Belden CDT

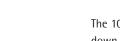# DATASheet

10GX Module

The 10GX Module is a revolutionary punch down UTP connector designed to be used within the new Belden IBDN System 10GX.

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 modules is to control the electrical performance on all the other module parameters up to a minimum of 500 MHz.

In order to achieve true 10G performance, Belden CDT Networking has design the 10GX Module based on three technological revolutions in structured cabling connectivity:

MatriX IDC Technology or "Module ANEXT Cancellation Technology" is a patent-pending design of the 10GX Module's IDC pattern. In this matrix design each IDC is positioned at right angles to its neighboring IDC, and serves to "cancel out" the Alien crosstalk generated between modules. The astonishing results of incorporating this technology can be seen in the 15 dB reduction in ANEXT in dense installations such as in patch panels or faceplates.

AX102272 10GX Module, Black

The **FleXPoint PCB Technology** or "Module NEXT Compensation Technology" allows the module's crosstalk compensation circuitry to be located at the very point of the source of the noise; the plug interface. The FleXPoint PCB module design uses a patent pending flexible printed circuit board that offers instant compensation to deliver unbeatable crosstalk performance up to a minimum of 500 MHz.

The **X–Bar Technology** or "Module NEXT Control Bar Technology" is the use of a specific patent-pending plastic device that allows each pair to be perfectly positioned at right angles for termination on the 10GX Module's IDC pins. This device optimizes the termination process and allows a 10GX Module terminated under real field conditions to have Installable Performance™ similar to the performance measured in a laboratory environment.

The 10GX Module is the most advanced 10G module available. It is designed to work in existing hardware including the Flex Modular Patch Panel and MediaFlex Outlet Series. It can also be mixed and matched with a wide variety of adapters and boxes to suit practically any installation configuration for workstation outlet, consolidation point and telecommunications closet applications.

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 transmission performance up to 625 MHz.

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

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10GX Module

Features & Benefits

Unique Technologies

> Patent-pending MatriX IDC Technology or "Module ANEXT Cancellation Technology"

> Patent-pending FleXPoint PCB Technology or "Module NEXT Compensation Technology"

> Patent-pending X-Bar Technology or "Module NEXT Control Bar Technology"

Unmatched Performance

> MatriX IDC Technology reduces the ANEXT by 15 dB

> FleXPoint PCB Technology offers excellent crosstalk performance up to a minimum of 625 MHz

> The X-Bar Technology allows 10GX Module to offer Installable Performance™

> Usable bandwidth guarantees performance well beyond Augmented Category 6 proposal

> Truly backward compatible with Cat. 6 components to protect cabling investment

Installable Performance

> Using the patent-pending X-Bar technology, makes the 10GX Module easy to install

> Exceptional reproducibility of the installed performance with Bonded-Pair and unbonded-pair cables

Robust mechanical design

> Punch down IDC termination interface with sharp pair splitters facilitates installation in various mounting accessories

> Easy-to-read 568A/B color scheme prevents termination errors

> Color-coded modules facilitate service identification and ease network management

> Mix and match flexibility with Belden CDT adapters, boxes and modular patch panels allows the same connector to be used in all applications throughout the channel

Compatibility

> Backward compatible (Cat 5E & Cat 6) and also could be connected to RJ11 plugs.

Applications

> Telecommunications outlets

> Multi-user telecommunications outlets

> Consolidation points

> Modular patch panels

Termination

> Available for T568A & B standards

> Punch Down IDC type connection

> Cable may connect to the module from sides or from back

> The use of the Termination Station will ease termination

Reliability

> Meets TIA/EIA Mechanical & Reliability requirements

Installation Tips

> Use the Termination Station (AX101172) for better support during termination process

> Follow the color-coding sequence printed on the back of the module to position twisted pairs prior to termination

> Use GigaFlex or 110 connecting tools to terminate the module

Connector Maintenance

> Use the Outlet Release Tool or a standard screw driver to disassemble the module from its mounting hardware.

