



Product: [2413](#) 

Category 6+ Enhanced Cable, 4 Pair, U/UTP, CMP

Product Description

Category 6+ Enhanced Premise Horizontal Cable (350MHz), 4 Pair, 23 AWG Solid Bare Copper Conductors, U/UTP, Plenum-CMP, Flamarrest® PVC-LS Jacket

Technical Specifications

Product Overview

| | |
|------------------------|--|
| Suitable Applications: | Premise Horizontal Cable, Ethernet 1000BASE-T, Ethernet 100BASE-TX, Ethernet 10BASE-T, PoE++, PoE+, PoE |
| Patent: | This product has one or more applicable patents. More information on patents can be found at https://www.belden.com/resources/patents . |

Construction Details

Conductor

| AWG | Stranding | Material | Number of Pairs |
|-----|-----------|------------------|-----------------|
| 23 | Solid | BC - Bare Copper | 4 |

Insulation

| Material | Color Code |
|--|--|
| PO+FEP - Polyolefin + Fluorinated Ethylene Propylene | White/Blue Stripe & Blue, White/Orange Stripe & Orange, White/Green Stripe & Green, White/Brown Stripe & Brown |
| Bonded-Pair: | No |

Outer Jacket Material

| Separator Material | Material | Material Trade Name | Nom. Diameter | Ripcord |
|----------------------------|--------------------------|---------------------|---------------|---------|
| Dielectric Tape (Patented) | PVC - Polyvinyl Chloride | Flamarrest® | 0.224 in | Yes |

Electrical Characteristics

Electricals

| Max. Conductor DCR | Max. DCR Unbalance | Max. Capacitance Unbalance | Nom. Mutual Capacitance | Nom. Velocity of Prop. |
|--------------------|--------------------|----------------------------|-------------------------|------------------------|
| 78 Ohm/km | 3% | 330 pF/100m | 17 pF/ft | 72% |

Delay

| Frequency [MHz] | Max. Delay | Max. Delay Skew | Nom. Velocity of Propagation (VP) [%] |
|-----------------|---------------|-----------------|---------------------------------------|
| 100 MHz | 537.6 ns/100m | 35 ns/100m | 72% |

High Freq

| Frequency [MHz] | Max. Insertion Loss (Attenuation) | Min. NEXT [dB] | Min. PSNEXT [dB] | Min. ACR [dB] | Min. PSACR [dB] | Min. ACRF (ELFEXT) [dB] | Min. PSACRF (PSELFEXT) [dB] | Min. RL (Return Loss) [dB] | Max./Min. Input Impedance (unFitted) | Max./Min. Fitted Impedance |
|-----------------|-----------------------------------|----------------|------------------|---------------|-----------------|-------------------------|-----------------------------|----------------------------|--------------------------------------|----------------------------|
| 1 MHz | 2.0 dB/100m | 79.3 dB | 77.3 dB | 77.3 dB | 75.3 dB | 70.8 dB | 67.8 dB | 20.0 dB | 100 ± 15 | 102 ± 15 |
| 4 MHz | 3.7 dB/100m | 70.3 dB | 68.3 dB | 66.5 dB | 64.5 dB | 58.8 dB | 55.8 dB | 23.6 dB | 100 ± 15 | 100 ± 15 |
| 8 MHz | 5.3 dB/100m | 65.8 dB | 63.8 dB | 60.5 dB | 58.5 dB | 52.7 dB | 49.7 dB | 25.3 dB | 100 ± 15 | 100 ± 15 |
| 10 MHz | 5.9 dB/100m | 64.3 dB | 62.3 dB | 58.4 dB | 56.4 dB | 50.8 dB | 47.8 dB | 26.0 dB | 100 ± 15 | 100 ± 15 |
| 16 MHz | 7.4 dB/100m | 61.2 dB | 59.2 dB | 53.8 dB | 51.8 dB | 46.7 dB | 43.7 dB | 26.0 dB | 100 ± 15 | 100 ± 15 |
| 20 MHz | 8.3 dB/100m | 59.8 dB | 57.8 dB | 51.4 dB | 49.4 dB | 44.8 dB | 41.8 dB | 26.0 dB | 100 ± 15 | 100 ± 15 |
| 25 MHz | 9.4 dB/100m | 58.3 dB | 56.3 dB | 49.0 dB | 47.0 dB | 42.8 dB | 39.8 dB | 25.5 dB | 100 ± 15 | 100 ± 15 |
| 31.25 MHz | 10.5 dB/100m | 56.9 dB | 54.9 dB | 46.4 dB | 44.4 dB | 40.9 dB | 37.9 dB | 25.0 dB | 100 ± 15 | 100 ± 15 |
| 62.5 MHz | 15.1 dB/100m | 52.4 dB | 50.4 dB | 37.3 dB | 35.3 dB | 34.9 dB | 31.9 dB | 23.5 dB | 100 ± 15 | 100 ± 15 |

