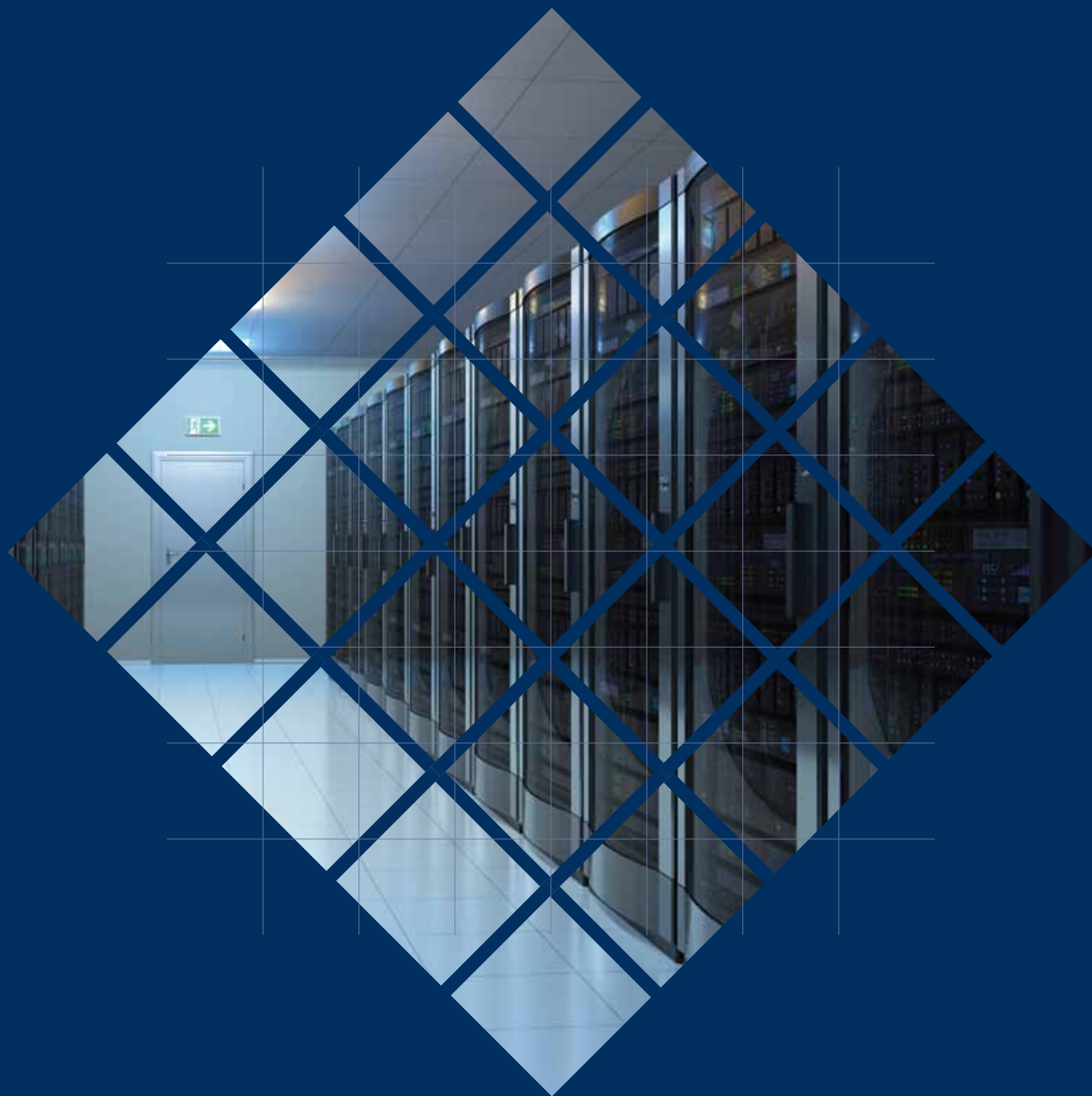


DATA CENTER

Solutions Guide



Integrated Copper and Fiber Products





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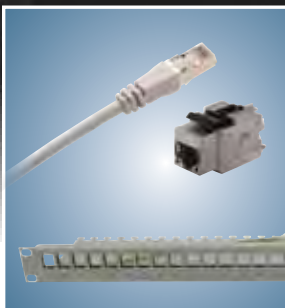
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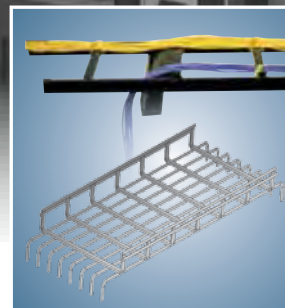
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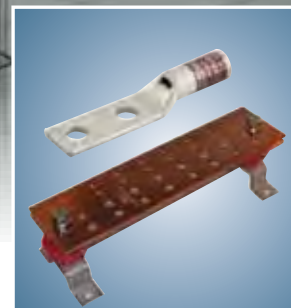
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Infrastructure Design in the Data Center



The data center is a critical asset of today's information-intensive enterprise. Hubbell solutions will assist in improving space utilization, reduced onsite labor, help lower start-up costs, and provide a reliable network cabling infrastructure. Designing and sustaining a data center capable of supporting these applications is a considerable undertaking.

Design

A properly designed infrastructure will maintain network up-time and security, provide operational efficiency, support future technology and sustain regulatory changes. Data Center Infrastructure Management (DCIM) is the integration of information technology and facility management disciplines to centralize monitoring, management and capacity planning of a data center's critical systems.

Infrastructure design decisions can affect long-term reliability and total cost of ownership. Designing simple features into the infrastructure will dramatically improve data center performance parameters such as: Air Flow, Response Time, Administration, Space Utilization, Security and Aesthetics.

Managing Increased Power Consumption

With the use of high-density servers, SANs and switches, heat loads in the data center have increased dramatically over the past ten years. This increase has also driven the demand for equipment cooling which adds to the overall power consumption. This trend in power consumption is expected to double over the next five years. In fact, experts estimate a requirement of over 50 kilowatts for each cabinet or rack space. A properly designed infrastructure will manage cabinet airflow to optimize cooling of critical equipment for increased performance and extended lifespan.

Cost Impact of Downtime

Studies show that losses from downtime can run into the millions of dollars. More than 50% of all data center infrastructure failures result from improper design, maintenance or administration activities⁽¹⁾. The infrastructure must enable IT managers to deploy equipment, complete reconfigurations, and respond to maintenance issues as quickly as possible.



