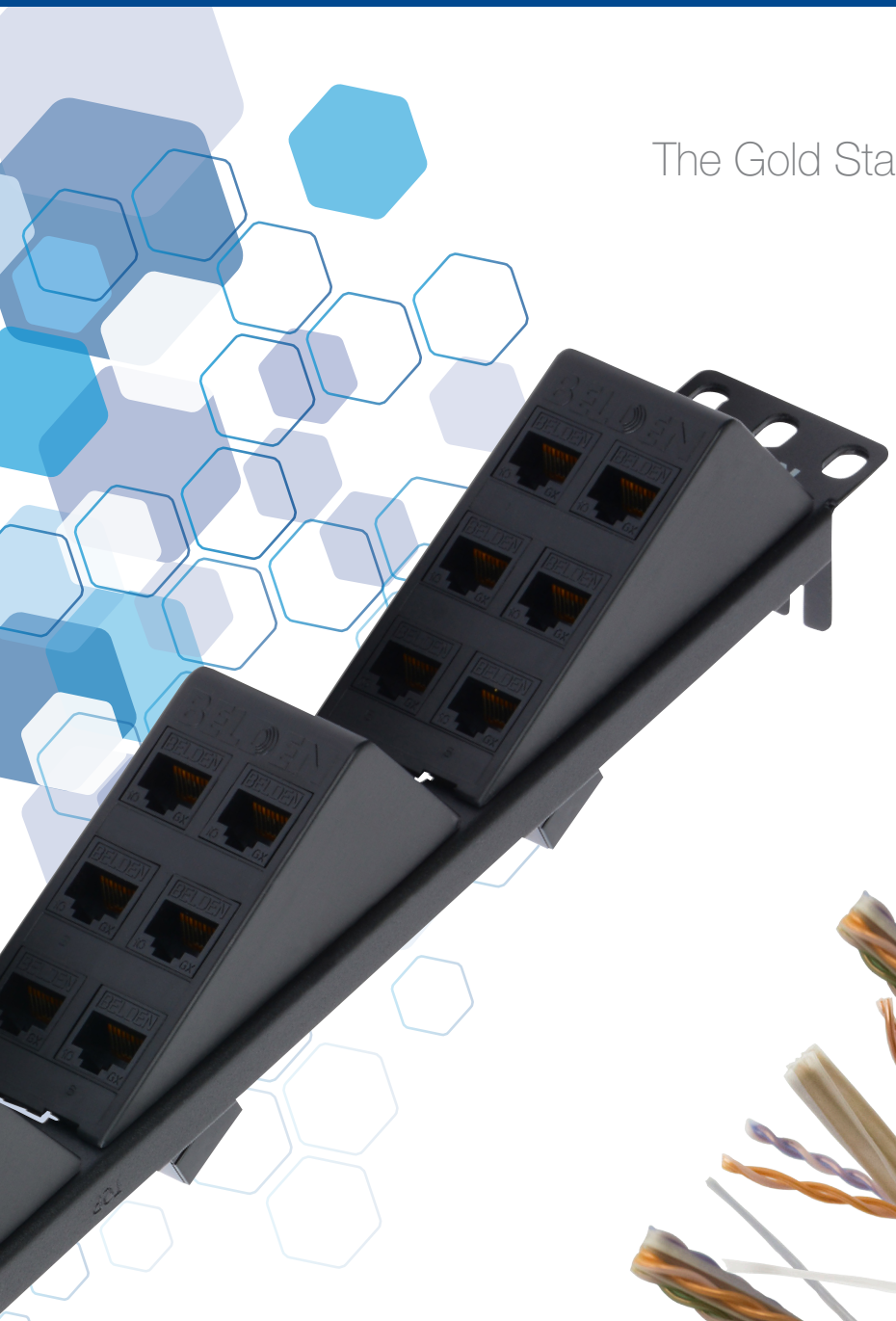
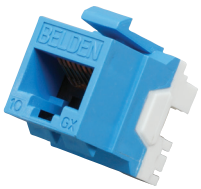
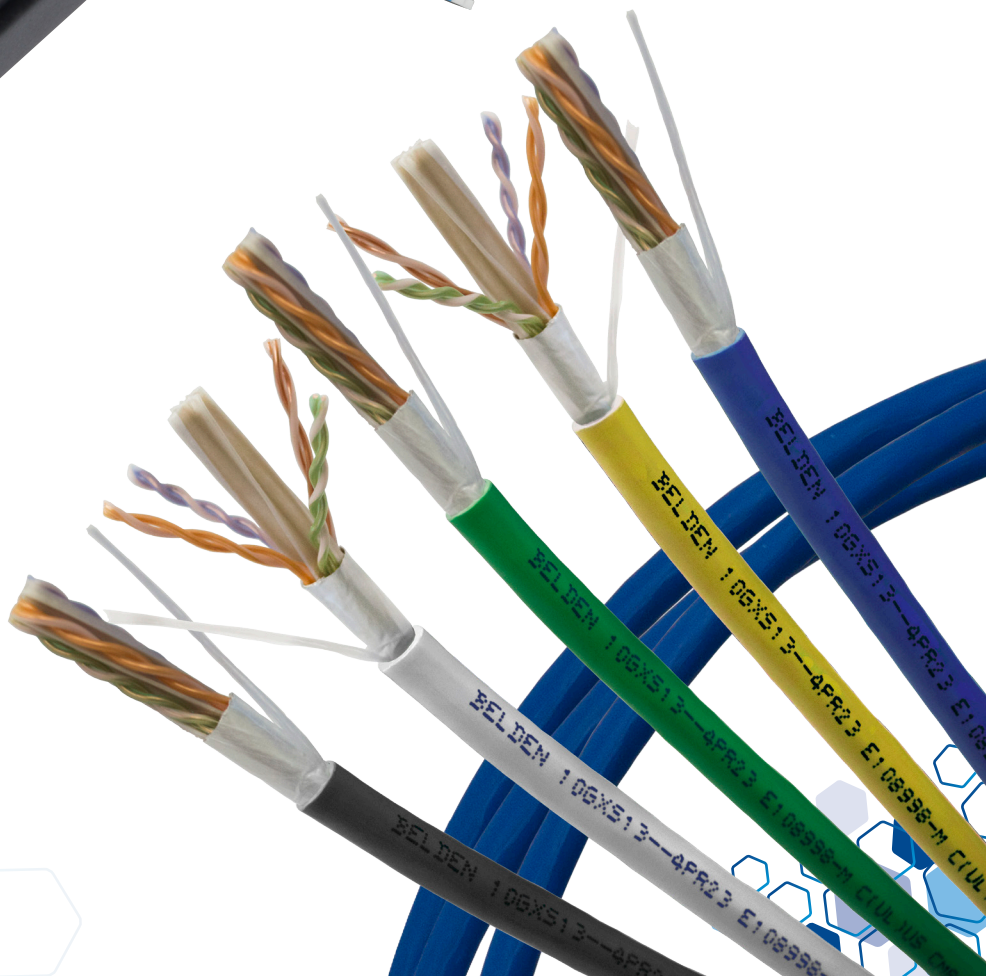
BELDEN

