

NP 132E

**10GX Shielded
Cabling System**

Belden's shielded Class EA (Category 6A) system offers superior performance, outstanding reliability and effective noise immunity in the most demanding installation environments.



**Belden® Shielded
Cabling Systems**

- Outstanding reliability thanks to the best shielding performance in the industry today
- Maximum uptime thanks to superior noise protection and increased signal security

As their name implies, shielded twisted-pair cabling systems utilize an internal metallic shield as their primary defense against EMI and Alien Crosstalk noise impairments. Today's shielded cables use different shielding materials and different design strategies that shield either the overall cable, the individual pairs within the cable, or both (Table 1).

Both shielded and unshielded technologies have proven effective in providing noise immunity, and each approach has its own comparative strengths and advocates. So the question of shielded versus unshielded is really a matter related to each network's specific needs and the network manager's preference, comfort and choice in addressing those needs. If that choice favors shielded, then a Belden Shielded Cabling System provides superior performance and reliability in even the most demanding networking environments.

Applications

Belden Shielded Cabling Systems are particularly well suited and beneficial in installation environments subject to severe EMI/RFI conditions, as often found in hospitals and healthcare facilities, certain government

facilities and some modern data centers. Networks with high density Category 6A infrastructure, such as found in some data centers, will also benefit from the superior Alien Crosstalk immunity offered by Belden's 10GX Shielded Cabling System.

Benefits

The ultimate in EMI/RFI and Alien Crosstalk immunity delivers unsurpassed 10 Gigabit network performance and reliability. Belden's 10GX Shielded System is ideal for any application where enhanced noise immunity is required, including environments with high EMI/RFI conditions. The 10GX Shielded System has been specifically engineered to address the mission-critical networking needs found in today's data centers, server farms, storage area networks, network access nodes and high-traffic campus backbones.

If your network is supporting bandwidth-intensive, error-sensitive applications such as uncompressed high-res digital video, medical imaging, digital animation, CAD/CAM, high-speed data storage or cluster computing, your users will benefit from a 10GX Shielded Cabling System infrastructure. Belden's 10GX Shielded System is the industry's clear performance leader in 10 Gigabit shielded cabling systems, exceeding all performance specifications of Class EA in Amendments 1:2008 to ISO/IEC 11801 2nd:2002.

**A new product to
serve your needs.
Be certain.**

Why Use Belden Shielded Cabling Systems?

Belden's U/UTP cabling systems have always been at the forefront of technology innovation and performance leadership. Exclusive, patented features such as 'bonded-pair' cable construction and patented noise cancelling have established our 10GX System as the industry's clear performance leader in Category 6_A cabling systems.

Why is this important? Belden's shielded systems incorporate many of these patented U/UTP features in addition to the benefits of a physically shielded design. The result: a complete portfolio of shielded cabling systems with multiple layers of defense against EMI/RFI and Alien Crosstalk impairments that can reduce network performance and reliability.

Advantages at a Glance

- Guaranteed bandwidth and performance margins beyond industry standards
- Shielding integrity features that reduce failures and increase reliability
- Flexible and small OD cable with fast and easy termination in 'tool-less' connectors
- Shielded metallic jacks with color-coding feature for simplified network management

- KeyConnect Shielded Patch Panels with ground wire meeting IEC 60364-5-548 (International)
- Shielded modular cords meet/exceed IEC mechanical stress requirements as specified in IEC 61935-2 Ed. 3.0
- Fully compliant 2-connector channels as short as 3.6 meters – especially important in data center applications
- All shielded systems are eligible for Belden's IBDN System Certification Program, including guaranteed installed performance, lifetime Application Assurance, and a 25-year labor-included Product Warranty

Table 1

ISO/IEC 11801 Cable Naming Convention*		
Acronym	Cable Shielding	Pair Shielding
U/UTP	None	None
U/FTP	None	Foil
F/UTP	Foil	None
S/FTP	Braid	Foil
SF/UTP	Foil, Braided	None

TP=Twisted Pair • U=Unshielded • S=Braided Shield

* ISO/IEC 11081 2nd : 2002 including Amendments 1:2008 and Amendments 2:2010

Belden's 10GX Shielded System ensures end-to-end integrity of the shielded system once installed in your network

