 inch; nominal		1000 V 1 14 NOTIO (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4100-1 Unshielded 4-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (inches) Weight (inches) Minimum Installed Cut Length (inches) Weight (lb/ft)										
<u>Q4100-1</u>	4	18	16	0.245 [6.23 mm]	2.45	30	0.0440	\$-43kl:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



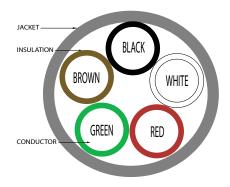


Q4105-1	Unshielded 5-Conductor	18AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal	
Voltage Rating	600V	Twisted Conductor Diameter	0.208 inch; nominal	
Temperature Rating, Max.	60°C, 80°C & 105°C (140°F, 176°F & 221°F)	Overall Diameter	0.272 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Bend Radius, Min.	2.72 Inches	Jacket Thickness	0.032 inch: nominal	
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Hilckiless	0.032 mcn, nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		UL AWM STYLE 2464	
Drain	None	Approvals*	UL AWM STYLE 2586 NEC (UL) TYPE CM	
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA ÀWM FT4	
Conductor Identification	Black, White, Red, Green, Brown		QUABBIN 4105 (UL) TYPE CM 18 AWG OR	
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	AWM 2464 80C 300V OR AWM 2586 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.045 inch; nominal		COLORATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4105-1 Unshielded 5-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Approximate Weight (lb/ft) Price per foot										
<u>Q4105-1</u>	5	18	16	0.272 [6.91 mm]	2.72	30	0.0492	\$;4c1[:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



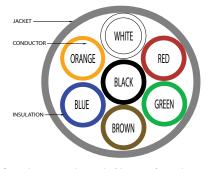


Q4110-1 l	<b>Inshielded 7-Conductor</b>	18AWG Cable Sp	ecifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	600V	Twisted Conductor Diameter	0.231 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.295 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 3-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEC (UL) TYPE CM
Drain	None	Approvals*	CSA AWM FT4 UL AWM STYLE 2464
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL AWM STYLE 2586
Conductor Identification	Black, white, red, green, brown, blue, orange		QUABBIN 4110 (UL) TYPE CM 18 AWG OR
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	AWM 2464 80C 300V OR AWM 2589 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.045 inch; nominal		(LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Q4110-1 Unshielded 7-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Weight (lb/ft) Price per foot								Price per foot	
						_			
<u>Q4110-1</u>	7	18	16	0.295 [7.49 mm]	2.95	30	0.0637	\$5ukb:	

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



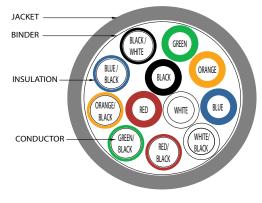


Q4120-1 U	nshielded 12-Conducto	r 18AWG Cable S	pecifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	600V	Twisted Conductor Diameter	0.315 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.385 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.035 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEC (UL) TYPE CM
Drain	None	Approvals*	CSA AWM FT4 UL STYLE 2464
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2586
Conductor Identification	Black, white, red, green, orange, blue, white/black, red/black, green/black, orange/black, blue/black, black/white		QUABBIN 4120 (UL) TYPE CM 18 AWG OR AWM 2464 80C 300V OR
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	AWM 2586 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.045 inch; nominal		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4120-1 Unshielded 12-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ± 10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** (Ib/ft) Price per foot										
<u>Q4120-1</u>	12	18	16	0.385 [9.78 mm]	3.85	30	0.106	\$5ukc:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



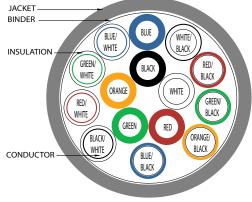


Q4125-1 U	nshielded 15-Conductor	18AWG Cable S	pecifications	
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal	
Voltage Rating	600V	Twisted Conductor Diameter	0.364 inch; nominal	
Temperature Rating, Max.	60°C, 80°C & 105°C (140°F, 176°F & 221°F)	Overall Diameter	0.444 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.040 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	None		NEC (UL) TYPE CM	
Drain	None	Approvals*	CSA AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL STYLE 2586	
Conductor Identification	Black, white, red, green, orange, blue, white/black, red/black, green/black, orange/black, blue/black, black/white, red/white, green/white, blue/white	Somalo Drint Louge	QUABBIN 4125 (UL) TYPE CM 18 AWG OR AWM 2464 80C 300V OR	
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	AWM 2586 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.045 inch; nominal			

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4125-1 Unshielded 15-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot										
					_	-				
<u>Q4125-1</u>	15	18	16	0.444 [11.28 mm]	4.44	30	0.1465	\$5ukd:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

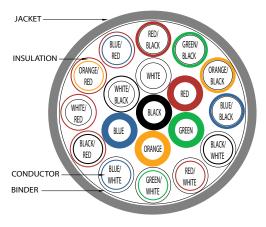


Q4130-1	Unshielded 19-Conduct	or 18AWG Cable	<b>Specifications</b>		
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal		
Voltage Rating	600V	Twisted Conductor Diameter	0.385 inch; nominal		
Temperature Rating, Max.	60°C, 80°C & 105°C (140°F, 176°F & 221°F)	Overall Diameter	0.465 inch; nominal		
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray		
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.040 inch; nominal		
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)		
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No		
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No		
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4		
Shield	None		NEC (UL) TYPE CM CSA AWM FT4 UL STYLE 2464 UL STYLE 2586		
Drain	None	Approvals*			
Conductor Insulation Material	Polyvinyl chloride (PVC)				
Conductor Identification	Black, white, red, green, orange, blue, white/black, red/black, green/black, orange/black, blue/black, black/white, red/white, green/white, blue/white, black/red, white/red, orange/red, blue/red	Sample Print Legend	QUABBIN 4130 (UL) TYPE CM 18 AWG OR AWM 2464 80C 300V OR AWM 2586 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4		
Conductor Insulation Wall Thickness	0.016 inch; nominal		RoHS (LOT DESIGNATOR)		
Bare Conductor Diameter	0.045 inch; nominal				

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Q4130-1 Unshielded 19-Conductor 18AWG Cable Specifications								
I Part Nilmoer   AMIG   Strand   Rend Radille   L'Il Lendto   Meldot							Price per foot	
		A						
<u>Q4130-1</u>	19	18	16	0.465 [11.28 mm]	4.65	30	0.1632	\$5uke:

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

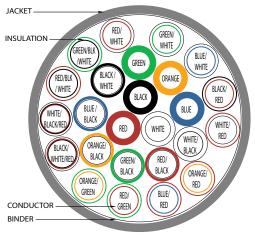


Q4135-1	Unshielded 25-Conducto	or 18AWG Cable	Specifications		
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal		
Voltage Rating	600V	Twisted Conductor Diameter	0.456 inch; nominal		
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.546 inch; nominal		
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray		
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.045 inch; nominal		
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)		
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No		
D.C. Resistance, Max.	<b>C. Resistance, Max.</b> 7.15 Ω / 1000ft.		No		
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4		
Shield	eld None		NEC (UL) TYPE CM		
Drain	None	Approvals*	CSA AWM FT4 UL STYLE 2464 UL STYLE 2586  QUABBIN 4135 (UL) TYPE CM 18 AWG OR AWM 2464 80C 300V OR AWM 2586 105C 600V CSA LL51726 AWM I/II A/B 105C 600V FT4 RoHS (LOT DESIGNATOR)		
Conductor Insulation Material	Polyvinyl chloride (PVC)				
Conductor Identification	Black, white, red, green, orange, blue, white/black, red/black, green/black, orange/black, blue/black, black/white				
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend			
Bare Conductor Diameter	0.045 inch; nominal		Note (LOT BESIGNATOR)		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Q4135-1 Unshielded 25-Conductor 18AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) 1 Cut Length (lb/ft) Approximate Weight (lb/ft) Price per foot										
Q4135-1	25	18	16	0.546 [13.86 mm]	5.46	30	0.2353	\$;5ukf:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

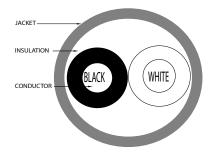


Q3130-1 Unshielded 2-Conductor 16AWG Cable Specifications							
Conductors Gauge & Stranding	16AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.130 inch; nominal				
Voltage Rating	300V	Twisted Conductor Diameter	0.166 inch; nominal				
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.242 inch; nominal				
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome				
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.038 inch; nominal				
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)				
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	Yes				
D.C. Resistance, Max.	6.7 Ω / 1000ft.	Oil Resistance	No				
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4				
Shield	None		NEC (UL) TYPE PLTC 105C 300V NEC (UL) TYPE ITC 105C 300V UL AWM STYLE 2464 80C 300V CSA FAS 105 FT4 CSA AWM FT4 90C 300V QUABBIN 0200 (UL) TYPE CM 18 AWG 105C SUN RES OR AWM 2464 CSA LL66965 FAS 105 18AWG 3 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4 ROHS (LOT DESIGNATOR)				
Drain	None	Approvals*					
Conductor Insulation Material	Polyvinyl chloride (PVC)						
Conductor Identification	Black, white						
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend					
Bare Conductor Diameter	0.057 inch; nominal						

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Q3130-1 Unshielded 2-Conductor 16AWG Cable Specifications								
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches)1	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
<u>Q3130-1</u>	2	16	19	0.242 [6.23 mm]	2.42	30	0.0377	\$5ukg:

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



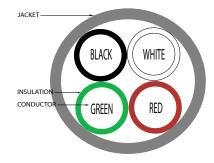


Q3100-1	Unshielded 4-Conductor	16AWG Cable Sp	ecifications
Conductors Gauge & Stranding	16AWG 19/.0117 Stranded Tinned Copper	Insulated Conductor Diameter	0.089 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter 0.215 inch; nominal	
Temperature Rating, Max.	80°C & 90°C (176°F & 194°F)	Overall Diameter	0.279 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	26 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	4.82 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	None		NEO (III) TVDE OLO
Drain	None	Approvals*	NEC (UL) TYPE CL2 UL STYLE 2464
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4
Conductor Identification	Black, White, Red, Green		QUABBIN 3100 (UL) TYPE CL2 16 AWG
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	90C OR AWM 2464 CSA LL51726 AWM I/II A/B 90C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.057 inch; nominal		DESIGNATOR

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q3100-1 Unshielded 4-Conductor 16AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (ft) ** Approximate Price per foot										
<u>Q3100-1</u>	4	16	19	0.279 [7.09 mm]	2.79	30	0.0562	\$43kk:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



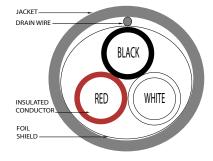


Q8165-1	Shielded 3-Conductor 2	4AWG Cable Spe	cifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal ±0.002 Inch	
Voltage Rating	300V	Twisted Conductor Diameter	0.094 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.162 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	33 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	65 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)			
Drain	24AWG 7-32 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM UL AWM STYLE 2464 CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		COAAWWII 14	
Conductor Identification	Black, White, Red		QUABBIN 8165 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT	
Bare Conductor Diameter	0.024 inch; nominal		DESIGNATOR)	

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8165-1 Shielded 3-Conductor 24AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Cut Length (Ib/ft) Approximate Price per foot										
<u>Q8165-1</u>	3	24	7	0.162 [4.11 mm]	1.62	30	0.0163	\$4c1g:		

#### 1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



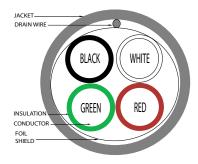


Q8170-1	Shielded 4-Conductor 2	4AWG Cable Spe	cifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal ±0.002 Inch	
Voltage Rating	300V	Twisted Conductor Diameter	0.106 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.180 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	33 pF/ft	Jacket Thickness	0.035 inch; nominal	
Capacitance, Grounded, Nom.	65 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7-32 Stranded Tinned Copper	Approvals*	UL AWM STYLE 2464 CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OCAMMITIT	
Conductor Identification	Black, White, Red, Green		QUABBIN 8170 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT	
Bare Conductor Diameter	0.024 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q8170-1 Shielded 4-Conductor 24AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
<u>Q8170-1</u>	4	24	7	0.180 [4.57 mm]	1.80	30	0.0192	\$4c1h:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

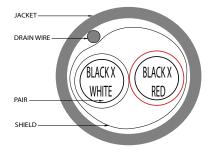


Q8110	D-1 2 Shielded Pairs 24A	WG Cable Specif	ications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.130 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.243 inch; nominal	
Temperature Rating, Min.	-40°C (-40°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	50 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7/30 Stranded Tinned Copper	Approvals*	CSA ÀWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL AWM STYLE 2464	
Conductor Identification	Black-Red, Black-White		QUABBIN 8110 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal		DESIGNATORY	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8110-1 2 Shielded Pairs 24AWG Cable Specifications									
Part Number	Number of Pairs	AWG	Strand	Maximum O.D.(Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
		_								
<u>Q8110-1</u>	2	24	7	0.243 [6.17 mm]	2.43	30	0.021	\$5uko:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



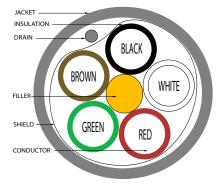


Q8175-1	Shielded 5-Conductor 2	4AWG Cable Spe	cifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal ±0.002 Inch	
Voltage Rating	300V	Twisted Conductor Diameter	0.119 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.195 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	33 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	65 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)			
Drain	24AWG 7-32 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM UL AWM STYLE 2464 CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		COAAWWII 14	
Conductor Identification	Black, White, Red, Green, Brown		QUABBIN 8175 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT	
Bare Conductor Diameter	0.024 inch; nominal		DESIGNATOR)	

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8175-1 Shielded 5-Conductor 24AWG Cable Specifications									
I Part Nilmoer   I Milia   Strand   Rend Radille   I ili I endin   Weldnit								Price per foot		
						_				
<u>Q8175-1</u>	5	24	7	0.195 [4.95 mm]	1.95	30	0.0221	\$-4c1j:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



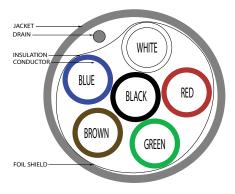


Q8180-1	Shielded 6-Conductor 2	4AWG Cable Spe	cifications
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal ±0.002 Inch
Voltage Rating	300V	Twisted Conductor Diameter	0.130 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.200 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	33 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	65 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		
Drain	24AWG 7-32 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM UL AWM STYLE 2464 CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		COAAWWII 14
Conductor Identification	Black, White, Red, Green, Brown, Blue		QUABBIN 8180 (UL) TYPE CM 24 AWG
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.024 inch; nominal		,

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8180-1 Shielded 6-Conductor 24AWG Cable Specifications									
Part Number	Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Approximate Price per foot									
<u>Q8180-1</u>	6	24	7	0.200 [5.08 mm]	2.00	30	0.0239	\$4c1k:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



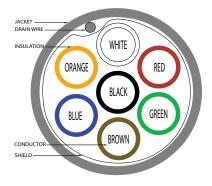


Q8185-1	Shielded 7-Conductor 2	4AWG Cable Spe	cifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.147 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.204 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	50 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7/30 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL AWM STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OLYWW OTTEL 2404	
Conductor Identification	Black, white, red, green, brown, blue, orange		QUABBIN 8185 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Q8185-1 Shielded 7-Conductor 24AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D.(Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot	
<u>Q8185-1</u>	7	24	7	0.204 [5.18 mm]	2.04	30	0.0266	\$5ukp:	

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



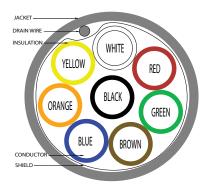


Q8190-1	Shielded 8-Conductor 2	4AWG Cable Spe	cifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.158 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.222 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	33 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	65 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL AWM STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		02741111 07722 2107	
Conductor Identification	Black, white, red, green, brown, blue, orange, yellow		QUABBIN 8190 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR ÀWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8190-1 Shielded 8-Conductor 24AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D.(Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
						_	_				
<u>Q8190-1</u>	8	24	7	0.222 [5.63 mm]	2.22	30	0.0293	\$-5uki:			

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



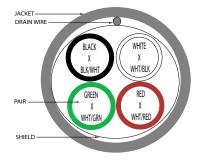


Q8508-1	Shielded 4 Twisted Pair 2	24AWG Cable Sp	ecifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.054 inch; nominal ±0.002 Inch	
Voltage Rating	300V	Twisted Conductor Diameter	0.210 inch; nominal	
Temperature Rating, Max.	60°C & 75°C (140°F & 167°F)	Overall Diameter	0.283 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	13 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	24 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	None	
Shield	Aluminized Polyester Foil Shield (100% Coverage)			
Drain	24AWG 7-32 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM UL STYLE 2448 CSA TYPE CMG	
Conductor Insulation Material	Polyethylene (PE)		COATTFL CIVIG	
Conductor Identification	Black x Black/White White x White/Black Red x White/Red Green x White/Green		QUABBIN 8508 (UL) TYPE CM 24 AWG	
Conductor Insulation Wall Thickness	0.015 inch; nominal	Sample Print Legend	75C OR AWM 2448 LOW VOLTAGE COMPUTER CABLE CSA LL51726 TYPE CMG 60C RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal		OMO 000 NONO (LOT DEGIONATOR)	
Pair Diameter	0.108 inch; nominal			

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8508-1 Shielded 4 Twisted Pair 24AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
<u>Q8508-1</u>	4 twisted pair	24	7	0.283 [7.19 mm]	2.83	30	0.0359	\$-4c1i:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

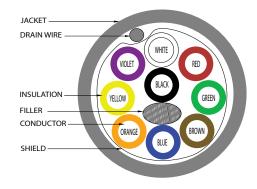


Q8195-1	Shielded 9-Conductor 24	AWG Cable Spe	cifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.160 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.235 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	33 pF/ft	Jacket Thickness	0.035 inch; nominal	
Capacitance, Grounded, Nom.	65 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL AWM STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OL AVVIVI STILE 2404	
Conductor Identification	Black, white, red, green, brown, blue, orange, yellow, purple		QUABBIN 8195 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2464 CSA LL51726	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal		,	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q8195-1 Shielded 9-Conductor 24AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D.(Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
				_	_					
<u>Q8195-1</u>	9	24	7	0.235 [5.97 mm]	2.35	30	0.0346	\$-5ukj:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