Efficient Utilization of Floor Space

Space utilization must be carefully considered and efficiently managed with the rising cost of data center real estate, combined with the expense to cool the active equipment. It is important to capitalize on data center floor space deployment, also the infrastructure must optimize rack space, minimize connections and increase cabling density.

Enhanced Security

The protection of data and equipment in today's information-intensive enterprise has called for an increase in both logical and physical security. Not only do IT managers need to ensure that proper encryption and firewalls are in place, but the physical infrastructure must also protect and secure connections and equipment. Infrastructure products including robust, tamper-resistant enclosures and keyed lockable connections provide security for these critical assets.

Modern Aesthetics

While data center reliability is paramount, the data center must also showcase a company's commitment to technology. When designing the infrastructure, innovative cable management solutions can greatly improve the overall look and aesthetics of the data center.

The Hubbell Commitment

As a global manufacturer of Cabling Infrastructure Systems, Hubbell Premise Wiring can help IT managers respond to the key data center issues of airflow, response time, administration, space utilization, security and aesthetics. Hubbell is dedicated to delivering product innovation, advanced technology, the highest quality and customer service excellence.

Hubbell's **MISSION CRITICAL**® program gives IT managers the assurance of system success with a 25-year guarantee on the components, performance and installation integrity of your data center's structured cabling infrastructure.



⁽¹⁾ "Site Uptime® Procedures and Guidelines for Safely Performing Work in an Active Data Center", CompuSite Engineering, Inc. and the Uptime Institute (2007).

Total Cost of Ownership

Hubbell's extensive range of products can help you minimize the Total Cost of Ownership of your data center by providing interactive solutions that exceed all of the design requirements. Hubbell solutions help minimize start-up costs, operating costs and assist in maximizing long-term reliability. Hubbell Solutions are covered by a Hubbell 25-year **MISSION CRITICAL**® Cabling System Warranty.

Airflow

The increasing array of active equipment designed into smaller packages results in more heat generation, increased cable congestion and impedes airflow which can cause over-heating of equipment.

