



Data Center Solutions

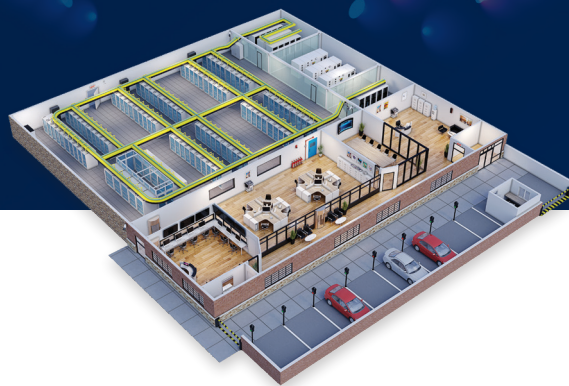
from the Rack Space to the Parking Space

Meeting Critical Data Center Requirements

Managing cooling, power and density in a way that complements performance requirements is key to maximizing efficiency—no matter the type of data center.

Because Belden understands how these three factors influence and interact with one another, we can help you deploy the right blend of technologies perfectly tailored to you.

Our collaborative approach focuses on goals, challenges and operational considerations first. From there, we discuss how to create an optimal solution that fits within your data center environment.



Make Your Digital Journey Simpler, Smarter and More Secure

Through our global system of Customer Innovation Centers (CICs), Belden helps you break down data silo barriers and create a single converged network so you can share data seamlessly and securely for improved visibility and completely integrated experiences. We work alongside you to identify your biggest challenges, design a tailored solution to meet your operational goals and maintain cost-efficiency along the way.

Think of them as a testing ground for your vision of the future—a place where you can:

- See first-hand whether certain solutions will work together in your environment
- Compare systems, validate designs and gather benchmarks to improve performance
- Take your idea for a test drive to assess functionality
- Verify that your idea can become a real solution and deliver the benefits you expect



Committed to Creating a More Connected, Responsible, and Sustainable World for All

At its core, data center sustainability involves a delicate balancing act: reducing waste without getting rid of too much, futureproofing without over-provisioning and being energy efficient without impacting operations. Company-wide Belden has a commitment to our environmental, social and governance (ESG) journey, where we focus on finding new and innovative ways to lessen our environmental impact, support our people and utilize ethical business practices.

Our priorities are to:



Limit our environmental footprint.



Support the wellbeing of our stakeholders and the communities where we operate.



Conduct business in an ethical and responsible manner.

Why Choose a Belden Data Center Solution?

Our partnership approach results in configurable systems that adapt to your specific data center projects: white space, operational areas, facilities management and core IT, Ethernet over IP (EoIP) and OT requirements for building controls, command and control, security and surveillance. Belden's continued innovation and agile support cater to evolving data centers.



Cost Reduction

Belden reduces costs across your supply chain through standardization, negotiated pricing, delivery and reduced energy consumption.



Ease of Use

Belden products are engineered to work together for peak performance. Our innovations are at the forefront of technology. When you are ready to upgrade, we'll be ready, too.



Configurable Solutions

Let our team of professionals help you design the perfect fit for your data center with competitive pricing, fast creation and deployment, and compatibility with standard products for easy integration.



System Uptime

Belden products are put through rigorous testing to ensure the highest quality. We back our quality with a 25-year product performance and labor warranty.



Space Utilization

Belden's high-density solutions support more connections in less space. Our engineers design for maximum efficiency.



Physical Security

Belden keeps security top of mind with physical security offerings that cover everything from cabinet-level to campus-wide needs, truly supporting data centers from the rack space to the parking space.



