

## 2413 Multi-Conductor - Enhanced Category 6 Nonbonded-Pair Cables



For more Information  
please call

1-800-Belden1



### General Description:

CAT6+ (350 MHz), 4-Pair, U/UTP-Unshielded, Plenum-CMP, Premise Horizontal Cable, 23 AWG Solid Bare Copper Conductors, Dual FRPO/FEP Insulation, Tape Separator, Ripcord, Flamarrest® Jacket

### Usage (Overall)

**Suitable Applications:** Premise Horizontal Cable, Gigabit Ethernet, POE, POE+, 100BaseTX, 100BaseVG ANYLAN, 155 ATM, 622 ATM, 250MHz Category 6, PoE, PoE Plus

### 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
FRPO/FEP - Flame Retardant Polyolefin/Fluorinated Ethylene Propylene

#### Outer Shield

Outer Shield Material:

Outer Shield Material
Unshielded

#### Outer Jacket

Outer Jacket Material:

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

Outer Jacket Diameter:

Nom. Dia. (in.)
0.224

**Outer Jacket Ripcord:** Yes

#### Overall Cable

**Overall Cabling Separator Material:** Patented Dielectric Tape

**Overall Nominal Diameter:** 0.224 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)

**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:** 27 lbs/1000 ft.

**Max. Recommended Pulling Tension:** 40 lbs.

**Min. Bend Radius/Minor Axis:** 0.750 in.

**Min. Bend/Installation:** 2.250 in.

## 2413 Multi-Conductor - Enhanced Category 6 Nonbonded-Pair Cables

### Applicable Specifications and Agency Compliance (Overall)

#### Applicable Standards & Environmental Programs

NEC(UL) Specification:	CMP
NEC Articles:	NFPA 70 Article 800
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):	10/13/2005
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
ANSI Specification:	ANSI/NEMA WC-66, ANSI/ICEA S-90-661, ANSI/UL 444
Other Specification:	C(UL)US CMP 90C OR (UL) CMP-LP (0.5A) OR CL3P-LP (0.5A)

#### Applicable Patents:

##### Country

www.belden.com/p

#### Flame Test

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

#### Suitability

Suitability - Indoor:	Yes
Suitability - Outdoor:	No

#### Plenum/Non-Plenum

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

### Electrical Characteristics (Overall)

#### Nom. Mutual Capacitance:

##### Capacitance (pF/ft)

15

#### Maximum Capacitance Unbalance:

##### Capacitance (pF/ft)

330.000

Maximum Capacitance Unbalance (pF/100 m): 330

#### Nominal Velocity of Propagation:

##### VP (%)

72

#### Maximum Delay:

##### Delay (ns/100 m)

537 @ 100MHz

#### Max. Delay Skew:

##### Delay Skew (ns/100 m)

35.000

#### Maximum Conductor DC Resistance:

##### DCR @ 20°C (Ohm/100 m)

7.800

#### Max. Operating Voltage - UL:

##### Voltage

300 V RMS

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Maximum DCR Unbalanced:

<b>DCR Unbalance @ 20°C (%)</b>
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	75.3	73.3	73.3	20.000
4	3.700	66.3	66.3	62.6	62.6	23.000
8	5.200	61.8	61.8	56.6	56.6	24.500
10	5.800	60.3	60.3	54.5	54.5	25.000
16	7.400	57.2	57.2	49.9	49.9	25.000
20	8.300	55.8	55.8	47.5	47.5	25.000
25	9.300	54.3	54.3	45.1	45.1	24.300
31.25	10.400	52.9	52.9	42.5	42.5	23.600
62.5	15.000	48.4	48.4	33.4	33.4	21.500
100	19.300	45.3	45.3	26.0	26.0	20.800
155	24.600	42.4	42.4	17.9	17.9	19.500
200	28.300	40.8	40.8	12.5	12.5	18.700
250	32.100	39.3	39.3	7.2	7.2	18.000
300	35.600	38.1	36.1	2.5	.5	17.500
350	38.900	37.1	35.1	-1.8	-3.8	17.000
400	42.000	36.3	34.3	-5.7	-7.7	16.600
450	45.000	35.5	33.5	-9.5	-11.5	16.200
500	47.900	34.8	32.8	-13.1	-15.1	15.900
550	50.600	34.2	32.2	-16.4	-18.4	15.600

Premise Cable Electrical Table 2:

Freq. (MHz)	Input (Unfitted) Imp. (Ohms)	Fitted Impedance	Min. ACRF (dB)	Min. PSACRF (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
155	100 ± 22	100 ± 15	27.0	24.0
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
550	100 ± 32	100 ± 15	16.0	13.0

### Notes (Overall)

**Notes:** Third party verified to ANSI/TIA-568-C.2, Category 6. Values above 350 MHz are for Engineering Information Only. "BELDEN DATATWIST(R) 2413 -- IBDN CABLE -- 4PR/23 E108998 (-PLANT IDENTIFIER) C(UL)US CMP VERIFIED (UL) CAT 6 --US PAT. BELDEN.COM/P" Jacket sequentially marked at 2 ft./1m intervals.