Impact	Lower operating costs, longer equipment life expectancy.
Design Objectives	<ul style="list-style-type: none"> • Define air pathways • Eliminate airflow obstructions • Reduce cable bulk • Condense connection form factor

Security

Protection of mission critical data, adherence to regulatory requirements and defending against unauthorized access to equipment are key requirements for today's data center environment.

Impact	Minimized risk of downtime. Protection of proprietary information. Increased owner confidence.
Design Objectives	<ul style="list-style-type: none"> • Control access to data center • Factory-sealed components • Limit physical access to network connections • Intrinsically secure media • Use fault-tolerant connections

Administration

The ability to locate equipment, cables, and connections at all times is critical in the dynamic data center environment. Hubbell delivers pre-labeled interconnect products to meet the needs of data center administration.

Impact	Lower operating costs.
Design Objectives	<ul style="list-style-type: none"> • Utilize a structured identification system • Minimize infrastructure components • Defined cable pathways and accessibility

Space Utilization

Maximizing utilization of expensive data center real estate is a key to controlling operating expenses.

Impact	Lower operating expense. Accommodate future expansion.
Design Objectives	<ul style="list-style-type: none"> • Minimize number of connections • Maximize connection density • Maximize floor space utilization • Minimize cable pathway congestion • Maximize rack and cabinet utilization

Response Time

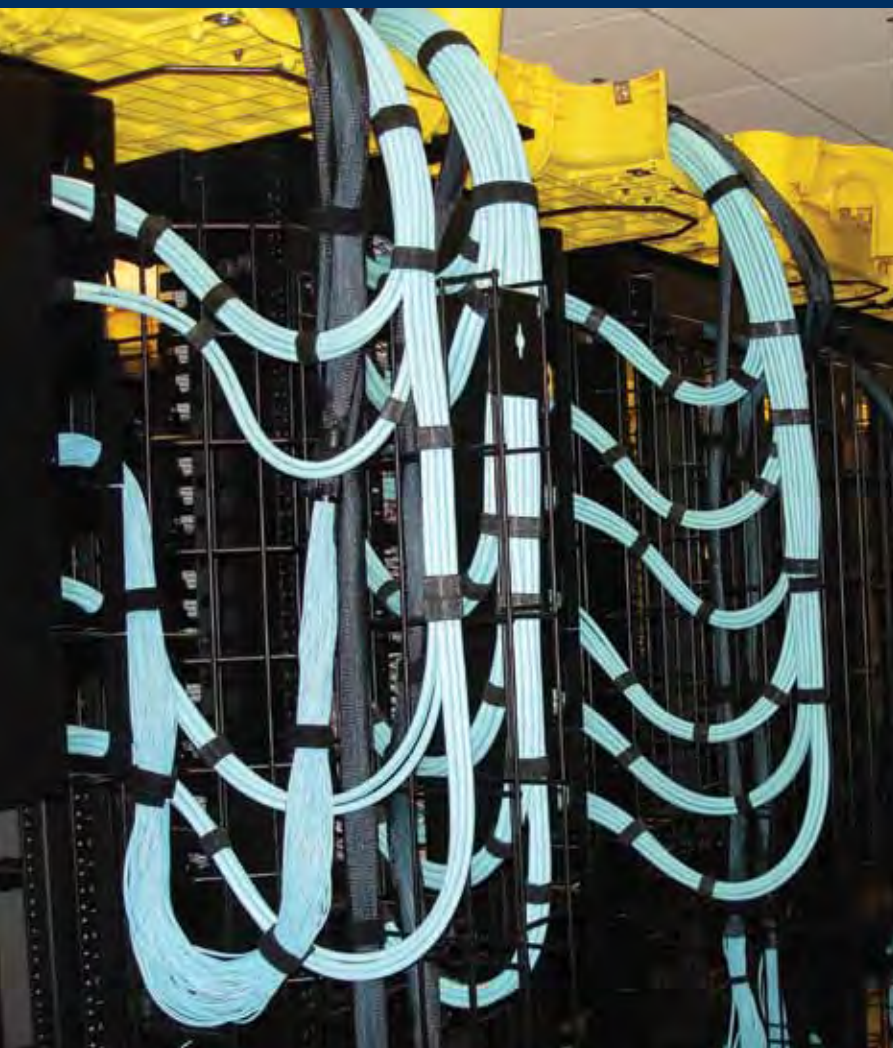
As the enterprise strives to be more competitive, the organization must be able to dynamically and rapidly transform its communication and technology infrastructure for future growth.