BELDEN

macmon
nac

HIRSCHMANN
A BELDEN BRAND

thinklogical
A BELDEN BRAND

lumbergautomation
A BELDEN BRAND

TOFINO SECURITY
A BELDEN BRAND

Understanding Belden's Data Center Portfolio

Applications	Product Group (Brand)
Networking	Security & Firewalls (Macmon, Hirschmann, Tofino)
	Ruggedized Wireless LAN (Hirschmann)
	Ruggedized Switches (Hirschmann, GarretCom)
	Secure KVM and Matrix Switching (Thinklogical)
Connectivity	Fiber Cabling Systems (Belden)
	Category Cabling Systems (Belden)
	Instrumentation, Electronics and Controls Cabling (Belden)
	Broadcast and Commercial Audio/Video Cabling (Belden)
	Industrial Cabling Solutions (Belden)
	Sensors, Actuators and IO Systems (Lumberg)
Infrastructure Support	Racks, Enclosures and Cable Management (Belden)
	Power Distribution Units (Belden)
	Airflow Management and Containment (Belden)
	Environmental Monitoring (Belden)
	Security and Access Control (Belden)
Custom & Collaborative Solutions	Production and Proof of Concept Labs
	Customer Innovation Centers
	Research, Development, Test & Evaluation

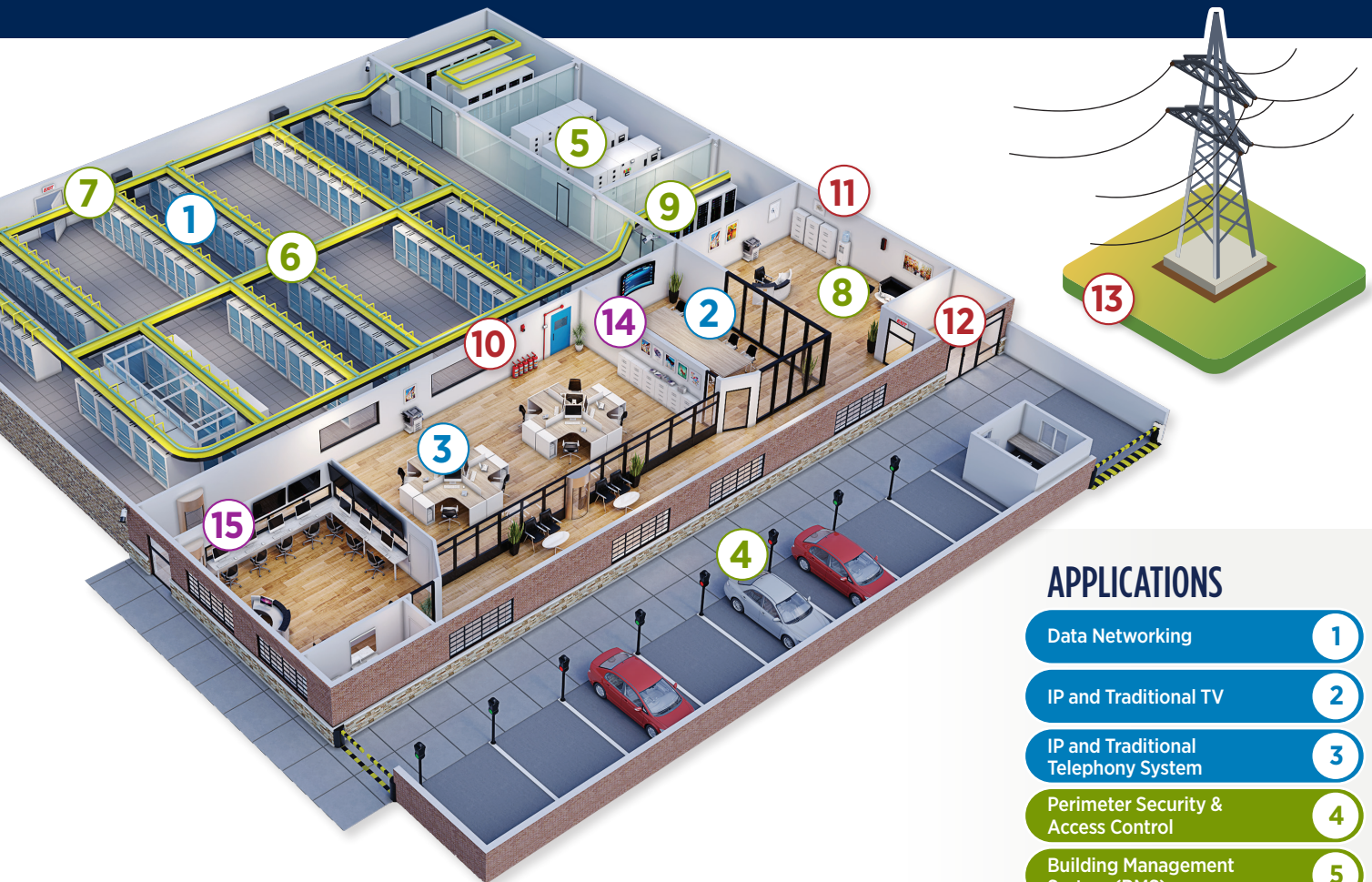


Belden empowers people and organizations to support in-building and across-campus data centers through industry-leading copper and fiber infrastructure solutions.

From turnkey compute and storage requirements to customized enterprise and industrial infrastructure requirements, Belden data center solutions seamlessly integrate functional areas while delivering on scalability, sustainability, industry compliance and cybersecurity requirements.

DATA CENTER		SECURITY/SAFETY/SURVEILLANCE		OPERATION MANAGEMENT		AUDIO/VIDEO COMMUNICATION	
Networking	Operations Technologies (Data, Voice, Video)	Fire Alarm, Life Safety and Public Address	Security (Access, Surveillance & Monitoring)	Intelligent Building Services (IMS/BMS)	Data Center Infrastructure Management (DCIM)	Digital Signage & Wayfinding	Control & Command Center
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					X		
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Data Center Solutions from the Rack Space to the Parking Space



