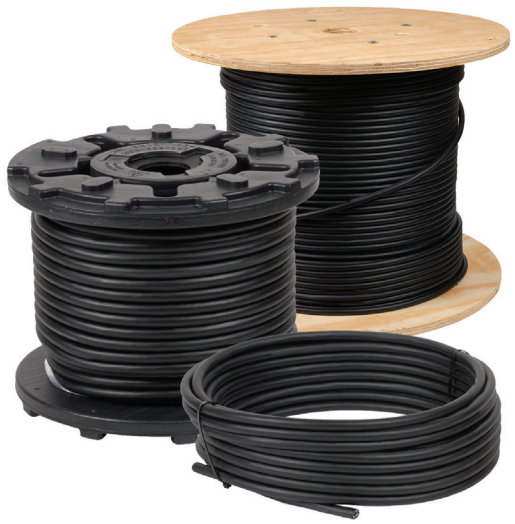
VFD (Variable-Frequency Drive) Cable



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

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.

VFD 4-Conductor Cable Specifications

Conductors Gauge & Stranding	16AWG (26 Strands) to 2AWG (651 Strands), Class K flexible stranded tinned annealed copper per ASTM B33, B172 and B174	***Approvals****	ASTM B172 - Rope-Lay-Stranded Copper Conductors ASTM B174 - Bunch-Stranded Copper Conductors ASTM B33 - Tinned soft or annealed Copper UL 44 - Thermoset Insulation 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 Exceeds 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 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 Distribution of Electrical Energy CE RoHS 2
Voltage Rating	600V UL 90°C TC-ER 1000V WTTC 1000V AWM 1000V Flexible Motor Supply Cable		
Outer Jacket Material	Thermoplastic Elastomer (TPE)		
Outer Jacket Color	Black with white print		
Cold Bend	-40°F (-40°C)		
Min. Cut Length*	20 feet		
Temperature Ratings	-40°F to +194°F (-40°C to +90°C)	***Sample Print Legend***	Southwire XXAWG (XXmm2) XX/C VFD XLPE CDRS 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 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
Conductor Insulation	Black cross-linked Polyethylene (XLPE) with green/yellow ground		
Conductor Markings	"1-ONE", "2-TWO", "3-THREE", @ 4.5 inch intervals, ICEA Method 4		

** 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

VFD 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 @ 20ºC (Ohm/1000 ft.)	Nominal Outer Shield DC Resistance @ 20ºC (Ohm/1000 ft.)	Impedance (ohms)	Velocity of Propagation	Max. Operating Voltage - UL
VFDC-16-4B-1	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
VFDC-2-4B-1	75.96	42.20	0.18	4.10	41.5	0.57	600V / 1000V

VFD 4-Conductor Cable Selection

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	*Ampacity NEC 310.15 (B) (16) Amps		Min. Bend Radius inches	Approximate Weight (lb/ft)	Price per foot
										75ºC	90ºC			
														
VFDC-16-4B-1	4	16AWG (1.31 mm²)	26	3	1 x (16)	1 x (16)	46	62	0.523	10	10	6	0.171	$;2c!e:
VFDC-14-4B-1	4	14AWG (2.08 mm²)	41	3	1 x (14)	1 x (14)	46	62	0.565	15	15	7	0.212	$;;2c!f:
VFDC-12-4B-1	4	12AWG (3.31 mm²)	65	3	1 x (12)	1 x (12)	46	62	0.635	20	20	8	0.269	$;2c!g:
VFDC-10-4B-1	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:
VFDC-2-4B-1	4	2AWG (33.6 mm²)	651	3	1 x (2)	4 x (8)	60	80	1.230	115	130	14	1.486	$;2c!d:

** Ampacity based on NEC 310.15 (B) (16) up to and including 2000 volts, not more than 3 current-carrying conductors, ambient 86ºF (30ºC)*
All dimensions are nominal and subject to normal manufacturing tolerances.

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