

Industrial Data Solutions® — Industrial Ethernet

DataTuff® Twisted Pair and TrayOptic® Fiber Optic Cables Overview

The reliability of your industrial Ethernet network depends on the cable infrastructure. Data transmission errors can lead to interruptions in critical control functions resulting in lost production time and even safety issues. Belden's family of industrial Ethernet cables is designed to withstand the rigors of industrial environments. Whether it's exposure to oil and sunlight, temperature variation, abrasion and crushing, or the presence of electromagnetic interference (EMI) or radio frequency interference (RFI), turn to Belden for the solution.

Belden offers an extensive line of high performance cables in both copper constructions with DataTuff cables as well as fiber optic designs with TrayOptic cables.

Performance Assurance from Blue Hose® to Industrial Ethernet

To assist you in achieving optimum network performance, Belden has built

quality and reliability into each cable it manufactures. Decades of leadership and experience in supplying reliable high-end cable solutions, such as Blue Hose®, to industrial networks and control systems are combined to give you industrial Ethernet cables that perform to maximum network capability.

Our dedication to quality manufacturing practices and processes assures consistent products of uncompromising quality.

Installable Performance® with Patented Bonded-Pair Technology

Belden's Bonded-Pair versions of DataTuff cables are unique in the industry to give you an Installable Performance advantage. This patented design yields superior electrical performance even after the effects and stresses of pulling, twisting and bending during typical installations.

This performance advantage is achieved by bonding the individual insulated conductors along their longitudinal axes, resulting in uniform conductor-to-conductor spacing and the elimination of gaps between conductors that can occur during installation. This is a critical construction feature because non-uniform conductor spacing and gaps change the physical characteristics of the cable such that the electrical performance of the cable suffers. Only Bonded-Pair cables deliver the electrical integrity you demand.

TrayOptic Cables

Belden® TrayOptic cables are a line of indoor/outdoor fiber optic cables designed to meet the demanding requirements of industrial applications. When the installation demands the combination of sophisticated fiber optic technology and rugged durability, turn to Belden.

DataTuff® Industrial Ethernet Cable Selection Guide

Part No.	No. of Pairs	Shielding		Conductor		Installation		Environmental Issues					Industrial Grade Jacket			
		Unshielded	Shielded *	Solid	Stranded **	Installation Stress Resistance†	Pull Tension	Oil Resistance	UV Sunlight Resistance	CMX/Outdoor	Underground (burial)	Gasoline Resistance	Hi/Lo Temp	Heavy	Upjacket	Armored
Category 5e Cable																
new 7932A EtherNet/IP	2	●		●		●	20	●	●							●
new 7933A EtherNet/IP	2		●	●		●	20	●	●							●
7923A EtherNet/IP	4	●		●		●	40	●	●	●						●
7918A	4	●		●			35	●	●	●						●
7924A	4	●			●	●	40	●	●	●						●
new 7930A	4	●			●		25	●	●	●						●
new 7922A PLTC	4	●		●		●	40	●	●	●						●
new 7934A EtherNet/IP	4	●		●		●	40		●		●					●
7928A EtherNet/IP	4	●		●		●	40	●	●			●	●			●
11700A EtherNet/IP	4	●		●		●	40	●	●	●						●
new 11700A2 Oil Res I&II	4	●		●		●	40	●	●							●
121700A	4	●		●		●	40	●	●							●
new 121700R	4	●		●		●	40	●	●							●
7929A	4		●	●		●	35	●	●	●						●
7919A	4		●	●		●	25	●	●	●						●
7921A EtherNet/IP	4		●	●		●	75	●	●	●						●
Category 6 Cable																
7927A	4	●		●		●	45	●	●							●
7931A	4	●		●		●	40	●	●			●	●			●
11872A	4	●		●		●	45									●
121872A	4	●		●		●	45	●	●							●

*Shielded products are recommended for high-noise environments. **Stranded products are recommended where more flexibility is needed.

†Products with Bonded-Pair technology provide Installable Performance® advantages — refer to Belden's Bonded-Pair Cable Bulletin #BP02

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Industrial Data Solutions® — Industrial Ethernet

Category 5e DataTuff® Twisted Pair Cables, 2-Pair and 4-Pair Heavy-Duty Sunlight and Oil-Resistant Jackets

Table with columns: Description, Part No., UL NEC/ C(UL) CEC Type, No. of Pairs, Standard Lengths (Ft., m), Standard Unit Wt. (Lbs., kg), Nominal OD (Inch, mm), Freq. (MHz), Max. Atten. (dB/100m), Min. PSUM NEXT (dB), Min. PSUM ACR (dB/100m), Min. PSUM ELFEXT (dB/100m), Input Imped. (Ω), Min. RL (dB)

Enhanced Cat 5e • 24 AWG Bonded-Pairs Solid BC Conductors • Rip Cord • See Color Codes below

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black, Red or Teal)

