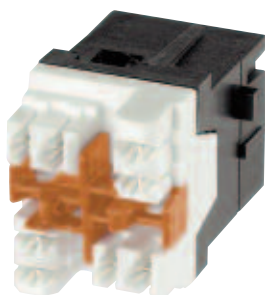


# DATA Sheet

## 10GX Modular Jack



AX102272 10GX Modular Jack, Black

The 10GX Modular Jacks 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 the Category 6A standard.

The second critical challenge to developing 10G jacks 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 has designed the 10GX Modular Jack 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 Modular Jack'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 jacks. 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.

The **FleXPoint PCB Technology** or "Module NEXT Compensation Technology" allows the jack'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 625 MHz.

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

The 10GX Modular Jack is the most advanced 10G jack available. It is designed to work in existing hardware including the Flex Modular Patch Panel and the MediaFlex Outlet Series. The 10GX Modular Jack also comes in a KeyConnect version that is designed to be used with Belden's KeyConnect Patch Panels. 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 in the Category 6A 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 Modular Jack is designed to be used with the Belden IBDN System 10GX.

# DATA Sheet

## 10GX Modular Jack

### Features & Benefits

#### Unique Technologies

- > Patent-pending MatriX IDC Technology or "Module ANEXT Cancellation Technology"
- > Patented FleXPoint PCB Technology or "Module NEXT Compensation Technology"
- > Patented 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
- > X-Bar Technology allows 10GX Modular Jack to offer Installable Performance™
- > Usable bandwidth guarantees performance well beyond the Category 6A standard
- > Truly backward compatible with Category 6 components to protect cabling investment

### Installable Performance

- > Using the patented X-Bar technology, makes the 10GX Modular Jack easy to install with Bonded-Pair and Nonbonded-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
- > Available in MDVO-style and KeyConnect
- > Color-coded modules facilitate service identification and ease network management
- > Mix and match flexibility with Belden adapters, boxes and modular patch panels allows the same connector to be used in all applications throughout the channel

#### Compatibility

- > Backward compatible with Category 6 and Category 5e and also could be connected to RJ11 plugs.

### Applications

- > Patch panel or equipment connections in Data Centers or Telecommunications Rooms
- > Consolidation point connections
- > Telecommunications outlet or MUTOA connections

### Termination

- > Punch Down IDC type connection
- > Cable may connect to the jack from sides or from back
- > Use of the Termination Station will ease termination

### Reliability

- > Meets TIA-568-B.2-7 Mechanical & Reliability requirements

### Installation Tips

- > Use the Termination Station (AX101852) for better support during termination process
- > Follow the color-coding sequence printed on the back of the jack to position twisted pairs prior to termination
- > Use the Connecting Tool (AX100749) to terminate Modular Jack

### Connector Maintenance

- > Use the Release Tool (AX101185) to remove Modular Jacks from patch panels or outlets

# DATA Sheet

## 10GX Modular Jack

### Mechanical characteristics

#### Dimensions (H x W x D)

- > 0.78" x 0.64" x 1.12" (19.8 x 16.3x 29.0 mm)

#### Materials

- > Plastics component: fire retardant plastic, UL 94V-0
- > Colors : gray, almond, white, black, orange, red, yellow, green, blue, purple or brown as per TIA 606

#### 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 (Polyamide base) with a minimum of 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): 20 mΩ
- > Termination resistance (IDC): 2.5 mΩ

### Packaging

- > MDVO-style: individually packaged in a clear plastic bag (with 1 X-Bar and 1 blank ID Tab)
- > Standard shipping carton of 50 units
- > KeyConnect: individually packaged in a clear plastic bag (with 1 X-Bar)

### For More Information

For any other product information call: 1-800-BELDEN-1 or visit us at [www.Belden.com](http://www.Belden.com)