Impact	Maximize uptime.
Design Objectives	<ul style="list-style-type: none"> • Minimize number of system component parts • Factory-tested components • Plug and play connections • Maximum flexibility for moves, adds and changes (MACs)

Aesthetics

The Data Center is a reflection of the proficiency and the capability of the enterprise.

Impact	Positive customer perception - internal pride.
Design Objectives	<ul style="list-style-type: none"> • Covered cable management • Stylized equipment racks and cabinets • Minimize clutter and cable congestion • Color-coded cabling and components



Airflow

- Small form 12 strand fiber in a 3mm jacket is a significantly smaller profile than most cables
- Hubbell's new high density 144-port 1U enclosure provides the lowest profile to enhance rack cooling efficiency
- Optical fiber cables and cords do not carry electrical signals and therefore have minimal heat dissipation

Security

- Factory-sealed cassettes provide a layer of protection
- Optical fiber is immune to signal tapping
- Fiber networks are less susceptible to "direct connect" access

Administration

- Custom pre-labeled interconnect products coordinate with infrastructure identification
- Application - specific color coding of cabling and components provides easy visual identification

Space Utilization

- High bandwidth fiber transmits more data per cable for optimum use of cable pathways
- Using laser optimized fiber enables lower cost migration to new applications, without adding more infrastructure

Response Time

- Factory-terminated trunk assemblies reduce on-site installation time by 75%
- 100% optically tested for reliable performance
- High quality factory terminations assure maximum performance

Aesthetics

- Fewer cables eliminate unsightly clutter
- Factory terminated cables are coordinated with equipment connections for a professional appearance



FCR HD Rack Mount Enclosures



Cable Management

Utilizes MTP custom made trunk assemblies.



High Density

Fits 144 LC ports in a 1U rack space.



Efficiency

Advanced 3-drawer ultra compact design.

FCR Rack Mount Enclosures



Cable Management

Enhanced front bend radius and cable management features.



Administration

New clip-on labeling system.

Hubbell OptiChannel High Density FCR Fiber Enclosures and Cassettes



High Density 144 Port 1U Enclosures

- 144 Max LC Port Capacity
- 1 Rack Unit
- Dimensions in Inches (mm):
H: 1.75" (44) x W: 19" (483) x D: 17" (432)

Black Gray

FCRHD1UBK FCRHD1UGY

Ultra Compact LC to MTP Cassettes

- MM total insertion loss: <1.5dB max
- SM total insertion loss: <1.1dB max
- SM return loss: >50dB
- Material: 5052 aluminum
- Polarity: TIA-568-C.3, Type "A"

Port Count	Height x Width x Depth in Inches (mm)	Fiber Type	Catalog No.
12	0.5" (13) x 3.5" (89) x 5.2" (132)	50µm, OM3	OCLCHD50G3
12	0.5" (13) x 3.5" (89) x 5.2" (132)	50µm, OM4	OCLCHD50G4
12	0.5" (13) x 3.5" (89) x 5.2" (132)	SM, OS2	OCLCHDSM



FCRHD1UBK loaded with OCLCHD50G3



OCLCHD50G3



Enhanced Rack Mounted Enclosures

Rack Units	Height x Width x Depth in Inches (mm)	Capacity			Catalog No.*
		MPO Cassettes	Splice Tray	Max LC Port	
1	1.75" (44) x 17" (432) x 17" (432)	3	2	72	FCR1U3SP
2	3.5" (89) x 17" (432) x 17" (432)	6	6	144	FCR2U6SP
3	5.25" (133) x 17" (432) x 17" (432)	12	12	288	FCR3U12SP
4	7.00" (178) x 17" (432) x 17" (432)	15	16	360	FCR4U15SP

*Add an "L" suffix to the catalog number for locking version.
Also accepts FSP Panels. See page 9.



FCR3U12SP loaded with various FSP Series panels
Can be used with MPO Cassettes (shown below)
or FSP Panels (shown on page 9).