Table for 7932A cable with columns for Description, Part No., NEC/CMR/CEC, No. of Pairs, Standard Lengths, Standard Unit Wt., Nominal OD, Freq., Max. Atten., Min. PSUM NEXT, Min. PSUM ACR, Min. PSUM ELFEXT, Input Imped., Min. RL

*2000 ft. put-up available in Black only. • M-12 or RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

Table for 7923A cable with columns for Description, Part No., NEC/CMR/CEC, No. of Pairs, Standard Lengths, Standard Unit Wt., Nominal OD, Freq., Max. Atten., Min. PSUM NEXT, Min. PSUM ACR, Min. PSUM ELFEXT, Input Imped., Min. RL

*2000 ft. put-up available in Black only. • RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126 • P-07-KA060003-MSHA*

Polyolefin Insulation • Waterblocked Sunlight- and Oil-resistant Black Polyethylene Jacket

Table for 7934A cable with columns for Description, Part No., NEC/CMR/CEC, No. of Pairs, Standard Lengths, Standard Unit Wt., Nominal OD, Freq., Max. Atten., Min. PSUM NEXT, Min. PSUM ACR, Min. PSUM ELFEXT, Input Imped., Min. RL

RJ-45 Compatible • Jacket sequentially marked at 3 ft. intervals Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126 • Waterblocked per Telcordia, IEC and ICEA

Plenum • FEP Insulation • Sunlight-, Oil- and Gas-resistant Black FEP Jacket

Table for 7928A cable with columns for Description, Part No., NEC/Limited Combustible/FHC 25/50/CMP/CEC, No. of Pairs, Standard Lengths, Standard Unit Wt., Nominal OD, Freq., Max. Atten., Min. PSUM NEXT, Min. PSUM ACR, Min. PSUM ELFEXT, Input Imped., Min. RL

RJ-45 Compatible Cable passes -70°C Cold Bend per UL1581 • Installation Temperature: -55°C to +150°C • Operating Temperature: -70°C to +150°C** Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

Polyolefin Insulation • PVC Inner Jacket • .035" Industrial Grade PVC Outer Jacket (Black, Gray, Red, Teal or Blue)

Table for 11700A cable with columns for Description, Part No., NEC/CMR/CEC, No. of Pairs, Standard Lengths, Standard Unit Wt., Nominal OD, Freq., Max. Atten., Min. PSUM NEXT, Min. PSUM ACR, Min. PSUM ELFEXT, Input Imped., Min. RL

†3000 ft. put-up available in Black only. • Outer jacket is sunlight- and oil-resistant. • Jacket sequentially marked at 2 ft. intervals Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** RJ-45 Compatible • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126 • P-07-KA060005-MSHA*

Table for 11700A2 cable with columns for Description, Part No., NEC/CMR/CEC, No. of Pairs, Standard Lengths, Standard Unit Wt., Nominal OD, Freq., Max. Atten., Min. PSUM NEXT, Min. PSUM ACR, Min. PSUM ELFEXT, Input Imped., Min. RL

††1000 ft. put-up available in Black or Blue only, 2000 ft. put-up in Black only. • RJ-45 Compatible • Outer jacket is sunlight resistant. Cable passes -10°C Cold Bend per UL1581 • Installation Temperature: +5°C to +75°C • Operating Temperature: -10°C to +75°C** Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

ACR = Attenuation Crosstalk Ratio • BC = Bare Copper • ELFEXT = Equal Level Far-end Crosstalk • NEXT = Near-end Crosstalk • PSUM = Power Sum • RL = Return Loss • TC = Tinned Copper *Pennsylvania Department of Environmental Resources and United States Mine Safety and Health Administration Certification. **Subject to length de-rating. EtherNet/IP is a trademark of ControlNet International, Ltd. under license by Open DeviceNet Vendor Association, Inc.

DataTuff Color Codes: Pair 1 = White/Blue Stripe & Blue, Pair 2 = White/Orange Stripe & Orange, Pair 3 = White/Green Stripe & Green, Pair 4 = White/Brown Stripe & Brown For two pair products: use color codes for Pairs 2 & 3

Industrial Data Solutions® — Industrial Ethernet

Category 5e DataTuff® Twisted Pair Cables, 2-Pair and 4-Pair Heavy-Duty Sunlight and Oil-Resistant Jackets

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							

Enhanced Cat 5e • 22 AWG Bonded-Pairs Solid Bare Copper Conductors • Rip Cord • See Color Code Chart (below)

