

## 2413F Multi-Conductor - Enhanced Category 6 Nonbonded-Pair ScTP Cable



For more Information  
please call

1-800-Belden1



### General Description:

CAT6+, (350 MHz) 4-Pair, F/UTP-Foil Shielded, Plenum-CMP, Premise Horizontal Cable, 23 AWG Solid Bare Copper Conductors, FEP Insulation, Patented X-Spline, Overall Beldfoil Shield, Flammarrest® Jacket

### Usage (Overall)

**Suitable Applications:**

Networking Horizontal Cable, HDBaseT, 1000Base-T (Gigabit Ethernet), 100Base-T (Fast Ethernet), 10Base-T (Ethernet), 100BaseVG, ANYLAN, 155ATM, 622ATM, ANSI.X3.263 FDDI TP-PMD, NTSC/PAL Component or Composite Video, AES/EBU, Digital Video, RS-422, Noisy Environments, 250 MHz Category 6

### Physical Characteristics (Overall)

#### Conductor

**AWG:**

# Pairs	AWG	Stranding	Conductor Material
4	23	Solid	BC - Bare Copper

**Total Number of Conductors:** 8

#### Insulation

**Insulation Material:**

Insulation Material
FEP - Fluorinated Ethylene Propylene

#### Outer Shield

**Outer Shield Material:**

Outer Shield Trade Name	Type	Outer Shield Material	Coverage (%)
Beldfoil®	Tape	Aluminum Foil-Polyester Tape	100.000

**Outer Shield Drain Wire AWG:**

AWG	Stranding	Drain Wire Conductor Material
24	Solid	TC - Tinned Copper

#### Outer Jacket

**Outer Jacket Material:**

Outer Jacket Trade Name	Outer Jacket Material
Flammarrest®	LS PVC - Low Smoke Polyvinyl Chloride

**Outer Jacket Diameter:**

Nom. Dia. (mm)
7.239

**Outer Jacket Ripcord:** Yes

#### Overall Cable

**Overall Cabling Fillers:** Patented Central X-Spline

**Overall Cabling Separator Material:** Polyester Tape

#### Pair

**Pair Color Code Chart:**

Number	Color
1	White/Blue Stripe and Blue
2	White/Orange Stripe and Orange

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3	White/Green Stripe and Green
4	White/Brown Stripe and Brown

### Mechanical Characteristics (Overall)

Storage Temperature Range:	-20°C To +75°C
Installation Temperature Range:	+5°C To +50°C
Operating Temperature Range:	-20°C To +75°C
Bulk Cable Weight:	72.922 Kg/Km
Max. Recommended Pulling Tension:	111.205 N
Min. Bend Radius/Minor Axis:	25.400 mm
Min. Bend/Installation:	76.200 mm

### Applicable Specifications and Agency Compliance (Overall)

#### Applicable Standards & Environmental Programs

NEC/(UL) Specification:	CMP
CEC/C(UL) Specification:	CMP
EU Directive 2011/65/EU (ROHS II):	Yes
EU CE Mark:	Yes
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2002/95/EC (RoHS):	Yes
EU RoHS Compliance Date (mm/dd/yyyy):	12/09/2011
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:	Category 6 - TIA 568.C.2
Other Specification:	UL Verified to Category 6

#### Applicable Patents:

Country
<a href="http://www.belden.com/p">www.belden.com/p</a>

#### Flame Test

UL Flame Test:	NFPA 262 Plenum Flame Test (UL910)(FT6)
C(UL) Flame Test:	FT6
CSA Flame Test:	FT6

#### Plenum/Non-Plenum

Plenum (Y/N):	Yes
Non-Plenum Number:	2412F

### Electrical Characteristics (Overall)

#### Nom. Mutual Capacitance:

Capacitance (pF/m)
45.934

#### Maximum Capacitance Unbalance:

Capacitance (pF/m)
216.546

#### Nominal Velocity of Propagation:

VP (%)
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METRIC MEASUREMENT VERSION

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72.000

**Maximum Delay:**

Delay (ns/100 m)  
537.000

**Max. Delay Skew:**

Delay Skew (ns/m)  
98.430

**Maximum Conductor DC Resistance:**

DCR @ 20°C (Ohm/100 m)  
8.200

**Max. Operating Voltage - UL:**

Voltage  
300 V RMS

**Maximum DCR Unbalanced:**

DCR Unbalance @ 20°C (%)  
3.000

### 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	2.000	75.3	73.3	73.3	72.3	20.000
4	3.700	66.3	64.3	62.6	61.6	23.000
8	5.200	63.3	61.3	58.1	57.1	24.500
10	5.800	61.8	59.8	56.0	55.0	25.000
16	7.400	58.6	56.6	51.2	50.2	25.000
20	8.300	57.1	55.1	48.8	47.8	25.000
25	9.300	55.5	53.5	46.3	45.2	24.300
31.25	10.400	54.0	52.0	43.6	42.6	23.600
62.5	15.000	49.1	47.1	34.1	33.1	21.500
100	19.300	45.8	43.8	26.5	25.5	20.800
200	28.300	40.9	38.9	12.6	11.6	18.700
250	32.100	39.3	37.3	7.2	6.2	18.000
300	35.600	38.1	36.1	2.5	1.5	17.500
350	38.900	37.1	35.1			17.000
400	42.000	36.3	34.3			16.600
450	45.000	35.5	33.5			16.200
500	47.900	34.8	32.8			15.900
550	50.600	34.2	32.2			15.600

