

# DATA Sheet

## 10GX Cable

The 10GX Cables are 4-pair 23 AWG UTP cables designed to be used within the Belden IBDN System 10GX.



10GX Cable Series

To allow for data-rates of 10 Gb/s, the signal needs to be transmitted at frequencies up to a minimum of 500 MHz, as compared with Category 6 transmissions which run up to 200 MHz. To achieve communication at these high frequencies over UTP copper requires significant changes in the way the channel components are designed.

At these high frequencies, all components of a 10G channel begin to emit electromagnetic fields, which negatively impact the channels that are closest in physical proximity. This interaction between one channel and its neighboring channels is called Alien Near End Cross Talk (ANEXT). Overcoming this is one of the most difficult requirements of Augmented Cat 6 standard.

The second critical challenge to developing 10G cable is to control the electrical performance of all other cable parameters up to a minimum of 500 MHz.

The major technical challenge for traditional UTP cables resides with the electromagnetic interference between a cable and the neighboring cables surrounding it. This electromagnetic interference is enhanced by the fact that all the pairs within these cables have the same twist lay, and therefore have the same resonance frequencies where the crosstalk adds in phase. The patent-pending SpiralFlex technology, or Cable ANEXT Immunity Technology, improves the geometry of the cable by creating a randomization along the length of the cable as well as on the cross-section of the cable. This improves the ANEXT coupling by increasing and randomizing the distance between a cable and the neighboring cables surrounding it.

The unmatched Beyond 10G™ performance exceeds all parameters specified in the proposed Augmented Category 6 standard. All performance characteristics including ANEXT, NEXT, FEXT, Insertion Loss and Return Loss have been set to guarantee channel transmission performance up to 625 MHz.

The 10GX Cable Series is very complete with cable available with Bonded-Pairs and non-bonded pairs, and is available in plenum, non-plenum, and Limited Combustible versions.

The 10GX Cable is designed to be used with the Belden IBDN System 10GX.

## 10GX Cable

### Features & Benefits

- > Patented SpiralFlex Technology, or Cable ANEXT Immunity Technology, greatly improving Alien NEXT performance
- > Unique cross web design separates pairs and maintains stable pair position, thus improving Alien NEXT, NEXT and impedance performance
- > Unmatched guaranteed performance well beyond Augmented Category 6 proposal.
- > Truly backward compatible with Cat. 6 components to protect cabling investment
- > Installable Performance™ with Bonded-Pair technology, also available in non-bonded pair design
- > Available in CMR, CMP, LSZH, and Limited Combustible.
- > Improved attenuation ensures stronger signal strength
- > Maximized bandwidth and signal-to-noise margin for mission-critical applications
- > Matching tip and ring color code for ease of installation.

### Application

- > The 10GX Cable Series is intended to be used for horizontal cable installations of high speed Local Area Networks (LANs), data centers, server farms, storage area networks (SANs), network access nodes (NANs), campus backbones, metropolitan area networks (MANs) and for short distance backbone connections where there is a high concentration of data traffic.
- > Specific applications include: All UTP Ethernet protocols with data rates up to 10 Gb/s (e.g. 10Gbase-T, 1000Base-T, 100Base-TX, 100Base-T4, 100Base-T2 and 10 Base-T)
- > Broadband video (77 channels at 550 MHz).

### Transmission characteristics

- > Values up to 625 MHz are minimum guaranteed values
- > DC Resistance @ 20°C, max.: 7.4 ohms/100 m
- > DC Resistance Unbalance, max.: 3%
- > Mutual Capacitance, max.: 5.7 nF/100 m
- > Capacitance Unbalance Pair to Ground, max.: 50 pF/100
- > Nominal Velocity of Propagation (NVP):
  - > Plenum: 72% @ 10 MHz ;
  - > Non-Plenum: 68% @ 10 MHz
  - > Propagation Delay (Skew), max.: 35 ns/100 m.

### Technical Specifications

#### Physical Characteristics

##### Construction

- > Conductors: 23 AWG solid copper
- > Insulation:
  - > Plenum: 100% FEP
  - > Non-Plenum: PE
  - > Color coding as per ANSI/TIA/EIA-568-B.
- > Cable Core:
  - > Unique cross-web
  - > Additional outside filler
  - > Four twisted pairs - Bonded-Pair construction
  - > Rip Cord.
- > Jacket:
  - > Plenum: LSPVC
  - > Non-Plenum: PVC
  - > LSZH: Low Smoke & Fume Zero Halogen Polymer Alloy.



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### Mechanical Characteristics

- > Minimum Recommended Installation Temperature: 5°C (40°F)
- > Temperature Rating: 60°C (140°F).