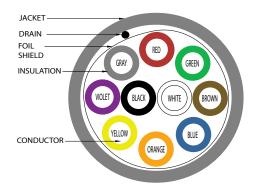


Q8200-1	Shielded 10-Conductor 2	4AWG Cable Spo	ecifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.169 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.237 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	55 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL AWM STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		0274744 07722 2707	
Conductor Identification	Black, white, red, green, brown, blue, orange, yellow, purple, gray		QUABBIN 8200 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2464 CSA LL51726	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal		,	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q8200-1 Shielded 10-Conductor 24AWG Cable Specifications										
Part Number of Conductors AWG Strand Strand D.D.(Inches ± 10%) Minimum Installed Bend Radius (inches) 1 Minimum Cut Length (b/ft) Price per foot											
				_	_	_					
<u>Q8200-1</u>	10	24	7	0.237 [6.02 mm]	2.37	30	0.0346	\$5ukk:			

#### 1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



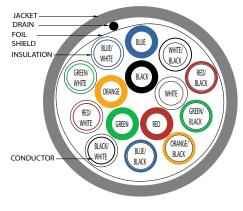


Q8205-1	Shielded 15-Conductor 2	4AWG Cable Spe	ecifications
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.207 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.280 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.035 inch; nominal
Capacitance, Grounded, Nom.	55 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL AWM STYLE 2464
Conductor Insulation Material	Polyvinyl chloride (PVC)		027441111 077 122 2 107
Conductor Identification	Black, white, red, green, orange, blue, white/black, red/black, green/black, orange/black, blue/black, black/white, red/white, green/white, blue/white	Sample Print Legend	QUABBIN 8205 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2464 CSA LL51726
Conductor Insulation Wall Thickness	0.010 inch; nominal	,	AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.024 inch; nominal		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q8205-1 Shielded 15-Conductor 24AWG Cable Specifications									
Part Number of Conductors AWG Strand Strand Maximum O.D.(Inches ±10%) Minimum Installed Bend Radius (inches) 1 Minimum Cut Length (tt)** Approximate Weight (lb/ft) Price per foot										
				_	_	_				
<u>Q8205-1</u>	15	24	7	0.280 [7.11 mm]	2.80	30	0.0482	\$-5ukl:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



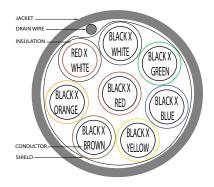


Q8138	<b>B-1 8 Shielded Pairs 24A</b>	WG Cable Specif	ications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.237 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.315 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	50 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (III.) TVPE OM	
Drain	24AWG 7/30 Stranded Tinned Copper	Approvals*	NEC (UL) TYPE CM CSA AWM FT4 UL AWM STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OL AVVIVI STYLE 2404	
Conductor Identification	Black-red, black-white, black-green, black-blue, black-yellow, black-brown, black-orange, red-white		QUABBIN 8138 (UL) TYPE CM 24 AWG SHIELDED OR AWM 2464 CSA LL51726	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q8138-1 8 Shielded Pairs 24AWG Cable Specifications									
Part Number of Pairs AWG Strand Strand Maximum O.D.(Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (b)** Approximate Weight (lb/ft) Price per foot										
<u>Q8138-1</u>	8	24	7	0.315 [8.00 mm]	3.15	30	0.0561	\$5ukp:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



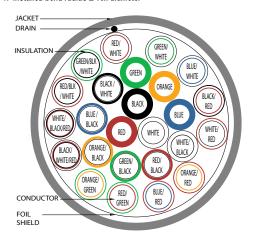


Q8215-1	Shielded 25-Conductor 2	4AWG Cable Spo	ecifications	
Conductors Gauge & Stranding	24AWG 7/32 Stranded Tinned Copper	Insulated Conductor Diameter	0.044 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.257 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.340 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	30 pF/ft	Jacket Thickness	0.040 inch; nominal	
Capacitance, Grounded, Nom.	55 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	26.2 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL AWM STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OL AVVIVI STYLE 2404	
Conductor Identification	Black, white, red, green, orange, blue, white/black, red/black, green/black, orange/black, blue/black, black/white, red/white, green/white, blue/white, black/red, white/red, orange/red, blue/red, red/green, orange/green, blk/wht/red, red/blk/wht, grn/blk/wht	Sample Print Legend	QUABBIN 8215R (UL) TYPE CM 24 AWG SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT	
Conductor Insulation Wall Thickness	0.010 inch; nominal		DESIGNATOR)	
Bare Conductor Diameter	0.024 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q8215-1 Shielded 25-Conductor 24AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D.(Inches ±10%) Minimum Installed Bend Radius (inches) 1 Cut Length (ft) ** Weight (lb/ft) Price per foot										
<u>Q8215-1</u>	25	24	7	0.340 [8.64 mm]	3.40	30	0.0804	\$5ukn:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter







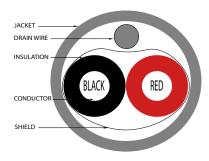
<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

Q0160-1	Shielded 2-Conductor 22	2AWG Cable Spe	cifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.062 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.124 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)		
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	20 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	75 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	Yes
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE PLTC 105C 300V NEC (UL) TYPE ITC 105C 300V
Drain	22AWG 730 Stranded Tinned Copper	Approvals*	UL AWM STYLE 2464 80C 300V CSA FAS 105 FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4 90C 300V
Conductor Identification	Black, red		QUABBIN 0160 (UL) TYPE PLTC OR ITC 22 AWG 105C SUN RES OR AWM 2464 CSA
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	LL66965 FAS 105 22 AWG 2 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4
Bare Conductor Diameter	0.030 inch; nominal		RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0160-1 Shielded 2-Conductor 22AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D.(Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
			>							
<u>Q0160-1</u>	2	22	7	0.203 [5.15 mm]	2.03	30	0.0218	\$5ukq:		

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



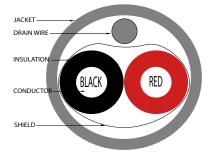


Q7315-1	Shielded 2-Conductor 22	2AWG Cable Spe	cifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.048 inch; nominal ±0.002 Inch
Voltage Rating	300V	Twisted Conductor Diameter	0.096 inch; nominal
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.135 inch; nominal ±0.005 Inch
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	32 pF/ft	Jacket Thickness	0.018 inch; nominal
Capacitance, Grounded, Nom.	56 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.4 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		
Drain	22AWG 7-30 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM UL AWM STYLE 20093 C(UL) TYPE CM
Conductor Insulation Material	Polyethylene (PE)		O(OL) TTT L OW
Conductor Identification	Black, Red		QUABBIN 7315R TYPE CM (UL) C(UL) 22
Conductor Insulation Wall Thickness	0.009 inch; nominal	Sample Print Legend	AWG SHIELDED OR AWM 20093 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7315-1 Shielded 2-Conductor 22AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum 0.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Weight (lb/ft) Price per foot										
<u>Q7315-1</u>	2	22	7	0.135 [3.43 mm]	1.35	30	0.0132	\$43kx:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



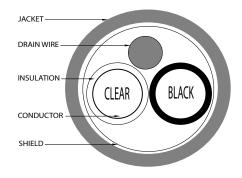


Q7320-1 Shielde	d Pair/ Unshielded 2-Con	ductor 22AWG C	able Specifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.062 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.124 inch; nominal	
Temperature Rating, Max.	60°C & 75°C (140°F & 167°F)			
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	22 pF/ft	Jacket Thickness	0.016 inch; nominal	
Capacitance, Grounded, Nom.	40 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM	
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		00 01100 2404	
Conductor Identification	Clear, black		QUABBIN 7320 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATUR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7320-1 Shielded 2-Conductor 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
		7									
<u>Q7320-1</u>	2	22	7	0.177 [4.50 mm]	1.77	30	0.0160	\$5uks:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



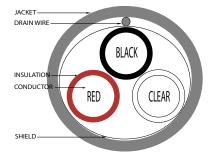


Q7325-1	Shielded 3-Conductor 22	2AWG Cable Spe	cifications
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.062 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.133 inch; nominal
Temperature Rating, Max.	60°C & 75°C (140°F & 167°F)	Overall Diameter	0.186 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	23 pF/ft	Jacket Thickness	0.025 inch; nominal
Capacitance, Grounded, Nom.	41 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	None
Shield	Aluminized Polyester Foil Shield (100% Coverage)		
Drain	22AWG 7/30 Stranded Tinned Copper Drain Wire	Approvals*	UL AWM STYLE 2093 (UL) NEC TYPE CM CSA TYPE CMG
Conductor Insulation Material	Polyethylene (PE)		COATTI E GIVIO
Conductor Identification	Clear, Red, Black		QUABBIN 7325 (UL) TYPE CM 22 AWG
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	75C SHIELDED OR AWM 2093 CSA LL51726 TYPE CMG 60C RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATORY

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7325-1 Shielded 3-Conductor 22AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Weight per foot											
<u>Q7325-1</u>	3	22	7	0.186 [4.72 mm]	1.86	30	0.0209	\$4c1p:			

#### 1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

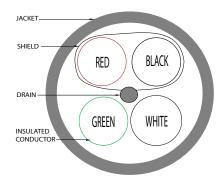


Q7465-1 Shielded	Pair and 2 Ushielded Cor	iductors 22AWG	Cable Specifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	150V	Twisted Conductor Diameter	0.120 inch; nominal	
Temperature Rating, Max.	60°C (140°F)	Overall Diameter	0.168 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	34 pF/ft, 67 pF/ft	Jacket Thickness	0.022 inch; nominal	
Capacitance, Grounded, Nom.	N/A	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	900V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM	
Drain	24AWG 7/32 Stranded Tinned Copper	Approvals*	CSÁ AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OL 311LL 2404	
Conductor Identification	Black-red(shielded)/white-green		QUABBIN 7465 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.008 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM // II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Q740	Q7465-1 Shielded Pair and 2 Unshielded Conductors 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>Q7465-1</u>	4	22	7	0.168 [4.27 mm]	1.68	30	0.0208	\$5uky:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



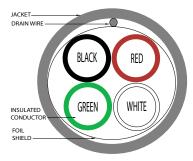


Q7525-1	Shielded 4-Conductor 2	2AWG Cable Spe	cifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.121 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.197 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	41 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	76 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)			
Drain	22AWG 7-30 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM (UL) AWM STYLE 2464 CSA AWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		OJANNINI 14	
Conductor Identification	Black, Red, White, Green		QUABBIN 7525 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATORY	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7525-1 Shielded 4-Conductor 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>Q7525-1</u>	4	22	7	0.197 [5.00 mm]	1.97	30	0.0242	\$4c1q:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



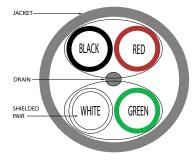


Q7395-1	22AWG Cable Sp	ecifications		
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.046 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.115 inch; nominal	
Temperature Rating, Max.	60°C (140°F)	Overall Diameter	0.165 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	35 pF/ft	Jacket Thickness	0.019 inch; nominal	
Capacitance, Grounded, Nom.	62 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	N.	
Impedance, Characteristic, Nom.	45 Ω	UII Resistance	No	
Attenuation	4.4 dB / 100M @ 1MHz	Eleme Belevile d		
Pair Conductor Twist / Lay	Color coded singles twisted into pairs, pairs cabled together on a common axis	Flame Retardant	None	
Shield	Aluminized Polyester Foil Shield (100% Coverage)			
Drain	24AWG 7/32 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM CEC C(UL) TYPE CM	
Conductor Insulation Material	Polypropylene (PP)			
Conductor Identification	Black x Red White x Green		QUABBIN 7395 TYPE CM C(UL)US	
Conductor Insulation Wall Thickness	0.008 inch; nominal	Sample Print Legend	22 AWG SHIELDED RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7395-1 Shielded 2 Twisted Pair 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>Q7395-1</u>	2 Twisted pair	22	7	0.165 [4.19 mm]	1.86	30	0.0208	\$4c1n:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths

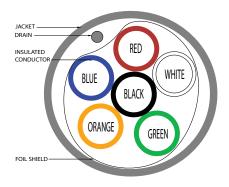


Q7535-1	Shielded 6-Conductor 2	2AWG Cable Spe	cifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.143 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.212 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	37 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	67 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	.212 inch; nominal :chrome Gray .032 inch; nominal :olyvinyl chloride (PVC) :lo	
Shield	Aluminized Polyester Foil Shield (100% Coverage)			
Drain	22AWG 7-30 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE CM (UL) AWM STYLE 2464 80C 300V	
Conductor Insulation Material	Polyvinyl chloride (PVC)		COAAWWI 14	
Conductor Identification	Black, Red, White, Green, Orange, Blue		QUABBIN 7535 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <u>www.AutomationDirect.com</u>

	Q7535-1 Shielded 6-Conductor 22AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot		
		,								
<u>Q7535-1</u>	6	22	7	0.212 [5.38 mm]	2.12	30	0.0329	\$;4c1t:		

1. Installed bend radius ≥ 10x diameter



 $<sup>^{**} \, \</sup>text{See web store} \, \underline{\textit{www.AutomationDirect.com}} \, \text{for maximum cut lengths} \,$ 



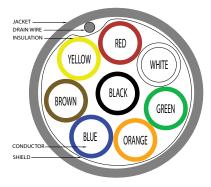


Q7545-1	Shielded 8 Conductor 2	2AWG Cable Spe	cifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.120 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.168 inch; nominal	
Temperature Rating, Min.	-40°C (-40°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	37 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	68.5 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM	
Drain	22AWG 7/30 Stranded Tinned Copper	Approvals*	CSÁ AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		00 01100 2404	
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow		QUABBIN 7545 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7545-1 Shielded 8 Conductor 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (Ib/ft)	Price per foot			
			Mines in con-								
<u>Q7545-1</u>	8	22	7	0.242 [6.15 mm]	2.42	30	0.0417	\$;5ukt:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



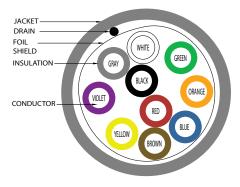


Q7555-1	Shielded 10 Conductor 2	2AWG Cable Spe	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.188 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.252 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	37 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	67 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM	
Drain	22AWG 7/30 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		00 01122 2404	
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray		QUABBIN 7555 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7555-1 Shielded 10 Conductor 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>Q7555-1</u>	10	22	7	0.252 [6.40 mm]	2.52	30	0.0453	\$5uku:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



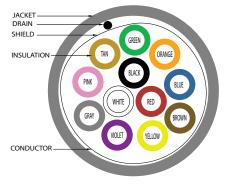


Q7560-1	Shielded 12 Conductor 2	2AWG Cable Spe	ecifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.203 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.270 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	37 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	68.5 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM	
Drain	22AWG 7/30 Stranded Tinned Copper	Approvals*	CSA AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		0E 011EE 2404	
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray, pink, tan		QUABBIN 7560 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		DESIGNATOR	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7560-1 Shielded 12 Conductor 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
<u>Q7560-1</u>	12	22	7	0.270 [6.86 mm]	2.70	30	0.0554	\$5ukv:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



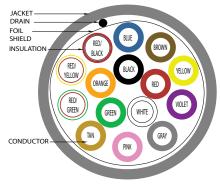


Q7565-1	Shielded 15 Conductor 2	2AWG Cable Spe	cifications	
Conductors Gauge & Stranding	22AWG 7/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.050 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.228 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.295 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	36 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	67 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM	
Drain	22AWG 7/30 Stranded Tinned Copper	Approvals*	CSÁ AWM FT4 UL STYLE 2464	
Conductor Insulation Material	Polyvinyl chloride (PVC)		0111112 2404	
Conductor Identification	Black, red, white, green, orange, blue, brown, yellow, purple, gray, pink, tan, red/green, red/yellow, red/black		QUABBIN 7565 (UL) TYPE CM 22 AWG	
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	OR AWM 2464 CSA LL51726 AWM I/ II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.030 inch; nominal		,	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q7565-1 Shielded 15 Conductor 22AWG Cable Specifications										
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot			
		*									
		ä									
<u>Q7565-1</u>	15	22	7	0.295 [7.49 mm]	2.95	30	0.0679	\$5ukx:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



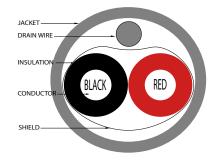


Q0165-1	Shielded 2-Conductor 2	OAWG Cable Spe	cifications
Conductors Gauge & Stranding	20AWG 10/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.069 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.138 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.215 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	44 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	81.4 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	Yes
D.C. Resistance, Max.	16.7 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		UL AWM STYLE 2464 80C 300V NEC (UL) TYPE PLTC 105C 300V
Drain	22AWG 7-30 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE ITC 105C 300V CSA FAS 105 FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4 90C 300V
Conductor Identification	or Identification Black, Red		QUABBIN 0165R (UL) TYPE PLTC OR ITC 20 AWG 105C SUN RES OR AWM
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	2464 CSA LL66965 FAS 105 20 AWG 2 CONDUCTOR FT4 OR AWM I/II A/B 90C
Bare Conductor Diameter	0.037 inch; nominal		300V FT4 RoHS (LOT DEDSIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0165-1 Shielded 2-Conductor 20AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) 1 Minimum Cut Length (It)** Weight (Ib/ft) Price per foot										
<u>Q0165-1</u>	2	20	10	0.215 [5.46 mm]	2.15	30	0.0273	\$-43ki:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



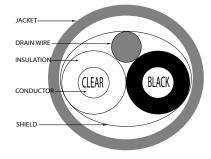


Q6140-1	Shielded 2-Conductor 20	DAWG Cable Spe	cifications
Conductors Gauge & Stranding	20AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.070 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.143 inch; nominal
Temperature Rating, Max.	60°C & 75°C (140°F & 167°F)	Overall Diameter	0.199 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	27 pF/ft	Jacket Thickness	0.028 inch; nominal
Capacitance, Grounded, Nom.	51 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	10.4 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	None
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CM
Drain	20AWG Stranded Tinned Copper Drain Wire	Approvals*	CSA TYPE CMG UL STYLE 2092
Conductor Insulation Material	Polyethylene (PE)		01 01112 2002
Conductor Identification	Clear, Black		QUABBIN 6140 (UL) TYPE CM 20 AWG
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	75C SHIELDED OR AWM 2092 CSA LL51726 TYPE CMG 60C RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.038 inch; nominal		DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	Q6140-1 Shielded 2-Conductor 20AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) 1 Minimum Cut Length (Ib/ft) Approximate Weight (Ib/ft) Price per foot											
<u>Q6140-1</u>	2	20	7	0.199 [5.77 mm]	1.99	30	0.0233	\$43ks:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