| | | | | | | | | | | |
|---------|--------------|---------|---------|---------|---------|---------|---------|---------|----------|----------|
| 100 MHz | 19.3 dB/100m | 49.3 dB | 47.3 dB | 30.0 dB | 28.0 dB | 30.8 dB | 27.8 dB | 22.5 dB | 100 ± 15 | 100 ± 15 |
| 155 MHz | 24.5 dB/100m | 46.4 dB | 44.4 dB | 21.9 dB | 19.9 dB | 27.0 dB | 24.0 dB | 21.6 dB | 100 ± 22 | 100 ± 15 |
| 200 MHz | 28.2 dB/100m | 44.8 dB | 42.8 dB | 16.6 dB | 14.6 dB | 24.8 dB | 21.8 dB | 21.0 dB | 100 ± 22 | 100 ± 15 |
| 250 MHz | 31.8 dB/100m | 43.3 dB | 41.3 dB | 11.5 dB | 9.5 dB | 22.8 dB | 19.8 dB | 20.5 dB | 100 ± 32 | 100 ± 15 |
| 300 MHz | 35.2 dB/100m | 42.1 dB | 40.1 dB | 6.9 dB | 4.9 dB | 21.3 dB | 18.3 dB | 20.1 dB | 100 ± 32 | 100 ± 15 |
| 350 MHz | 38.4 dB/100m | 41.1 dB | 39.1 dB | 2.7 dB | 0.7 dB | 19.9 dB | 16.9 dB | 19.8 dB | 100 ± 32 | 100 ± 15 |
| 400 MHz | 41.5 dB/100m | 40.3 dB | 38.3 dB | | | 18.8 dB | 15.8 dB | 19.5 dB | 100 ± 32 | 100 ± 15 |
| 450 MHz | 44.3 dB/100m | 39.5 dB | 37.5 dB | | | 17.7 dB | 14.7 dB | 19.2 dB | 100 ± 32 | 100 ± 15 |
| 500 MHz | 47.1 dB/100m | 38.8 dB | 36.8 dB | | | 16.8 dB | 13.8 dB | 19.0 dB | 100 ± 32 | 100 ± 15 |
| 550 MHz | 49.7 dB/100m | 38.2 dB | 36.2 dB | | | 16.0 dB | 13.0 dB | 18.8 dB | 100 ± 32 | 100 ± 15 |

Voltage

| |
|---------------------------|
| UL Voltage Rating |
| 300 V (CMP), 300 V (CL3P) |

Mechanical Characteristics

Temperature

| UL Rating | Operating | Installation | Storage |
|-----------|----------------|--------------|----------------|
| 90°C | -20°C To +75°C | 0°C To +50°C | -20°C To +75°C |

Bend Radius

| Stationary Min. | Installation Min. |
|-----------------|-------------------|
| 1.0 in | 2.25 in |

| | |
|--------------------|---------------|
| Max. Pull Tension: | 25 lbs |
| Bulk Cable Weight: | 26 lbs/1000ft |

