

**Alpha Essentials**  
The Reliable Source for  
Industry-Standard Cable

Alpha  
Essentials



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# AlphaEssentials



## The Reliable Source for Industry-Standard Cables

Finding the right wire and cable for your application is now easier than ever with Alpha Essentials—your one-stop source for the widest range of industry-standard cables. The breadth and depth of Alpha Essentials products ensure an optimum solution to your application challenges.

## High Performance, Low Minimums

Alpha Essentials provides you with high-performance industry-standard cables. They are built to perform reliably—electrically, mechanically, and environmentally—each and every time. Better still, you can order just what you need with Alpha's industry-leading minimum order quantities; most products in the Alpha Essentials line have only a 100 ft minimum order requirement.

## Essential to Performance, Reliability, and Productivity

Every wire and cable in your application, no matter how simple or complex, is critical to long-term reliable productivity, performance, and overall customer satisfaction. Alpha Essentials cable is industry-proven to provide dependable performance day in and day out.

## Standard Cables that Go Beyond the Ordinary

Nobody gives you more choice in insulation and jacketing materials, shielding options, configurations, and conductor counts. And now, with the extensive Alpha Essentials line, you have more choice in the types of cable you tend to need most. These cables go beyond the ordinary to satisfy the rigorous requirements of EMI performance, transmission distances, flexibility, and extreme temperatures.

## Shielding Options to Maximize Signal Integrity

Alpha Wire offers cables in four shielding options to handle virtually any electrical environment.

### Unshielded:

The smallest cable diameter for use in low-noise environments.

### Foil shielded:

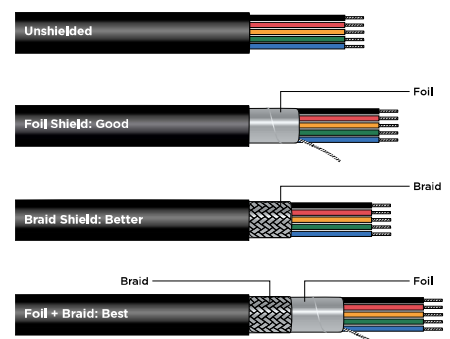
An aluminum/polyester shield for moderate EMI needs.

### Braid shielded:

A braided copper shield, with 55% to 85% coverage, provides good protection against higher frequency EMI.

### Foil/braid shielded:

A combination of foil and braid gives the best EMI protection across a wide frequency range.

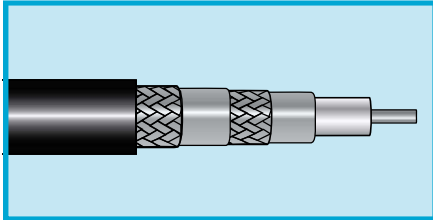


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# Data and Bus Cable

300 V, RG-6/U Coaxial Cable,  
Double Braid and Foil Shielded  
Control Net



**UL CL2R**  
**UL CMR**  
**CSA CMG FT4**

### Operating Temperature

- -30°C to +75°C

### Materials

- Solid bare Copperweld conductor
- Foam polyethylene insulation
- Shielding: double braid and foil  
Foil + 60% aluminum braid +  
foil + 40% aluminum braid
- Black PVC jacket

### Features

- UL Sunlight Resistant
- 75-ohm nominal impedance
- 82% velocity of propagation
- 16.2 pF/ft (53.1 pF/m) nominal capacitance

### Availability

100 ft (30.5 m)  
500 ft (152 m)  
1000 ft (305 m)

### FIT® Tubing Recommendations

- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin

Part No.	Nominal Diameter		Center Conductor		Nominal Impedance (ohms)
	Inch	mm	AWG	mm <sup>2</sup>	
<b>6458</b>	0.298	7.57	18	0.82	75

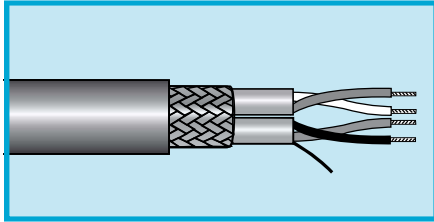
Frequency (MHz)	Nominal Attenuation	
	Attenuation, Nom.	
	dB/100 ft	dB/100 m
1	0.35	1.1
2	0.38	1.2
5	0.45	1.5
10	0.59	1.9
20	0.86	2.8
50	1.37	4.5
100	1.97	6.5
200	2.82	9.3
300	3.48	11.4
400	4.04	13.3