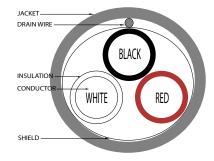


Q0220-1	Shielded 3-Conductor 2	OAWG Cable Spe	cifications
Conductors Gauge & Stranding	20AWG 10/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.069 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.148 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.227 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	46 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	83 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	Yes
D.C. Resistance, Max.	10.5 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		UL AWM STYLE 2464 80C 300V NEC (UL) TYPE PLTC 105C 300V
Drain	22AWG 7-30 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE ITC 105C 300V CSA FAS 105 FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4 90C 300V
Conductor Identification	Black, Red, White		QUABBIN 0220R (UL) TYPE PLTC OR ITC 20 AWG 105C SUN RES OR AWM
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	2464 CSA LL66965 FAS 105 20 AWG 3 CONDUCTOR FT4 OR AWM I/II A/B 90C
Bare Conductor Diameter	0.037 inch; nominal		300V FT4 RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0220-1 Shielded 3-Conductor 20AWG Cable Specifications									
Part Number	Number of Conductors	AWG	Strand	Maximum O.D. (Inches ±10%)	Minimum Installed Bend Radius (inches) <sup>1</sup>	Minimum Cut Length (ft)**	Approximate Weight (Ib/ft)	Price per foot		
<u>Q0220-1</u>	3	20	10	0.227 [5.77 mm]	2.27	30	0.0303	\$-43kj:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



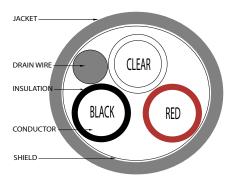


Q6145-1	Shielded 3-Conductor 20	DAWG Cable Spe	cifications	
Conductors Gauge & Stranding	20AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.070 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.153 inch; nominal	
Temperature Rating, Max.	70°C (158°F)	Overall Diameter	0.209 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	27 pF/ft	Jacket Thickness	0.028 inch; nominal	
Capacitance, Grounded, Nom.	51 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	10.4 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		(UL) NEC TYPE CMG	
Drain	20AWG 7-30 Stranded Tinned Copper Drain Wire	Approvals*	C(UL) CEC TYPE CMG UL STYLE 2093	
Conductor Insulation Material	Polyethylene (PE)			
Conductor Identification	Clear, Black, Red		OLIABBINI 6145 C/LII VLIS TVDE CMC 20	
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	QUABBIN 6145 C(UL)US TYPE CMG 20 AWG 75C SHIELDED OR AWM 2093 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.038 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q6145-1 Shielded 3-Conductor 20AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft) ** Weight (lb/ft) Price per foot											
<u>Q6145-1</u>	3	20	7	0.209 [5.31 mm]	2.09	30	0.0285	\$4c1x:			

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



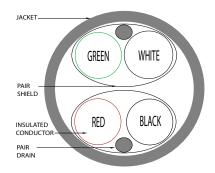


Q61	51-1 2 Shielded Pairs 20	AWG Cable Spec	ifications	
Conductors Gauge & Stranding	20AWG 7/28 Stranded Tinned Copper	Insulated Conductor Diameter	0.058 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.161 inch; nominal	
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.225 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	47 pF/ft	Jacket Thickness	0.032 inch; nominal	
Capacitance, Grounded, Nom.	85 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	10.4 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4	
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM	
Drain	22AWG 7/30 Stranded Tinned Copper	Approvals*	CSA ÀWM FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		UL AWM STYLE 2464	
Conductor Identification	Black-Red, Green-White		QUABBIN 6151 (UL) TYPE CM 18 AWG OR	
Conductor Insulation Wall Thickness	0.013 inch; nominal	Sample Print Legend	AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)	
Bare Conductor Diameter	0.038 inch; nominal			

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q6151-1 2 Shielded Pairs 20AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum 0.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (Ib/tt) Price per foot										
<u>Q6151-1</u>	4	20	7	0.225 [5.72 mm]	2.25	30	0.0352	\$56x_:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



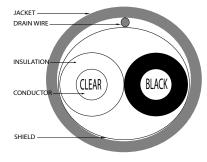


Q4165-1	Shielded 2-Conductor 18	BAWG Cable Spe	cifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.088 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.174 inch; nominal
Temperature Rating, Max.	60°C & 75°C (140°F & 167°F)		0.233 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.028 inch; nominal
Capacitance, Grounded, Nom.	47 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	None
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM
Drain	20AWG 7/0.0121 Stranded Tinned Copper Drain Wire	Approvals*	(UL) AWM STYLE 2092 CSA CMG
Conductor Insulation Material	Polyethylene (PE)		
Conductor Identification	Clear, Black		QUABBIN 4165 (UL) TYPE CM 18 AWG
Conductor Insulation Wall Thickness	0.021 inch; nominal	Sample Print Legend	75C SHIELDED OR AWM 2092 CSA LL51726 TYPE CMG 60C RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.046 inch; nominal		DESIGNATOR

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4165-1 Shielded 2-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ± 10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (Ib/ft) Price per foot										
<u>Q4165-1</u>	2	18	16	0.233 [5.92 mm]	2.33	30	0.0300	\$43kn:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



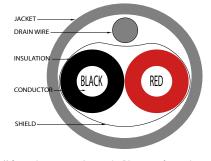


Q0170-1	Shielded 2-Conductor 1	8AWG Cable Spe	cifications	
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal	
Voltage Rating	300V	Twisted Conductor Diameter	0.154 inch; nominal	
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.233 inch; nominal	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray	
Capacitance, Mutual, Nom.	53 pF/ft	Jacket Thickness	0.038 inch; nominal	
Capacitance, Grounded, Nom.	95 pF/ft	Jacket Material	Polyvinyl chloride (PVC)	
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No	
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No	
Conductor Twist / Lay	Left hand / 2-1/2 Inch	eft hand / 2-1/2 Inch Flame Retardant		
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE PLTC 105C 300V	
Drain	20AWG 10/30 Stranded Tinned Copper Drain Wire	Approvals*	NEC (UL) TYPE ITC 105C 300V UL AWM STYLE 2464 80C 300V CSA FAS 105 FT4	
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4 90C 300V	
Conductor Identification	Black, Red		QUABBIN 0170 (UL) TYPE PLTC OR ITC 18 AWG 105C SUN RES OR AWM 2464 CSA	
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	LL66965 FAS 105 18 AWG 2 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4	
Bare Conductor Diameter	0.045 inch; nominal		RoHS (LOT DESIGNATOR)	

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0170-1 Shielded 2-Conductor 18AWG Cable Specifications										
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (Ib/ft) Price per foot											
<u>Q0170-1</u>	2	18	16	0.233 [5.92 mm]	2.33	30	0.0312	\$4c1y:			

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



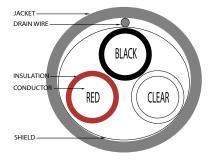


Q4170-1	Shielded 3-Conductor 1	BAWG Cable Spe	cifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.081 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.168 inch; nominal
Temperature Rating, Max.	60°C & 75°C (140°F & 167°F)	C & 75°C (140°F & 167°F)	
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	25 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	46 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	None
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM
Drain	20AWG 7/0.121 Stranded Tinned Copper Drain Wire	Approvals*	(UL) AWM STYLE 2093 CSA TYPE CMG
Conductor Insulation Material	Polyethylene (PE)		
Conductor Identification	Black, Clear, Red		QUABBIN 4170 (UL) TYPE CM 18 AWG
Conductor Insulation Wall Thickness	0.018 inch; nominal	Sample Print Legend	75C SHIELDED OR AWM 2093 CSA LL51726 TYPE CMG 60C RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.045 inch; nominal		DEGIGIATORY

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4170-1 Shielded 3-Conductor 18AWG Cable Specifications									
Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Weight per foot										
<u>Q4170-1</u>	3	18	16	0.235 [5.97 mm]	2.35	30	0.0391	\$43ko:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



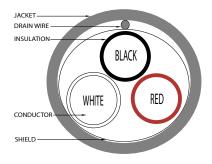


Q0225-1	Shielded 3-Conductor 1	8AWG Cable Spe	cifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.077 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.166 inch; nominal
Temperature Rating, Max.	80°C, 90°C & 105°C (176°F, 194°F & 221°F)	Overall Diameter	0.245 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	51 pF/ft	Jacket Thickness	0.038 inch; nominal
Capacitance, Grounded, Nom.	93 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	1500V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	4.82 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	FT-4
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE PLTC 105C 300V NEC (UL) TYPE ITC 105C 300V
Drain	20AWG 10/30 Stranded Tinned Copper	Approvals*	UL AWM STYLE 2464 80C 300V CSA FAS 105 FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AWM FT4 90C 300V
Conductor Identification	Black, red, white		QUABBIN 0225 (UL) TYPE PLTC OR ITC 18 AWG 105C SUN RES OR AWM 2464 CSA
Conductor Insulation Wall Thickness	0.016 inch; nominal	Sample Print Legend	LL66965 FAS 105 18 AWG 3 CONDUCTOR FT4 OR AWM I/II A/B 90C 300V FT4
Bare Conductor Diameter	0.045 inch; nominal		RoHS (LOT DESIGNATOR)

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q0225-1 Shielded 3-Conductor 18AWG Cable Specifications									
Part Number	Number of Conductors AWG Strand Strand D.D.(Inches ± 10%) Maximum Minimum Installed Bend Radius Cut Length (ft) ** Approximate Weight (lb/ft) Price per foot									
Q0225-1	3	18	16	0.245 [6.23 mm]	2.42	30	0.0394	\$;5uk]:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths



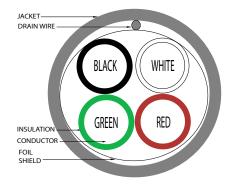


Q4175-1	Shielded 4-Conductor 18	BAWG Cable Spe	cifications
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.065 inch; nominal
Voltage Rating	300V	Twisted Conductor Diameter	0.157 inch; nominal
Temperature Rating, Max.	0°C & 80°C (140°F & 176°F)		0.235 inch; nominal
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray
Capacitance, Mutual, Nom.	58 pF/ft	Jacket Thickness	0.032 inch; nominal
Capacitance, Grounded, Nom.	108 pF/ft	Jacket Material	Polyvinyl chloride (PVC)
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No
D.C. Resistance, Max.	7.39 Ω / 1000ft.	Oil Resistance	No
Conductor Twist / Lay	Left hand / 2-3/4 Inch	Flame Retardant	None
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM
Drain	20AWG 7/0.0121 Stranded Tinned Copper Drain Wire	Approvals*	(UL) AWM STYLE 2464 CSA AWM FT4
Conductor Insulation Material	Polyvinyl chloride (PVC)		
Conductor Identification	Black, White, Red, Green		QUABBIN 4175 (UL) TYPE CM 18 AWG
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)
Bare Conductor Diameter	0.045 inch; nominal		DESIGNATORY

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4175-1 Shielded 4-Conductor 18AWG Cable Specifications									
Part Number	Part Number of Conductors AWG Strand Maximum O.D. (Inches ±10%) Minimum Installed Bend Radius (inches) Minimum Cut Length (ft)** Approximate Weight per foot									
<u>Q4175-1</u>	4	18	16	0.235 [5.97 mm]	2.35	30	0.0405	\$;4c1]:		

<sup>1.</sup> Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.AutomationDirect.com for maximum cut lengths





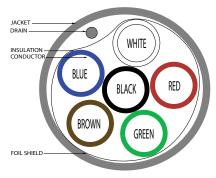
## **Control and Signal Cable**

Q4177-1 Shielded 6-Conductor 18AWG Cable Specifications									
Conductors Gauge & Stranding	18AWG 16/30 Stranded Tinned Copper	Insulated Conductor Diameter	0.065 inch; nominal						
Voltage Rating	300V	Twisted Conductor Diameter	0.195 inch; nominal						
Temperature Rating, Max.	60°C & 80°C (140°F & 176°F)	Overall Diameter	0.259 inch; nominal						
Temperature Rating, Min.	-20°C (-4°F)	Jacket Color	Chrome Gray						
Capacitance, Mutual, Nom.	53 pF/ft	Jacket Thickness	0.032 inch; nominal						
Capacitance, Grounded, Nom.	98 pF/ft	Jacket Material	Polyvinyl chloride (PVC)						
Dielectric Withstanding, Min.	2000V RMS	Sunlight Resistant	No						
D.C. Resistance, Max.	7.15 Ω / 1000ft.	Oil Resistance	No						
Conductor Twist / Lay	Left hand / 2-1/2 Inch	Flame Retardant	None						
Shield	Aluminized Polyester Foil Shield (100% Coverage)		NEC (UL) TYPE CM						
Drain	20AWG 7/0.0121 Stranded Tinned Copper	Approvals*	(UL) AWM STYLE 2464 CSA AWM FT4						
Conductor Insulation Material	Polyvinyl chloride (PVC)		CSA AVVIII F 14						
Conductor Identification	Black, White, Red, Green, Brown, Blue		QUABBIN 4177 (UL) TYPE CM 18 AWG						
Conductor Insulation Wall Thickness	0.010 inch; nominal	Sample Print Legend	SHIELDED OR AWM 2464 CSA LL51726 AWM I/II A/B 80C 300V FT4 RoHS (LOT DESIGNATOR)						
Bare Conductor Diameter	0.045 inch; nominal		DESIGNATORY						

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

	Q4177-1 Shielded 6-Conductor 18AWG Cable Specifications											
Part Number	t Number   Number of Conductors   AWG   Strand   Maximum 0.D. (Inches ±10%)					Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot				
<u>Q4177-1</u>	6	18	16	0.259 [6.58 mm]	2.59	30	0.0541	\$4c1_:				

1. Installed bend radius ≥ 10x diameter



<sup>\*\*</sup> See web store www.automationdirect.com for maximum cut lengths



## Control and Signal Cable

SYSTEMATIC TECHNOLOGY





LUTZE multi-conductor industrial grade PLTC electronic cables are suited for use in machine tools, machine and plant construction, HVAC technology, assembly and production lines, process instrumentation, and controls. LUTZE's electronic cables are designed for 300V and 105°C maximum ambient temperature. ECOLAB certified resistance allows this cable to be used in food and beverage washdown

#### **Features**

- 22AWG to 16AWG, 3 to 25 conductors
- · Shielded and unshielded constructions
- UL Appliance Wiring Material (AWM) style 2464
- Color-coded Polyvinyl Chloride (PVC) conductor insulation
- Oil-resistant Polyvinyl Chloride (PVC) jacket
- Sunlight resistant
- Gas/vapor-tight shield per UL 13
- ECOLAB certified resistance to common cleaning agents and chemicals used in food and beverage washdown procedures.
- Talc and silicone free
- Cut to length in 1-foot increments
- · Low 20-foot minimum length
- · Made in the USA

# 

TOHS ECOLAB

22	2AWG Cable C	onductor	Color Code		
Conductor Number	Primary Color	Conductor Number	Primary Color		
1	Black	14	White/Orange		
2	Brown	15	White/Yellow		
3	Red	16	White/Green		
4	Orange	17	White/Blue		
5	Yellow	18	White/Violet		
6	Green	19	White/Gray		
7	Blue	20	White/Black/Brown		
8	Violet	21	White/Black/Red		
9	Gray	22	White/Black/Orange		
10	White	23	White/Black/Yellow		
11	White/Black	24	White/Black/Green		
12	White/Brown	25	White/Black/Blue		
13	White/Red				

Conductor Number	Primary Color	Conductor Number	Primary Color
1	Black	14	White/Orange
2	Brown	15	White/Yellow
3	Red	16	White/Green
4	Orange	17	White/Blue
5	Yellow	18	White/Violet
6	Green	19	White/Gray
7	Blue	20	White/Black/Brown
8	Violet	21	White/Black/Red
9	Gray	22	White/Black/Orange
10	White	23	White/Black/Yellow
11	White/Black	24	White/Black/Green
12	White/Brown	25	White/Black/Blue
13	White/Red		

MONDAY MINUTE
\$\frac{1}{2} \tag{5}
Cut To Length Wire

Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

<b>20</b> , 18, a	20, 18, and 16AWG Cable Conductor Color Cod										
Conductor Number	Primary Color	Conductor Number	Primary Color								
1	Black	14	Red/Yellow								
2	Red	15	Red/Black								
3	White	16	White/Black								
4	Green	17	White/Red								
5	Orange	18	White/Green								
6	Blue	19	White/Yellow								
7	Brown	20	White/Blue								
8	Yellow	21	White/Brown								
9	Violet	22	White/Orange								
10	Gray	23	White/Gray								
11	Pink	24	White/Violet								
12	Tan	25	White/Black/Red								
13	Red/Green										







# Control and Signal Cable (Unshielded)

	22AWG Control and S	ignal Cable Spec	ifications (Unshielded)
Conductor Gauge & Stranding	22 AWG, 19-stranded, tinned copper		(UL) Type PLTC
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464
Voltage Rating	300V		AWM I/II A/B
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)		
Temperature Rating	105 deg C		cULus E331083 CSA LL44103
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA
Flexibility	Flexible		
Shielding	Unshielded		
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A303XXXX LUTZE ELECTRONIC AWGXX-XXC
Outdoor Rated	No	Sample Print Legend	(UL) TYPE PLTC 105C OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B 105C 300V FT4 CE ROHS CE-45
Oil Resistance	Oil Res II		1044 XXXXFT
Flame Retardant	UL VW-1, FT4		

Note: See web store for maximum cut lengths

<sup>\*</sup>To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\*Color code located in table on <a href="www.automation.gov/organization-page">www.Automation.Direct.com</a>\*\*Color code located in table on <a href="www.automation.gov/organization-page">www.automation.gov/organization.gov/organization-page</a> of this section

