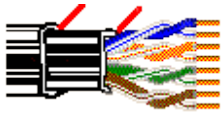


11872A Multi-Conductor - Category 6 DataTuff® Twisted Pair Cable



Description:

23 AWG Bonded-Pair solid bare copper conductors, polyolefin insulation, PVC inner jacket, rip cord, industrial grade PVC outer jacket. Sequential marking at two foot intervals.

Usage (Overall)

Suitable Applications:

Industrial Ethernet Cable, Harsh Environments, 350 MHz Enhanced Category 6, Gigabit Ethernet, 100BaseTX, 100BaseVG ANYLAN, 155ATM, 622ATM, NTSC/PAL Component or Composite Video, AES/EBU Digital Audio, AES51, RS-422, RJ-45 Compatible

Physical Characteristics (Overall)

Conductor

AWG:

# Pairs	AWG	Stranding	Conductor Material	Dia. (in.)
4	23	Solid	BC - Bare Copper	.022

Insulation

Insulation Material:

Insulation Material	Wall Thickness (in.)	Dia. (in.)
PO - Polyolefin	.009	.038

Inner Jacket

Inner Jacket Material:

Inner Jacket Material	Nom. Dia. (in.)
PVC - Polyvinyl Chloride	.365 x .165

Inner Jacket Ripcord:

Yes

Outer Shield

Outer Shield Material:

Outer Shield Material
Unshielded

Outer Jacket

Outer Jacket Material:

Outer Jacket Material	Nom. Wall Thickness (in.)
PVC - Polyvinyl Chloride	.035

Outer Jacket Ripcord:

Yes

Overall Cabling

Overall Nominal Diameter:

0.475 x 0.265 in.

Pair

Pair Color Code Chart:

Number	Color
1	White/Blue Stripe & Blue
2	White/Orange Stripe & Orange
3	White/Green Stripe & Green
4	White/Brown Stripe & Brown

Mechanical Characteristics (Overall)

11872A Multi-Conductor - Category 6 DataTuff® Twisted Pair Cable

Installation Temperature Range:	-10°C To +75°C
Operating Temperature Range:	-25°C To +75°C
Bulk Cable Weight:	59 lbs/1000 ft.
Max. Recommended Pulling Tension:	45 lbs.
Min. Bend Radius (Install)/Minor Axis:	0.100 in.

Applicable Specifications and Agency Compliance (Overall)

Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CM, UL444
CEC/C(UL) Specification:	CM
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	01/01/2004
EU Directive 2002/96/EC (WEEE):	Yes
EU Directive 2003/11/EC (BFR):	Yes
CA Prop 65 (CJ for Wire & Cable):	Yes
MII Order #39 (China RoHS):	Yes
Telecommunications Standards:	568-B.2-1 Category 6

Flame Test

UL Flame Test:	UL1666 Riser
CSA Flame Test:	FT1

Plenum/Non-Plenum

Plenum (Y/N):	No
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Electrical Characteristics (Overall)

Nom. Mutual Capacitance:

Capacitance (pF/ft)
15.0

Nominal Velocity of Propagation:

VP (%)
70

Maximum Capacitance Unbalance (pF/100 m):	49.2
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Maximum Delay:

Delay (ns/100 m)
510 @ 100MHz

Max. Delay Skew:

Delay Skew (ns/100 m)
25

Maximum Conductor DC Resistance:

DCR @ 20°C (Ohm/100 m)
9

Max. Operating Voltage - UL:

Voltage
300 V RMS

Maximum DCR Unbalanced:

DCR Unbalance @ 20°C (%)
3

11872A Multi-Conductor - Category 6 DataTuff® Twisted Pair Cable

Electrical Characteristics-Premise (Overall)

Premise Cable Electrical Table 1:

Freq. (MHz)	Max. Attenuation (dB/100 m)	Min. NEXT (dB)	Min. PSNEXT (dB)	Min. ACR (dB)	Min. PSACR (dB)	Min RL (dB)
1	1.9	74.3	72.3	70	70	20.0
4	3.7	65.3	63.3	59	59	23.0
8	5.3	60.3	58.8	53	53	24.5
10	5.9	59.3	57.3	51	51	25.0
16	7.5	56.3	54.3	46	46	25.0
20	8.4	54.8	52.8	44	44	25.0
25	9.5	53.4	51.4	42	42	24.3
31.25	10.6	51.9	49.9	39	39	23.6
62.5	15.4	47.4	45.4	30	30	21.5
100	19.8	44.3	42.3	25	25	21.0
155	25.1	41.5	39.5	14	14	21.0
200	29.0	39.9	37.9	10	10	21.0
250	32.8	38.3	36.3	3	3	18.0
300	35.2	37.2	34.2	0	0	18.0
310	37.1	36.9	34.9			18.0
350	39.8	36.2	34.2			17.0
400	43.0	35.3	33.3			14.0
500	49.0	33.8	31.8			14.0

Premise Cable Electrical Table 2:

Freq. (MHz)	Input (Unfitted) Imp. (Ohms)	Fitted Impedance	Min. ELFEXT (dB)	Min. PSELFEXT (dB)
1	100 ± 12	100 ± 15	67.8	64.8
4	100 ± 12	100 ± 15	55.7	52.7
8	100 ± 12	100 ± 15	49.7	46.7
10	100 ± 12	100 ± 15	47.8	44.8
16	100 ± 12	100 ± 8	43.7	40.7
20	100 ± 12	100 ± 8	41.7	38.7
25	100 ± 15	100 ± 8	39.8	36.8
31.25	100 ± 15	100 ± 8	37.9	34.9
62.5	100 ± 15	100 ± 8	31.8	28.8
100	100 ± 15	100 ± 8	27.8	24.8
155	100 ± 15	100 ± 8	23.9	20.9
200	100 ± 15	100 ± 8	21.7	18.7
250	100 ± 20	100 ± 8	19.8	16.8
300	100 ± 20	100 ± 8	18.2	15.2
310	100 ± 20	100 ± 8	17.9	14.9
350	100 ± 22	100 ± 8	16.9	13.9
400	100 ± 32	100 ± 8	15.7	12.7
500	100 ± 32	100 ± 8	13.8	10.8

Notes (Overall)

Notes: US Patent #'s 5, 606, 151; 5, 734, 126; 5, 821, 467 **Values above 350 MHz are information only

Notes (Cont'd.):

Operating temperatures are subject to length de-rating. Cable passes -25C Cold Bend per UL 1581.

Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
11872A 0081000	1,000 FT	66.000 LB	GRAY	C	4 PR #23 PP PVC PVC
11872A 0101000	1,000 FT	66.000 LB	BLACK	C	4 PR #23 PP PVC PVC

Notes:

C = CRATE REEL PUT-UP.

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 <i>EtherNet/IP</i>	2	●		●		●	20	●	●							●
new 7933A <i>EtherNet/IP</i>	2		●	●		●	20	●	●							●
7923A <i>EtherNet/IP</i>	4	●		●		●	40	●	●	●						●
7918A	4	●		●			35	●	●	●						●
7924A	4	●			●	●	40	●	●	●						●
new 7930A	4	●			●		25	●	●	●						●
new 7922A PLTC	4	●		●		●	40	●	●	●						●
new 7934A <i>EtherNet/IP</i>	4	●		●		●	40		●		●					●
7928A <i>EtherNet/IP</i>	4	●		●		●	40	●	●			●	●			●
11700A <i>EtherNet/IP</i>	4	●		●		●	40	●	●	●						●
new 11700A2 Oil Res I&II	4	●		●		●	40	●	●							●
121700A	4	●		●		●	40	●	●							●
new 121700R	4	●		●		●	40	●	●							●
7929A	4		●	●		●	35	●	●	●						●
7919A	4		●	●		●	25	●	●	●						●
7921A <i>EtherNet/IP</i>	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

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



Industrial Data Solutions® — Industrial Ethernet

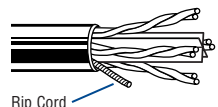
Category 6 DataTuff® Twisted Pair Cables, 4-Pair Heavy-Duty Jackets

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

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:	4	1000	304.8	44.0	20.0	.251	6.38	1	1.9	80.3	78.5	70.8	100±12	20.0
	CMR:								10	5.7	65.3	59.6	50.8	100±12	25.0
	CEC:								10	10.2	57.9	47.7	40.9	100±15	25.0
	CMR FT4								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								

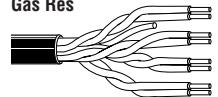


RJ-45 Compatible • Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2-1, Category 6
 Cable passes -40°C Cold Bend per UL1581 • Installation Temperature: -25°C to +75°C • Operating Temperature: -40°C to +75°C**
 *PSUM ACR >0 is guaranteed to 460 MHz. • U.S. Patents 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							
High & Low Temp Oil Res I & II Gas Res	7931A	NEC: Limited Combustible 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										

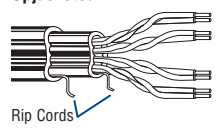


RJ-45 Compatible
 Cable passes -70°C Cold Bend per UL1581 • Installation Temperature: -55°C to +150°C • Operating Temperature: -70°C to +150°C**
 Jacket sequentially marked at 2 ft. intervals • Third party verified to TIA/EIA-568-B.2-1, Category 6 • U.S. Patents 5,606,151 and 5,734,126

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							
Upjacketed	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
										.265	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
										x	x	350	39.8	34.2	—	13.9
.165	4.19	400†	43.0	33.3	—	12.7	100±32	14.0								
		500†	49.0	31.8	—	10.8	100±32	14.0								

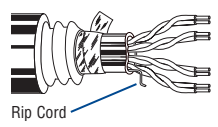


†Value provided for information only. • RJ-45 Compatible • Cable passes -25°C Cold Bend per UL1581
 Installation Temperature: -10°C to +75°C • Operating Temperature: -25°C to +75°C**
 Jacket sequentially marked at 2 ft. intervals • Verified to TIA/EIA-568-B.2-1, Category 6 • U.S. Patents 5,606,151, 5,734,126 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							
Interlocked AL Armor	121872A	NEC: CM CEC: HL 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
										.265	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
										x	x	350	39.8	34.2	—	13.9
.165	4.19	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