Premise Cable Electrical Table 2:

Freq. (MHz)	Input (Unfitted) Imp. (Ohms)	Fitted Impedance	Min. ELFEXT (dB)	Min. PSELFEXT (dB)
1	100 ± 15	100 ± 15	70.8	67.8
4	100 ± 15	100 ± 15	58.8	55.8
8	100 ± 15	100 ± 15	52.7	49.7
10	100 ± 15	100 ± 15	50.8	47.8
16	100 ± 15	100 ± 15	46.7	43.7
20	100 ± 15	100 ± 15	44.8	41.8
25	100 ± 15	100 ± 15	42.8	39.8
31.25	100 ± 15	100 ± 15	40.9	37.9
62.5	100 ± 15	100 ± 15	34.9	31.9
100	100 ± 15	100 ± 15	30.8	27.8
200	100 ± 22	100 ± 15	24.8	21.8
250	100 ± 32	100 ± 15	22.8	19.8
300	100 ± 32	100 ± 15	21.3	18.3
350	100 ± 32	100 ± 15	19.9	16.9
400	100 ± 32	100 ± 15	18.8	15.8
450	100 ± 32	100 ± 15	17.7	14.7
500	100 ± 32	100 ± 15	16.8	13.8

METRIC MEASUREMENT VERSION

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550	100 ± 32	100 ± 15	16.0	13.0
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Premise Cable Electrical Table 4:

Frequency (MHz)	Min. TCL (dB)	Min. ELTCTL (dB)
1.000	40.000	35.000
4.000	40.000	23.000
8.000	40.000	17.000
10.000	40.000	15.000
16.000	38.000	10.900
20.000	37.000	9.000
25.000	36.000	7.100
31.250	35.100	5.100
62.500	32.000	
100.000	30.000	
200.000	27.000	
250.000	26.000	

### Notes (Overall)

**Notes:** Jacket sequentially marked at 2 ft. intervals Third party Verified to ANSI/TIA-568-C.2, Category 6. Values above 350 MHz are for Engineering Information Only.

### Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
2413F D15A1000	1,000 FT	50.000 LB	BLUE		CAT6+ 4PR F/UTP CMP RIB
2413F D15A500	500 FT	27.500 LB	BLUE		CAT6+ 4PR F/UTP CMP RIB
2413F D15Z1000	1,000 FT	48.000 LB	BLUE		CAT6+ 4PR F/UTP CMP
2413F D15Z250	250 FT	14.500 LB	BLUE		CAT6+ 4PR F/UTP CMP
2413F D15Z500	500 FT	25.000 LB	BLUE		CAT6+ 4PR F/UTP CMP
2413F D15Z750	750 FT	36.750 LB	BLUE		CAT6+ 4PR F/UTP CMP
2413F D151000	1,000 FT	49.000 LB	BLUE		CAT6+ 4PR F/UTP CMP REEL
2413F 002Z1000	1,000 FT	48.000 LB	RED		CAT6+ 4PR F/UTP CMP
2413F 0021000	1,000 FT	49.000 LB	RED		CAT6+ 4PR F/UTP CMP REEL
2413F 003Z1000	1,000 FT	48.000 LB	ORANGE		CAT6+ 4PR F/UTP CMP
2413F 0031000	1,000 FT	49.000 LB	ORANGE		CAT6+ 4PR F/UTP CMP REEL
2413F 004Z1000	1,000 FT	48.000 LB	YELLOW		CAT6+ 4PR F/UTP CMP
2413F 0041000	1,000 FT	49.000 LB	YELLOW		CAT6+ 4PR F/UTP CMP REEL
2413F 005Z1000	1,000 FT	48.000 LB	GREEN, DARK		CAT6+ 4PR F/UTP CMP
2413F 0051000	1,000 FT	49.000 LB	GREEN, DARK		CAT6+ 4PR F/UTP CMP REEL
2413F 008Z1000	1,000 FT	48.000 LB	GRAY		CAT6+ 4PR F/UTP CMP
2413F 0081000	1,000 FT	49.000 LB	GRAY		CAT6+ 4PR F/UTP CMP REEL
2413F 009A1000	1,000 FT	50.000 LB	WHITE		CAT6+ 4PR F/UTP CMP RIB
2413F 009A500	500 FT	27.500 LB	WHITE		CAT6+ 4PR F/UTP CMP RIB
2413F 009Z1000	1,000 FT	48.000 LB	WHITE		CAT6+ 4PR F/UTP CMP
2413F 009Z500	500 FT	25.000 LB	WHITE		CAT6+ 4PR F/UTP CMP
2413F 0091000	1,000 FT	49.000 LB	WHITE		CAT6+ 4PR F/UTP CMP REEL
2413F 010A1000	1,000 FT	50.000 LB	BLACK		CAT6+ 4PR F/UTP CMP RIB
2413F 010Z1000	1,000 FT	48.000 LB	BLACK		CAT6+ 4PR F/UTP CMP
2413F 010Z250	250 FT	14.500 LB	BLACK		CAT6+ 4PR F/UTP CMP
2413F 010Z500	500 FT	25.000 LB	BLACK		CAT6+ 4PR F/UTP CMP
2413F 0101000	1,000 FT	49.000 LB	BLACK		CAT6+ 4PR F/UTP CMP REEL

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