Belden understands the unique demands that are being placed on your data center. That's why we offer a complete portfolio of innovative cabling and connectivity solutions designed to ensure fast, reliable transmission for ever-increasing amounts of data.

From the rack space to the parking space, Belden's data center solutions are designed for every corner of your data center—whether it's a colocation, edge, enterprise, hyperscale or containerized facility.

APPLICATIONS

- Data Networking 1
- IP and Traditional TV 2
- IP and Traditional Telephony System 3
- Perimeter Security & Access Control 4
- Building Management System (BMS) 5
- Data Center Infrastructure Management (DCIM) 6
- Heating, Ventilation and Air-Conditioning (HVAC) 7
- Intelligent Lighting Control 8
- Power Management System (PMS) 9
- Fire Alarm 10
- Public Address & General Alarm (PA/GA) 11
- Access Control 12
- CCTV - Indoor & Outdoor 13
- Digital Signage 14
- Command & Control Visualization System 15



NETWORK INFRASTRUCTURE

1 2 3

HIGH-SPEED PRODUCTS

- A direct-attach cable (DAC) is used to connect one mobility access switch to another while forming a stack.
- Belden offers a full range of DAC, AOC and transceivers that meet data center requirements for today and tomorrow.

NETWORK INFRASTRUCTURE

- For high-performance communication, Belden offers copper and fiber patch panels in a variety of options, such as REVConnect® high-density patch panels offering 50% faster terminations with maximum flexibility.
- Belden's fiber solutions are built for easy installation, to handle various density requirements and to support simple and on-demand scalability.
- Copper field-terminated and pre-terminated end-to-end systems offer the quickest termination/deployment time in the industry.

OPERATIONS MANAGEMENT

4 5 6 7 8 9

BUILDING MANAGEMENT SYSTEM (BMS)

- BMS is the computerized measurement, control and management of building services in a facility.
- Belden supports accommodation for devices/sensors/systems that rely on both legacy protocols and newer IP based communications, e.g. IoT.
- PoE-enabling cable & connectivity solutions supporting devices with up to 100W of power for devices.
- REVConnect® for BMS direct field termination which supports up to CAT6A connectivity and 100W PoE.