Category 6A 10GX System

The Gold Standard of 10G Networking







Our End-to-End Expertise
Your End-to-End Solution

10G Networking: Poised for Phenomenal Growth

The demand for 10G performance is growing. Emerging applications are poised to take advantage of higher 10Gb/s speeds and call for higher power delivered over the cable.

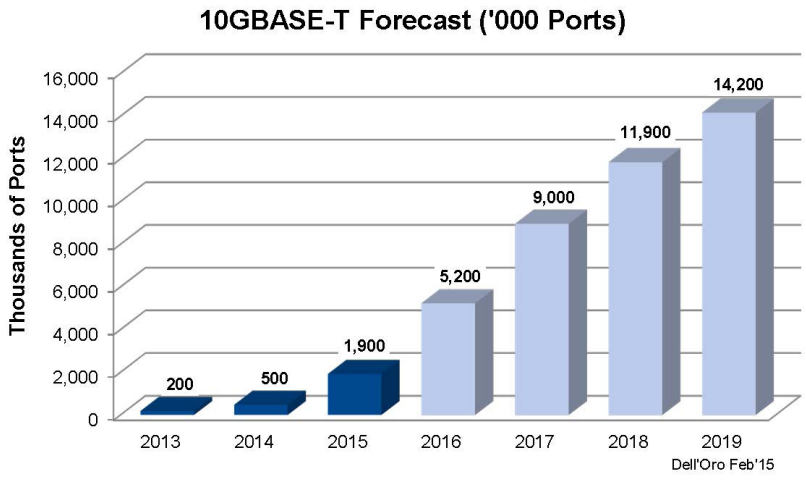
Wave 2 wireless access points are capable of delivering almost 7 Gb/s of wireless bandwidth, and need higher-capacity uplinks to avoid the network cabling becoming a bottleneck.

Security cameras not only deliver high-bandwidth video, but also call for higher power because of their capability to tilt, pan and zoom. A Category 6A solution that supplies power without overheating is critical to taking full advantage of these features and optimizing security.

Intelligent building systems need higher bandwidth and Power-over-Ethernet (PoE) for applications such as security cameras, card readers, building controllers and communication systems.

Industry-standards groups have recognized that Category 6A is the future. To date, Category 6A has been recommended for use in education (ANSI/TIA-4966), healthcare (ANSI/TIA-1179) and data centers (ANSI/TIA-942-A).