Standard SC/LC-MPO Cassettes

Description	Port Count	Fiber Type	Catalog No.
SC duplex	12	50µm, OM3	OCSC50G
LC duplex	12	50µm, OM3	OCLC50G
LC duplex	24	50µm, OM3	OCLCD50G
LC quad	24	50µm, OM3	OCLCQ50G
SC duplex	12	50µm, OM4	OCSC50G4
LC duplex	12	50µm, OM4	OCLC50G4
LC duplex	24	50µm, OM4	OCLCD50G4
LC quad	24	50µm, OM4	OCLCQ50G4

Note: Standard LC-MPO cassettes are not compatible with the HD enclosures.
24-Port versions supplied with two MPO 12-fiber receptacles.



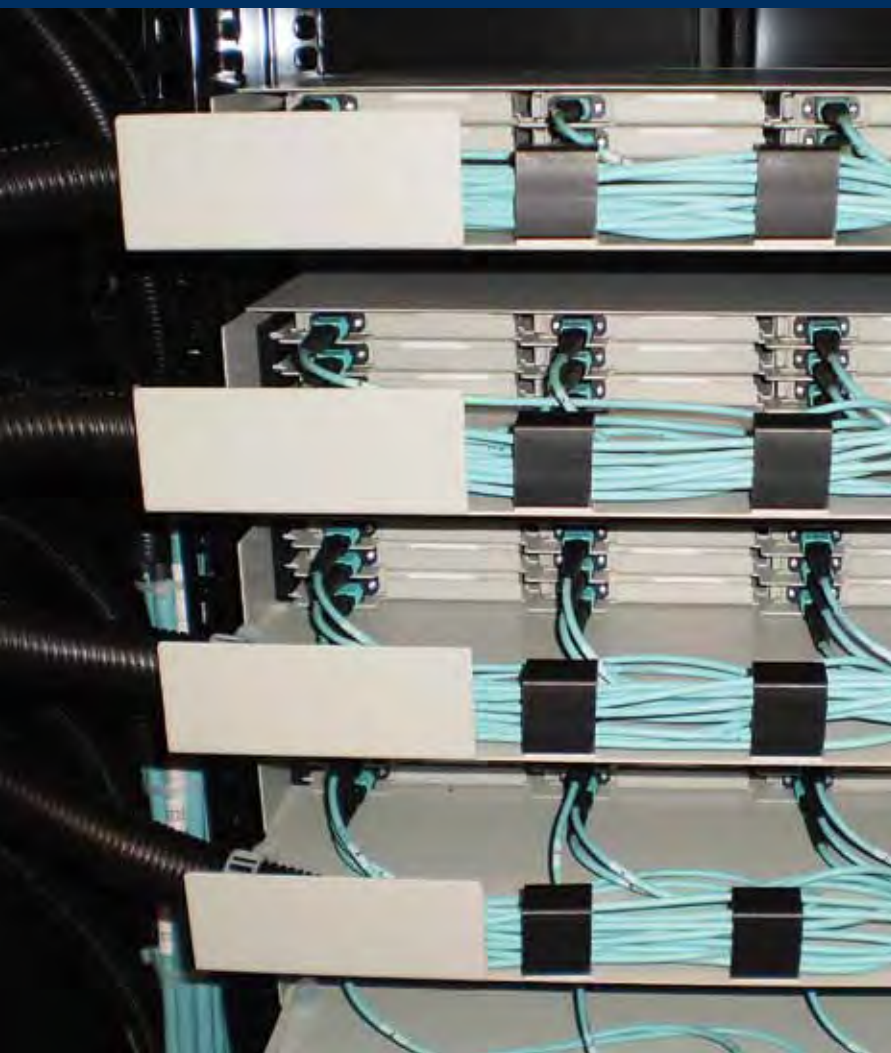
SC Duplex



LC Duplex



LC Quad



Airflow

- High density adapter panels provide additional connections within a small cabling footprint.

