

Vinyl Nylon Tray Cable (VNTC) Control Cable



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<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) Jacket
- 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 Conductor Identification Method 1 Table 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 (Unshielded)

18 Gauge VNTC Cable Specifications (Unshielded)			
Conductor Gauge & Stranding	18AWG 7/26 bare copper, Class K	Applicable Standards	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		UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON		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	Approvals**	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		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]

* Per ASTM B174

** 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 VNTC Cable (Unshielded)										
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches $\pm 10\%$)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
										
VNTC-18-3-BK-1	3	18	7	15	45	0.350	1.1	20	0.05	\$0.43
VNTC-18-6-BK-1	6					0.453	1.4	20	0.08	\$0.67
VNTC-18-8-BK-1	8					0.490	1.6	20	0.09	\$0.86
VNTC-18-10-BK-1	10					0.551	1.8	20	0.12	\$1.04
VNTC-18-12-BK-1	12					0.573	1.8	20	0.13	\$1.28
VNTC-18-19-BK-1	19					0.705	2.3	20	0.21	\$2.13
VNTC-18-24-BK-1	24					0.826	2.6	20	0.26	\$2.52

* Installed bend radius $\geq 4 \times$ diameter

** See web store for maximum cut lengths




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.

16 Gauge VNTC Cable (Unshielded)

16 Gauge VNTC Cable Specifications (Unshielded)			
Conductor Gauge & Stranding	16AWG 7/24 bare copper, Class K	Applicable Standards	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		UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON		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	Approvals**	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		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]

* Per ASTM B174

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16 Gauge VNTC 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/ft)	Price per foot
										
VNTC-16-3-BK-1	3	16	7	19	45	0.368	1.2	20	0.06	\$0.59
VNTC-16-4-BK-1	4					0.398	1.3	20	0.07	\$0.69
VNTC-16-5-BK-1	5					0.432	1.4	20	0.08	\$0.84
VNTC-16-7-BK-1	7					0.466	1.5	20	0.11	\$1.18
VNTC-16-9-BK-1	9					0.539	1.7	20	0.14	\$1.50
VNTC-16-12-BK-1	12					0.604	1.9	20	0.17	\$1.85
VNTC-16-19-BK-1	19				60	0.746	2.4	20	0.27	\$3.36

* Installed bend radius ≥ 4x diameter

** See web store for maximum cut lengths




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14 Gauge VNTC Cable (Unshielded)

14 Gauge VNTC Cable Specifications (Unshielded)			
Conductor Gauge & Stranding	14AWG 7/22 bare copper, Class K	Applicable Standards	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		UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON		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	Approvals**	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		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]

* Per ASTM B174

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14 Gauge VNTC Cable (Unshielded)										
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches $\pm 10\%$)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
										
VNTC-14-3-BK-1	3	14	7	19	45	0.405	1.3	20	0.08	\$0.77
VNTC-14-4-BK-1	4					0.437	1.4	20	0.09	\$0.91
VNTC-14-5-BK-1	5					0.475	1.5	20	0.11	\$1.19
VNTC-14-7-BK-1	7					0.516	1.7	20	0.15	\$1.72
VNTC-14-12-BK-1	12				60	0.710	2.3	20	0.26	\$2.85

* Installed bend radius $\geq 4 \times$ diameter

** See web store for maximum cut lengths




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12 Gauge VNTC Cable (Unshielded)

12 Gauge VNTC Cable Specifications (Unshielded)			
Conductor Gauge & Stranding	12AWG 7/20 bare copper, Class K	Applicable Standards	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		UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.015 Inch, PVC + 0.004 Inch, NYLON		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	Approvals**	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		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]

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12 Gauge VNTC 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/ft)	Price per foot
										
VNTC-12-3-BK-1	3	12	7	19	45	0.450	1.4	20	0.10	\$1.08
VNTC-12-4-BK-1	4					0.490	1.6	20	0.13	\$1.38
VNTC-12-5-BK-1	5					0.539	1.7	20	0.16	\$1.68

* Installed bend radius ≥ 4x diameter

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10 Gauge VNTC Cable (Unshielded)

10 Gauge VNTC Cable Specifications (Unshielded)			
Conductor Gauge & Stranding	10 AWG 7/18 bare copper, Class K	Applicable Standards	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		UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
Conductor Insulation	0.020 Inch, PVC + 0.004 Inch, NYLON		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
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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]

* Per ASTM B174

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10 Gauge VNTC Cable (Unshielded)										
Part Number	Number of Conductors	AWG	Strand	Overall Conductor Insulation Thickness (Mils)	Overall Jacket Thickness (Mils)	Nominal O.D. (Inches $\pm 10\%$)	Minimum Installed Bend Radius (inches)*	Minimum Cut Length (ft)**	Approximate Weight (lb/ft)	Price per foot
										
VNTC-10-3-BK-1	3	10	7	24	45	0.541	1.7	20	0.16	\$1.57
VNTC-10-4-BK-1	4					0.591	1.9	20	0.20	\$2.04
VNTC-10-5-BK-1	5					0.650	2.1	20	0.24	\$2.59

* Installed bend radius $\geq 4 \times$ diameter

** See web store for maximum cut lengths



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