Performance

Electrical

Parameter	Belden IBDN System 10GX
PS ANEXT	70dB @ 100MHZ
Insertion loss	Cat 6 performance curve
	Extrapolated to 500 MHz
Return loss	28dB @ 100MHZ
TCL	34dB @ 100MHZ
PS NEXT	Cat 6 performance curve
	Extrapolated to 500 MHz

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10GX Module

Mechanical characteristics

Dimensions (H x W x D)

> 0.78" x 0.64" x 1.14" (19.8 x 16.3x 29.0 mm) – including the X-Bar

Materials

> Plastics component: fire retardant plastic, UL 94V-0

> Colors : gray, almond, white, black, orange, red, yellow, green, blue, purple or brown

> ID Tab: Polypropylene, gray, almond, white, black, orange, red, yellow, green, blue, purple or brown

IDC termination interface

> IDC clip material: phosphor bronze with nickel plating

> Gas-tight connection – insulation slicing of 22 to 24 AWG (64 to .51 mm) plastic insulated solid copper

> Durability: 20 insertions

Modular jack

> 8-pin connector, FCC part 68, Subpart F and IEC-603-7 compliant

> 8-pin connector compatible with 6-pin plugs

> Durability: 750 mating cycles

> Contact material: Flexible circuit printed board (Polyimide base) with min 50 micro-inches gold over nickel plus metal spring (phosphor bronze with plating)

Electrical performance

> Dielectric strength: 1,000 V RMS at 60 Hz for 1 minute

> Current rating: 1.5 A maximum

> Insulation resistance: 500 MΩ minimum

> Contact resistance (jack-plug interface): 20mΩ

> Termination resistance (IDC): 2.5mΩ

Packaging

> Individually packaged in a clear plastic bag (with 1 X-Bar and 1 blank ID Tab)

> Standard shipping carton of 50 units

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10GX Module

Transmission Characteristics

Minimum values for mated-connection measured with the 10GX Module
and the 10GX Modular Cord. As per TIA/EIA Aug Cat6 Dec'04

FREQUENCY (MHz)	*NEXT (dB) (min.)	NEXT (dB) (min.)	PSANEXT (dB) (min.)	RETURN LOSS (dB) (min.)
0.772	96.2	96.2	112.2	70.2
1.0	94.0	94.0	110.0	68.0
4.0	82.0	82.0	98.0	56.0
8.0	75.9	75.9	91.9	49.9
10.0	74.0	74.0	90.0	48.0
16.0	69.9	69.9	85.9	43.9
20.0	68.0	68.0	84.0	42.0
25.0	66.0	66.0	82.0	40.0
31.25	64.1	64.1	80.1	38.1
62.5	58.1	58.1	74.1	32.1
100.0	54.0	54.0	70.0	28.0
200.0	48.0	48.0	64.0	22.0
250.0	46.0	46.0	62.0	20.0
300.0	42.9	44.5	60.5	18.5
350.0	40.2	43.1	59.1	17.1
400.0	37.9	42.0	58.0	16.0
450.0	35.8	40.9	56.9	14.9
500.0	34.0	40.0	56.0	14.0
550.0	32.3	39.2	55.2	13.2
600.0	30.8	38.4	54.4	12.4
625.0	30.1	38.1	54.1	12.1

* Values as per Proposed Standard for Augmented Cat.6, TIA 568-B.2-10 Draft 1-4

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

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 Module, Augmented Category 6

COLOR	ORDERING NUMBER
10GX Module, MDVO-Style, T568A/B, Gray	AX102269
10GX Module, MDVO-Style, T568A/B, White	AX102271
10GX Module, MDVO-Style, T568A/B, Black	AX102272
10GX Module, MDVO-Style, T568A/B, Red	AX102274
10GX Module, MDVO-Style, T568A/B, Yellow	AX102275
10GX Module, MDVO-Style, T568A/B, Green	AX102276
10GX Module, MDVO-Style, T568A/B, Blue	AX102277