Security

- Compact plug-n-play cassette interconnections are stored securely in an enclosure inside the cabinet
- Keyed LC products add protection from unauthorized access

Administration

- Individual channels are labeled consistently on all trunks and patch cords from the factory
- Pre-labeled trunk assemblies eliminate contractor error
- Application specific color coding for enhanced visual identification

Space Utilization

- High bandwidth fiber transmits more data per cable for optimum use of cable pathways
- Pre-terminated trunks and cassettes reduce installation labor by 75%

Response Time

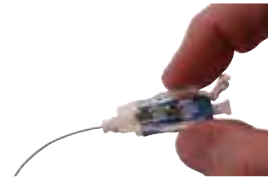
- Plug-n-Play trunk assemblies can be installed, changed or upgraded in minutes
- Fiber cassette panels snap in and out of all enclosures for easy customization and rapid change-outs

Aesthetics

- Custom engineered fiber trunks and modular cassettes eliminate splices and break-outs for a clean, professional appearance



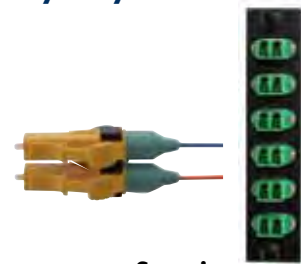
PROclick® Connectors



Termination

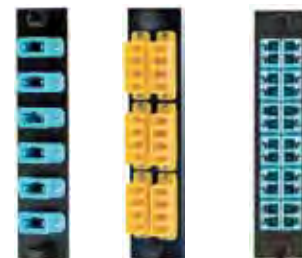
Insert fiber and activate clamp in one simple motion.

Keyed System



Security

Protection from unauthorized access.



Color Coded Panels

Custom application-specific colors to facilitate administration.



Fiber Patch Cords

Small form duplex and uni-boot style for high density deployments.

Hubbell OptiChannel Fiber Connectors, Cords and Panels

PROclick® LC Pre-Polished Connectors

• 900/250 μ M Cable Type

Fiber Type	Color	12 Pack	100 Pack
50 μ M, OM3	Aqua	FCLC900K50GM12	FCLC900K50GM100
50 μ M, OM2	Black	FCLC900K50M12	FCLC900K50M100
62.5 μ M, OM1	Beige	FCLC900K62M12	FCLC900K62M100
SM, OS2	Blue	FCLC900KSM12	FCLC900KSM100

PROclick® SC Pre-Polished Connectors

• 900/250 μ M Cable Type

Fiber Type	Color	12 Pack	100 Pack
50 μ M, OM3	Aqua	FCSC900K50GM12	FCSC900K50GM100
50 μ M, OM2	Black	FCSC900K50M12	FCSC900K50M100
62.5 μ M, OM1	Beige	FCSC900K62M12	FCSC900K62M100
UPC SM, OS2	Blue	FCSC900KSM12	FCSC900KSM100
APC SM, OS2	Green	FCSC900KASM12	–

LC Duplex

Description	Zirconia Ceramic Singlemode/Multimode
LC 12-port (6 LC duplex)	FSPLCDS6xx
LC 24-port (12 LC duplex)	FSPLCDS12xx

xx = Color: **AQ** (Aqua), **BE** (Beige), **BK** (Black), **B** (Blue), **GN** (Green), **OR** (Orange), **R** (Red), and **Y** (Yellow).

SC Duplex, FSP Adapter Panels

Description	Zirconia Ceramic Singlemode/Multimode
SC 6-port (3 SC duplex)	FSPSCDS3xx
SC 8-port (4 SC duplex)	FSPSCDS4xx
SC 12-port (6 SC duplex)	FSPSCDS6xx

xx = Color: **AQ** (Aqua), **BE** (Beige), **BK** (Black), **B** (Blue), **GN** (Green), **OR** (Orange), **R** (Red), and **Y** (Yellow).

High Density Uni-Boot LC Patch Cords, OFNR Riser

Connector type	Fiber type	Catalog No.
LC to LC	50 μ M, OM3	HDPCLC50G3Myy
LC to SC	50 μ M, OM3	HDPCLCSC50G3Myy
LC to LC	50 μ M, OM4	HDPCLC50G4Myy
LC to SC	50 μ M, OM4	HDPCLCSC50G4Myy

yy = 1, 2, 3, 4, 5, 6, 8, 10 meters.

Keyed LC Pre-Polished Connectors

Fiber type	Boot Color	Catalog No.
50 μ M, OM3	Aqua	FCKLCP50GM12xx
50 μ M, OM2	Black	FCKLCP50M12xx
62.5 μ M, OM1	Beige	FCKLCP62M12xx
SM, OS2	Blue	FCKLCPSM12xx
LC duplex clip, black	–	FCKLCDCLP12BK

xx = Standard Housing Colors: **RD** (Red), **YL** (Yellow), **GN** (Green), and **BL** (Blue).
Special Colors: **AQ** (Aqua), **BR** (Brown), **OR** (Orange), **RO** (Rose), **SL** (Slate), and **VI** (Violet).