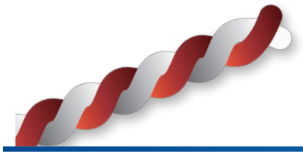
Network architects are looking to future-proof their systems. Demand for Category 6A cable in the enterprise space is projected to grow 49% annually through 2019.



How Do You Know Which 10G System to Choose?

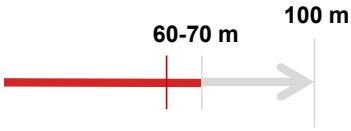
The choice of a 10Gb/s cabling system has always involved trade-offs between design and performance. Design features that make the cable easier to install, such as smaller size and greater flexibility, often come at the expense of performance. Achieving key performance requirements such as noise isolation between cable pairs, control of alien crosstalk and power rating add bulk and installation complexity. Most currently available Category 6A solutions compromise on the design, performance, or both to achieve a 10Gb/s solution.

Make sure to avoid these costly compromises when choosing a CAT 6A solution



Hypertwisted cable pairs. Hypertwisted pairs deliver noise-cancellation but make conductor separation much more time-consuming, leading to longer installation times.

Thicker jackets. Thicker jackets are more rigid and make cable difficult to handle, route through tight spaces and install.



Restricted channel length. In order to claim Category 6A performance, manufacturers often derate their cables to 30 – 40% less than full TIA-specified length.

Difficult-to-remove splines. Larger splines physically separate pairs to reduce noise and crosstalk, but are hard to remove and increase installation time.

Simplicity and Elegance in Design

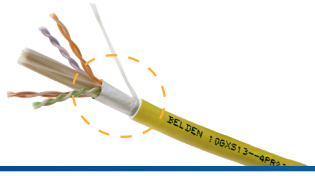
Combining smaller diameter with the best mechanical and electrical characteristics in a Category 6A cable isn't easy, but Belden's 10GXS Cables do it all. With an effective diameter of just 0.265" (6.73 mm) and proven performance that exceeds Category 6A requirements for 100-meter channels, they are ideal for LANs and enterprise data centers that require both high-density and high-bandwidth connections for current and emerging network applications.

Smaller diameter. Consistently round geometry saves 25% on space and weight for easier handling and more pathway space.

Fewer twists. Achieving superior cross-talk performance with fewer twists makes pairs easier to separate and speeds installation.

Round structure. Design innovation ensures structural integrity and maintains distance between pairs, achieving full Category 6A performance with a far-less bulky cable.

Smaller bend radius. Smaller-diameter, more-flexible cable routes around tight spaces in corners and around workstations, without impacting performance.

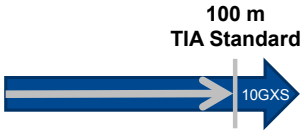


Easy tape removal. Barrier tape is easy to remove for faster termination — one of the many features that add up to significant labor savings in large installations.

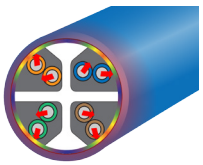
10GXS Cables are faster and easier to install

Performance Without Compromise

Through a unique combination of advanced engineering expertise and precision manufacturing, Belden has built upon the enabling technologies of its 10GX System to offer better noise immunity and performance that meets or exceeds Category 6A specifications. It not only gives you the performance you need to run current-day applications, but provides room for future growth and expansion.



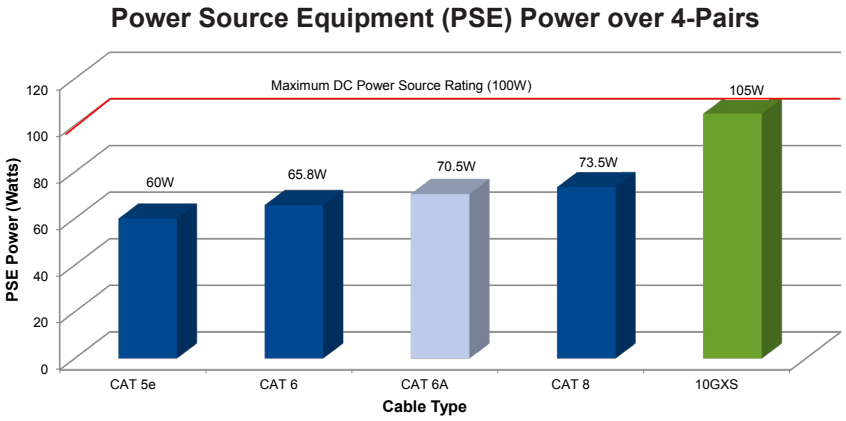
Exceeds 100 m length. 10GXS Cables are not de-rated and exceed TIA standard for full 100-meter channels.



Improves heat transfer. EquiBlock™ Barrier Technology achieves uniform heat flow dissipation while maintaining insertion loss performance.

