



## Issue 5, September 2009

### **Belden: Providing Data Center Performance, Density and Manageability... Without Compromise**

#### **We Understand Your Data Center Design Challenges**

Regardless of business or size, all data centers have similar needs: provide secure, uninterrupted availability to computing, storage, networking and communications resources. Recent trends have amplified the emphasis on data center uptime, energy efficiency and cost savings, creating a greater need for performance, density and manageability. Belden Data Center Solutions seamlessly work together to meet all these requirements.

- **Performance**— Beyond-standards performance guaranteed by Belden, offers the flexibility to add capacity, reconfigure connections and bring new applications on line without sacrificing reliability and headroom.
- **Density**— Cost-effective, high-density Belden solutions are designed to offer scalability by yielding more rack, pathway and floor space for future expansion and help reserve more premium cooling space.
- **Manageability**— Proper cabling management starts with Belden solutions that protect, store and organize cables and connections, while facilitating installation.

Uninterrupted access to data center applications is essential, and IT managers need to deliver “five 9s” availability. While individual components can meet standards and claim performance, density or manageability, they may not be capable of working together. This can ultimately leave gaps that impact data center uptime and cost of ownership.

Belden also recognize the key issues of power consumption and cooling and the need for increased energy efficiency. We have engineered products that focus on improving the manageability/containment of air through improved cable management and product design features as well as specific products for more efficient enclosure cooling.

Belden Data Center Solutions comprise of reliable end-to-end components, that work together cost-effectively as an integrated system, meeting all data center needs...without compromise.

#### **Our Expertise Makes Us the Easy Choice**

Belden is proud to be involved and hold leadership roles on the following data center related industry standards, committees and organizations while providing the quality products and support necessary to help make the IT professionals' job easier.

- TIA-942
- EN50173-5
- 10GBASE-T Short-Reach Model
- BICSI-002

From the demarcation in the entrance room, to the cross connect, to the equipment rack, and all the cabling in between, Belden solutions seamlessly integrate the data center's functional areas while cost-effectively responding to the latest trends and challenges. But Belden does not stop there. With thousands of products available, Belden meets all your signal transmission needs for the data center and beyond.



### A. Main Distribution Area (MDA) & Horizontal Distribution Area (HDA)

The MDA houses the main cross connect and the core routers and switches for the corporate LAN. The HDA houses cross connects and active equipment (switches) for connecting to the equipment distribution area and storage area network (SAN). Per the TIA-942 standard, both the MDA and HDA require separate racks for fiber, UTP and coax cable. For MDA and HDA Belden offer:

- 10GX® Patch Panels and Cords
- DataTwist® Cat 6 and Cat 6+ Patch Panels and Cords
- FiberExpress® Manager Modules and Patch Cords
- FiberExpress Ultra High Density Patch Panels and Cords
- Optimax® Connectors
- High-density Racking System
- Enclosures
- Adaptive Enclosure Heat Containment System

### B. Entrance Room/Telecommunications Room (TR)

The entrance room is the location for access provider equipment, demarcation points and interface with other campus locations. Specific Belden products found in the entrance room include:

- FiberExpress Wall-mount and Rack-mount Patch Panels
- FiberExpress Manager
- FiberExpress Ultra High Density Patch Panels and Cords
- Optimax Connectors
- GigaBIX® and 110XC IDC Systems
- 735 and 734 Series Coax Cable
- High-density Racking System
- Enclosures

Connected to the data center MDA through backbone cabling, TRs are spaces for housing equipment, cable terminations and cross connects that serve office areas on specific floors. In addition to voice, data, and wireless systems, TRs can house equipment for life safety/fire systems, security, and building automation systems. Belden offers a variety of products for all of these systems in the TR:

- GigaBIX IDC system
- DataTwist Cat 6 Patch panels and Patch Cords & wide range of Belden IBDN® Patch Panels
- FiberExpress Patch Panels System
- High-density Racking
- Enclosures

### C. Zone Distribution Area (ZDA)

The optional ZDA acts as a consolidation point within the horizontal cabling run between the HDA and Equipment Distribution Area. Per the standard, the ZDA cannot contain any cross connects or active equipment. Belden products typically deployed in the ZDA include the following:

- 10GX Ultra High-density Patch Panels and Cords
- DataTwist Cat 6+ Ultra High-density Patch Panels
- GigaBIX IDC Systems

### D. Equipment Distribution Area (EDA)

The EDA is where equipment cabinets and racks house the switches and servers and where the horizontal cabling from the HDA is terminated at patch panels. In the EDA, racks and cabinets should be arranged in a hot aisle/cold aisle configuration to encourage airflow and reduce heat. Belden offers a variety of products for the EDA, including our high-end freestanding enclosures that help provide airflow and cooling:

- 10GX Ultra High-density Patch Panels and Cords
- AngleFlex™ Patch Panel for Category 6A & Category 6
- Cat 6+ Ultra High-density Patch Panels and Cords
- DataTwist Cat 6 Patch panels and Patch Cords
- FiberExpress Manager and Patch Cords
- FiberExpress Ultra High Density Patch Panels and Cords
- Optimax Connectors
- Server Enclosures
- Adaptive Enclosure Heat Containment System

### E. Storage Area Network (SAN)

The SAN houses all data storage devices and use of a separate SAN eliminates the need to store data directly on servers, which provides better network capacity. Access to stored data must be fast, requiring high-speed connections from the HDA. Belden products for the SAN include:

- FiberExpress Manager with Patch Cords
- FiberExpress Multi-fiber Cable Assemblies
- FiberExpress Secure Keyed Assemblies
- FiberExpress Pre-terminated MPO Cable Assemblies and FiberExpress Bar
- FiberExpress Ultra High Density Patch Panels and Cords
- High-density Racking System
- Enclosures
- Adaptive Enclosure Heat Containment System

### F. Backbone Cabling & Horizontal Cabling

The backbone cabling within the data center provides the critical connections between the entrance room, MDA and HDA. and it supports 10 Gigabit

transmission speed.. The horizontal cabling within the data center provides the connection between the HDA and EDA and SAN, including the optional ZDA. Belden products for the backbone and horizontal cabling include:

- 10 Gigabit 850 nm Laser-optimized 50/125µm multimode FiberExpress Cables FX2000
- FiberExpress MPO Cables
- 10 Gigabit 4-pair UTP Roundflex Cable
- Belden IBDN Category 6 Cable

### G. Support Offices and Open Areas

There are many areas throughout a facility or campus where people conduct day-to-day activities. From wired and wireless voice and data systems to fire alarm and security surveillance, Belden offers a variety of products that deliver these systems to where it matters most.

- MediaFlex Outlets
- Surveillance (CCTV) Camera Cable
- Belden IBDN Cable
- Door Access (Access Control) Cable
- Audio & Video Cable
- Shielded & Unshielded Twisted pairs (LSZH)

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## How Belden Meets Your Cabling System Needs



As your data center partner, Belden offers an in-depth knowledge of structured cabling, data center systems and the interaction between them. Belden understands your needs and the design challenges you are up against – and we have leveraged our decades-long expertise into the design of highly-flexible, end-to-end structured cabling systems that are unique in their ability to provide optimal system performance, while simultaneously solving your density and manageability issues – both now and in the future.

For more information on Belden's data center solutions, please visit [www.belden.com/enterprise](http://www.belden.com/enterprise)

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