Keyed LC Multimode OM3 Patch Cords

Fiber type		Catalog No.
Keyed LC to keyed LC	50 μ M, OM3	KLCDFP50GMyyxx
Keyed LC to standard LC	50 μ M, OM3	KLCDFP50GMyyxx
Keyed LC to standard SC	50 μ M, OM3	KLCDFPSC50GMyyxx

yy = Standard Lengths: 01, 02, 03, 05, and 10 meters.

xx = Standard Housing Colors: **RD** (Red), **YL** (Yellow), **GN** (Green), and **BL** (Blue).
Special Colors: **AQ** (Aqua), **BR** (Brown), **OR** (Orange), **RO** (Rose), **SL** (Slate), and **VI** (Violet).

Hubbell OptiChannel Keyed LC Adapter Panels

Description	Port	Catalog No.
Adapter panel,	12	FSPKLCDS6xx
keyed LC duplex	24	FSPKLCDS12xx

Note: Individually bagged with dust caps installed.

xx = Standard Housing Colors: **RD** (Red), **YL** (Yellow), **GN** (Green), and **BL** (Blue).
Special Colors: **AQ** (Aqua), **BR** (Brown), **OR** (Orange), **RO** (Rose), **SL** (Slate), and **VI** (Violet).

MSFP to LC Equipment Patch Cords

Description	Fiber Type	Catalog No.
MSFP to LC,	50 μ M, OM3	MSFPLC50G3Myy
MSFP to LC	50 μ M, OM4	MSFPLC50G4Myy

Replace yy with standard lengths of **1, 2, 3, 4, 5, 6, 8** or **10** meters.

MPO to MPO 12-Fiber Round Cords, OFNP Rated Plenum

Fiber type	Catalog No.
50 μ M, OM3	FPCPMTP50G3Mxfn
50 μ M, OM4	FPCPMTP50G4Mxfn
SM, OS2	FPCPMTPSxfn

x = Length in meters or feet (no zeros preceding value)

f = Feet (leave blank for meters)

n = No pulling eye



Performance

Premium OM3 and OM4 multimode fiber; bend insensitive OS2 singlemode fiber; featuring low loss MTP terminations.



Custom Made to Order

Configured to exact customer specifications.



Environmental

Provides exact lengths and number of connections needed per application. Eliminate unwanted cable and packaging on the job site.



Reliability

100% factory tested in a controlled environment.

Airflow

- Small form 12 strand fiber in a 3mm jacket has a very small profile
- Lowest possible cable profile minimizes obstruction of airflow

Security

- Factory-sealed cassettes provide a layer of protection
- Optical fiber is immune to signal tapping
- Fiber networks are less susceptible to "direct connect" access

Administration

- Reduced cable congestion makes it easier to identify and trace ports and cables
- Consolidation of channels into small form cables or bundles reduces the number of cable runs

Space Utilization

- High bandwidth fiber and copper transmits more data per cable for optimum use of cable pathways
- Using laser optimized fiber enables lower cost migration to new applications

Response Time

- Factory-terminated trunk assemblies reduce on-site installation time less 75%
- 100% optically tested for reliable performance
- High quality factory terminations assure maximum performance

Aesthetics

- Fewer cables eliminate unsightly clutter
- Factory terminated cables are coordinated with equipment connections for a professional appearance

All BIDnet fiber trunk assemblies are custom made-to-order items. Please call our insides sales team for price and lead time. Refer to product data sheets for nomenclature and detailed design information. Application limits apply to available lengths.