Less Noise. Other Category 6A solutions have an average of 200% more noise coupling than 10GXS Cables.

Power-over-Ethernet superiority. 10GXS Cables supply energy more efficiently than typical Category 6A cables, and deliver power beyond 100W without overheating.



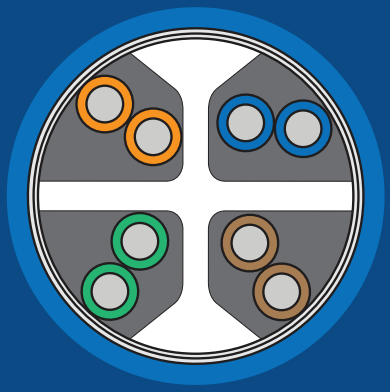
The uniform heat dissipation and improved heat transfer of 10GXS Cables offers a 25% decrease in temperature rise for PoE applications. That means less heat generated in cable bundles delivering remote power for Type 4 PoE applications.

Where design and performance come together

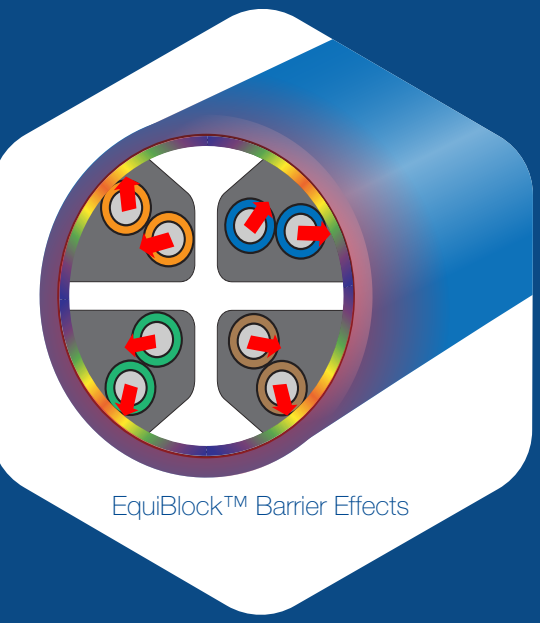
Unique Belden technologies far outperform conventional designs

Patented EquiSpline™ Design

- Maintains equal distance between pairs and outer barrier along the cable to prevent noise coupling
- Retains more air space around individual pairs for better electrical performance
- Improves cable roundness for easier handing during installation
- Ensures structural integrity for better electrical control, reliability and long-term installable performance
- Optimizes balance and consistent cable geometry for reduced bit error rates



EquiSpline™ Design



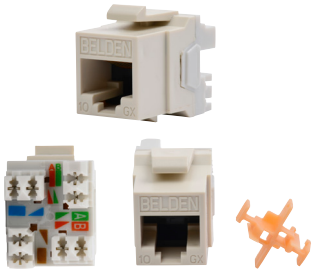
EquiBlock™ Barrier Effects

EquiBlock™ Barrier Technology

- Improves heat transfer and achieves uniform heat flow dissipation to eliminate hotspots in cable bundles when delivering remote power
- Maintains low insertion loss at elevated temperatures to reduce length de-rating for improved PoE and PoE Plus applications
- Blocks noise coupling and electromagnetic radiation by effectively surrounding the conductors with a Faraday cage
- Provides an electromagnetic barrier without concern for ground loops or needing to terminate a shield to ground
- Suppresses antenna effect caused by common mode ANEXT and EMI

Belden 10GX System: Integrated Connectivity, Complete Solution

The Belden 10GX System combines new 10GXS cabling with Belden's proven 10GX connectors, patch panels and cords to deliver full specified performance end-to-end. This long-term investment will outlast several equipment and application upgrades, and is the ideal solution for any data center or on-premises cabling system that needs flexibility now and into the future.



Connectors. Unique X-Bar technology accurately positions each UTP pair prior to termination, while the FleXPoint PCB technology positions the compensation circuitry in the modular jack directly at the plug's point of contact for superior crosstalk performance. A shallower jack design allows more room between the jack and the workstation outlet.

Patch Panels. Alien Crosstalk control within a patch panel is critical to the success of the system. The unique (propreitary) MatriX IDC technology eliminates the effect of Alien Crosstalk between jacks allowing for sustained 10GX performance even in the highest density patching conditions (1U, 48-port).

Patch Cords. These modular cords offer the best combination of transmission performance and physical integrity, and are available in UTP, Shielded, and traceable styles. Bonded-Pair cable technology ensures these cords meet the TIA Mechanical Stress Test and are guaranteed to perform in the most extreme patching conditions.

For more information on 10GXS Cables call **1.800.BELDEN.1** (1.800.235.3361) or visit our web site at **info.belden.com/10GXS**.