	22AWG Control and Signal Cable (Unshielded)									
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal OD (in +/- 10%))	Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (Ib/ft)	Price per Foot
									_	
				LOT	ZE ELECTRONIC					
<u>A3032203-1</u>	3					0.181	0.72		0.02	\$;67td:
<u>A3032204-1</u>	4				37	0.194	0.78		0.03	\$;67te:
A3032208-1	8	22	19	10		0.243	0.97	20	0.04	\$;;67tf:
<u>A3032215-1</u>	15				42	0.318	1.27		0.07	\$;67tg:
<u>A3032225-1</u>	25				52	0.407	1.63		0.12	\$;67th:







# Control and Signal Cable SYSTEMATIC TECHNOLOGY CONTROL OF THE PROPERTY OF TH (Unshielded)

	20AWG Control and Si	ignal Cable Spec	ifications (Unshielded)
Conductor Gauge & Stranding	16 AWG20 AWG, 19-stranded, tinned copper		(UL) Type PLTC
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464
Voltage Rating	300V		AWM I/II A/B
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)		
Temperature Rating	105 deg C		cULus E331083 CSA LL44103
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA
Flexibility	Flexible		
Shielding	Unshielded		
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A303XXXX LUTZE ELECTRONIC AWGXX-XXC
Outdoor Rated	No	Sample Print Legend	(UL) TYPE PLTC 105C OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B 105C 300V FT4 CE ROHS CE-45
Oil Resistance	Oil Res II		1044 XXXXFT
Flame Retardant	UL VW-1, FT4		

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

			<b>20AW</b>	<b>G</b> Contro	ol and Sigr	nal Cable (U	nshielded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal OD (in +/- 10%))	Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (Ib/ft)	Price per Foot
				LÜT	ZE ELECTRONIC					
<u>A3032003-1</u>	3					0.204	0.82		0.03	\$;-67ti:
<u>A3032004-1</u>	4				37	0.220	0.88		0.03	\$;67tp:
A3032008-1	8	20	19	10	40	0.282	1.13	20	0.06	\$;67tx:
<u>A3032015-1</u>	15				42	0.364	1.46		0.10	\$;67t#:
A3032025-1	25				52	0.461	1.84		0.16	\$67u2:







# Control and Signal Cable SYSTEMATIC TECHNOLOGY CONTROL OF THE PROPERTY OF TH (Unshielded)

	18AWG Control and Si	ignal Cable Spec	ifications (Unshielded)
Conductor Gauge & Stranding	18 AWG, 19-stranded, tinned copper		(UL) Type PLTC
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464
Voltage Rating	300V		AWM I/II A/B
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)		
Temperature Rating	105 deg C		cULus E331083 CSA LL44103
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA
Flexibility	Flexible		
Shielding	Unshielded		
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A303XXXX LUTZE ELECTRONIC AWGXX-XXC
Outdoor Rated	No	Sample Print Legend	(UL) TYPE PLTC 105C OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B 105C 300V FT4 CE ROHS CE-45
Oil Resistance	Oil Res II		1044 XXXXFT
Flame Retardant	UL VW-1, FT4		

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

	18AWG Control and Signal Cable (Unshielded)									
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal OD (in +/- 10%))	Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (Ib/ft)	Price per Foot
				LÜT	ZE ELECTRONIC					
<u>A3031803-1</u>	3				07	0.223	0.89		0.04	\$;-67tj:
<u>A3031804-1</u>	4				37	0.242	0.97		0.04	\$;67tk:
<u>A3031808-1</u>	8	18	19	10	42	0.312	1.25	20	0.08	\$;-67tl:
<u>A3031815-1</u>	15				53	0.427	1.71		0.14	\$;67tn:
<u>A3031825-1</u>	25				52	0.515	2.06		0.23	\$;67to:







# Control and Signal Cable (Unshielded)

	16AWG Control and Si	ignal Cable Spec	ifications (Unshielded)			
Conductor Gauge & Stranding	16 AWG 22 AWG16 AWG16 AWG26- stranded, tinned copper		(UL) Type PLTC			
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464			
Voltage Rating	300V		AWM I/II A/B			
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)					
Temperature Rating	105 deg C		cULus E331083 CSA LL44103			
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and			
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA			
Flexibility	Flexible					
Shielding	Unshielded					
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A303XXXX LUTZE ELECTRONIC AWGXX-XXC			
Outdoor Rated	No	Sample Print Legend	(UL) TYPE PLTC 105C OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B 105C 300V FT4 CE ROHS CE-45			
Oil Resistance	Oil Res II		1044 XXXXFT			
Flame Retardant	UL VW-1, FT4					

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

			16AW	G Contro	ol and Sigr	nal Cable (U	nshielded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils) Nominal OD (in +/- 10%))		Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (Ib/ft)	Price per Foot
									_	
		-		LÜT	ZE ELECTRONIC					
<u>A3031603-1</u>	3				37	0.271	1.08		0.05	\$;67tq:
<u>A3031604-1</u>	4				42	0.304 1.22			0.06	\$;67ts:
<u>A3031608-1</u>	8	16	26	16		0.407	1.63	20	0.12	\$;;67tt:
<u>A3031615-1</u>	15				53	0.532	2.13		0.21	\$;67tu:
<u>A3031625-1</u>	25					0.669	2.68		0.34	\$;67tv:







	22AWG Control and	Signal Cable Spe	cifications (Shielded)
Conductor Gauge & Stranding	22 AWG, 19-stranded, tinned copper		(UL) Type PLTC
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464
Voltage Rating	300V		AWM I/II A/B
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)		
Temperature Rating	105 deg C		cULus E331083 CSA LL44103
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA
Flexibility	Flexible		
Shielding	Shielded with foil tape, tinned copper braid, and drain wire		
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A313XXXX LUTZE ELECTRONIC (C) Y
Outdoor Rated	No	Sample Print Legend	AWGXX-XXC SHIELDED (UL) TYPE PLTC 105C SUN RES OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B
Oil Resistance	Oil Res II		105C 300V FT4 CE ROHS CE-45 1351 XXXXXFT
Flame Retardant	UL VW-1, FT4		

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

			22A\	<b>NG Cont</b>	rol and Sig	gnal Cable (	Shielded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils) (in +/- 10%),		Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (lb/ft)	Price per Foot
									_	
				LÜT	ZE ELECTRONIC (C)	PVC				
<u>A3132203-1</u>	3					0.205	0.82		0.03	\$;67ty:
<u>A3132204-1</u>	4				37	0.218	0.87		0.04	\$;67tz:
<u>A3132208-1</u>	8	22	19	10		0.263	1.05	20	0.06	\$;;67t]:
<u>A3132215-1</u>	15				40	0.338	1.35		0.09	\$;;67t[:
<u>A3132225-1</u>	25				50	0.423	1.69		0.14	\$;67t_:







	20AWG Control and	Signal Cable Spe	cifications (Shielded)
Conductor Gauge & Stranding	20 AWG, 19-stranded, tinned copper		(UL) Type PLTC
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464
Voltage Rating	300V		AWM I/II A/B
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)		
Temperature Rating	105 deg C		cULus E331083 CSA LL44103
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA
Flexibility	Flexible		
Shielding	Shielded with foil tape, tinned copper braid, and drain wire		
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A313XXXX LUTZE ELECTRONIC (C) Y
Outdoor Rated	No	Sample Print Legend	AWGXX-XXC SHIELDED (UL) TYPE PLTC 105C SUN RES OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B
Oil Resistance	Oil Res II		105C 300V FT4 CE ROHS CE-45 1351 XXXXXFT
Flame Retardant	UL VW-1, FT4		

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

	20AWG Control and Signal Cable (Shielded)											
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)  Nominal OD (in +/- 10%))		Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (Ib/ft)	Price per Foot		
									_			
				LÜT	ZE ELECTRONIC (C)	PVC						
<u>A3132003-1</u>	3				40	0.230	0.92		0.04	\$;;67t!:		
<u>A3132004-1</u>	4				40	0.246	0.98		0.05	\$;67t?:		
<u>A3132008-1</u>	8	20	19	10	42	0.302	1.21	20	0.08	\$;;67t,:		
<u>A3132015-1</u>	15					0.404	1.62		0.13	\$67u0:		
<u>A3132025-1</u>	25				52	0.481	1.92		0.19	\$67u1:		







	18AWG Control and	Signal Cable Spe	cifications (Shielded)				
Conductor Gauge & Stranding	22 AWG18 AWG, 19-stranded, tinned copper		(UL) Type PLTC				
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464				
Voltage Rating	300V		AWM I/II A/B				
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)						
Temperature Rating	105 deg C		cULus E331083 CSA LL44103				
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and				
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA				
Flexibility	Flexible						
Shielding	Shielded with foil tape, tinned copper braid, and drain wire						
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A313XXXX LUTZE ELECTRONIC (C) Y				
Outdoor Rated	No	Sample Print Legend	AWGXX-XXC SHIELDED (UL) TYPE PLTC 105C SUN RES OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B				
Oil Resistance	Oil Res II		105C 300V FT4 CE ROHS CE-45 1351 XXXXXFT				
Flame Retardant	UL VW-1, FT4						

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

	18AWG Control and Signal Cable (Shielded)											
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal OD (in +/- 10%))	Minimum Installed Bend Radius (in)	Minimum Cut Length (ft)	Approximate Weight (Ib/ft)	Price per Foot		
									_			
				LOT	ZE ELECTRONIC (C)	PVC -						
<u>A3131803-1</u>	3				27	0.243	0.97		0.05	\$67u3:		
<u>A3131804-1</u>	4				37	0.262	1.05		0.06	\$67u4:		
<u>A3131808-1</u>	8	18	19	10	42	0.332	1.33	20	0.10	\$67u5:		
<u>A3131815-1</u>	15				50	0.447	1.79		0.18	\$67u6:		
<u>A3131825-1</u>	25				52	0.535	2.14		0.26	\$67u7:		







	16AWG Control and	Signal Cable Spe	cifications (Shielded)
Conductor Gauge & Stranding	16 AWG, 26-stranded, tinned copper		(UL) Type PLTC
Conductor Markings**	Color-coded conductors	UL Classification	(UL) Type CM AWM Style 2464
Voltage Rating	300V		AWM I/II A/B
Operating Temperature	-40 to 105 deg C (-40 to 221 deg F)		
Temperature Rating	105 deg C		cULus E331083 CSA LL44103
Jacket Material	PVC	Approvals*	CE Meets NEC 392, 725, 800 Class I & II, Div. 2 and
Jacket Color	Gray		Class I Zone 2 per NEC 501, 502, and 505 (PLTC use only) RoHS, REACH, TSCA
Flexibility	Flexible		
Shielding	Shielded with foil tape, tinned copper braid, and drain wire		
Sunlight Resistance	Yes		WWW.LUTZE.COM Part# A313XXXX LUTZE ELECTRONIC (C) Y
Outdoor Rated	No	Sample Print Legend	AWGXX-XXC SHIELDED (UL) TYPE PLTC 105C SUN RES OR CM OR AWM 2464 80C 300V E331083 LL41103 CSA CMG OR AWM I/II A/B
Oil Resistance	Oil Res II		105C 300V FT4 CE ROHS CE-45 1351 XXXXXFT
Flame Retardant	UL VW-1, FT4		

Note: See web store for maximum cut lengths

<sup>\*</sup> To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="www.AutomationDirect.com">www.AutomationDirect.com</a>\*\* Color code located in table on <a href="overview page">overview page</a> of this section

			16A\	<b>NG Cont</b>	rol and Sig	jnal Cable (	Shielded)			
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	luctor Overall Jacket Nominal OD Installed Bend Cut Length Radius (in)		Length	Approximate Weight (Ib/ft)	Price per Foot	
									_	
				LOT	ZE ELECTRONIC (C)	PVC -				
<u>A3131603-1</u>	3				40	0.302	1.21		0.07	\$67u8:
<u>A3131604-1</u>	4				42	0.325	1.3		0.08	\$67u9:
<u>A3131608-1</u>	8	16	26	16	50	0.428	1.71	20	0.14	\$67ua:
<u>A3131615-1</u>	15				53	0.553	2.21		0.24	\$67ub:
A3131625-1	25				63	0.690	2.76		0.37	\$67uc:





## **Type K Thermocouple Extension Wire**

#### Overview

- Available in Shielded and Unshielded
- PVC, Fiberglass, FEP, and Silica insulations
- 20AWG and 16AWG
- Cut to length (1 ft. increments, 20 ft. minimum length)
- Standard ASTM/ANSI color codes

			Thern	nocouple l	Extensio	n Wire					
Part Number	Gauge, AWG	Conductors	Conductor Insulation	Shield and Drain Wire	Jacket Material	Limits of Error**	Continuous Temperature Range	Nominal Size (inches)	Wt (lb)	Minimum Cut Length (ft)*	Price per foot
<u>THMWK-20-1U-P-1</u>	20	2, solid	PVC Red = Negative Yellow = Positive	None	PVC, Yellow	Standard	-20°F to 221°F (-29°C to 105°C)	0.095 x 0.158	0.02	20	\$-4jo?:
THMWK-20-1U-G-1	20	2, solid	Fiberglass braid Red = Negative Yellow = Positive	None	Fiberglass Braid, Brown w/ Yellow tracer	Standard	32°F to 900°F (0°C to 482°C)	0.059 x 0.097	0.01	20	\$;-4jo,:
THMWK-20-1S-P-1	20	2, twisted, solid	PVC Red = Negative Yellow = Positive	Aluminum Mylar shield and copper 22AWG drain wire	PVC, Yellow	Standard	-20°F to 221°F (-29°C to 105°C)	0.170 O.D.	0.03	20	\$-4jp3:
THMWK-20-1U-F-1	20	2, twisted, solid	Extruded FEP Red = Negative Yellow = Positive	None	Extruded FEP, Brown	Standard	-20°F to 400°F (-29°C to 204°C)	0.068/0.116	0.02	20	\$5a56:
		1000	100 200 2 TO 100 100 100 100 100 100 100 100 100 10								
THMWK-20-1U-HG-1	20	2, twisted, solid	Braided Fiberglass Yarn  Red = Negative  Yellow = Positive	None	Fiberglass, Brown	Standard	32°F to 1300°F*** (0°C to 704°C)	0.084/0.142	0.02	20	\$5a57:
		1	10.011				1				
THMWK-20-1U-S-1	20	2, twisted, solid	Braided Vitreous Silica White/Red Stripe = Negative Solid White = Positive	None	Braided Vitreous Silica, Grey	Standard	32°F, to 1800°F (0°C to 982°C)****	0.098/0.162	0.02	20	\$5a58:
			JOING VALING - FOSILIVE					1		1	
								1			
<u>THMWK-16-1U-P-1</u>	16	2, twisted, solid	Extruded PVC Red = Negative Yellow = Positive	None	Extruded PVC, Yellow	Standard	-20°F to 221°F (-29°C to 105°C)	0.109/0.188	0.04	20	\$5a53:

<sup>\*</sup> See web store for maximum cut engths

Note: Special connectors and terminal blocks are required to connect thermocouples to a control device. Both are available from www.automationdirect.com Note: Maximum recommended distance between thermocouple and control device is 100 feet.





<sup>\*\*</sup> Per ASTM E230 / E230M-12

<sup>\*\*\* 1600°</sup>F single exposure

<sup>\*\*\*\*2000°</sup>F single exposure

## Type J Thermocouple Extension Wire

#### Overview

- · Available in Shielded and Unshielded
- PVC, Fiberglass, and FEP
- 20AWG and 16AWG
- Cut to length (1 ft. increments, 20 ft. minimum length)
- Standard ASTM/ANSI color codes

			The	rmocouple	Extensi	on Wire	9				
Part Number	Gauge, AWG	Conductors	Conductor Insulation	Shield and Drain Wire	Jacket Material	Limits of Error**	Continuous Temperature Range	Nominal Size (inches)	Wt (lb)	Minimum Cut Length (ft)*	Price per foot
THMWJ-20-1U-P-1	20	2, solid	PVC Red = Negative White = Positive	None	PVC, Black	Standard	-20°F to 221°F (-29°C to 105°C)	0.095 x 0.158	0.02	20	\$-4jo#:
		V.									
THMWJ-20-1U-G-1	20	2, solid	Fiberglass braid Red = Negative White = Positive	None	Fiberglass braid, Brown	Standard	32°F to 900°F (0°C to 482°C)	0.059 x 0.097	0.01	20	\$;-4jo!:
								-			
THMWJ-20-1S-P-1	20	2, twisted, solid	PVC Red = Negative White = Positive	Aluminum Mylar shield and copper 22AWG drain wire	PVC, Black	Standard	-20°F to 221°F (-29°C to 105°C)	0.170 O.D.	0.03	20	\$-4jp2:
		1	F ( )   FFD	T	I		ı	ı			
THMWJ-20-1U-F-1	20	2, solid	Extruded FEP Red = Negative White = Positive	None	Extruded FEP, Brown	Standard	-20°F to 400°F (-29°C to 204°C)	0.068/0.116	0.02	20	\$5a54:
										•	
<u>THMWJ-16-1U-P-1</u>	16	2, solid	Extruded PVC Red = Negative White = Positive	None	Extruded PVC, Black	Standard	-20°F to 221°F (-29°C to 105°C)	0.109/0.188	0.02	20	\$5a55:

<sup>\*</sup> See web store for maximum cut engths

Note: Special connectors and terminal blocks are required to connect thermocouples to a control device. Both are available from www.automationdirect.com Note: Maximum recommended distance between thermocouple and control device is 100 feet.





<sup>\*\*</sup> Per ASTM E230 / E230M-12

### **RTD Extension Wire**

#### Overview

- Specialized construction for use as RTD extension wire offers superior performance compared to "off-the-shelf" cable
- Available insulation types include PVC and FEP Teflon with aluminum Mylar shield and copper drain wire
- · Cut to length

#### RoHS

					F	RTD Exte	nsion W	ire				
Part Number	1	Price per foot		Minimum Cut Length (ft)*	Gauge, AWG	Conductors	Conductor Insulation	Shield and Drain Wire	Jacket Material		Temperature	Nominal Size (inches)
	_					si .						
RTDW-22-1U-P-1	0.9	\$-4jp1:	RTD	20	22	3, stranded tinned copper	PVC, 2 red, 1 white	None	PVC, white	0.044	-20°F to 221°F (-29°C to 105°C)	0.160 O.D.
						9						
RTDW-24-1S-F-1	0.9	\$-4jp6:	RTD	20	24	3, twisted, stranded tinned copper	FEP Teflon, 2 red, 1 white	Aluminum Mylar shield and copper 24AWG tinned drain wire	FEP Teflon, white	0.066	-328°F to 400°F (-200°C to 204°C)	0.150 O.D.