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant Black PVC Jacket

PLTC	7922A <small>new</small>	NEC: PLTC, CMR, CMX- Outdoor CEC: CMR FT4	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	65.3	63.3	60.8	100±12	20.0
				1000	304.8	46.3	21.0	.301	7.65							
				2000	609.6	92.5	42.0			4	4.0	56.3	52.3	48.7	100±12	23.0
										8	5.7	51.8	46.1	42.7	100±12	24.5
										10	6.4	50.3	43.9	40.8	100±12	25.0
										16	8.1	47.3	39.1	36.7	100±12	25.0
										25	10.3	44.3	34.1	32.8	100±15	24.3
										31.25	11.6	42.9	31.3	30.9	100±15	23.6
										62.5	16.8	38.4	21.6	24.8	100±15	21.5
										100	21.7	35.3	17.1	20.8	100±15	20.1
										155	27.7	32.5	4.7	16.9	100±18	19.0
										200	32.0	30.8	3.0	14.7	100±20	19.0
										250	36.4	29.3	—	12.8	100±20	18.0
										350	44.3	27.2	—	9.9	100±22	17.0

Cable passes -25°C Cold Bend per UL1581 • Installation Temperature: -10°C to +75°C • Operating Temperature: -25°C to +75°C**
Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

Enhanced Cat 5e • 24 AWG Bonded-Pairs Stranded (7x32) TC Conductors • See Color Code Chart (below)

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black, Red or Teal)

Stranded Flexible	7924A	NEC: CMR, CMX- Outdoor CEC: CMR FT4	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.4	65.3	62.9	60.8	100±12	20.0
				1000	304.8	30.0	13.6	.242	6.15							
				2000 †	609.6	58.0	26.3			4	4.8	56.3	51.5	48.7	100±12	23.6
										8	6.8	51.8	45.0	42.7	100±12	25.4
										10	7.7	50.3	42.6	40.8	100±12	26.0
										16	9.7	47.3	37.5	36.7	100±12	26.0
										25	12.4	44.3	31.9	32.8	100±15	25.5
										31.25	13.9	42.9	29.0	30.9	100±15	25.0
										62.5	20.2	38.4	18.3	24.8	100±15	23.5
										100	26.0	35.3	9.2	20.8	100±18	22.5
										155	33.2	32.5	—	16.9	100±18	19.0
										200	38.4	30.8	—	14.7	100±20	19.0
										250	43.7	29.3	—	12.8	100±20	18.0
										350	53.2	27.2	—	9.9	100±22	17.0

†2000 ft. put-up available in Black only. • RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals
Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151; 5,734,126 and 5,763,823

Enhanced Cat 5e • 24 AWG Bonded-Pairs Solid BC Conductors • Overall Beldfoil® Shield (100%) • Drain Wire • See Color Codes (below)

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black, Red or Teal)

EtherNet/IP Compliant Shielded	7933A <small>new</small>	NEC: CMR, CMX- Outdoor CEC: CMR FT4	2	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	62.3	60.3	60.8	100±15	20.0
				1000	304.8	32.0	14.5	.227	5.77							
				2000 ▲	609.6	64.8	29.4			4	4.1	53.3	49.2	48.7	100±15	23.6
										10	6.5	47.3	40.8	40.8	100±15	26.0
										16	8.2	44.3	36.1	36.7	100±15	26.0
										31.25	11.7	39.9	28.2	30.9	100±15	25.0
										62.5	17.0	35.4	18.4	24.8	100±15	23.5
										100	22.0	32.3	10.3	20.8	100±15	22.5
										200	32.4	27.8	1.0	14.7	100±25	15.0

*2000 ft. put-up available in Black only. • M-12 or RJ-45 Compatible • Shield is bonded to jacket inner wall for electrical stability.
Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black or Blue)

Shielded	7929A	NEC: CMR, CMX- Outdoor CEC: CMR FT4	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	62.3	60.3	60.8	100±15	20.0
				1000	304.8	37.0	16.8	.265	6.73							
				2000 ▲	609.6	72.0	32.7			4	4.1	53.3	49.2	48.7	100±15	23.0
										10	6.5	47.3	40.8	40.8	100±15	25.0
										16	8.2	44.3	36.1	36.7	100±15	25.0
										31.25	11.7	39.9	28.2	30.9	100±15	23.6
										62.5	17.0	35.4	18.4	24.8	100±15	21.5
										100	22.0	32.3	10.3	20.8	100±15	20.1
										200	32.4	27.8	1.0	14.7	100±25	15.0

*2000 ft. put-up available in Black only. • RJ-45 Compatible • Shield is bonded to jacket inner wall for electrical stability.
Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126 • P-07-KA060003-MSHA*

Enhanced Cat 5e • 24 AWG Bonded-Pairs Solid BC Conductors • Overall Beldfoil (100%) + TC Braid Shield (70% Coverage) • Drain Wire*

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black, Red, Blue or Teal)

EtherNet/IP Compliant Heavy-shielded	7921A	NEC: CMR, CMX- Outdoor CEC: CMR FT4	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	62.3	60.3	60.8	100±15	20.0
				1000	304.8	55.0	24.9	.330	8.38							
				2000 ▲	609.6	106.0	48.1			4	4.1	53.3	49.2	48.7	100±15	23.6
										10	6.5	47.3	40.8	40.8	100±15	26.0
										16	8.2	44.3	36.1	36.7	100±15	26.0
										31.25	11.7	39.9	28.2	30.9	100±15	25.0
										62.5	17.0	35.4	18.4	24.8	100±15	23.5
										100	22.0	32.3	10.3	20.8	100±15	22.5

