



**Product:** [1212F](#)

Category 5E+ Cable, 4 Pair, F/UTP, CMR

**Product Description**

Category 5E+ Premise Horizontal Cable (350MHz), 4 Pair, 24 AWG Solid Bare Copper Conductors, F/UTP - Foil Shielded, Riser-CMR, PVC Jacket

**Technical Specifications**

**Product Overview**

|                        |  |
|------------------------|--|
| Suitable Applications: | Premise Horizontal Cable, Ethernet 1000BASE-T, Ethernet 100BASE-TX, Ethernet 10BASE-T, PoE++, PoE+, PoE , Noisy Environments |
|------------------------|--|

**Construction Details**

**Conductor**

| AWG | Stranding | Material         | Number of Pairs |
|-----|-----------|------------------|-----------------|
| 24  | Solid     | BC - Bare Copper | 4               |

**Insulation**

| Material     | Color Code   |
|--------------|--|
| Polyolefin   | White/Blue Stripe & Blue, White/Orange Stripe & Orange, White/Green Stripe & Green, White/Brown Stripe & Brown |
| Bonded-Pair: | No   |

**Outer Shield Material**

| Type | Material                | Coverage | Drainwire Type   |
|------|-------------------------|----------|------------------|
| Tape | Bi-Laminate (Alum+Poly) | 100%     | 24 AWG (7x32) TC |

**Outer Jacket Material**

| Material                 | Nom. Diameter | Ripcord |
|--------------------------|---------------|---------|
| PVC - Polyvinyl Chloride | 0.260 in      | No      |

**Electrical Characteristics**

**Electricals**

| Max. Conductor DCR | Max. DCR Unbalance | Max. Capacitance Unbalance | Nom. Mutual Capacitance | Nom. Velocity of Prop. |
|--------------------|--------------------|----------------------------|-------------------------|------------------------|
| 93.8 Ohm/km        | 3%                 | 330 pF/100m                | 15 pF/ft                | 70%                    |

**Delay**

| Frequency [MHz] | Max. Delay    | Max. Delay Skew | Nom. Velocity of Propagation (VP) [%] |
|-----------------|---------------|-----------------|---------------------------------------|
| 100 MHz         | 537.6 ns/100m | 45 ns/100m      | 70%                                   |

**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                       | 70.3 dB        | 68.3 dB          | 70.3 dB       | 66.3 dB         | 67.8 dB                 | 64.8 dB                     | 20.0 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |
| 4 MHz           | 4.0 dB/100m                       | 61.3 dB        | 59.3 dB          | 59.3 dB       | 55.3 dB         | 55.8 dB                 | 52.8 dB                     | 23.0 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |
| 8 MHz           | 5.7 dB/100m                       | 56.8 dB        | 54.8 dB          | 53.1 dB       | 49.1 dB         | 49.7 dB                 | 46.7 dB                     | 24.5 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |
| 10 MHz          | 6.4 dB/100m                       | 55.3 dB        | 53.3 dB          | 50.9 dB       | 46.9 dB         | 47.8 dB                 | 44.8 dB                     | 25.0 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |
| 16 MHz          | 8.1 dB/100m                       | 52.2 dB        | 50.2 dB          | 46.1 dB       | 42.1 dB         | 43.7 dB                 | 40.7 dB                     | 25.0 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |
| 20 MHz          | 9.1 dB/100m                       | 50.8 dB        | 48.8 dB          | 43.7 dB       | 39.7 dB         | 41.8 dB                 | 38.8 dB                     | 25.0 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |
| 25 MHz          | 10.2 dB/100m                      | 49.3 dB        | 47.3 dB          | 41.1 dB       | 37.1 dB         | 39.8 dB                 | 36.8 dB                     | 24.3 dB                    | 100 ± 15 Ohm                         | 100 ± 15 Ohm               |