<sup>\*</sup> See web store for maximum cut lengths

Note: Maximum recommended distance between RTD and control device is 300 feet.





## **Type T Thermocouple Extension Wire**

#### Overview

- · Available in Shielded and Unshielded
- PVC and Fiberglass insulations
- 20AWG
- Cut to length (1 ft. increments, 20 ft. minimum length)
- Standard ASTM/ANSI color codes

	Thermocouple Extension Wire										
Part Number	Gauge, AWG	I'onductore	Conductor Insulation	Shield and Drain Wire	Jacket Material	Limits of Error**	Continuous Temperature Range	Nominal Size (inches)	Wt (lb)	Minimum Cut Length (ft)*	Price per foot
	•										
THMWT-20-1U-P-1	20	2, solid	PVC Red = Negative Blue = Positive	None	PVC, Blue	Standard	-20°F to 221°F (-29°C to 105°C)	0.059 x 0.097	0.02	20	\$-4jp0:
THMWT-20-1U-G-1	20	2, solid	Fiberglass braid Red = Negative Blue = Positive	None	Fiberglass braid, Brown w/ Blue tracer	Standard	32°F to 900°F (0°C to 482°C)	0.059 x 0.097	0.01	20	\$-4jp4:
	-	T			T						T
THMWT-20-1S-P-1	20	2, twisted, solid	PVC Red = Negative Blue = Positive	Aluminum Mylar shield and copper 22AWG drain wire	PVC, Blue	Standard	-20°F to 221°F (-29°C to 105°C)	0.059 x 0.097	0.03	20	\$-4jp5:

<sup>\*</sup> See web store for maximum cut engths

Note: Special connectors and terminal blocks are required to connect thermocouples to a control device. Both are available from www.automationdirect.com

Note: Maximum recommended distance between thermocouple and control device is 100 feet.





<sup>\*\*</sup> Per ASTM E230 / E230M-12

## **UL Listed Type K & J Thermocouple Extension Wire**

#### Overview

- UL Listed PLTC-UL13
- Available in Shielded and Unshielded
- PVC and FEP insulations

- 20AWG and 16AWG
- Cut to length (1 ft. increments, 20 ft. minimum length)
- Standard ASTM/ANSI color codes

			The	ermocouple	Extensi	on Wire	,				
Part Number	Gauge, AWG	Conductors	Conductor Insulation	Shield and Drain Wire	Jacket Material	Limits of Error**	Continuous Temperature Range	Nominal Size (inches)	Wt (lb)	Minimum Cut Length (ft)*	Price per foot
							T				
THMWK-UL-20-1U-P-1	20	2, twisted, solid	Extruded PVC	None	Extruded PVC, Yellow	Standard	-20°F to 105°F (-29°C to 41°C)	0.136/0.198	0.02	20	\$5a5a:
THMWK-UL-20-1S-F-1	20	2, twisted, solid	Extruded FEP	Aluminum Mylar shield and copper 22AWG drain wire	Extruded FEP, Yellow	Standard	32°F to 392°F (0°C to 200°C)	0.150	0.04	20	\$0.74
THMWK-UL-16-1S-F-1	16	2, twisted, solid	Extruded FEP	Aluminum Mylar shield and copper 18AWG drain wire	Extruded FEP, Yellow	Standard	32°F to 392°F (0°C to 200°C)	0.188	0.05	20	\$5a5b:
THMWK-UL-16-1S-P-1	16	2, twisted, solid	Extruded PVC	Aluminum Mylar shield and copper 20AWG drain wire	Extruded PVC, Yellow	Standard	-20°F to 221°F (-29°C to 105°C)	0.256	0.05	20	\$5a5c:
								3			
THMWJ-UL-20-1U-P-1	20	2, solid	Extruded PVC	None	Extruded PVC, Black	Standard	32°F to 200°F (0°C to 93°C)	0.136/0.198	0.02	20	\$5a50:
					,		(* * 1. * * * * * * * * * * * * * * * * *				
THMWJ-UL-20-1S-F-1	20	2, solid	Extruded FEP	Aluminum Mylar shield and copper 22AWG drain wire	Extruded FEP, Black	Standard	32°F to 200°F (0°C to 93°C)	0.150	0.04	20	\$;5a4,:
THMWJ-UL-16-1S-F-1	16	2, solid	Extruded FEP	Aluminum Mylar shield and copper 18AWG drain wire	Extruded FEP, Black	Standard	-20°F to 200°F (-29°C to 93°C)	0.184	0.05	20	\$5a51:
				Aluminum Mylar							
THMWJ-UL-16-1S-P-1	16	2, solid	Extruded PVC	shield and copper 18AWG drain wire	Extruded PVC, Black	Standard	32°F to 105°F (0°C to 40°C)	0.256	0.05	20	\$5a52:

<sup>\*</sup> See web store for maximum cut engths

Note: Special connectors and terminal blocks are required to connect thermocouples to a control device. Both are available from www.automationdirect.com Note: Maximum recommended distance between thermocouple and control device is 100 feet.





<sup>\*\*</sup> Per ASTM E230 / E230M-12

### TE Wire & Cable - TC & RTD



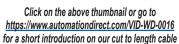
#### **Overview**

AutomationDirect offers Thermocouple Extension Cable with either an Overall Shield (OS) or with Individually Shielded Pairs with an Overall Shield (SPOS) in both Type K and Type J. These cables allow the convenience of connecting multiple field sensors to operating instrumentation or PLC input cards with one run versus having to install multiple extension wires. With an operating temperature range of -30°C to 105°C (-22°F to 221°F) and a rugged PVC jacket these cables are designed to take on the toughest application. The alphanumeric print on the twisted pairs make identifying the pairs for installation and troubleshooting easy. Available in bulk lengths or cut to length starting at a low 20-foot minimum, AutomationDirect's Thermocouple Extension Cable is a great solution for those applications where multiple temperature sensors need to be connected to a control system.

#### **Features**

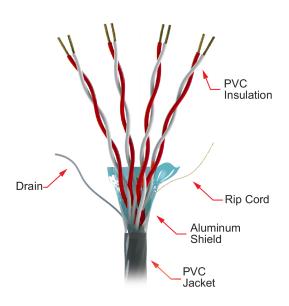
- 2, 4, & 8 pair thermocouple extension cable
- UL PLTC rated
- 105C PVC Jacket
- NEC Article 725 Hazardous Locations(Class I, Div 2)
- Overall Cable Shield & Individual and Overall Cable Shields
- 20 gauge solid thermocouple alloy
- Sequentially numbered twisted pairs
- Low 20 foot minimum length
- Made in the USA



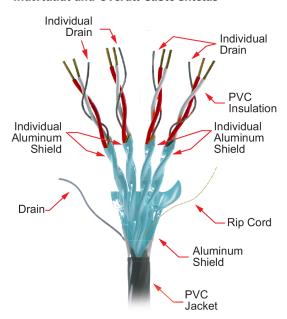




#### **Overall Cable Shield**



#### **Individual and Overall Cable Shields**



# Thermocouple Extension Cable - Twisted Pair - Overall Shield

Thermo	Thermocouple Extension Cable Twisted Pair Shielded Specifications									
Conductor Gauge & Stranding	20AWG Solid	Print Legend*	TE WIRE & CABLE (UL) TYPE PLTC 105C 20 AWG THCPL EXTN TYPE xx WWW.TEWIRE.COM							
Voltage Rating	300V	Flame Rating	Passes VW-1 Flame Test Passes IEEE 383 Flame Test							
Jacket Material	Sunlight resistant PVC (polyvinyl chloride)									
Conductor Insulation	PVC									
Conductor Markings	Alphanumeric print @ 4-inch intervals	Applicable Standards	UL Standard 13 Type PLTC UL Standard 2250 Type ITC NEC Article 725 (Type PLTC)							
Temperature Rating	-30°C to 105°C (-22°F to 221°F)	Applicable Stalldards	Hazardous Locations:							
Shield and Drain Wire	Overall aluminum polyester foil shield with a 20AWG tinned copper drain wire		NEC Article 725 (Class I, Div 2)							
Min. Bend Radius	10x diameter									

<sup>\*</sup> XX = Number of shielded pairs

	Therm	ocou	ple Exter	nsion Cat	le Twist	ed Pair	Shielded	I Selecti	on	
Part Number	Number of Pairs	AWG	Conductor Insulation Thickness (Mils)	Conductor Approx. O.D. (Inches)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Installed Bend Radius (Inches)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
				The same of the sa						
THMWK-20-2S-P-1	2	20			0.042	0.331	4.0		0.07	\$-4jp8:
THMWK-20-4S-P-1	4	20	0.016	0.070	0.042	0.377	4.5	20	0.08	\$-4jp9:
THMWK-20-8S-P-1	8	20			0.053	0.493	6.0		0.15	\$-4jpa:
THMWJ-20-2S-P-1	2	20			0.040	0.331	4.0		0.07	\$-4jp7:
THMWJ-20-4S-P-1	4	20	0.016	0.070	0.042	0.377	4.5	20	0.08	\$-4jpb:
THMWJ-20-8S-P-1	8	20			0.053	0.492	6.0		0.15	\$-4jpc:

<sup>\*</sup> See web store for maximum cut lengths





# Thermocouple Extension Cable - Twisted Pair - Individual/Overall Shield

Thermocouple Extension Cable Twisted Pair Individual/Overall Shield Specifications									
Conductor Gauge & Stranding	20AWG Solid	Min. Bend Radius	10x diameter						
Voltage Rating	300V	Print Legend*	TE WIRE & CABLE (UL) TYPE PLTC 105C 20 AWG THCPL EXTN TYPE xx WWW.TEWIRE.COM						
Jacket Material	Sunlight resistant PVC (polyvinyl chloride)	Flame Rating	Passes VW-1 Flame Test Passes IEEE 383 Flame Test						
Conductor Insulation	PVC								
Conductor Markings	Alphanumeric print @ 4-inch intervals		UL Standard 13 Type PLTC						
Temperature Rating	-30°C to 105°C (-22°F to 221°F)	Applicable Standards	UL Standard 2250 Type ITC NEC Article 725 (Type PLTC)						
Cable Overall Shield and Drain Wire	Individual and overall aluminum polyester foil shield with a 20AWG tinned copper drain wire	,,	Hazardous Locations: NEC Article 725 (Class I, Div 2)						
Individual Pairs Shield and Drain Wire	Aluminum polyester foil shield with a 22AWG tinned copper drain wire								

<sup>\*</sup> XX = Number of shielded pairs

Thermod	ouple	Exten	sion Cab	le Twiste	d Pair Ir	ndividua	I/Overal	Shield	Selection	
Part Number	Number of Pairs	AWG	Conductor Insulation Thickness (Mils)	Conductor Approx. O.D. (Inches)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches ±10%)	Installed Bend Radius (Inches)	Minimum Cut Length (ft)*	Approximate Weight (lb/ft)	Price per foot
			1							
						_				
THMWK-20-2SS-P-1	2	20			0.040	0.349	4.25		0.07	\$-4jpd:
THMWK-20-4SS-P-1	4	20	0.016	0.070	0.042	0.456	5.5	20	0.12	\$-4jpe:
THMWK-20-8SS-P-1	8	20			0.053	0.579	7.0		0.20	\$;-4jpf:
<u>THMWJ-20-2SS-P-1</u>	2	20			0.040	0.349	4.25		0.07	\$-4jpg:
THMWJ-20-4SS-P-1	4	20	0.016	0.070	0.042	0.455	5.5	20	0.12	\$-4jph:
THMWJ-20-8SS-P-1	8	20			0.053	0.579	7.0		0.20	\$4jpi:

<sup>\*</sup> See web store for maximum cut lengths





# DLO, RHH, RHW-2 Heavy Duty Flexible Power Cable - Unshielded





Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable



#### **Overview**

AutomationDirect's DLO, RHH, RHW-2 Heavy Duty Flexible Power Cable is a 2kV rated flexible power cable with a variety of possible applications including industrial control panel power distribution, power feeds for Variable Frequency Drives (VFDs) and motor leads in non-drive related applications, as well as non-traditional industrial applications like drilling rigs, railroad/transit car wiring, and mining equipment. With the RHH and RHW-2 ratings these cables are suitable for use in both wet and dry locations and can be used in conduits, ducts, troughs and control panels. The maximum rating for continuous use is 90°C (194°F) either wet or dry. The cable is oil, heat, flame, abrasion and sunlight resistant. AutomationDirect's Heavy Duty Flexible Power Cable is extremely flexible with a tight bend radius allowing easy installations in limited spaces. Approved for use per the NEC as Type RHH/RHW-2 and per the CSA as 2kV Type RW90.

#### **Features**

- 8AWG to 4/0 AWG
- · Single conductor
- EPDM thermoset rubber conductor insulation
- CPE thermoset rubber jacket
- Cut to length in 1 foot increments
- Minimum cut lengths as low as 10 feet
- · Flexibility for easy installation
- Multiple ratings and approvals
- Wide operating temperature range
- 2kV Maximum Voltage Rating
- NEC Type RHH/RHW-2
- CSA Type RW90
- · Made in USA

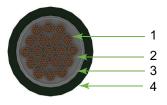












#### Construction

- 1. Conductors: Flexible Stranded Rope-Lay Class 1 Tinned Copper per ASTM B33 and B172
- 2. Binder Tape: Mylar Tape
- 3. Conductor Insulaton: Thermoset Ethylene Propylene Diene Monomer (EPDM)
- 4. Cable Jacket: Thermoset Chlorinated Polyethylene (CPE)

### DLO, RHH, RHW-2 Cable

			DLO, F	RHH, RHW	/-2 Cable	Selection	n			
Part Number	art Number AWG		Insulation Jacket Thickness Thickness Overall Diameter (GPE)		Approximate Weight (lb/ft)	Minimum Cut Length (ft)*	Price per foot			
			(inches)	(inches)	(inches) (mm)					
DL08BK-1	8	41/24	0.055	0.030	0.330	8.4	0.100	20	\$48pz:	
DL06BK-1	6	63/24	0.055	0.030	0.370	9.4	0.128	20	\$;48p]:	
DL04BK-1	4	105/24	0.060	0.030	0.440	11.2	0.187	20	\$;48p[:	
DL02BK-1	2	161/24	0.060	0.030	0.495	12.6	0.291	20	\$48p_:	
DL01-0BK-1	1/0	266/24	0.080	0.045	0.645	16.4	0.488	20	\$48p#:	
DL02-0BK-1	2/0	342/24	0.080	0.045	0.690	17.5	0.558	20	\$48pv:	
DL03-0BK-1	3/0	418/24	0.080	0.045	0.760	19.3	0.654	10	\$48px:	
DL04-0BK-1	4/0	532/24	0.080	0.045	0.815	20.7	0.829	10	\$48py:	
* See web store for m	See web store for maximum cut lengths									

	DLO, RHH, RHW-2	Cable Specifica	tions		
Conductor Stranding	Flexible Stranded Rope-Lay Class 1 Tinned Copper per ASTM B33 and		ASTM B3 - Soft or Annealed Copper		
	B172		ASTM B33 - Tinned Soft or Annealed Copper		
Voltage Rating	2kV		B172 - Rope-Lay-Stranded Copper Conductors Having Bunch Stranded Members		
Outer Jacket Color	Black with white print		UL Subject 2806 - Type HDFPC-DLO		
Outer Jacket Material	CPE (Chlorinated Polyethylene)		UL 44 - Type RHH/RHW-2		
outer vacket material	thermoset rubber	Applicable Standards	CSA C22.2 No. 38 - Type RW90		
Cold Bend Test	-40°C (-40°F)		MSHA - P-07-KA100013		
Operating Temperature	-40°C to 90°C (-40°F to 194°F)		IEEE 1202/FT4 - Flame Test (70,000 Btu/hr Vertical Tray Test). #8 and larger CSA. 1/0 and larger UL. UL 1685 - Vertical-Tray Fire-Progagation and Smoke Release Test ICEA S-95-658 (NEMA WC70) Power cables rated 2000 volts or less for the distribution of electrical energy		
Conductor Insulation	Black EPDM (ethylene propylene diene monomer) thermoset rubber				
		Approvals*	UL, CSA, MSHA		
Temperature Rating	90°C (194°F) Wet or Dry	Sample Print Legend	SOUTHWIRE® ROYAL® xxx SIZE AWG (xxxmm2) E30117-D (UL) TYPE HDFPC-DLO EPR/CPE 2KV DLO 90C DRY 90C WET OR TYPE RHH/RHW-2 90C DRY 90C WET 2KV -40C PRI PRII SR FOR CT USE FT4 – CSA 156205 RW90 90C DRY 90C WET TC-ER 2KV -40C PRI PRII FT1 FT4 SR P-07-KA100013-MSHA SEQUENTIAL FOOTAGE MARKS xxxxxxxxFT		

\* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at <a href="https://www.AutomationDirect.com">www.AutomationDirect.com</a>

	DLO, RHH, RHW-2 Cable Additional Specifications									
Part Number	AWG	Allowable I In Con	•	Allowable Ai Air	•	Min. Bend Radius	Max. Pulling			
	71114	75°C (167°F) 90°C (194°F)		75°C (167°F)	90°C (194°F)	(inches)	Tension (lb)			
DL08BK-1	8	50	55	70	80	2.63	132			
DL06BK-1	6	65	75	95	105	2.98	210			
DL04BK-1	4	85	95	125	140	3.37	334			
DL02BK-1	2	115	130	170	190	4.03	531			
DL01-0BK-1	1/0	150	170	230	260	5.52	845			
DL02-0BK-1	2/0	175	195	265	300	5.76	1065			
DL03-0BK-1	3/0	200	225	310	350	5.81	1342			
DL04-0BK-1	4/0	230	260	360	405	6.47	1693			

<sup>\*</sup> Ampacities based on Table 310,15(B)(16) of the National Electrical Code® for not more than three current-carrying conductors in raceway, cable or earth. Based on ambient temperature of 30° C (86° F).