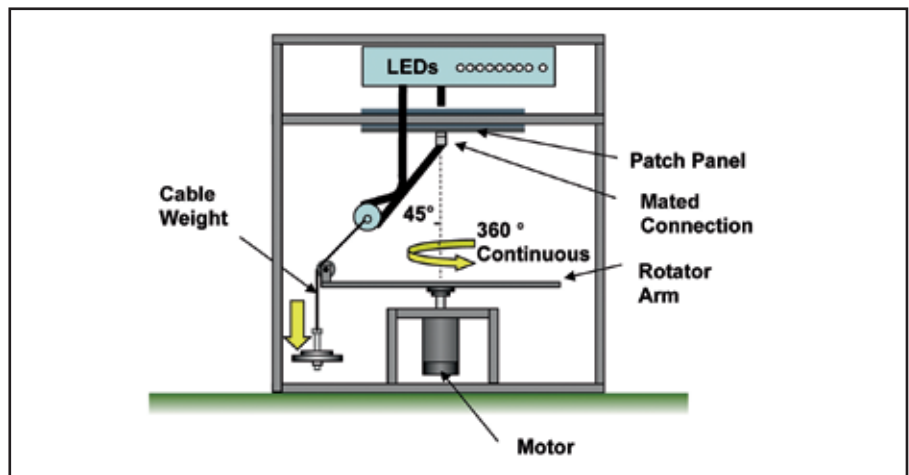


Figure 1: The Wiggle Test is a severe test that is used to evaluate the integrity of the mated plug/jack connection and the risk of loss of electrical continuity.



Noise Immunity

Coupling attenuation is a measure of the relative noise immunity of shielded components (cables, connectors and cords) as well as shielded channels. Different levels of noise immunity are defined in the ANSI/TIA-1005 Industrial Cabling Standard for shielded channels corresponding to MICE classifications E1, E2 or E3. The electromagnetic environment for Class E1 resembles that of a commercial office building. The electromagnetic environment for Class E2 and E3 are increasingly more severe, where E3 resembles the environment in proximity to heavy machinery.

Belden has tested the coupling attenuation of the 10GX Shielded Cabling System in accordance with the test procedure specified in EN-50289-1-15. Belden's 10GX Shielded

Systems meet and exceed the requirements of ANSI/TIA-1005 standard at the highest level of severity for a Class E3 environment.

For shielded systems, ensuring the integrity of the shield at the cable and connectivity component level is a critical first step in ensuring the end-to-end integrity of the shielded system once installed in your network. Examples of Belden's commitment to ensuring shield integrity at the component level can be seen in two mechanical endurance tests that were developed for 10GX Shielded System patch cords. Our Wiggle (Gorilla) Test (Figure 1) and Flex Fatigue Test (Figure 2) verify the mechanical integrity of both the conductors and the shield in factory-terminated cable assemblies and patch cords.

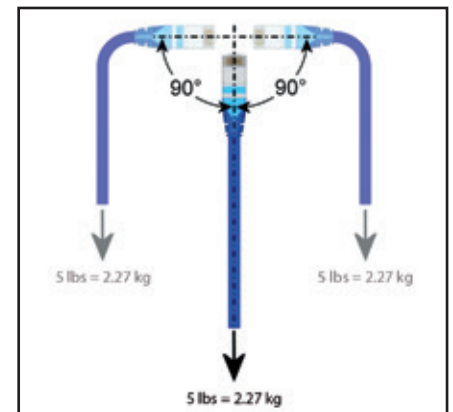
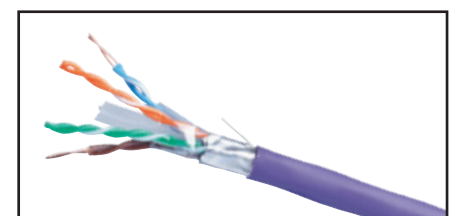


Figure 2: The Flex Fatigue Test verifies the mechanical integrity of patch cord terminations to lateral 180 degrees flexions under 5 lbs of tension until an electrical open occurs.

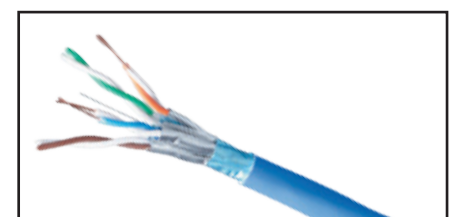
Belden Shielded System Components: Key Features

Shielded System Cables	10GX
Meets ISO/IEC 11801:2002/Amd 2:2010 and exceeds link/channel specifications in Belden Shielded Cabling Systems	Category 6 _A
Meets 4X Bend Radius Requirements	✓
Shielded Modular Jacks	10GX
2-piece die-cast metal construction	✓
Tool-less termination with color-coded Wire Guide simplifies installation and increases quality	✓
Shielding Shutter with 360° coverage for superior shield contact/integrity	✓
High-tensile Spring Shield Contacts for superior shield contact/integrity	✓
Meets and exceeds ISO/IEC 11801:2002/Amd 2:2010 specifications for Plug-Jack mated connections	Category 6 _A
Color-coding option facilitates network management	✓
KeyConnect Shielded Patch Panels	10GX
Robust all-metal construction	✓
Flush- or Angled-front in 24-port, 1U and 48-port, 2U configurations	✓
Meets ISO/IEC 11801:2002/Amd 2:2010 component specifications	✓
Meets IEC 60364-5-548 grounding/bonding specs; ground lug and UL-listed 12 AWG stranded cable included	Category 6 _A
Integrated cable management features facilitate cable dressing and proper bend radius	✓
10GX Shielded Modular Cords	10GX
Small OD, flexible patch cable	✓
Small boot design for use in high-density 48-port, 1U Patch Panels	✓
Robust design and durable materials assure shielding integrity	✓

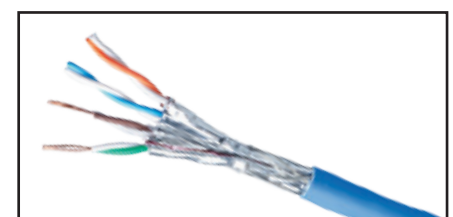
Detailed Technical Data Sheets, Installation Guides and Third-party (GHMT) Channel Test Certificates and other collateral are available at www.beldensolutions.com or by contacting Belden's Technical Support Department.