OT SWITCHES

- Belden's Hirschmann switches support PoE/PoE+ function and power supply will not be interrupted during device rebooting.
- Monitoring and visualizing your network is made easy with the use of our Industrial HiVision network management software.
- Ideal choice for all IoT applications.

SECURITY/SAFETY/SURVEILLANCE

10 11 12 13

CCTV SURVEILLANCE SYSTEM

- Belden offers integration support for CCTV systems to converge with other facility devices in order to automatically identify threats and send alerts.
- PoE solutions that enable cable and connectivity to support devices with up to 100W of power for indoor and outdoor surveillance.
- REVConnect supports signaling and power solutions for CCTV systems in white, gray and outside spaces.

ACCESS CONTROL

- Selective restriction of access for certain doors and facilities based on system parameters.
- Belden offers reliable and easy-to-install cabling to support bandwidth and power requirements of access control systems for data transfer and management.

FIRE ALARM SYSTEM

- Designed to detect unwanted presence of fire by monitoring environmental changes. In the event of an emergency, the system provides a visual alert for the occupants to escape safely.
- Belden offers connectivity that allows fire alarms and mass notification systems to display safety alerts and updates.
- Belden solutions meet different local and international alarm standards for different regions.

AUDIO/VIDEO COMMUNICATION

14 15

DIGITAL SIGNAGE

- Video extenders and matrix switches from Thinklogical deliver video-rich information where it is needed most.

COMMAND & CONTROL VISUALIZATION SYSTEM

- Thinklogical command and control systems ensure maximum operations center performance, flexibility and uptime.

Data Center Design Considerations

Belden Data Center Ready solutions help data center designers, consultants, systems integrators, facility planners and managers design infrastructure to maximize the performance of active equipment.

Today's data centers require adequate planning to address equipment hosting, power and thermal management needs. Once active equipment has been chosen, the next step is to make sure the data center design maximizes equipment availability and performance. These two parameters are directly linked to the service level agreements (SLAs) between data center managers and functional business units. The data center environment can have a huge affect on availability and performance. Designing all elements to work together helps properly support high active equipment performance.

Belden offers multiple levels of support for planning, design, ordering and installation of physical infrastructure solutions. The two most common:

Do-It-Yourself

Belden's expertise and a broad portfolio of enclosures, cabling, connectivity, cable management, airflow monitoring and management, and rack-level power monitoring and management offerings can work together to improve efficiency, reduce costs and keep up with increasing data center requirements. Solutions are available through Belden's extensive network of distribution partners.



Data Center Ready

Belden can design, build and deliver customized enclosures that support and optimize the performance of active equipment. We help you create a custom solution that is ready to roll out onto the data center floor and removes all the guesswork from the design process. Your order ships from our factory with fiber, copper and accessories pre-installed to meet specific requirements.



ADVANTAGES

Reduce Deployment Time and Costs

- Pre-configured and labeled enclosures arrive at their location ready to receive servers or switches.
- Best-in-class pre-terminated fiber and copper systems, smart power distribution units (PDUs) and active heat containment allow for fast deployment and reduced labor costs.

Streamline Logistics

- Simplified ordering with one part number.
- Designs can be templated, saved, duplicated and modified for future use.

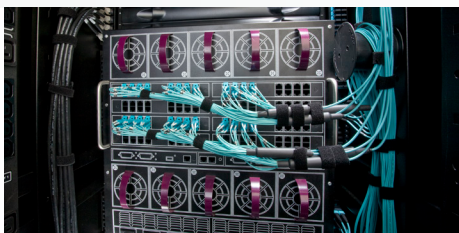
Deploy Green Data Centers

- Eliminate the need for individual packaging, reducing disposal of cartons, boxes and plastics.
- Consolidated shipping allows efficient packaging and reduces carbon footprints.