<sup>\*\*</sup> Ampacities based on Table 310.15(B)(17) of the National Electrical Code® allowable ampacities of single-insulated conductors rated up to and including 2000 Volts in free air. Based on ambient temperature of 30°C (86°F).

### **ALL-FLEX MTW, THHW Heavy Duty** Flexible Power Cable - Unshielded







Click on the above thumbnail or go to https://www.automationdirect.com/VID-WD-0016 for a short introduction on our cut to length cable

#### Overview

Direct Wire's ALL-FLEX MTW / THHW multipurpose power cable is a 1kV rated flexible power cable with a variety of possible applications including industrial control panel power distribution, power feeds for variable frequency drives (VFDs), servo systems, and motor leads in non-drive related applications, as well as non-traditional industrial applications like marine board application and uninterruptible power supplies (UPS), transformer wiring, battery chargers, and more.

With the THHW and MTW ratings these cables are suitable for use in both wet and dry locations and can be used in conduits, ducts, troughs, and control panels. Enhanced temperature ratings of -50°C to 75°C (-58°F to 167°F) wet; 105°C (221°F) dry makes it ideal for most wiring applications. ALL-FLEX is resistant to battery acid, crushing force, diesel fuel, engine coolant, engine oil, ethanol, extreme temperatures, flame, gasoline, power-steering fluid, and transmission fluid and is UL tested for 60°C (140°F) oil resistant temperature rating and is extremely flexible with a tight bend radius allowing easy installations in limited spaces.

#### **Features**

- 8AWG to 500MCM
- Single conductor
- PVC conductor insulation
- Cut to length in 1 foot increments
- Minimum cut lengths as low as 10 feet
- · Flexibility for easy installation
- Multiple ratings and approvals
- Wide operating temperature range
- 1000V Maximum Voltage Rating
- UL1063 (MTW) and UL 83 (THHW)
- CSA C22.2 No. 75 (THHW), 127-18 (TEW), 210-15 (AWM), and 2556
- Made in USA

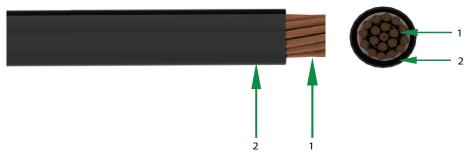












#### Construction

- 1. Rope-lay, bunch-stranded 30AWG copper conductor; bare or tinned ASTM Class K copper
- 2. PVC conductor insulation

# **ALL-FLEX MTW, THHW Heavy Duty Flexible Power Cable - Unshielded**

			ALL-FLEX MT\	W. THHW (	Cable Sel	ection			
Part Number	AWG	Strands ##/AWG	Color	Insulation Thickness (PVC)	Overall D		Approximate Weight (lb/ft)	Minimum Cut Length (ft) (See Note)	Price per foot
				(inches)	(inches)	(mm)		,	
<u>MTW8BK-1</u>	8	182/30	Black	0.060	0.270	6.9	0.077	20	\$;4,5q:
MTW8GYL-1	8	182/30	Green with Yellow stripe	0.060	0.270	6.9	0.077	20	\$;;5t[0:
MTW8BR-1	8	182/30	Brown	0.060	0.270	6.9	0.077	20	\$;;5t[4:
MTW8YL-1	8	182/30	Yellow	0.060	0.270	6.9	0.077	20	\$;;5t]_:
MTW80R-1	8	182/30	Orange	0.060	0.270	6.9	0.077	20	\$;;5t]#:
MTW6BK-1	6	273/30	Black	0.060	0.315	8.0	0.111	20	\$;4,5s:
MTW6GYL-1	6	273/30	Green with Yellow stripe	0.060	0.315	8.0	0.111	20	\$;;5t]?:
MTW6BR-1	6	273/30	Brown	0.060	0.315	8.0	0.111	20	\$;;5t[7:
MTW6YL-1	6	273/30	Yellow	0.060	0.315	8.0	0.111	20	\$;;5t[8:
MTW60R-1	6	273/30	Orange	0.060	0.315	8.0	0.111	20	\$;;5t[9:
MTW4BK-1	4	429/30	Black	0.060	0.350	8.9	0.164	20	\$;;4,5t:
MTW4GYL-1	4	429/30	Green with Yellow stripe	0.060	0.350	8.9	0.164	20	\$;;5t[b:
MTW2BK-1	2	676/30	Black	0.060	0.419	10.6	0.246	20	\$;4,5u:
MTW2GYL-1	2	676/30	Green with Yellow stripe	0.060	0.419	10.6	0.246	20	\$;;-5t[j:
MTW1BK-1	1	845/30	Black	0.080	0.490	12.5	0.320	20	\$;4,5v:
MTW1GYL-1	1	845/30	Green with Yellow stripe	0.080	0.490	12.5	0.320	20	\$;;;5t[t:
MTW1-0BK-1	1/0	1066/30	Black	0.080	0.531	13.5	0.392	20	\$;4,5k:
MTW1-0GYL-1	1/0	1066/30	Green with Yellow stripe	0.080	0.531	13.5	0.392	20	\$;;5t[u:
MTW2-0BK-1	2/0	1339/30	Black	0.080	0.579	14.7	0.485	20	\$;-4,5I:
MTW2-0GYL-1	2/0	1339/30	Green with Yellow stripe	0.080	0.579	14.7	0.485	20	\$;;5t[v:
MTW3-0BK-1	3/0	1677/30	Black	0.080	0.632	16.0	0.596	10	\$;4,5n:
MTW3-0GYL-1	3/0	1677/30	Green with Yellow stripe	0.080	0.632	16.0	0.596	10	\$;;5t[x:
MTW4-0BK-1	4/0	2109/30	Black	0.080	0.695	17.7	0.741	10	\$;4,50:
MTW4-0GYL-1	4/0	2109/30	Green with Yellow stripe	0.080	0.695	17.7	0.741	10	\$;;5t[y:
MTW250MCMBK-1	250 MCM	2527/30	Black	0.100	0.793	20.2	0.916	10	Retired
MTW350MCMBK-1	350 MCM	3478/30	Black	0.100	0.915	23.3	1.242	10	Retired
Note - See web store for maxi	imum cut leng	ıths							

	ALL-FLEX MT\	N, THHW Cable Sp	pecifications					
Conductor Stranding	Rope-lay, bunch-stranded 30 AWG copper conductor; bare ASTM Class K copper		UL 758, 1232, 1283, 1284, 1337, 1338, 1339, 1581, 2556, 10070, and 10269 UL 1063 (MTW) and UL 83 (THHW)					
Voltage Rating	600 V; AWM Style 10269 — 1,000 V		UL 1426 (BC-5W2 Boat Cable) For CT Use (1/0 and larger sizes)					
Insulation Color	Black with white print	Analisahla Otandanda	CSA C22.2 No. 75 (THHW), 127-18 (TEW), 210-15 (AWM), and 2556					
Insulation Material	PVC	Applicable Standards	ASTM B3, B33, B49, and B172 SAE J1127 Type SGT					
Cold Bend Test	-40°C (-40°F)		NEC (NFPA 70) ABYC E-11 (AC/DC - Electrical Boat Systems) 33 CFR Subchapter S FT-1, FT-2, FT-4, and VW-1					
Operating Temperature	-50°C to 75°C (-58°F to 167°F) wet; 105°C (221°F) dry	Approvals & Compliance*	UL, CSA, ABYC, RoHS, REACH, Prop 65					
Temperature Rating	75°C (167°F) wet; 105°C (221°F)	Sample Print Legend	ALL-FLEX (UL) {E#} {AWG SIZE} BC5W2 or THHW FOR CT USE or MTW or AWM STYLES 1232/1284/1338/10070 600V or 10269 1000V VW-1 cRU TEW or AWM I A/B 105°C 600V O FT-2 (CSA) {MCF #} {AWG SIZE} TEW 600V or AWM I A/B 105°C 1000V FT-1/FT-2/ VW-1 ABYC E-11 SAE-J1127 TYPE SGT					
* To obtain the most current agency appr	* To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com							





Please Note: Our prices on
Power cable are closely tied to the
market price for copper. This allows us to
offer the best savings possible if conditions
are favorable; however, it also means that our
prices may increase if market
conditions warrant.

www.automationdirect.com

# **ALL-FLEX MTW, THHW Heavy Duty Flexible Power Cable - Unshielded**

ALL-F	FLEX N	ITW, THH	W Cable	Addition	al Speci	fications	,
Part Number	AWG	Allowable In Con		Allowable A Air	mpacity In **	Min. Bend Radius	Max. Pulling Tension (lb)
		75°C (167°F)	90°C (194°F)	75°C (167°F)	90°C (194°F)	(inches)	Tension (ID)
<u>MTW8BK-1</u>	8	50	55	70	80	2.16	132
MTW8GYL-1	8	50	55	70	80	2.16	132
MTW8BR-1	8	50	55	70	80	2.16	132
MTW8YL-1	8	50	55	70	80	2.16	132
<u>MTW80R-1</u>	8	50	55	70	80	2.16	132
<u>MTW6BK-1</u>	6	65	75	95	140	2.52	210
MTW6GYL-1	6	65	75	95	140	2.52	210
MTW6BR-1	6	65	75	95	140	2.52	210
MTW6YL-1	6	65	75	95	140	2.52	210
<u>MTW60R-1</u>	6	65	75	95	140	2.52	210
MTW4BK-1	4	85	95	125	165	2.80	334
MTW4GYL-1	4	85	95	125	165	2.80	334
<u>MTW2BK-1</u>	2	115	130	190	190	3.35	531
MTW2GYL-1	2	115	130	190	190	3.35	531
<u>MTW1BK-1</u>	1	130	150	195	220	3.92	670
MTW1GYL-1	1	130	150	195	220	3.92	670
<u>MTW1-0BK-1</u>	1/0	150	170	230	260	4.24	845
MTW1-0GYL-1	1/0	150	170	230	260	4.24	845
MTW2-0BK-1	2/0	175	195	265	300	4.63	1065
MTW2-0GYL-1	2/0	175	195	265	300	4.63	1065
MTW3-0BK-1	3/0	200	225	310	350	5.06	1342
MTW3-0GYL-1	3/0	200	225	310	350	5.05	1342
MTW4-0BK-1	4/0	230	260	360	405	5.56	1693
MTW4-0GYL-1	4/0	230	260	360	405	5.56	1693
MTW250MCMBK-1	250 MCM	255	290	405	455	6.35	2000
MTW350MCMBK-1	350 MCM	310	350	505	570	7.32	2800

<sup>\*</sup> Ampacities based on Table 12.5.1 of the NFPA 79 Electrical Standards for Industrial Machinery





<sup>\*\*</sup> Ampacities based on Table 310.17 of the National Electrical Code®

## Wire - Type THHN/THWN-2

#### **Applications**

Type THHN/THWN-2 building wire is intended for general purpose applications as defined by the National Electrical Code (NEC). Type THHN/THWN-2 is permitted for new construction or rewiring for 600-volt applications. For applications requiring Type THHN/THWN-2, the conductor is appropriate for use in wet or dry locations at temperatures not to exceed 90°C or not to exceed 75°C in oil or coolants. Slick nylon outer jacket for easy pulling. All sizes rated gasoline and oil resistant II. THHN/THWN-2 wire 6AWG and larger Sunlight Resistant in all colors.

THHN wire is sold in 500-foot spools.



#### **Features**

#### **Conductors**

Stranded, uncoated copper conductors per ASTM-B3, ASTM-B787 and ASTM-B8

#### Insulation

Color-coded Polyvinyl Chloride (PVC), heat and moisture-resistant, flameretardant compound per UL-1063 and UL-83

#### Jacket

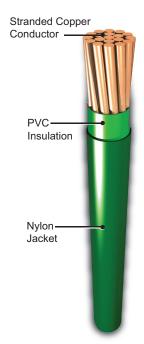
A tough, polyamide, Nylon outer covering per UL-1063 and UL-83

#### **Standards**

\*Note: Allowable ampacity shown above is per the National Electric Code. The above data is approximate and subject to normal manufacturing tolerances.

- UL Standards UL-758, UL-1063
- AWM Spec 1316, 1318, 1219, 1408, 1410, 1411, 1452
- Canadian Standards Association C22.2 No. 210
- RoHS

#### Type THHN/THWN-2 Wire



	Type THHN/THWN-2 Wire Specifications												
Size (AWG or	Number of Strands	mm2 Equivalent	Insulation Thickness (inches)		Overall Outside Diameter		Allowable Ampacities*		Approximate Weight (lbs)	Standard Packaging			
kcmil)			PVC	Nylon	(inches)	(mm)	60°C	75°C	90°C	500ft	spool/reel		
14	19	2.5	0.015	0.005	0.113	2.87	15	20	25	8.1			
12	19	4	0.016	0.005	0.133	3.38	20	25	30	12.2			
10	19	6	0.020	0.005	0.166	4.22	30	35	40	19.2	500'		
8	19	10	0.031	0.006	0.222	5.64	40	50	55	31.5	500		
6	19	16	0.031	0.006	0.259	6.58	55	65	75	47.8			
4	19	25	0.040	0.006	0.327	8.31	70	85	95	76.7			

# Wire - Type THHN/THWN-2

		Ту	pe THHN/THWN-2 Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price
THHN14BK	Black					\$086q:
<u>THHN14WH</u>	White					\$085x:
THHN14RD	Red					\$085u:
THHN14BL	Blue					\$;086t:
THHN14GN	Green					\$-085j:
THHN14YL	Yellow	14AWG	Type THHN/THWN-2 wire, bare copper, 19 strands,		8.1 lbs	\$085z:
THHN140R	Orange	I4AVVG	600 Volts		6.1 lbs	\$085p:
THHN14BN	Brown					\$086v:
THHN14PL	Purple					\$085s:
THHN14GY	Gray					\$-085I:
THHN14GYL	Green with Yellow spiral stripe					\$00850:
THHN14BW	Blue with White spiral stripe					\$0086y:
THHN12BK	Black					\$00866:
THHN12WH	White		Type THHN/THWN-2 wire, bare copper, 19 strands, 600 Volts			\$-00861:
THHN12RD	Red					\$-0086j:
THHN12BL	Blue					\$00868:
THHN12GN	Green	12AWG		500'	12.2 lbs	\$0086d:
THHN12YL	Yellow	IZAVVG				\$0086o:
THHN120R	Orange					\$0086h:
THHN12BN	Brown					\$0086a:
THHN12GY	Gray					\$;0086f:
THHN12GYL	Green with Yellow spiral stripe					\$0086g:
THHN10BK	Black					\$;0085,:
THHN10WH	White					\$00864:
THHN10GN	Green					\$00861:
THHN10YL	Yellow	10AWG	Type THHN/THWN-2 wire, bare copper, 19 strands, 600 Volts		19.2 lbs	\$00865:
THHN100R	Orange					\$00863:
THHN10BN	Brown					\$00860:
THHN10GYL	Green with Yellow spiral stripe					\$00862:
THHN8BK	Black					\$0085#:
THHN8GN	Green	8AWG	Type THHN/THWN-2 wire, bare copper, 19 strands, 600 Volts		31.5 lbs	\$;0085!:
THHN8GYL	Green with Yellow spiral stripe				31.0100	\$0085?:
THHN6BK	Black	6AWG	Type THHN/THWN-2 wire, bare copper, 19 strands, 600 Volts		47.8 lbs	\$0085_:
THHN4BK	Black	4AWG	Type THHN/THWN-2 wire, bare copper, 19 strands, 600 Volts		76.7 lbs	\$;0085[:

## Wire - Type THHN

#### **Gauge Conversion Table**

A	merican Wire Gauge	Conversion Chart*	
This cross reference s	hows equivalent nomina	al values. Actual cros	s sections may vary.
AWG	mm2	AWG	mm2
30	0.05	6	16
28	0.08	4	25
26	0.14	2	35
24	0.25	1	50
22	0.34	1/0	55
21	0.38	2/0	70
20	0.50	3/0	95
18	0.75	4/0	120
17	1.00	300MCM	150
16	1.50	350MCM	185
14	2.50	500MCM	240
12	4	600MCM	300
10	6	750MCM	400
8	10	1000MCM	500
*Note: Table shows comm	ercially used equivalent va	lues.	

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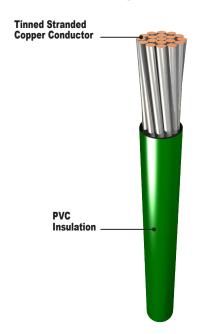
#### **Applications**

AWM Hook-up Wire conductors are primarily used in control cabinets, Industrial Machinery applications, and appliance wiring applications. Also for compliance in accordance with the National Electrical Code (NEC) and NFPA Standard 79. Voltage rating for all applications is 300 volts.

#### **Features**

- Gauges from 26AWG to 16AWG
- Tinned copper conductor
- Color-coded Polyvinyl Chloride (PVC) outer jacket
- Striped version available for some colors and gauges
- Multiple ratings and approvals
- 500ft or 1000ft spools available
- · Made in the USA

#### **AWM Hook-up Wire**











	AWM Hook-up Wire Specifications												
Size (AWG	Number of	f   IIIII2   Thickness   Diameter   Ampacities*	Allowable Ampacities*		Agency Approvals	Temperature Rating per UL1007/	Approximate Weight (lbs) 500ft/1000ft	Packayiiiy					
or kcmil)	Strands	Lquiraioni	(inches)	(inches)	(mm)	60°C(140 °F)	75°C (167 °F)	90°C (194 °F)	прриотаю	UL1569	(120) 00011, 100011	(Spool/Reel)	
26	7	0.14	0.016	0.051	1.29	-	1	1			0.98/1.96		
24	7	0.25	0.016	0.056	1.42	2	2	2	RoHS Compliant	80°C	1.31/2.61	1000ft	
22	7	0.34	0.016	0.062	1.58	3	3	3	UL1569, UL1007	(176°F)/	1.8/3.6		
20	10	0.38	0.016	0.070	1.78	5	5	5		(221°F)	2.42/4.83		
18	16	0.75	0.016	0.080	2.08	7	7	14			3.47/6.94	500ft	
16	26	1.50	0.016	0.091	2.31	10	10	18			5.20/10.4		

\*Note: Allowable ampacity shown above is per the NFPA79 Electrical Standard for Industrial Machinery 2018 Table 12.5.1 Conductor Ampacity Based on Copper Conductors with 60 °C [140 °F], 75 °C [167 °F], and 90 °C [194 °F] Insulation in an Ambient Temperature of 30 C [86F]. The above data is approximate and subject to normal manufacturing tolerance.