*2000 ft. put-up available in Black only. *24 AWG solid spiral drain wire.
Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • NEMA WC-63.1 Category 5e • U.S. Patents 5,606,151 and 5,734,126

ACR = Attenuation Crosstalk Ratio • AL = Aluminum • BC = Bare Copper • ELFEXT = Equal Level Far-end Crosstalk • NEXT = Near-end Crosstalk • PSUM = Power Sum • RL = Return Loss • TC = Tinned Copper
EtherNet/IP is a trademark of ControlNet International, Ltd. under license by Open DeviceNet Vendor Association, Inc.
*Pennsylvania Department of Environmental Resources and United States Mine Safety and Health Administration Certification.
**Subject to length de-rating.

DataTuff Color Codes: Pair 1 = White/Blue Stripe & Blue, Pair 2 = White/Orange Stripe & Orange, Pair 3 = White/Green Stripe & Green, Pair 4 = White/Brown Stripe & Brown
For two pair products: use color codes for Pairs 2 & 3

BELDEN For more information, contact Belden Technical Support: 1-800-BELDEN-1 • www.belden.com

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Industrial Data Solutions® — Industrial Ethernet

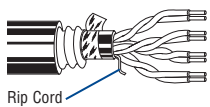
Category 5e DataTuff® Twisted Pair Cables, 4-Pair Heavy-Duty Sunlight and Oil-Resistant Jackets

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							

Enhanced Cat 5e • 24 AWG Bonded-Pairs Solid BC Conductors • Polyester Wrap • Rip Cord • See Color Code Chart (below)

AL Interlocked Armor • Polyolefin Insulation • PVC Inner Jacket • .045" Industrial Grade PVC Outer Jacket (Black or Gray)

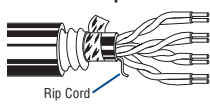
Interlocked AL Armor	121700A	NEC: CM	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	65.3	63.3	60.8	100±12	20.0
				3000 †	914.4	459.0	210.6	.530	13.46							
										8	5.7	51.8	46.1	42.7	100±12	24.5
										10	6.4	50.3	43.9	40.8	100±12	25.0
										16	8.1	47.3	39.1	36.7	100±12	25.0
										25	10.3	44.3	34.1	32.8	100±15	24.3
										31.25	11.6	42.9	31.3	30.9	100±15	23.6
										62.5	16.8	38.4	21.6	24.8	100±15	21.5
										100	21.7	35.3	17.1	20.8	100±15	20.1
										155	27.7	32.5	4.7	16.9	100±18	19.0
										200	32.0	30.8	3.0	14.7	100±20	19.0
										250	36.4	29.3	—	12.8	100±20	18.0
										350	44.3	27.2	—	9.9	100±22	17.0



†3000 ft. put-up available in Black only. • RJ-45 Compatible • Outer jacket is sunlight- and oil-resistant. Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** Jacket sequentially marked at 1 meter intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

AL Interlocked Armor • Polyolefin Insulation • PVC Inner Jacket • .045" Industrial Grade PVC Outer Jacket (Black or Blue)

Interlocked AL Armor -40°C Cold Impact	121700R	NEC: CM	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	65.3	63.3	60.8	100±15	20.0
				3000 †	914.4	459.0	210.6	.530	13.46							
										8	5.7	51.8	46.1	42.7	100±12	24.5
										10	6.4	50.3	43.9	40.8	100±12	25.0
										16	8.1	47.3	39.1	36.7	100±12	25.0
										25	10.3	44.3	34.1	32.8	100±15	24.3
										31.25	11.6	42.9	31.3	30.9	100±15	23.6
										62.5	16.8	38.4	21.6	24.8	100±15	21.5
										100	21.7	35.3	17.1	20.8	100±15	20.1
										155	27.7	32.5	4.7	16.9	100±18	19.0
										200	32.0	30.8	3.0	14.7	100±20	19.0
										250	36.4	29.3	—	12.8	100±20	18.0
										350	44.3	27.2	—	9.9	100±22	17.0

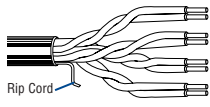


†5000 ft. put-up available in Blue only. • RJ-45 Compatible • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** Outer jacket is sunlight- and oil-resistant. • Jacket sequentially marked at 1 meter intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • U.S. Patents 5,606,151 and 5,734,126

Cat 5e • 24 AWG Solid Bare Copper Conductors • Twisted Pairs • Rip Cord • See Color Code Chart (below)

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black or Blue)