10GX E00, F/UTP, Category 6_A

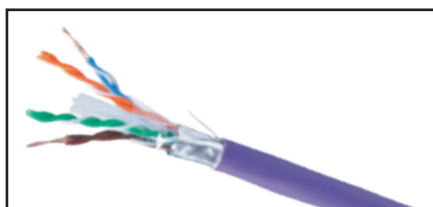


10GX E01, F/FTP, Category 6_A

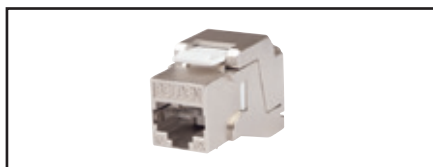


10GX E02, S/FTP, Category 6_A

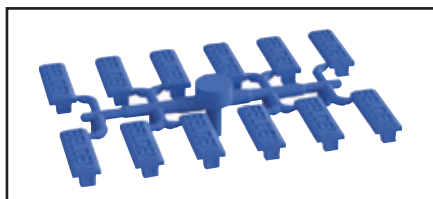
10GX Shielded Cabling System (Field-Terminated)



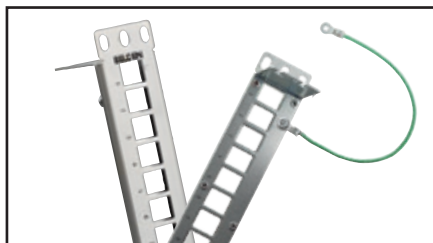
10GX Shielded System Cable



10GX Shielded KeyConnect Modular Jack



Color Coded Icon Kit



10GX Shielded Modular Patch Panel (Empty)



10GX Shielded Modular Cord



KeyConnect Shielded Angled Patch Panel, 48-port, 2U

10GX Shielded System Cable

10GX, Non-Bonded, 4 Pair, 23 AWG, Solid, Category 6 _a , LSNH, (500 mts)			
Cable Type	Fire Performance	Color: Blue	Color: Grey
F/UTP	IEC 60332-1	10GXE00.06500	10GXE00.07500
F/FTP	IEC 60332-1	10GXE01.06500	10GXE01.07500
S/FTP	IEC 60332-1	10GXE02.06500	10GXE02.07500
F/UTP	IEC 60332-3-24	10GXE90.06500	10GXE90.07500
F/FTP	IEC 60332-3-24	10GXE91.06500	10GXE91.07500
S/FTP	IEC 60332-3-24	10GXE92.06500	10GXE92.07500

10GX Modular Jacks

Description	Belden Part Number
10GX Shielded KeyConnect Modular Jack, Metallic	AX104562
KeyConnect Color-coded Icon Kit for Shielded Jacks	AX104632-XX

Replace -XX by: Red-RD, Orange-OR, Yellow-YE, Green-GN, Blue-BL, Purple-PR, White-EW, Black-BK

Modular Patch Panels

Description	Belden Part Number
KeyConnect Shielded Patch Panel, 24-port, 1U, Titanium (Empty)	AX104563
KeyConnect Shielded Patch Panel, 48-port, 2U, Titanium (Empty)	AX104564
KeyConnect Shielded Angled Patch Panel, 24-port, 1U, Titanium (Empty)	AX104622
KeyConnect Shielded Angled Patch Panel, 48-port, 2U, Titanium (Empty)	AX104623

10GX Shielded Modular Cords

10GX Shielded Patchcords, 4 Pair, 26 AWG Stranded, S/FTP, LSNH		
Length (Mts)	Color: Blue	Color: Grey
0.5	CAE0106D5M	CAE0108D5M
1	CAE010601M	CAE010801M
2	CAE010602M	CAE010802M
3	CAE010603M	CAE010803M
5	CAE010605M	CAE010805M
10	CAE010610M	CAE010810M

10GX Shielded Pigtails, 4 Pair, 24 AWG Solid, F/UTP, LSNH, T568b – Open		
Length (Mts)	Color: Blue	Color: Grey
5	CAG030605M	CAG030805M
10	CAG030610M	CAG030810M

KeyConnect Shielded Angled Patch Panels

Description	Belden Part Number
KeyConnect Shielded Angled Patch Panel, 24-port, 1U, Titanium (Empty)	AX104622
KeyConnect Shielded Angled Patch Panel, 48-port, 2U, Titanium (Empty)	AX104623