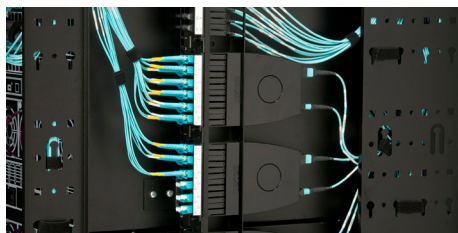
HOW IT WORKS

To design a customized Data Center Ready solution, Belden works with you to define data center operational uptime and efficiency guidelines, as well as the active equipment requiring support. A trained engineer develops a personalized recommendation that includes placement of the following components within an enclosure series:

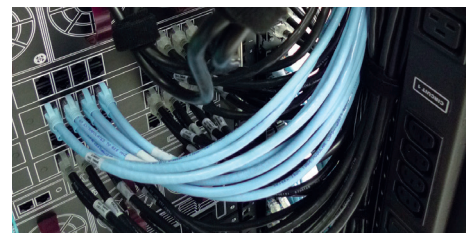
- An enclosure series
- Pre-terminated fiber or copper cabling and connectivity system
- Power distribution units
- Airflow management, heat containment and monitoring
- Cable management
- Other accessories, such as advanced cabinet security and monitoring



Physical infrastructure solutions designed to work together to improve active equipment performance.



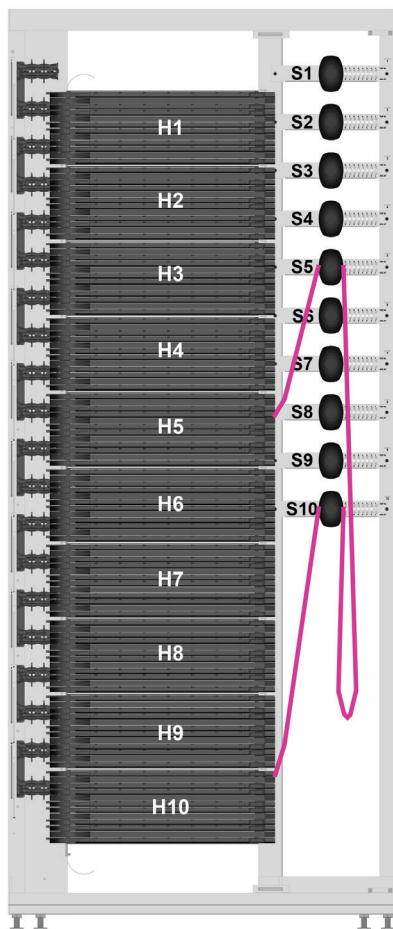
Pre-terminated fiber and copper systems offer quick deployment, high performance and exact length patching. For optimum enclosure density, connectivity can be mounted in zero-U vertical patching.



Patch cords, cable assemblies and power cords are custom cut to exact lengths for easy cable management and optimal airflow.

Optimize the ROI of Your Fiber Infrastructure with DCX

Handle increasing fiber connections and add density without compromising on ease of use with the new DCX Optical Distribution Frame. It optimizes the ROI of your fiber infrastructure by offering the highest per-square-foot fiber density while maximizing signal integrity and usability and lowering total cost of ownership.