7918A	NEC: CMR, CMX-Outdoor	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	62.3	60.3	60.8	100±15	20.0	
			2000 ††	609.6	52.0	23.6	.230	5.84								4
										10	6.5	47.3	40.8	40.8	100±15	25.0
										16	8.2	44.3	36.1	36.7	100±15	25.0
										31.25	11.7	39.9	28.2	30.9	100±15	23.6
										62.5	17.0	35.4	18.4	24.8	100±15	21.5
										100	22.0	32.3	10.3	20.8	100±15	20.1
										200	32.4	27.8	1.0	14.7	100±25	15.0

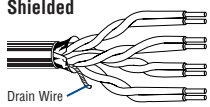


††2000 ft. put-up available in Black only. • RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** • Third party verified to TIA/EIA-568-B.2, Category 5e

Cat 5e • 24 AWG Solid BC • Twisted Pairs • Overall Beldfoil® Shield (100% Coverage) • 24 AWG Stranded TC Drain Wire • See Color Code Chart

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant PVC Jacket (Black or Blue)

Shielded	7919A	NEC: CMR, CMX-Outdoor	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.0	62.3	60.3	60.8	100±15	20.0
				2000 †	609.6	68.0	30.9	.265	6.73							
										10	6.5	47.3	40.8	40.8	100±15	25.0
										16	8.2	44.3	36.1	36.7	100±15	25.0
										31.25	11.7	39.9	28.2	30.9	100±15	23.6
										62.5	17.0	35.4	18.4	24.8	100±15	21.5
										100	22.0	32.3	10.3	20.8	100±15	20.1



†2000 ft. put-up available in Black only. • RJ-45 Compatible • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C** • Cable passes -40°C Cold Bend per UL1581 Shield is bonded to jacket inner wall for electrical stability. • Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • P-07-KA060004-MSHA*

Cat 5e • 24 AWG Stranded (7x32) Bare Copper Conductors • Twisted Pairs • See Color Code Chart (below)

Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant Black PVC Jacket

Stranded/Flexible	7930A	NEC: CMR, CMX-Outdoor	4	Standard Lengths		Standard Unit Wt.		Nominal OD		1	2.5	62.3	59.8	60.8	100±15	20.0
				2000	609.6	56.0	25.4	.240	6.09							
										10	7.8	47.3	39.5	40.8	100±15	25.0
										16	9.9	44.3	34.4	36.7	100±15	25.0
										31.25	14.1	39.9	25.8	30.9	100±15	23.6
										62.5	20.4	35.4	15.0	24.8	100±15	21.5
										100	26.4	32.3	5.9	20.8	100±15	20.1
										200	38.9	27.8	—	14.7	100±25	15.0



Installation Temperature: 0°C to +75°C • Operating Temperature: -25°C to +75°C** • Cable passes -25°C Cold Bend per UL1581 RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2, Category 5e • P-07-KA060003-MSHA*

ACR = Attenuation Crosstalk Ratio • BC = Bare Copper • ELFEXT = Equal Level Far-end Crosstalk • FEP = Fluorinated Ethylene-propylene • NEXT = Near-end Crosstalk • PSUM = Power Sum • RL = Return Loss • TC = Tinned Copper

EtherNet/IP is a trademark of ControlNet International, Ltd. under license by Open DeviceNet Vendor Association, Inc.

*Pennsylvania Department of Environmental Resources and United States Mine Safety and Health Administration Certification.

**Subject to length de-rating.

Color Codes: DataTuff

Pair No.	Color Combination
1	White/Blue Stripe & Blue
2	White/Orange Stripe & Orange
3	White/Green Stripe & Green
4	White/Brown Stripe & Brown

For two pair products: use color codes for Pairs 2 & 3



For more information, contact Belden Technical Support: 1-800-BELDEN-1 • www.belden.com

Belden114@CableCon.kr / 0707-434-7704 / Fax. 02-744-0909 / www.CableCon.co.kr

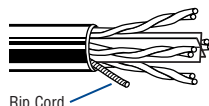
Industrial Data Solutions® — Industrial Ethernet

Category 6 DataTuff® Twisted Pair Cables, 4-Pair Heavy-Duty Jackets

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							

Enhanced Cat 6 • 23 AWG Bonded-Pairs Solid BC Conductors • Patented E-Spline Center Member • Rip Cord • See Color Code Chart

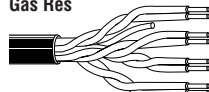
Polyolefin Insulation • .030" Industrial Grade Sunlight- and Oil-resistant Black PVC Jacket

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							
	7927A	NEC: CMR CEC: CMR FT4	4	1000	304.8	44.0	20.0	.251	6.38	1	1.9	80.3	78.5	70.8	100±12	20.0
										10	5.7	65.3	59.6	50.8	100±12	25.0
										31.25	10.2	57.9	47.7	40.9	100±15	25.0
										62.5	14.7	53.4	38.7	34.9	100±15	25.0
										100	18.9	50.3	31.4	30.8	100±15	25.0
										155	23.9	47.5	23.5	27.0	100±15	22.8
										200	27.5	45.8	18.3	24.8	100±15	21.7
										250	31.2	44.3	13.2	22.8	100±20	20.5
										350	37.7	40.2	4.5	19.9	100±22	19.8
										400	40.6	39.3	0.6	18.8	100±22	19.5
										500	46.2	37.8	>0.0*	16.8	100±22	18.4
550	48.8	37.2	—	16.0	100±22	18.0										
600	51.4	36.6	—	15.2	100±22	17.6										

RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2-1, Category 6
Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
*PSUM ACR >0 is guaranteed to 460 MHz. • U.S. Patents 5,606,151; 5,734,126; 5,789,711 and 6,297,454-B1

Cat 6 • 23 AWG Bonded-Pairs Solid BC Conductors • See Color Code Chart (below)

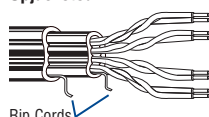
Plenum • FEP Insulation • Sunlight-, Oil- and Gas-resistant Black FEP Jacket

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							
	7931A	NEC: Limited CEC: FHC 25/50 CMP CEC: CMP FT6	4	1000	304.8	35.0	15.9	.214	5.44	1	2.0	72.3	70.3	64.8	100±15	20.0
										10	6.0	57.3	51.3	44.8	100±15	25.0
										20	8.5	52.8	44.3	38.7	100±15	25.0
										31.25	10.7	49.9	39.2	34.9	100±15	23.6
										62.5	15.4	45.4	30.0	28.8	100±15	21.5
										100	19.8	42.3	22.5	24.8	100±15	20.1
200	29.0	37.8	8.8	18.7	100±22	18.0										
250	32.8	36.3	3.5	16.8	100±32	17.3										

RJ-45 Compatible
Cable passes -70°C Cold Bend per UL1581 • Installation Temperature: -55°C to +150°C • Operating Temperature: -70°C to +150°C**
Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2-1, Category 6 • U.S. Patents 5,606,151 and 5,734,126

Enhanced Cat 6 • 23 AWG Bonded-Pairs Solid BC Conductors • Rip Cord • See Color Code Chart (below)

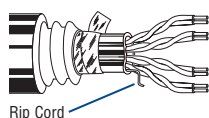
Polyolefin Insulation • PVC Inner Jacket • .035" Industrial Grade PVC Outer Jacket (Black or Gray)

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							
	11872A	NEC: CM CEC: CM FT1	4	1000	304.8	66.0	30.0	.475	12.07	1	1.9	72.3	70	64.8	100±12	20.0
										4	3.7	63.3	59	52.7	100±12	23.0
										10	5.9	57.3	51	44.8	100±12	25.0
										16	7.5	54.3	46	40.7	100±12	25.0
										31.25	10.6	49.9	39	34.9	100±15	23.6
										62.5	15.4	45.4	30	28.8	100±15	21.5
										100	19.8	42.3	25	24.8	100±15	21.0
										155	25.1	39.5	14	20.9	100±15	21.0
										200	29.0	37.9	10	18.7	100±15	21.0
										310	37.1	34.9	—	14.9	100±20	18.0
										350	39.8	34.2	—	13.9	100±22	17.0
400†	43.0	33.3	—	12.7	100±32	14.0										
500†	49.0	31.8	—	10.8	100±32	14.0										

†Value provided for information only. • RJ-45 Compatible • Cable passes -25°C Cold Bend per UL1581
Installation Temperature: -10°C to +75°C • Operating Temperature: -25°C to +75°C**
Jacket sequentially marked at 2 ft. intervals • Verified to TIA/EIA-568-B.2-1, Category 6 • U.S. Patents 5,606,151, 5,734,126 and 5,821,467

Enhanced Cat 6 • 23 AWG Bonded-Pairs Solid BC Conductors • Polyester Wrap • Rip Cord • See Color Code Chart (below)

AL Interlocked Armor • Polyolefin Insulation • PVC Inner Jacket • .055" Industrial Grade PVC Outer Jacket (Black or Gray)

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Wt.		Nominal OD		Freq. (MHz)	Max. Atten. (dB/100m)	Min. PSUM NEXT (dB)	Min. PSUM ACR (dB/100m)	Min. PSUM ELFEXT (dB/100m)	Input Imped. (Ω)	Min. RL (dB)
				Ft.	m	Lbs.	kg	Inch	mm							
	121872A	NEC: HL CEC: CMG FT4	4	1000	304.8	222.0	100.6	.684	17.37	1	1.9	72.3	70	64.8	100±12	20.0
										4	3.7	63.3	59	52.7	100±12	23.0
										10	5.9	57.3	51	44.8	100±12	25.0
										16	7.5	54.3	46	40.7	100±12	25.0
										31.25	10.6	49.9	39	34.9	100±15	23.6
										62.5	15.4	45.4	30	28.8	100±15	21.5
										100	19.8	42.3	25	24.8	100±15	21.0
										155	25.1	39.5	14	20.9	100±15	21.0
										200	29.0	37.9	10	18.7	100±15	21.0
										310	37.1	34.9	—	14.9	100±20	18.0
										350	39.8	34.2	—	13.9	100±22	17.0
400†	43.0	33.3	—	12.7	100±32	14.0										
500†	49.0	31.8	—	10.8	100±32	14.0										