Description	Nominal O.D.	Min. Bend Radius	Weight (Cable only)
10GX Cable 4-pair 23 AWG, CMR	8,00 mm (0,315 in.)	32.00 mm (1.26 in.)	5.4 Kg/100m (36.0 lb/kft)
10GX Cable 4-pair 23 AWG, CMP	7.87 mm (0.310 in.)	31.48 mm (1.24 in.)	5.7 Kg/100m (38.0 lb/kft)

### Qualifications

- > Meets or exceeds proposed Augmented Category 6 requirements as per Augmented Category 6 cabling draft 1 of TSB-155, ANSI/TIA/EIA-568-B.2-1 Category 6, and ISO/IEC 11801 Ed2:2002 Class E channels
- > Meets or exceeds Category 6 requirements per ANSI/TIA/EIA-568-B
- > Exceeds the Category 5e requirements per ANSI/TIA/EIA-568-A.5 or ANSI/TIA/EIA-568-B
- > Exceeds the Category 5 requirements per ANSI/TIA/EIA-568-A, CSA T529-95 and
- > ISO/IEC 11801-1995
- > Exceeds the Category 5 requirements per NEMA Standard WC 63.1-1996
- > Exceeds the Category 5 requirements of ICEA S-90-661-1997
- > Non-Plenum: ITS/ETL Certified as CMR, and listed as NEC Type CMR per UL Standard 444
- > Plenum: ITS/ETL Certified as CMP, and listed as NEC Type CMP per UL Standard 444
- > LSZH: ISO/IEC 332-1, 754-2 and 1034-2.

# DATA Sheet

## 10GX Cable

Belden CDT Networking offers (8) series of Augmented Category 6 cables.

- > 10GX CMR Cable with Bonded-Pair technology: 10GX32 series
- > 10GX CMR Cable with non-bonded pair technology: 10GX12 series
- > 10GX CMP Cable with Bonded-Pair technology: 10GX33 series
- > 10GX CMP Cable with non-bonded pair technology: 10GX13 series
- > 10GX LSZH Cable with Bonded pair technology: 10GX44 series

- > 10GX LSZH Cable with non-bonded pair technology: 10GX24 series
- > 10GX LC Cable with Bonded pair technology: 10GX66 series
- > 10GX LC Cable with non-bonded pair technology: 10GX36 series

The 10GX Cables are available on a standard wooden spool.

Alternative colors and packaging are also available, subject to Minimum Order Quantities.

Please check with customer service for availability.

### For More Information

For any other product information call:  
 1-800-262-9334 (USA & Canada)  
 1-514-822-7533 (International) or  
 visit us at [www.BeldenIBDN.com](http://www.BeldenIBDN.com)

All information is subject to change without notice, since Belden CDT reserves the right to change its products as progress in engineering and manufacturing methods or other circumstances may warrant.

## Ordering Information

### 10GX Cable, CMR 4-pair, 23 AWG, Augmented Category 6

COLOR	LENGTH	PACKAGING	N° OF PACK PER PALLET	TOTAL PER PALLET	ORDERING NUMBER	
					Bonded 10GX32	Non-Bonded 10GX12
White	305 m (1000 ft.)	14N Spool	27 spools/pallet	8,235 m (27,000 ft.)	24826395	24816395
Blue	305 m (1000 ft.)	14N Spool	27 spools/pallet	8,235 m (27,000 ft.)	24826995	24816995

### 10GX Cable, CMP 4-pair, 23 AWG, Augmented Category 6

COLOR	LENGTH	PACKAGING	N° OF PACK PER PALLET	TOTAL PER PALLET	ORDERING NUMBER	
					Bonded 10GX33	Non-Bonded 10GX13
White	305 m (1000 ft.)	14N Spool	27 spools/pallet	8,235 m (27,000 ft.)	24827395	24817395
Blue	305 m (1000 ft.)	14N Spool	27 spools/pallet	8,235 m (27,000 ft.)	24827995	24817995

### 10GX Cable, LSZH 4-pair, 23 AWG, Augmented Category 6

COLOR	LENGTH	PACKAGING	N° OF PACK PER PALLET	TOTAL PER PALLET	ORDERING NUMBER	
					Bonded 10GX44	Non-Bonded 10GX24
Purple	305 m (1000 ft.)	14N Spool	27 spools/pallet	8,235 m (27,000 ft.)	24828035	24818035

### 10GX Cable, Limited Combustible 4-pair, 23 AWG, Augmented Category 6

COLOR	LENGTH	PACKAGING	N° OF PACK PER PALLET	TOTAL PER PALLET	ORDERING NUMBER	
					Bonded 10GX66	Non-Bonded 10GX16
White	305 m (1000 ft.)	14N Spool	27 spools/pallet	8,235 m (27,000 ft.)	24822395	24812395

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