Product Color Disclaimer: The product photos shown are representative of our wire colors. The actual wire colors may vary from the images shown. Although our suppliers maintain a high-quality standard, there can be color variation from production. As a result, we cannot guarantee color spools will match up perfectly.

\*\*Note: Unless specifically permitted elsewhere in NFPA 70 overcurrent protection should not exceed 10 amps 16AWG, 15 amps for 14AWG, 20 amps for 12AWG, and 30 amps for 10AWG. To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

			AWM Hook-up Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price
AWM26BL10	blue					\$;5z]x:
<u>AWM26BK10</u>	black					\$;5z]y:
AWM26RD10	red	_				\$;5z]z:
<u>AWM26WH10</u>	white					\$;;5z]]:
<u>AWM26BW10</u>	blue with white stripe	-	To average the state of the sta		1.96 lb	\$;;5z][:
AWM26BN10	brown	_				\$;5z]_:
AWM26GN10	green	26 AWG	Type AWM, single conductor, 7-stranded, tinned copper, PVC conductor insulation material, 300 Volts	1000ft	[0.89 kg]	\$;5z]#:
<u>AWM260R10</u>	orange					\$;;5z]!:
AWM26YL10	yellow	-				\$;5z]?:
<u>AWM26GY10</u>	gray	_				\$;;5z],:
<u>AWM26WB10</u>	white with blue stripe	-				\$;5z[0:
AWM26PL10	purple	_				\$;5z[1:
AWM26GYL10	green with yellow stripe					\$;5z[2:
AWM24BL10	blue	_				\$;5z[3:
AWM24BK10	black	_				\$;5z[4:
AWM24RD10	red					\$;5z[5:
<u>AWM24WH10</u>	white				2.61 lb [1.18 kg]	\$;5z[6:
<u>AWM24BW10</u>	blue with white stripe			1000ft		\$;5z[7:
AWM24BN10	brown	-	Type AWM, single conductor, 7-stranded, tinned copper, PVC conductor insulation material, 300 Volts			\$;5z[8:
AWM24GN10	green	24 AWG				\$;5z[9:
<u>AWM240R10</u>	orange	-				\$;5z[a:
AWM24YL10	yellow					\$;5z[b:
AWM24GY10	gray					\$;5z[c:
<u>AWM24WB10</u>	white with blue stripe					\$;5z[d:
AWM24PL10	purple	-				\$;5z[e:
AWM24GYL10	green with yellow stripe					\$;;5z[f:
<u>AWM22BL10</u>	blue	-				\$;5z[g:
<u>AWM22BK10</u>	black					\$;5z[h:
AWM22RD10	red	-				\$;-5z[i:
<u>AWM22WH10</u>	white					\$;-5z[j:
<u>AWM22BW10</u>	blue with white stripe	-				\$;5z[k:
<u>AWM22BN10</u>	brown		Type AWM, single conductor, 7-stranded, tinned copper,		3.6 lb	\$;-5z[l:
<u>AWM22GN10</u>	green	22 AWG	PVC conductor insulation material, 300 Volts	1000ft	[1.63 kg]	\$;5z[n:
<u>AWM220R10</u>	orange					\$;5z[o:
AWM22YL10	yellow	_				\$;5z[p:
AWM22GY10	gray	_				\$;5z[q:
<u>AWM22WB10</u>	white with blue stripe	_				\$;5z[s:
AWM22PL10	purple	_				\$;;5z[t:
AWM22GYL10	green with yellow stripe					\$;5z[u:
AWM20BL	blue	_				\$;5z[v:
AWM20BK	black	_				\$;5z[x:
AWM20RD	red	_				\$;5z[y:
AWM20WH	white	_				\$;5z[z:
AWM20BW	blue with white stripe	_				\$;;5z[]:
AWM20BN	brown		Type AWM, single conductor, 10-stranded, tinned copper,		2.41 lb	\$;;5z[[:
AWM20GN	green	20 AWG	PVC conductor insulation material, 300 Volts	500ft	[1.09 kg]	\$;5z[_:
AWM200R	orange	_			. 0.	\$;5z[#:
AWM20YL	yellow	_				\$;;5z[!:
AWM20GY	gray	_				\$;5z[?:
AWM20WB	white with blue stripe					\$;;5z[,:
AWM20PL	purple					\$5z_0:
AWM20GYL	green with yellow stripe					\$5z_1:

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			AWM Hook-up Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price
AWM18BL	blue					\$5z_2:
<u>AWM18BK</u>	black					\$5z_3:
AWM18RD	red					\$5z_4:
AWM18WH	white					\$5z_5:
<u> 4WM18BW</u>	blue with white stripe					\$5z_6:
4 <i>WM18BN</i>	brown				3.86 lb [1.75 kg]	\$5z_7:
<u>4WM18GN</u>	green	18 AWG	Type AWM, single conductor, 16-stranded, tinned copper, PVC conductor insulation material, 300 Volts	500ft		\$5z_8:
<u> 4WM180R</u>	orange		. 10 sandatar matanar, 500 volta			\$5z_9:
AWM18YL	yellow					\$5z_a:
4 <i>WM18GY</i>	gray					\$5z_b:
4 <i>WM18WB</i>	white with blue stripe					\$5z_c:
AWM18PL	purple					\$5z_d:
AWM18GYL	green with yellow stripe					\$5z_e:
4 <i>WM16BL</i>	blue					\$;5z_f:
4 <i>WM16BK</i>	black					\$5z_g:
4WM16RD	red					\$5z_h:
4 <i>WM16WH</i>	white					\$-5z_i:
AWM16BW	blue with white stripe					\$-5z_j:
AWM16BN	brown		T		0.47.11	\$5z_k:
AWM16GN	green	16 AWG	Type AWM, single conductor, 26-stranded, tinned copper, PVC conductor insulation material, 300 Volts	500ft	3.47 lb [1.57 kg]	\$-5z_l:
AWM160R	orange		1 40 conductor insulation material, 500 volts		[1.07 Ng]	\$5z_n:
AWM16YL	yellow					\$5z_o:
4WM16GY	gray					\$5z_p:
AWM16WB	white with blue stripe					\$5z_q:
AWM16PL	purple					\$5z_s:
AWM16GYL	green with yellow stripe					\$;5z_t:

#### **Gauge Conversion Table**

Ai	American Wire Gauge Conversion Chart*										
This cross reference	shows equivalent n	ominal values. Actua	I cross sections may								
	. va	ry.	,								
AWG	mm2	AWG	mm2								
30	0.05	6	16								
28	0.08	4	25								
26	0.14	2	35								
24	0.25	1	50								
22	0.34	1/0	55								
21	0.38	2/0	70								
20	0.50	3/0	95								
18	0.75	4/0	120								
17	1.00	300MCM	150								
16	1.50	350MCM	185								
14	2.50	500MCM	240								
12	4	600MCM	300								
10	6	750MCM	400								
8	10	1000MCM	500								
*Note: Table shows co	mmercially used equiv	alent values.									

#### **Conductor Ampacity Table**

	Allowabl	e Ampacity	
AWG	60°C [140°F]	75°C [167°F]	90°C [194°F]
30	_	0.5	0.5
28	_	0.8	0.8
26	_	1	1
24	2	2	2
22	3	3	3
20	5	5	5
18	7	7	14
16**	10	10	18
14**	20	20	25
12**	25	25	30
10**	30	35	40
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	110
2	95	115	130
1	110	130	150
1/0	125	150	170
2/0	145	175	195
3/0	165	200	225
4/0	195	230	260
250MCM	215	255	290
300MCM	240	285	320
350MCM	260	310	350
400MCM	280	335	380
500MCM	320	380	430
600MCM	355	420	475
700MCM	385	460	520
750MCM	400	475	535
800MCM	410	490	555
900MCM	435	520	585
1000MCM	455	545	615
		NEPA70 Floctrical Stan	dard for Industrial

\*Note: Allowable ampacity shown above is per NFPA79 Electrical Standard for Industrial Machinery 2018 Table 12.5.1 Conductor Ampacity Based on Copper Conductors with 60°C [140°F], 75°C[167°F], and 90°C [194°F] Insulation in an Ambient Temperature of 30°C [86°F] \*\*Note: Unless specifically permitted elsewhere in NFPA 70 overcurrent protection should not exceed 10 amps 16AWG, 15 amps for 14AWG, 20 amps for 12AWG, and 30 amps for 10AWG.

#### **Applications**

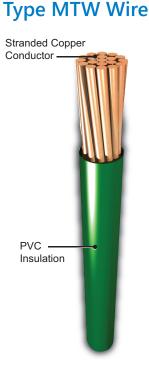
Type MTW conductors are primarily used in control cabinets, in machine tool applications, and in appliance wiring applications. For use in accordance with the National Electrical Code (NEC) and NFPA Standard 79. Voltage rating for all applications is 600 volts.

MTW wire is sold in a variety of colors and gauges on 500ft, 1000ft and 2500ft spools.

#### **Features**

- Gauges from 22AWG to 10AWG
- Bare copper conductor
- Color-coded Polyvinyl Chloride (PVC) outer jacket
- Striped version available for some colors and gauges
- Multiple ratings and approvals
- 500ft, 1000ft and 2500ft spools or reels available for most gauges & colors
- Made in the USA







Nui

(AWG or kcmil)

20

18 16\*\* 14\*\*



					Type MT	W Wire S	<b>Specificat</b>	ions				
umber mm2 of Equivalent	Insulation Thickness	Over Outsi Diami	ide		Allowable Ampacities*		Agency Approvals	Temperature Rating per UL1015	Approximate Weight (Ibs) 500ft	Standard Packaging		
trands		(inches)	(inches)	(mm)	60°C(140 °F)	75°C (167 °F)	90°C (194 °F)		per otrors	()	(Spool/Reel)	
7	0.34	0.030	0.092	2.34	3	3	3	UL 758		3.9		
10	0.50	0.030	0.099	2.51	5	5	5	UL 1015 UL 1032 UL 1230 UL 1011 UL 1013 UL 1335 CSA TEW OR AWM I A/B		4.0	500ft or 1000ft	
16	0.75	0.030	0.110	2.79	7	7	14	UL File No E80256	105°C (221°F)	4.6		
26	1.5	0.030	0.121	3.07	10	10	18	UL 758 UL 1015	(22)	6.5	1000ft or 2500f Some colors no offered in 1000	
41	2.5	0.030	0.137	3.48	20	20	25	UL 1032 UL 1230 UL 1011 UL 1013 UL 1335 UL 1426 — CSA TEW Or AWM I A/B		9.5	and 2500ft reels.	
65	4	0.030	0.157	3.99	25	25	30			13.9	500ft	
105	6	0.030	0.182	4.62	30	35	40	UL File No E215651		20.5	500ft	

\*Note: Allowable ampacity shown above is per the NFPA79 Electrical Standard for Industrial Machinery 2018 Table 12.5.1 Conductor Ampacity Based on Copper Conductors with 60 °C [140 °F], 75 °C [167 °F], and 90 °C [194 °F] Insulation in an Ambient Temperature of 30 C [86F]. The above data is approximate and subject to normal manufacturing tolerance.

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\*\*Note: Unless specifically permitted elsewhere in NFPA 70 overcurrent protection should not exceed 10 amps 16AWG, 15 amps for 14AWG, 20 amps for 12AWG, and 30 amps for 10AWG.

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at www.automationdirect.com

	71		Type MTW Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel	Approx. Weight	Price
		dauge	Description	Length	Approx. Weight	
MTW22BK	Black					\$4qh_:
MTW22WH	White					\$-4qi6:
MTW22RD	Red					\$-4qi4:
MTW22BL	Blue					\$4qh#:
MTW22GN	Green				[3.9 lb] [1.76 kg]	\$-4qi0:
MTW22YL	Yellow					\$-4qi8:
<u>MTW220R</u>	Orange	22AWG	Type MTW wire, bare copper, 7 strands, 600			\$-4qi2:
MTW22BN	Brown		Volts			\$;4qh!:
MTW22PL	Purple					\$-4qi3:
MTW22GY	Gray					\$;4qh,:
MTW22BW	Blue with White spiral stripe					\$4qh?:
MTW22WB	White with Blue spiral stripe					\$-4qi5:
<u>MTW22W0</u>	White with Orange spiral stripe					\$-4qi7:
MTW22GYL	Green with Yellow spiral stripe					\$-4qi1:
MTW20BK	Black					\$11cq:
MTW20WH	White					\$11cs:
MTW20RD	Red					\$;11ct:
MTW20BL	Blue					\$11cu:
MTW20GN	Green					\$11cv:
MTW20YL	Yellow			500ft	[4.0 lb]	\$11cx:
MTW200R	Orange	20AWG	Type MTW wire, bare copper, 10 strands, 600 Volts			\$11cy:
MTW20BN	Brown	20/11/0			[1.81 kg]	\$11cz:
MTW20PL	Purple					\$;11c]:
MTW20GY	Gray					\$;11c[:
MTW20BW	Blue with White spiral stripe					\$11c_:
MTW20WB	White with Blue spiral stripe					\$11c#:
<u>MTW20W0</u>	White with Orange spiral stripe					\$;11c!:
MTW20GYL	Green with Yellow spiral stripe					\$11c?:
MTW18BK	Black					\$08d2:
MTW18WH	White				[4.6 lb]	\$08dk:
MTW18RD	Red					\$-08di:
MTW18BL	Blue					\$08d4:
MTW18GN	Green					\$08da:
MTW18YL	Yellow					\$08dn:
MTW180R	Orange	10000	Type MTW wire, bare copper, 16 strands, 600			\$08de:
MTW18BN	Brown	18AWG	Volts		[2.08 kg]	\$08d6:
MTW18PL	Purple					\$08dg:
MTW18GY	Gray					\$08dc:
MTW18BW	Blue with White spiral stripe					\$08d8:
MTW18WB	White with Blue spiral stripe					\$;0,01:
MTW18W0	White with Orange spiral stripe					\$;0,04:
MTW18GYL	Green with Yellow spiral stripe					\$;0,07:
MTW16BK	Black					\$08ck:
MTW16WH	White					\$08c?:
MTW16RD	Red					\$08c#:
MTW16BL	Blue					\$08cn:
MTW16GN	Green	1				\$08cu:
MTW16YL	Yellow	1				\$08d0:
MTW160R	Orange	16AWG	Type MTW wire,bare copper, 26 strands, 600		[6.5 lb]	\$08cz:
MTW16BN	Brown		Volts		[2.94 kg]	\$08cp:
MTW16PL	Purple					\$;08c[:
MTW16GY	Gray					\$08cx:
MTW16BW	Blue with White spiral stripe					\$08cs:
MTW16WB	White with Blue spiral stripe					\$;0,02:
MTW16GYL	Green with Yellow spiral stripe					\$;0,08:
					I .	+,5,00.

			Type MTW Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price
MTW14BK	Black					\$08b?:
MTW14WH	White					\$08cg:
MTW14RD	Red					\$08ce:
MTW14BL	Blue					\$08c0:
MTW14GN	Green					\$08c6:
MTW14YL	Yellow					\$-08ci:
<u>MTW140R</u>	Orange	14 AWG	Type MTW wire,bare copper, 41 strands, 600 Volts		[9.5 lb] [4.31 kg]	\$08ca:
MTW14BN	Brown		Volts		[4.51 Kg]	\$08c2:
MTW14PL	Purple					\$08cc:
MTW14GY	Gray					\$08c8:
MTW14BW	Blue with White spiral stripe					\$008c4:
MTW14WB	White with Blue spiral stripe					\$;00,03:
MTW14GYL	Green with Yellow spiral stripe	500ft 500ft 12AWG Type MTW wire, bare copper, 65 strands, 600 Volts [13.9 lb] [6.3 kg]	\$;00,09:			
MTW12BK	Black			500ft		\$008bs:
MTW12WH	White			000.0		\$008b#:
MTW12RD	Red					\$008b_:
MTW12BL	Blue				740.0 11.1	\$008bu:
MTW12GN	Green	12AWG				\$008bz:
MTW12YL	Yellow				[5.0.19]	\$;008b!:
<u>MTW120R</u>	Orange					\$;008b[:
MTW12BN	Brown					\$008bx:
MTW12GY	Gray					\$;008b]:
MTW10BK	Black				[20.5 lb]	\$008bk:
MTW10WH	White					\$008bp:
MTW10GN	Green	10AWG	Type MTW wire, bare copper, 105 strands,			\$008bn:
MTW10YL	Yellow	IUAVVG	600 Volts		[9.30 kg]	\$008bq:
<u>MTW100R</u>	Orange					\$008bo:
MTW10BN	Brown					\$-008bl:
<u>MTW22BK10</u>	Black					\$4v#g:
MTW22BL10	Blue					\$4v#h:
MTW22BN10	Brown					\$-4v#i:
<u>MTW22BW10</u>	Blue with White spiral stripe					\$-4v#j:
MTW22GN10	Green					\$4v#k:
MTW22GYL10	Green with Yellow spiral stripe	22AWG	Type MTW wire, bare copper, 7 strands, 600 Volts	1000ft	[6.8 lb] [3.08kg]	\$4v#b:
MTW220R10	Orange					\$4v#c:
MTW22RD10	Red					\$4v#d:
MTW22WB10	White with Blue spiral stripe					\$4v#e:
MTW22WH10	White					\$;4v#f:
MTW22YL10	Yellow					\$-4v#I:

			Type MTW Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price
MTW20BK10	Black					\$4v#n:
MTW20BL10	Blue					\$4v#o:
MTW20BN10	Brown					\$4v#p:
MTW20BW10	Blue with White spiral stripe					\$4v#q:
<u>MTW20GN10</u>	Green				[8.3lb] [3.76kg]	\$4v#s:
MTW20GYL10	Green with Yellow spiral stripe	20AWG	Type MTW wire, bare copper, 10 strands, 600 Volts			\$;4v#t:
<u>MTW200R10</u>	Orange					\$4v#u:
<u>MTW20RD10</u>	Red					\$4v#v:
<u>MTW20WB10</u>	White with Blue spiral stripe					\$4v#x:
MTW20WH10	White					\$4v#y:
MTW20YL10	Yellow					\$4v#z:
MTW18BK10	Black			ı		\$;4v#]:
MTW18BL10	Blue					\$;4v#[:
MTW18BN10	Brown		Type MTW wire, bare copper, 16 strands, 600 Volts	1000ft		\$4v#_:
MTW18BW10	Blue with White spiral stripe					\$4v##:
MTW18GN10	Green					\$;4v#!:
MTW18GYL10	Green with Yellow spiral stripe				[40 CIL]	\$4v#?:
MTW18GY10	Gray	18AWG			[10.6lb] [4.80kg]	\$;4v#,:
MTW180R10	Orange				. 01	\$;4v!0:
MTW18PL10	Purple					\$;4v!1:
MTW18RD10	Red					\$;4v!2:
MTW18WB10	White with Blue spiral stripe					\$;4v!3:
<u>MTW18WH10</u>	White					\$;4v!4:
<u>MTW18YL10</u>	Yellow					\$;4v!5:
MTW16BK10	Black				744 CH.1	\$;04v!6:
MTW16BL10	Blue					\$;04v!7:
<u>MTW16BW10</u>	Blue with White spiral stripe					\$;04v!8:
MTW16GN10	Green Green with Yellow spiral		Type MTW wire, bare copper, 26 strands, 600			\$;04v!9:
MTW16GYL10	stripe	16AWG	Volts		[14.6lb] [6.62kg]	\$;04v!a:
<u>MTW16RD10</u>	Red					\$;04v!b:
<u>MTW16WB10</u>	White with Blue spiral stripe					\$;04v!c:
<u>MTW16WH10</u>	White					\$;04v!d:
<u>MTW16YL10</u>	Yellow					\$;04v!e:
<u>MTW14BK10</u>	Black					\$;;04v!f:
<u>MTW14BL10</u>	Blue					\$;04v!g:
<u>MTW14GN10</u>	Green	14AWG	Type MTW wire, bare copper, 41 strands, 600		[19.0lb]	\$;04v!h:
MTW14GYL10	Green with Yellow spiral stripe	14AVVG	Volts		[8.62kg]	\$;-04v!i:
<u>MTW14RD10</u>	Red					\$;-04v!j:
<u>MTW14WH10</u>	White					\$;04v!k:
MTW18BK25	Black					\$008d3:
MTW18RD25	Red	18AWG	Type MTW wire, bare copper, 16 strands, 600	2500ft	[26.5lb]	\$-008dj:
MTW18BL25	Blue	10/10/0	Volts	200011	[12.02kg]	\$008d5:
<u>MTW18BW25</u>	Blue with White spiral stripe					\$008d9:

	Type MTW Wire							
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price		
MTW16BK25	Black					\$-008cl:		
MTW16WH25	White		Type MTW wire, bare copper, 26 strands, 600 Volts	2500ft	F0.0 F11.1	\$;008c,:		
MTW16RD25	Red	16AWG			[36.5lb] [16.5kg]	\$;008c!:		
MTW16BL25	Blue				[10.0kg]	\$008co:		
MTW16BW25	Blue with White spiral stripe					\$;008ct:		
MTW14BK25	Black					\$;008b,:		
MTW14BN25	Brown	14AWG	Type MTW wire, bare copper, 41 strands, 600 Volts		[47.5lb] [21.55kg]	Retired		
MTW14BW25	Blue with White spiral stripe		VOIG		[21.55Kg]	Retired		

#### **Gauge Conversion Table**

Ai	American Wire Gauge Conversion Chart*								
This cross reference	This cross reference shows equivalent nominal values. Actual cross sections may								
	vary.								
AWG	mm2	AWG	mm2						
30	0.05	6	16						
28	0.08	4	25						
26	0.14	2	35						
24	0.25	1	50						
22	0.34	1/0	55						
21	0.38	2/0	70						
20	0.50	3/0	95						
18	0.75	4/0	120						
17	1.00	300MCM	150						
16	1.50	350MCM	185						
14	2.50	500MCM	240						
12	4	600MCM	300						
10	6	750MCM	400						
8	10	1000MCM	500						
*Note: Table shows co	mmercially used equiv	alent values.							

#### **Conductor Ampacity Table**

	Allowable	e Ampacity	
AWG	60°C [140°F]	75°C [167°F]	90°C [194°F]
30	_	0.5	0.5
28	_	0.8	0.8
26	_	1	1
24	2	2	2
22	3	3	3
20	5	5	5
18	7	7	14
16**	10	10	18
14**	20	20	25
12**	25	25	30
10**	30	35	40
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	110
2	95	115	130
1	110	130	150
1/0	125	150	170
2/0	145	175	195
3/0	165	200	225
4/0	195	230	260
250MCM	215	255	290
300MCM	240	285	320
350MCM	260	310	350
400MCM	280	335	380
500MCM	320	380	430
600MCM	355	420	475
700MCM	385	460	520
750MCM	400	475	535
800MCM	410	490	555
900MCM	435	520	585
1000MCM	455	545	615
		NEPA79 Electrical Stan	

\*Note: Allowable ampacity shown above is per NFPA79 Electrical Standard for Industrial Machinery 2018 Table 12.5.1 Conductor Ampacity Based on Copper Conductors with 60°C [140°F], 75°C[167°F], and 90°C [194°F] Insulation in an Ambient Temperature of 30°C [86°F] \*\*Note: Unless specifically permitted elsewhere in NFPA 70 overcurrent protection should not exceed 10 amps 16AWG, 15 amps for 14AWG, 20 amps for 12AWG, and 30 amps for 10AWG.

## Wire - Type HAR/MTW

#### **Applications**

Type HAR/MTW conductors are primarily used in control cabinets, in machine tool applications, and in appliance wiring applications. For use in accordance with the National Electrical Code (NEC) and NFPA Standard 79. Voltage rating for all applications is 300 to 750 volts.



#### **Features**

- Gauges from 0.75 mm<sup>2</sup> (19AWG) to 4.0 mm<sup>2</sup> (12AWG)
- Suited for use in Europe (HAR) and North America (UL MTW)
- Tinned copper conductor
- · Color-coded Polyvinyl Chloride (PVC) outer
- Striped version available for some colors and gauges
- Multiple ratings and approvals
- 328ft (100m) boxed coils

#### **Standards**

- HAR: HD 21.3 S3
- H05V-K (≤ AWG18)
- H07V-K (≥ AWG 16)
- UL 1063 MTW Listed
- UL AWM 1015
- · RoHS, REACH







#### Type HAR/MTW



	Type HAR/MTW Wire Specifications													
mm <sup>2</sup> Equivalent	Number of	Size (AWG	Insulation Thickness	Over Outs Diam	ide	,	Allowable Ampacities*		Voltage	nting Approvals	ating Approváls	Temperature Rating	Approx. Weight	Standard Packaging
Equivalent	Strands	or kcmil)	(inches)	(inches)	(mm)	60°C (140 °F)	75°C (167 °F)	90°C (194 °F)	Rating			per UL 1063/ UL AWM 1015	(lbs/1000ft)	(carton)
0.75	24	19	0.016	0.106	2.7	7	7	14	HAR 300/500 Volts			9		
1.0	24	18	0.016	0.114	2.9	7	7	14	MTW 600 Volts HAR 450/750 Volts MTW 600 Volts		HAR: HD 21.3 S3	500	10	
1.5	30	16	0.016	0.130	3.3	10	10	18		- H05V-K (≤ AWG18) - H07V-K (≥ AWG 16) UL1063 MTW. UL	-5°C (176°F) to	14	328ft [100m]	
2.5	50	14	0.016	0.145	3.7	20	20	25		AWM1015	90°C (194°F)	21		
4.0	56	12	0.016	0.169	4.3	25	25	30		600 Volts			31	

\*Note: Allowable ampacity shown above is per the NFPA79 Electrical Standard for Industrial Machinery 2018 Table 12.5.1 Conductor Ampacity Based on Copper Conductors with 60 °C [140 °F], 75 °C [167 °F], and 90 °C [194 °F] Insulation in an Ambient Temperature of 30 C [86F]. The above data is approximate and subject to normal manufacturing tolerance.

Product Color Disclaimer: The product photos shown are representative of our wire colors. The actual wire colors may vary from the images shown. Although our suppliers maintain a high-quality standard, there can be color variation from production. As a result, we cannot guarantee color spools will match up perfectly.

\*\*Note: Unless specifically permitted elsewhere in NFPA 70 overcurrent protection should not exceed 10 amps 16AWG, 15 amps for 14AWG, 20 amps for 12AWG, and 30 amps for 10AWG. To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page at

www.automationdirect.com

## Wire - Type HAR/MTW

			ype HAR/MTW Wire Specifications	Spool/Reel	Approx.	
Part Number	Insulation Color	Gauge	Description	Length	Weight	Price
161900	green/yellow					\$;-5v!j:
4 <u>61901</u>	black					\$;5v!k:
4 <u>61902</u>	blue	19 AWG	Type MTW, single conductor, 24-stranded, tinned copper, PVC conductor insulation material.		9lbs/1000ft	\$;-5v!l:
4 <u>61903</u>	brown	19 AVVG	300/500 Volts (HAR), 600 Volts (MTW)		9108/100011	\$;5v!n:
<u> 461904</u>	red		, , , , , , , , , , , , , , , , , , , ,			\$;5v!o:
<u>161914</u>	dark blue					\$;5v!p:
<u> 461800</u>	green/yellow					\$;5v!q:
1 <u>61801</u>	black					\$;5v!s:
4 <u>61802</u>	blue		Type MTW, single conductor, 32-stranded, tinned copper, PVC conductor insulation material,			\$;;5v!t:
4 <u>61803</u>	brown	18 AWG			10lbs/1000ft	\$;5v!u:
4 <u>61804</u>	red		300/500 Volts (HAR), 600 Volts (MTW)			\$;5v!v:
<u> 161814</u>	dark blue					\$;5v!x:
1 <u>61844</u>	white/blue					\$;5v!y:
1 <u>61600</u>	green/yellow		Type MTW, single conductor,30-stranded, tinned copper, PVC			\$;05v!z:
1 <u>61601</u>	black					\$;;05v!]:
4 <u>61602</u>	blue					\$;;05v![
4 <u>61603</u>	brown			328ft [100m]	14lbs/1000ft -	\$;05v!_
4 <u>61604</u>	red	16 AWG				\$;05v!#:
4 <u>61605</u>	white	10 AVVG	conductor insulation material, 450/750 Volts (HAR), 600 Volts (MTW)			\$;;05v!!:
4 <i>61609</i>	orange		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			\$;05v!?:
4 <i>61614</i>	dark blue					\$;;05v!,:
4 <i>61615</i>	blue/white					\$05v?0:
4 <u>61644</u>	white/blue					\$05v?1:
4 <i>61400</i>	green/yellow					\$05v?2:
<u> 461401</u>	black					\$05v?3
4 <i>61402</i>	blue		Type MTW, single conductor,50-stranded, tinned copper, PVC			\$05v?4
1 <u>61403</u>	brown	14 AWG	conductor insulation material,		21lbs/1000ft	\$05v?5
1 <u>61404</u>	red		450/750 Volts (HAR), 600 Volts (MTW)			\$05v?6
1 <u>61405</u>	white					\$05v?7
1 <u>61414</u>	dark blue				\$05v?8	
<u>461200</u>	green/yellow	12 AWG	Type MTW, single conductor,56-stranded, tinned copper, PVC		31lbs/1000ft	\$05v?9:
1 <u>61201</u>	black	IZ AVVG	conductor insulation material, 450/750 Volts (HAR), 600 Volts (MTW)		S HUS/ HUUUTI	\$05v?a

## Wire - Type HAR/MTW

#### **Gauge Conversion Table**

Ai	American Wire Gauge Conversion Chart*							
This cross reference shows equivalent nominal values.								
Actual cross sections may vary.								
AWG	mm <sup>2</sup>	AWG	mm <sup>2</sup>					
30	0.05	6	16					
28	0.08	4	25					
26	0.14	2	35					
24	0.25	1	50					
22	0.34	1/0	55					
21	0.38 2/0 70							
20	0.50	3/0	95					
19	0.75	4/0	120					
18	0.75 - 1.00	300MCM	150					
17	1.00	350MCM	185					
16	1.50	500MCM	240					
14	2.50	600MCM	300					
12	4	750MCM	400					
10	6	1000MCM	500					
8	8 10							
*Note: Table shows com	nercially used equivalent	values.						

#### **Conductor Ampacity Table**

	Allowable Ampacity								
AWG	60°C [140°F]	75°C [167°F]	90°C [194°F]						
30	_	0.5	0.5						
28	_	0.8	0.8						
26	_	1	1						
24	2	2	2						
22	3	3	3						
20	5	5	5						
18	7	7	14						
16**	10	10	18						
14**	20	20	25						
12**	25	25	30						
10**	30	35	40						
8	40	50	55						
6	55	65	75						
4	70	85	95						
3	85	100	110						
2	95	115	130						
1	110	130	150						
1/0	125	150	170						
2/0	145	175	195						
3/0	165	200	225						
4/0	195	230	260						
250MCM	215	255	290						
300MCM	240	285	320						
350MCM	260	310	350						
400MCM	280	335	380						
500MCM	320	380	430						
600MCM	355	420	475						
700MCM	385	460	520						
750MCM	400	475	535						
800MCM	410	490	555						
900MCM	435	520	585						
1000MCM	455	545	615						
*Noto: Allowable amna	city chown abovo ic no	NEDA70 Floctrical Stan	dard for Industrial						

\*Note: Allowable ampacity shown above is per NFPA79 Electrical Standard for Industrial Machinery 2018 Table 12.5.1 Conductor Ampacity Based on Copper Conductors with 60°C [140°F], 75°C[167°F], and 90°C [194°F] Insulation in an Ambient Temperature of 30°C [86°F] \*\*Note: Unless specifically permitted elsewhere in NFPA 70 overcurrent protection should not exceed 10 amps 16AWG, 15 amps for 14AWG, 20 amps for 12AWG, and 30 amps for 10AWG.

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## Wire - Type TFFN

#### **Applications**

Type TFFN conductors are primarily used as fixture wire as defined by the National Electrical Code (NEC) at temperatures not to exceed 90°C in dry locations. All conductors are permitted for new construction or rewiring for 600-volt applications. Rated gasoline and oil-resistant II.

TFFN wire is sold in 500 foot spools; certain sizes are also available in 2500 foot reels.



#### **Conductor Insulation**

Color-coded Polyvinyl Chloride (PVC), heat and moisture-resistant, flameretardant compound

#### Jacket

A tough, polyamide, Nylon outer covering

#### Ratings

- UL Standards UL-66, UL-758 and UL-1063
- AWM Spec 1316, 1408, 1452
   Canadian Standard Association C22.2
   No. 210
- RoHS

#### **Type TFFN Wire**



Please Note: Our prices on wire are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

	Type TFFN Wire Specifications								
Size (AWG or	Number of				Overall ( Diam		Allowable	Waldet (Inc.)	
kcmil)	Strands	Equivalent	PVC	Nylon	(inches)	(mm)	Ampacities*	500'/2500'	spool/reel
18	16	0.75	0.015	0.005	0.0	2.24	6	4 / 20	500' or 2500'
16	26	1.5	0.015	0.005	0.101	2.57	8	5.5 / 27.5	500 OI 2500

\*Note: Allowable ampacity shown above is per the National Electric Code. The above data is approximate and subject to normal manufacturing tolerances.

			Type TFFN Wire			
Part Number	Insulation Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price
TFFN18BK	Black					\$085h:
TFFN18WH	White	1				\$08bg:
TFFN18RD	Red					\$08be:
TFFN18BL	Blue					\$08b0:
TFFN18GN	Green		Time TEEN wine have seened 40			\$08b6:
TFFN18YL	Yellow	18AWG	Type TFFN wire, bare copper, 16 strands, 600 Volts		4 lbs	\$-08bi:
TFFN180R	Orange			500'		\$08ba:
TFFN18BN	Brown					\$08b2:
TFFN18PL	Purple					\$08bc:
TFFN18GY	Gray					\$08b8:
TFFN18BW	Blue with White spiral stripe					\$08b4:
TFFN16BK	Black					\$;084[:
TFFN16WH	White					\$085d:
TFFN16RD	Red					\$085a:
TFFN16BL	Blue	]				\$084#:
TFFN16GN	Green	16AWG	Type TFFN wire, bare copper, 26		5.5 lbs	\$0852:
TFFN16YL	Yellow	IOAWG	strands, 600 Volts		3.0 IUS	\$;085f:
TFFN160R	Orange					\$0856:
TFFN16BN	Brown					\$084?:
TFFN16GY	Gray					\$0854:
TFFN16BW	Blue with White spiral stripe					\$0850:

## Wire - Type TFFN

	Type TFFN Wire						
Part Number	Color	Gauge	Description	Spool/Reel Length	Approx. Weight	Price	
TFFN18BK25	Black					\$-0085i:	
TFFN18RD25	Red	18AWG	Type TFFN wire, bare copper, 16 strands, 600 Volts	2500'	20 lbs	\$;008bf:	
TFFN18BL25	Blue	TOAVVG				\$008b1:	
TFFN18BW25	Blue with White spiral stripe					\$008b5:	
TFFN16RD25	Red	16AWG	Type TFFN wire, bare copper, 26 strands, 600 Volts		97.5 lbo	\$0085b:	
TFFN16BL25	Blue	TOAWG			27.5 lbs	\$;0084!:	

### **Gauge Conversion Table**

American Wire Gauge Conversion Chart*								
This cross reference shows equivalent nominal values. Actual cross sections may								
	vary.							
AWG	mm2	AWG	mm2					
30	0.05	6	16					
28	0.08	4	25					
26	0.14	2	35					
24	0.25	1	50					
22	0.34	1/0	55					
21	0.38	2/0	70					
20	0.50	3/0	95					
18	0.75	4/0	120					
17	1.00	300MCM	150					
16	1.50	350MCM	185					
14	2.50	500MCM	240					
12	4	600MCM	300					
10	6	750MCM	400					
8	10	1000MCM	500					
*Note: Table shows co	*Note: Table shows commercially used equivalent values.							