†Value provided for information only. • RJ-45 Compatible • Jacket sequentially marked at 1 meter intervals
Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
Verified to TIA/EIA-568-B.2-1, Category 6 • U.S. Patents 5,606,151, 5,734,126 and 5,821,467

ACR = Attenuation Crosstalk Ratio • AL = Aluminum • BC = Bare Copper • ELFEXT = Equal Level Far-end Crosstalk • NEXT = Near-end Crosstalk • PSUM = Power Sum • RL = Return Loss • TC = Tinned Copper
**Subject to length de-rating.

Color Codes: DataTuff

Pair No.	Color Combination
1	White/Blue Stripe & Blue
2	White/Orange Stripe & Orange
3	White/Green Stripe & Green
4	White/Brown Stripe & Brown

Industrial Data Solutions® — Industrial Ethernet

TrayOptic® Heavy-Duty, All-Dielectric Fiber Optic Cables Loose Tube — Indoor/Outdoor Riser & Tray

Applications

- Industrial and other harsh environment applications
- Factory automation
- Direct burial

Product Description

Laser Optimized Fiber to handle Gigabit Ethernet light sources and expanded bandwidth requirements. Passes IEEE 383-2003 flame test. Waterblocking agent for moisture protection. CPE outer jacket option provides extra chemical or abrasion resistance.

Jacket Material	PVC or CPE
Strength Member	Aramid Yarn
Jacket Color	Orange

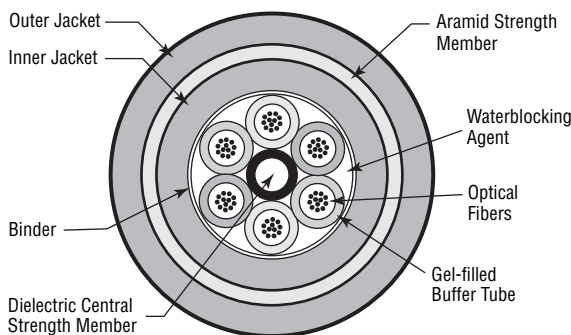
Ratings

Riser	
UL Type	OFNR
cUL Type	OFN FT4
Flame Resistance	IEEE 383-2003

Specifications

Temperature Range	
Storage	-40 to +70°C
Operating	-40 to +70°C
Crush Resistance (EIA-455-41)	500 lbs./in. min.
Impact Resistance (EIA-455-25)	3.3 ft.-lbs./25 impacts min. @ 2.2N-m
Cyclic Flexing (EIA-455-104)	25 cycles, 12 lbs., 20 x OD radius min.
Min. Bend Radius	
Installation	20 x OD
Long Term	15 x OD
Maximum Installation Load	600 lbs. (2700 N)
Optical Specifications	See page 10.2

Fiber Bundle Detail



No. of Fibers	Fibers Per Tube	Outside Diameter		PVC Jacket			CPE Jacket		
		Inches	mm	Belden Part No.	Weight Lbs./1000'	Weight kg/km	Belden Part No.	Weight Lbs./1000'	Weight kg/km

TrayOptic Series

Riser (NEC/CEC OFNR/OFN FT4)									
2	2	0.440	11.18	I100255	88	131	I100266	83	124
4	4	0.440	11.18	I100455	88	131	I100466	83	124
6	6	0.440	11.18	I100655	88	131	I100666	83	124
8	4	0.440	11.18	I400855	88	131	I400866	83	124
12	6	0.440	11.18	I601255	88	131	I601266	83	124
18	6	0.440	11.18	I601855	88	131	I601866	83	124
24	6	0.440	11.18	I602455	88	131	I602466	83	124
36	6	0.440	11.18	I603655	88	131	I603666	83	124
48	12	0.540	13.72	I604855	136	202	I604866	129	192
60	12	0.540	13.72	I606055	136	202	I606066	129	192
72	12	0.540	13.72	I607255	136	202	I607266	129	192

All optical fiber products can be supplied in compliance with RoHS regulations. Please contact Customer Service for more details.