# Data and Bus Cable

300 V Power and Data, Class 2,  
ODVA Thick and Thin Trunks

Device Net



Part No.	Type	Pairs	Nominal Diameter	
			Inch	mm
6451	Thick	1 Power: 15 AWG (1.75 mm <sup>2</sup> ), 19/0.0135 (19 x 0.35 mm) stranding 1 Data: 18 AWG (0.96 mm <sup>2</sup> ), 19/30 (19 x 0.25 mm) stranding	0.480	12.19
6452	Thin	1 Power: 22 AWG (0.38 mm <sup>2</sup> ), 19/34 (19 x 0.16 mm) stranding 1 Data: 24 AWG (0.24 mm <sup>2</sup> ), 19/36 (19 x 0.13 mm) stranding	0.280	7.11

**UL CMG**

**UL PLTC-ER (Thick)**

**UL CL2 (Thin)**

**CSA CMG FT4**

**CSA AWM I/II A/B FT4**

## Operating Temperature

- -20°C to +75°C (static)
- 0°C to +80°C (dynamic)

## Conductor Color Coding

- Black-Red power
- Blue-White data

## Materials

- Tinned copper conductors
- Each pair individually foil shielded
- PVC insulation (power pair)
- Foam HDPE insulation (data pair)
- 65% tinned copper braid overall
- Slate PVC jacket

## Features

- Oil resistant
- UL Sunlight Resistant
- 120-ohm nominal impedance (data pair)
- Compliant with Allen-Bradley part numbers 1485 CPI-A and 1485 CPI-C

## Availability

100 ft (30.5 m)  
500 ft (152 m)  
1000 ft (305 m)

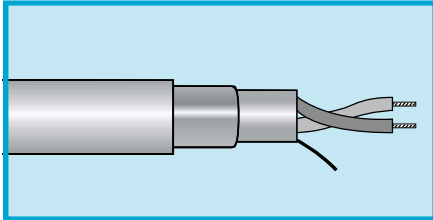
## FIT® Tubing Recommendations

- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin



# Data and Bus Cable

## 300 V Single-Pair Cable, Fieldbus Types A and B Fieldbus



Part No.	Fieldbus Type	Pairs	Conductor		Stranding		Nominal Diameter	
			AWG	mm <sup>2</sup>	AWG	mm	Inch	mm
6459	A	1	18	0.90	7/26	7 x 0.40	0.253	6.43
6460	B	1	22	0.33	7/0.0096	7 x 0.24	0.196	4.97

**UL PLTC-ER**  
**UL CM**  
**UL ITC**  
**CSA CM**

### Operating Temperature

- -30°C to +105°C

### Conductor Color Coding

- Blue-Orange

### Materials

- Tinned copper conductors
- Polyolefin insulation
- Foil shield
- Orange PVC jacket

### Features

- UL Sunlight Resistant
- 100-ohm nominal impedance

### Availability

100 ft (30.5 m)  
500 ft (152 m)  
1000 ft (305 m)

### FIT® Tubing Recommendations

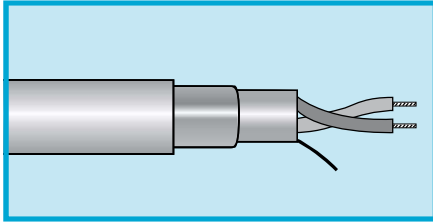
- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin



# Data and Bus Cable

## 300 V Single-Pair Cable

High-Speed Fieldbus



Part No.	Pairs	Conductor		Stranding		Nominal Diameter	
		AWG	mm <sup>2</sup>	AWG	mm	Inch	mm
6461	1	22	0.35	7/30	7 x 0.25	0.351	8.92

**UL PLTC**

**UL CM**

**CSA CM**

### Operating Temperature

- -40°C to +75°C

### Conductor Color Coding

- Blue-Orange

### Materials

- Tinned copper conductors
- Foam high-density polyethylene insulation
- Foil shield
- Orange PVC jacket

### Features

- UL Sunlight Resistant
- 150-ohm nominal impedance

### Availability

100 ft (30.5 m)

500 ft (152 m)

1000 ft (305 m)