|           |              |         |         |         |         |         |         |         |              |              |
|-----------|--------------|---------|---------|---------|---------|---------|---------|---------|--------------|--------------|
| 31.25 MHz | 11.4 dB/100m | 47.9 dB | 45.9 dB | 38.5 dB | 34.5 dB | 37.9 dB | 34.9 dB | 23.6 dB | 100 ± 15 Ohm | 100 ± 15 Ohm |
| 62.5 MHz  | 16.4 dB/100m | 43.4 dB | 41.4 dB | 29.0 dB | 25.0 dB | 31.9 dB | 28.9 dB | 21.5 dB | 100 ± 15 Ohm | 100 ± 15 Ohm |
| 100 MHz   | 21.0 dB/100m | 40.3 dB | 38.3 dB | 21.3 dB | 17.3 dB | 27.8 dB | 24.8 dB | 20.1 dB | 100 ± 15 Ohm | 100 ± 15 Ohm |
| 155 MHz   | 26.6 dB/100m | 37.4 dB | 35.4 dB | 12.8 dB | 8.9 dB  | 24.0 dB | 21.0 dB | 18.8 dB | 100 ± 22 Ohm | 100 ± 15 Ohm |
| 200 MHz   | 30.5 dB/100m | 35.8 dB | 33.8 dB | 7.3 dB  | 3.3 dB  | 21.8 dB | 18.8 dB | 18.0 dB | 100 ± 22 Ohm | 100 ± 15 Ohm |
| 250 MHz   | 34.4 dB/100m | 34.3 dB | 32.3 dB | 1.9 dB  |         | 19.8 dB | 16.8 dB | 17.3 dB | 100 ± 32 Ohm | 100 ± 15 Ohm |
| 300 MHz   | 38.0 dB/100m | 33.1 dB | 28.2 dB |         |         | 18.2 dB | 15.2 dB | 16.8 dB | 100 ± 32 Ohm | 100 ± 15 Ohm |
| 350 MHz   | 41.4 dB/100m | 32.1 dB | 27.2 dB |         |         | 16.9 dB | 13.9 dB | 16.3 dB | 100 ± 32 Ohm | 100 ± 15 Ohm |
| 400 MHz   | 44.6 dB/100m | 31.3 dB | 26.3 dB |         |         |         |         | 15.9 dB |              |              |
| 450 MHz   | 47.6 dB/100m | 30.5 dB | 25.6 dB |         |         |         |         | 15.5 dB |              |              |

## Voltage

|                          |
|--------------------------|
| <b>UL Voltage Rating</b> |
| 300 V (CMR)              |

## Mechanical Characteristics

### Temperature

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

### Bend Radius

| Stationary Min. | Installation Min. |
|-----------------|-------------------|
| 2.25 in         | 2.75 in           |

|                    |               |
|--------------------|---------------|
| Max. Pull Tension: | 25 lbs        |
| Bulk Cable Weight: | 30 lbs/1000ft |

## Standards and Compliance

|                                 |  |
|---------------------------------|--|
| Environmental Suitability:      | Riser, Indoor  |
| Sustainability:                 | Product Lens™, Environmental Product Declaration (EPD) Available   |
| Flammability / Fire Resistance: | UL 1666 Riser, FT4, FT4, IEC 60332-1-2   |
| NEC / UL Compliance:            | 800, CMR   |
| CEC / C(UL) Compliance:         | CMR  |
| ICEA Compliance:                | S-90-661-2012  |
| IEEE Compliance:                | IEEE 802.3bt Type 1, Type 2, Type 3  |
| NEMA Compliance:                | NEMA WC-63.1   |
| Data Category:                  | Category 5e  |
| TIA/EIA Compliance:             | ANSI/TIA-568.2-D Category 5e   |
| 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

|                |       |
|----------------|-------|
| Plenum Number: | 1213F |
|----------------|-------|

### Variants

| Item #         | Color  | Putup Type  | Length   | UPC          |
|----------------|--------|-------------|----------|--------------|
| 1212F 0101000  | Black  | Reel        | 1,000 ft | 612825108658 |
| 1212F 010A1000 | Black  | Reel-in-Box | 1,000 ft | 612825108641 |
| 1212F 006A500  | Blue   | Reel-in-Box | 500 ft   | 612825108573 |
| 1212F 0061000  | Blue   | Reel        | 1,000 ft | 612825108580 |
| 1212F 006A1000 | Blue   | Reel-in-Box | 1,000 ft | 612825108566 |
| 1212F 0081000  | Gray   | Reel        | 1,000 ft | 612825108603 |
| 1212F 008A1000 | Gray   | Reel-in-Box | 1,000 ft | 612825108597 |
| 1212F 0051000  | Green  | Reel        | 1,000 ft | 612825108559 |
| 1212F 005A1000 | Green  | Reel-in-Box | 1,000 ft | 612825108542 |
| 1212F 0031000  | Orange | Reel        | 1,000 ft | 612825108511 |
| 1212F 003A1000 | Orange | Reel-in-Box | 1,000 ft | 612825108504 |
| 1212F 0021000  | Red    | Reel        | 1,000 ft | 612825108498 |

|                |        |             |          |              |
|----------------|--------|-------------|----------|--------------|
| 1212F 002A1000 | Red    | Reel-in-Box | 1,000 ft | 612825108481 |
| 1212F 009A500  | White  | Reel-in-Box | 500 ft   | 612825108627 |
| 1212F 0091000  | White  | Reel        | 1,000 ft | 612825108634 |
| 1212F 009A1000 | White  | Reel-in-Box | 1,000 ft | 612825108610 |
| 1212F 0041000  | Yellow | Reel        | 1,000 ft | 612825108535 |
| 1212F 004A1000 | Yellow | Reel-in-Box | 1,000 ft | 612825108528 |

## 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. Shield is Bonded to Jacket Inner Wall for Electrical Stability. Print Includes Descending Footage/Meter Markings from Max. Put-Up Length to 0. |
|--------|--|

## History

|                      |  |
|----------------------|--|
| Update and Revision: | Revision Number: 0.396 Revision Date: 07-28-2020 |
|----------------------|--|

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