Industrial Data Solutions® — Industrial Ethernet

Coaxial Cables

Description	Part No.	UL NEC/ C(UL) CEC Type	Standard Lengths		Standard Unit Weight		Conductor (stranding) Diameter Nom. DCR	Nominal Core OD		Shielding Materials Nom. DCR	Nominal OD		Nom. Imp. (Ω)	Nom. Vel. of Prop.	Nominal Capacitance		Nominal Attenuation		
			Ft.	m	Lbs.	kg		Inch	mm		Inch	mm			pF/Ft.	pF/m	MHz	dB/ 100 Ft.	dB/ 100m

Thinnet 10Base2 Ethernet • 20 AWG Stranded (19x32) .037" TC Conductor • Duobond® II (100% Coverage) + TC Braid (93% Coverage)

Foam Polyethylene Insulation • Gray PVC Jacket

UL AWM Style 1354 (30V 60°C)	9907	NEC:	500	152.4	12.5	5.7	20 AWG	.102	2.59	Duobond II	.185	4.70	50	80%	25.4	83.3	1	.43	1.4		
		CL2	U-1000	U-304.8	25.0	11.4	(19x32)			+ 93%								10	1.30	4.3	
		CM		1000	304.8	25.0	11.4	.037"		TC Braid									50	2.90	9.5
		CEC:		1640	500.0	41.0	18.6	TC		5.8Ω/M'									100	4.20	13.8
		CM		U-2500	U-762.0	60.0	27.3	8.8Ω/M'		19.0Ω/km									200	6.10	20.0
				2500	762.0	62.5	28.4	28.9Ω/km											400	8.90	29.2
			3280	1000.0	82.0	37.3												700	12.10	39.7	
																		900	13.90	45.6	
																		1000	14.80	48.6	

DEC Part No. 17-01248-00

Plenum • Foam FEP Insulation • Gray Fluorocopolymer Jacket

150°C	89907	NEC:	500	152.4	13.0	5.7	20 AWG	.095	2.41	Duobond II	.160	4.06	50	80%	25.4	83.3	1	.43	1.4		
		CL2P	1000	304.8	24.0	10.9	(19x32)			+ 93%									10	1.30	4.3
		CMP	2500†	762.0	60.0	27.3	.037"			TC Braid									50	2.90	9.5
		CEC:					TC			5.8Ω/M'									100	4.18	13.8
		CMP FT6					8.8Ω/M'			19.0Ω/km									200	6.10	20.0
							28.9Ω/km												400	9.20	30.2
																		700	12.90	42.3	
																		900	15.00	49.2	
																		1000	16.00	52.5	

RG-58/U Type

DEC Part No. 17-01246-00

Suitable for Outdoor and Direct Burial applications.

Thicknet 10Base5 Ethernet • 12 AWG Solid .086" Bare Copper Conductor • Duobond IV* Quad Shield (100% Coverage)

Foam Polyethylene Insulation • Yellow PVC Jacket

UL AWM Style 1478 (30V 60°C)	9880	NEC:	500	152.4	66.0	30.0	12 AWG	.243	6.17	Duobond IV	.405	10.29	50	78%	26.0	85.0	1	.19	.62		
		CL2	1000	304.8	131.0	59.5	(solid)			(Duobond II									5	.37	1.21
		CM	1640	500.0	219.0	99.9	.086"			+ 94% TC Braid									10	.52	1.71
		CEC:					BC			+ Duofoil®									50	1.20	3.94
		CM					1.4Ω/M'			+ 90% TC									100	1.70	5.58
							4.7Ω/km			Braid)									200	2.55	8.37
									1.5Ω/M'									400	3.90	12.80	
									5.0Ω/km									700	5.50	18.10	
																		900	6.50	21.30	
																		1000	6.90	22.60	

DEC Part No. 17-00451-00

Ring-band stripes marked every 2.5 meters to aid users in tap placement.

Plenum • Foam FEP Insulation • Orange Fluorocopolymer Jacket

150°C	89880	NEC:	1000	304.8	134.0	60.9	12 AWG	.245	6.22	Duobond IV	.375	9.53	50	78%	26.0	85.0	1	.18	.59		
		CL2P	1640†	500.0	224.7	102.1	(solid)			(Duobond II									5	.37 max.	1.21
		CMP					.086"			+ 90% TC Braid									10	.52 max.	1.71
		CEC:					BC			+ Duofoil									50	1.15	3.77
		CMP FT6					1.4Ω/M'			+ 90% TC									100	1.65	5.41
							4.7Ω/km			Braid)									200	2.45	8.04
									1.5Ω/M'									400	3.80	12.50	
									5.0Ω/km									700	5.60	18.40	
																		900	6.80	22.30	
																		1000	7.20	23.60	

DEC Part No. 17-00324-00

Ring-band stripes marked every 2.5 meters to aid users in tap placement.

Suitable for Outdoor and Direct Burial applications.

BC = Bare Copper • DCR = DC Resistance • FEP = Fluorinated Ethylene-propylene • TC = Tinned Copper

Contact the Belden Customer Service Department for a Comprehensive Connector Cross Reference. **1-800-BELDEN-1**.

*Duobond IV = Duobond II + 94% tinned copper braid + Duofoil® + 90% tinned copper braid.

(Plenum version is Duobond II + 90% tinned copper braid + Duofoil + 90% tinned copper braid.)

† Spools and/or UnReel® cartons are one piece, but length may vary ±10% from length shown.