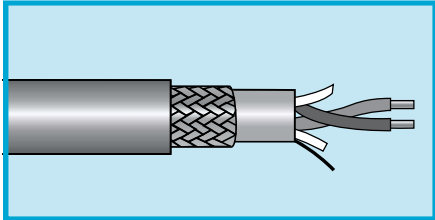
### FIT® Tubing Recommendations

- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin

# Data and Bus Cable

## 300 V Single-Pair Cable

PROFIBUS-DP



Part No.	Pairs	Conductor		Stranding		Nominal Diameter	
		AWG	mm <sup>2</sup>	AWG	mm	Inch	mm
6462	1	22	0.32	Solid		0.315	8.00
6463	1	22	0.35	7/30	7 x 0.25	0.315	8.00

**UL AWM 20201 (6462 only)**

**UL PLTC**

**UL CMG**

**CSA CMG FT4**

### Operating Temperature

- -30°C to +75°C (PLTC, CMG)
- -30°C to +60°C (AWM)

### Conductor Color Coding

- Red-Green

### Materials

- Tinned solid or stranded copper conductors
- Foam high-density polyethylene insulation
- Foil + 65% tinned copper braid shield
- Purple PVC jacket

### Features

- UL Sunlight Resistant
- 150-ohm nominal impedance

### Availability

100 ft (30.5 m)

500 ft (152 m)

1000 ft (305 m)

### FIT® Tubing Recommendations

- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin

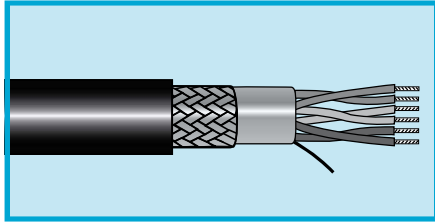




# Data and Bus Cable

## 300 V Foil + Braid, Multipair

RS-485



**UL CM, CMG**  
**UL TC, PLTC**  
**CSA CM, CMG FT1**

### Operating Temperature

- -20°C to +60°C

### Conductor Color Coding

- Chart M, except 6454

### Materials

- Tinned copper conductors
- Foam high-density polyethylene insulation
- Foil + 65% tinned copper braid shield
- Black PVC jacket

### Features

- UL Sunlight Resistant
- 120-ohm nominal impedance

### Availability

100 ft (30.5 m)  
500 ft (152 m)  
1000 ft (305 m)

### FIT® Tubing Recommendations

- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin

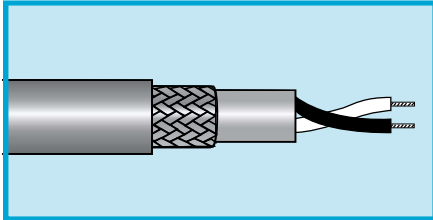
22 AWG (0.35 mm <sup>2</sup> )							
Stranding: 7/30 (7 x 0.25 mm)							
Part No.	Pairs	Nominal Diameter		Insulation Thickness		Jacket Thickness	
		Inch	mm	Inch	mm	Inch	mm
<b>6453</b>	1	0.284	7.21	0.028	0.71	0.042	1.07
<b>6454*</b>	1.5	0.300	7.62	0.032	0.81	0.042	1.07
<b>6455</b>	2	0.408	10.36	0.024	0.61	0.053	1.35
<b>6456</b>	3	0.414	10.52	0.022	0.56	0.053	1.35
<b>6457</b>	4	0.448	11.38	0.022	0.56	0.053	1.35

\*Conductor color coding: White/Orange-Orange/White pair, White-Blue single conductor.

# Data and Bus Cable

600 V Foil + Braid Shield, Single Pair

Industrial Twinax



Part No.	Pairs	Conductor		Stranding		Nominal Diameter	
		AWG	mm <sup>2</sup>	AWG	mm	Inch	mm
6450	1	18	0.90	7/26	7 x 0.40	0.324	8.23

**UL TC, PLTC, ITC**

**UL CMG**

**CSA CMG FT4**

## Operating Temperature

- -40°C to +75°C

## Conductor Color Coding

- Blue-White

## Materials

- Tinned stranded copper conductors
- Flame-resistant polypropylene insulation
- Foil + 55% tinned copper braid shield
- Blue PVC jacket

## Features

- UL Sunlight Resistant
- 78-ohm nominal impedance
- Meets the requirements of Allen-Bradley Data Highway Networks

## Availability

100 ft (30.5 m)

500 ft (152 m)

1000 ft (305 m)

## FIT® Tubing Recommendations

- FIT-221: General-purpose, cross-linked polyolefin
- FIT-321: Medium-wall, adhesive-lined, cross-linked polyolefin