### Reference (Overall)

Previous Part Number:

24567415, 24567715, 24567736T, 24567615T, 25067545, 25067545T, 25067515T, 24567745T, 24567715T, 25067845, 25067845T, 25067836, 25067836T, 24567815, 24567815T, 2456705T, 24567145, 24567145T, 24567115, 24567115T, 24567345, 24567345T, 24567336, 24567336T, 24567315, 24567315T, 24567445T, 24567436, 24567436T, 24567415T, 24567A15T, 24567945, 24567945T, 24567936T, 24567915, 24567915T

### Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
2413 D15A1000	1,000 FT	30.000 LB	BLUE		CAT6+ 4PR U/UTP CMP RIB
2413 D15U1000	1,000 FT	28.000 LB	BLUE		CAT6+ 4PR U/UTP CMP BOX
2413 D151000	1,000 FT	28.000 LB	BLUE		CAT6+ 4PR U/UTP CMP REEL
2413 D152500	2,500 FT	65.000 LB	BLUE		CAT6+ 4PR U/UTP CMP REEL
2413 002A1000	1,000 FT	30.000 LB	RED		CAT6+ 4PR U/UTP CMP RIB
2413 003A1000	1,000 FT	30.000 LB	ORANGE		CAT6+ 4PR U/UTP CMP RIB

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2413 003U1000	1,000 FT	28.000 LB	ORANGE		CAT6+ 4PR U/UTP CMP BOX
2413 0031000	1,000 FT	28.000 LB	ORANGE		CAT6+ 4PR U/UTP CMP REEL
2413 0035000	5,000 FT	140.000 LB	ORANGE		CAT6+ 4PR U/UTP CMP REEL
2413 004A1000	1,000 FT	30.000 LB	YELLOW		CAT6+ 4PR U/UTP CMP RIB
2413 004A500	500 FT	16.500 LB	YELLOW		CAT6+ 4PR U/UTP CMP RIB
2413 004U1000	1,000 FT	28.000 LB	YELLOW		CAT6+ 4PR U/UTP CMP BOX
2413 0041000	1,000 FT	28.000 LB	YELLOW		CAT6+ 4PR U/UTP CMP REEL
2413 0042500	2,500 FT	65.000 LB	YELLOW		CAT6+ 4PR U/UTP CMP REEL
2413 005A1000	1,000 FT	30.000 LB	GREEN, DARK		CAT6+ 4PR U/UTP CMP RIB
2413 005U1000	1,000 FT	28.000 LB	GREEN, DARK		CAT6+ 4PR U/UTP CMP BOX
2413 0051000	1,000 FT	28.000 LB	GREEN, DARK		CAT6+ 4PR U/UTP CMP REEL
2413 0052500	2,500 FT	65.000 LB	GREEN, DARK		CAT6+ 4PR U/UTP CMP REEL
2413 007A1000	1,000 FT	30.000 LB	VIOLET		CAT6+ 4PR U/UTP CMP RIB
2413 008A1000	1,000 FT	30.000 LB	GRAY		CAT6+ 4PR U/UTP CMP RIB
2413 008U1000	1,000 FT	28.000 LB	GRAY		CAT6+ 4PR U/UTP CMP BOX
2413 0081000	1,000 FT	28.000 LB	GRAY		CAT6+ 4PR U/UTP CMP REEL
2413 009A1000	1,000 FT	30.000 LB	WHITE		CAT6+ 4PR U/UTP CMP RIB
2413 009U1000	1,000 FT	28.000 LB	WHITE		CAT6+ 4PR U/UTP CMP BOX
2413 0091000	1,000 FT	28.000 LB	WHITE		CAT6+ 4PR U/UTP CMP REEL
2413 0092500	2,500 FT	65.000 LB	WHITE		CAT6+ 4PR U/UTP CMP REEL
2413 010A1000	1,000 FT	30.000 LB	BLACK		CAT6+ 4PR U/UTP CMP RIB
2413 010U1000	1,000 FT	28.000 LB	BLACK		CAT6+ 4PR U/UTP CMP BOX
2413 0101000	1,000 FT	28.000 LB	BLACK		CAT6+ 4PR U/UTP CMP REEL
2413 0102500	2,500 FT	65.000 LB	BLACK		CAT6+ 4PR U/UTP CMP REEL
2413 012A1000	1,000 FT	30.000 LB	PINK		CAT6+ 4PR U/UTP CMP RIB

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