Standards and Compliance

| | |
|---------------------------------|--|
| Environmental Suitability: | Plenum, Indoor |
| Sustainability: | Product Lens™, Environmental Product Declaration (EPD) Available |
| Flammability / Fire Resistance: | NFPA 262, UL 910 (Plenum), FT6, FT6, IEC 60332-1-2 |
| NEC / UL Compliance: | 800, CMP;CMP-LP (0.5A);CL3P-LP (0.5A) |
| CEC / C(UL) Compliance: | CMP |
| ICEA Compliance: | S-116-732-2013 |
| IEEE Compliance: | IEEE 802.3bt Type 1, Type 2, Type 3, Type 4 |
| NEMA Compliance: | ANSI/NEMA WC-66 |
| Data Category: | Category 6 |
| TIA/EIA Compliance: | ANSI/TIA-568.2-D Category 6 |
| CPR Euroclass: | Eca |
| European Directive Compliance: | EU CE Mark, EU Directive 2015/863/EU, EU Directive 2011/65/EU (ROHS II), EU Directive 2012/19/EU (WEEE), REACH: 2020-01-16 |
| APAC Compliance: | China RoHS II (GB/T 26572-2011) |

Part Number

| | |
|--------------------|------|
| Non-Plenum Number: | 2412 |
|--------------------|------|

Variants

| Item # | Color | Putup Type | Length | UPC |
|---------------|-------|-------------|----------|--------------|
| 2413 0101000 | Black | Reel | 1,000 ft | 612825061762 |
| 2413 010A1000 | Black | Reel-in-Box | 1,000 ft | 612825061755 |
| 2413 010U1000 | Black | UnReel | 1,000 ft | 612825131502 |
| 2413 0102500 | Black | Reel | 2,500 ft | 612825061748 |
| 2413 D151000 | Blue | Reel | 1,000 ft | 612825061601 |
| 2413 D15A1000 | Blue | Reel-in-Box | 1,000 ft | 612825061618 |
| 2413 D15U1000 | Blue | UnReel | 1,000 ft | 612825061793 |
| 2413 D152500 | Blue | Reel | 2,500 ft | 612825061625 |
| 2413 0081000 | Gray | Reel | 1,000 ft | 612825061717 |
| 2413 008A1000 | Gray | Reel-in-Box | 1,000 ft | 612825061724 |
| 2413 008U1000 | Gray | UnReel | 1,000 ft | 612825061809 |
| 2413 0051000 | Green | Reel | 1,000 ft | 612825061663 |

| | | | | |
|---------------|--------|-------------|----------|--------------|
| 2413 005A1000 | Green | Reel-in-Box | 1,000 ft | 612825061687 |
| 2413 005U1000 | Green | UnReel | 1,000 ft | 612825062226 |
| 2413 0052500 | Green | Reel | 2,500 ft | 612825061670 |
| 2413 0035000 | Orange | | | 612825381068 |
| 2413 0035000 | Orange | | | 612825381068 |
| 2413 0031000 | Orange | Reel | 1,000 ft | 612825061694 |
| 2413 003A1000 | Orange | Reel-in-Box | 1,000 ft | 612825061700 |
| 2413 003U1000 | Orange | UnReel | 1,000 ft | 612825062202 |
| 2413 012A1000 | Pink | Reel-in-Box | 1,000 ft | 612825061786 |
| 2413 007A1000 | Purple | Reel-in-Box | 1,000 ft | 612825061779 |
| 2413 002A1000 | Red | Reel-in-Box | 1,000 ft | 612825061731 |
| 2413 0091000 | White | Reel | 1,000 ft | 612825061571 |
| 2413 009A1000 | White | Reel-in-Box | 1,000 ft | 612825061588 |
| 2413 009U1000 | White | UnReel | 1,000 ft | 612825061816 |
| 2413 0092500 | White | Reel | 2,500 ft | 612825061595 |
| 2413 0041000 | Yellow | Reel | 1,000 ft | 612825061632 |
| 2413 004A1000 | Yellow | Reel-in-Box | 1,000 ft | 612825061649 |
| 2413 004U1000 | Yellow | UnReel | 1,000 ft | 612825062219 |
| 2413 0042500 | Yellow | Reel | 2,500 ft | 612825061656 |

Product Notes

Notes: Electrical values are expected performance based on cable testing and representative performance within a typical Belden system. Values above 350 MHz are for Engineering Information Only. Print Includes Descending Footage/Meter Markings from Max. Put-Up Length to 0.

History

Update and Revision: Revision Number: 0.425 Revision Date: 09-30-2020

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