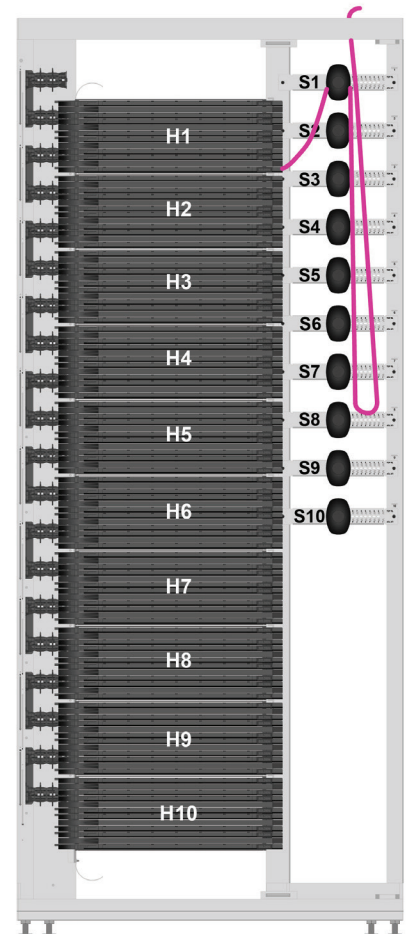


← Single Cross Connect

A single DCX cabinet can be compartmented into different zones and used as a cross-connect. Connections from any port to any port inside the cabinet need only one patch cord length (3.5 m).

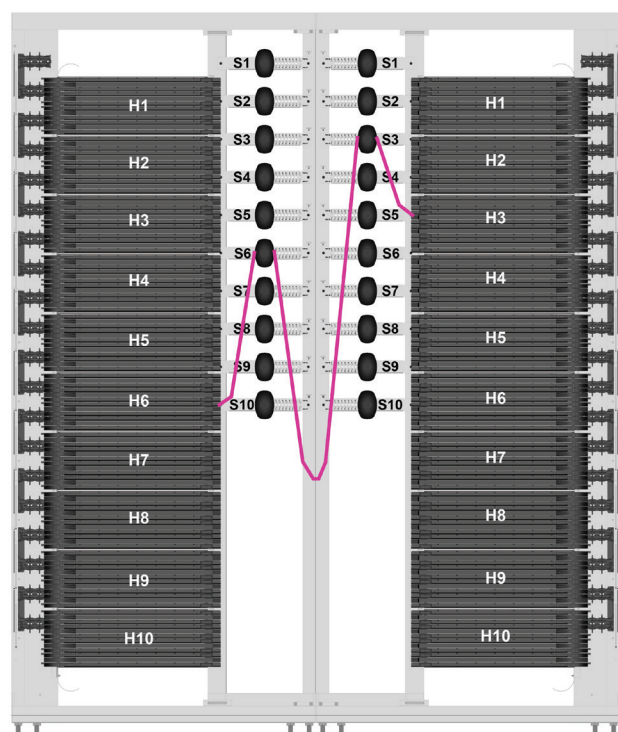
Single Interconnect →

A single DCX cabinet can be placed between networking equipment cabinets or at the end of a row to build a high-capacity interconnect cabinet. The main advantage of this management strategy is that it provides excellent patch cord slack management and reduces the number of different lengths needed for network connection.



Dual Cross Connect

Two DCX cabinets can be assembled in a side-to-side and/or back-to-back arrangement and used as a cross-connect. Side-by-side or back-to-back assemblies require one L-R and one R-L cabinet. Connections from any port to any port inside and between cabinets will need only one patch cord length (3.5 m).





Learn More

Use this QR code to access literature, applicable products and more information on Belden's wireless solutions.



belden.com/data-center

CONTACT A BELDEN DATA CENTER SOLUTIONS EXPERT TODAY.

KEY NORTH AMERICAN LOCATIONS

UNITED STATES

Division Headquarters

1320 City Center Drive, Suite 100
Carmel, IN 46032
USA
Phone: 317.818.6300
Inside Sales: 800-235-3361
Fax: 317-818-6382
belden.com/support

CANADA

National Business Center

2310 Alfred-Nobel
St-Laurent Quebec H4S 2B4
Canada
Phone: 514-822-2345
Inside Sales: 800-235-3361
Fax: 514-822-7979
belden.com/support

MEXICO

Regional Office

Av. de los Nogales
No. 290 Fracc. San Carlos,
Heroica Nogales C.P. 84090
Nogales, Sonora México
Phone: 52 0264 2060
Fax: 52 0264 2126
belden.com/support

For worldwide sales and technical support, visit:
www.belden.com/about/locations



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