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

## 10GX Modular Jack

### Transmission Characteristics

Minimum values for mated-connection measured with the 10GX Modular Jack and the 10GX Modular Cord. As per TIA/EIA-568-B.2-10-2008 Category 6A standard

| Frequency<br>(MHz) | Insertion Loss<br>(db) |         | NEXT<br>(db) |         | Return Loss<br>(db) |         | FEXT<br>(db) |         | Balance<br>TCL/TCTL (db) |         | PSANEXT<br>(db) |         | PSAFEXT<br>(db) |         |
|--------------------|------------------------|---------|--------------|---------|---------------------|---------|--------------|---------|--------------------------|---------|-----------------|---------|-----------------|---------|
|                    | TIA*                   | Spec.** | TIA*         | Spec.** | TIA*                | Spec.** | TIA*         | Spec.** | TIA*                     | Spec.** | TIA*            | Spec.** | TIA*            | Spec.** |
| 1                  | 0.10                   | 0.05    | 75.0         | 77.0    | 30.0                | 34.1    | 75.0         | 80.0    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 4                  | 0.10                   | 0.05    | 75.0         | 77.0    | 30.0                | 34.1    | 71.1         | 75.1    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 8                  | 0.10                   | 0.05    | 75.0         | 77.0    | 30.0                | 34.1    | 65.0         | 69.0    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 10                 | 0.10                   | 0.05    | 74.0         | 77.0    | 30.0                | 34.1    | 63.1         | 67.1    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 16                 | 0.10                   | 0.06    | 69.9         | 72.9    | 30.0                | 34.1    | 59.0         | 63.0    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 20                 | 0.10                   | 0.07    | 68.0         | 71.0    | 30.0                | 34.1    | 57.1         | 61.1    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 25                 | 0.10                   | 0.08    | 66.0         | 69.0    | 30.0                | 34.1    | 55.1         | 59.1    | 40.0                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 31.25              | 0.11                   | 0.09    | 64.1         | 67.1    | 30.0                | 34.1    | 53.2         | 57.2    | 38.1                     | 45.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 62.5               | 0.16                   | 0.14    | 58.1         | 61.1    | 30.0                | 34.1    | 47.2         | 51.2    | 32.1                     | 39.1    | 70.5            | 72.0    | 67.0            | 72.0    |
| 100                | 0.20                   | 0.18    | 54.0         | 57.0    | 28.0                | 30.0    | 43.1         | 47.1    | 28.0                     | 35.0    | 70.5            | 72.0    | 67.0            | 72.0    |
| 200                | 0.28                   | 0.26    | 48.0         | 51.0    | 22.0                | 24.0    | 37.1         | 41.1    | 22.0                     | 29.0    | 64.5            | 66.0    | 61.0            | 66.0    |
| 250                | 0.32                   | 0.30    | 46.0         | 49.0    | 20.0                | 22.0    | 35.1         | 39.1    | 20.0                     | 27.0    | 62.5            | 64.0    | 59.0            | 64.0    |
| 300                | 0.35                   | 0.33    | 42.9         | 46.7    | 18.5                | 20.5    | 33.6         | 37.6    | 18.5                     | 25.5    | 61.0            | 62.5    | 57.5            | 62.5    |
| 400                | 0.40                   | 0.38    | 37.9         | 42.9    | 16.0                | 18.0    | 31.1         | 35.1    | 16.0                     | 23.0    | 58.5            | 60.0    | 55.0            | 60.0    |
| 500                | 0.45                   | 0.43    | 34.0         | 40.0    | 14.0                | 16.0    | 29.1         | 33.1    | 14.0                     | 21.0    | 56.5            | 58.0    | 53.0            | 58.0    |
| 625                | -                      | 0.48    | -            | 37.1    | -                   | 13.0    | -            | 31.2    | -                        | 19.1    | -               | 56.1    | -               | 56.1    |

\* TIA/EIA-568-B.2-10-2008 Category 6A Standard

\*\* Worst-case performance for a 10GX mated connection using 10GX modular plugs

## Ordering Information

### 10GX Modular Jack, T568A/B, Category 6A

| COLOR                 | ORDERING NUMBER |            |
|-----------------------|-----------------|------------|
|                       | MDVO-style      | KeyConnect |
| Gray                  | AX102269        | AX102280   |
| Almond                | AX102270        | AX102281   |
| White                 | AX102271        | AX102282   |
| Black                 | AX102272        | AX102283   |
| Orange, TIA 606 Color | AX102273        | AX102284   |
| Red, TIA 606 Color    | AX102274        | AX102285   |
| Yellow, TIA 606 Color | AX102275        | AX102286   |
| Green, TIA 606 Color  | AX102276        | AX102287   |
| Blue, TIA 606 Color   | AX102277        | AX102288   |
| Purple, TIA 606 Color | AX102278        | AX102289   |