Hubbell BIDnet Pre-Terminated Fiber Trunk Assemblies



40 Gb/s and 100 Gb/s MTP Fiber Cords

Available Options

- Connectors: MTP female, 12-fiber or 24-fiber
- Fiber types: 50/OM3, 50/OM4
- 40 Gb/s fiber strand count: 12, 24 and 48 fibers
- 100 Gb/s fiber strand count: 24 and 48 fibers
- Cable: plenum, riser, or LSZH
- Polarity: 40GBASE-SR4 or 100GBASESR10
- Lengths: 1 to 150 meters (3 to 500 ft)
- Application limits:
 - OM3 40G/100G limit: 100 m (328 ft)
 - OM4 40G/100G limit: 150 m (492 ft)



Transition Assemblies

Available Options

- Connectors: MTP female to LC or SC duplex
- Fiber types: 50/OM3, 50/OM4, SM/OS2
- Fiber strand count: 12, 24 and 48 fibers
- Cable: plenum, riser, or LSZH (armored or non-armored)
- Polarity: TIA-568C.3, Type A,B or C
- Fan-out: 2.0mm furcation tubing

Distribution Trunks and Pigtails

Available Options

- Connectors: LC, MSFP, keyed LC, SC, SC/APC, ST, FC, FC/APC
- Fiber types: 62/OM1, 50/OM2, 50/OM3, 50/OM4, SM/OS2
- Fiber strand count: 6, 12, 24, 48, 72, and 96 fibers
- Cable: plenum, riser, or LSZH (armored or non-armored)
- Fan-out options: 900 micron buffer



Distribution Fan-Out Trunks and Pigtails

Available Options

- Connectors: LC, MSFP, keyed LC, SC, SC/APC, ST, FC, FC/APC
- Fiber types: 62/OM1, 50/OM2, 50/OM3, 50/OM4, SM/OS2
- Fiber strand count: 6, 12, 24, 48, 72, 96
- Cable: plenum, riser, or LSZH (armored or non-armored)
- Fan-out: 2.0mm furcation tubing



Mesh Bundle Trunks (2.0mm Duplex Zip Cord)

Available Options

- Connectors: LC, MSFP, keyed LC, SC, SC/APC, ST, FC, FC/APC
- Fiber types: 62/OM1, 50/OM2, 50/OM3, 50/OM4, SM/OS2
- Fiber strand count: 6, 12, 24, 48, 72, 96
- Cable: plenum, riser, or LSZH
- Outer sheath: polyester mesh

Hubbell BIDnet Pre-Terminated Copper Trunk Assemblies

Jack to Open



Jack to Jack



Jack to Plug



Specifications

Jacks

- Nose contact material: beryllium copper with precious metal plating over nickel under-plating
- Contact performance: confirmed over the full range of TIA plug deflection limits

Plugs

- Mechanical: cable to plug tensile strength: 20+ lbs
Mating cycles: 2000+
- Material
Plug body: polycarbonate UL 94-V0
Plug boot: PVC
- Contact: high strength copper alloy
- Plating: 50 micro-inch precious metal over 100 micro-inch under-plating

Available Options

- Lengths: 10'-295'
- Legs: 1, 4 and 6
- Category: 5e, 6 and 6A
- Connection: RJ45 jack; RJ45 plug; open end
- Cable: Plenum, riser and LSZH
- UTP: Category 5e; Category 6; Category 6A
- FTP: Category 6 (10G Base-T)
- Color: Blue and white

All BIDnet pre-terminated cable assemblies are made-to-order items. Please call our inside sales team for lead-time and availability.



Airflow

- Designed specifically for 10G Base-T applications providing a solid foundation for critical data intensive applications

Security

- Optional Patch Cord Locking Tabs for intentional and unintentional engagement
- Optional RJ45 port blockers available for security port protection

Administration

- All NEXTSPEED® Ascent 10G Base-T components have provisions for labeling for easy administration
- Hubbell complements each product with standardized labels that simplify the task of identification

Space Utilization

- Angled UDX panels eliminate horizontal cable management allowing for maximized rack space utilization
- High density 36- and 48-port UDX panels maximize the total amount of jacks for each rack unit

Response Time

- Termination time reduced by 75% through the use of quick lace design and the TX4PP 1-Punch tool

Aesthetics

- 10G Base-T bandwidth per cable minimizes cable count, improving appearance
- Stylized panel aesthetics



Category 6A Jacks

Third party component compliant performance provides significant headroom over TIA and ISO standards.



Category 6A Jacks Capacity

Small form factor allows up to 48 jacks in a 1-U panel.



Angled Category 6A Patch Panels

Ideal for high density applications for easy patch cord routing and eliminates horizontal patch cord management panels.



NEXTSPEED® Ascent Category 6A Patch Cords

Ascent wiring technology improves crosstalk providing increased performance.



Category 6A Cable

Patented cable design suppresses AXT delivering full 10GBase-T error free transmission.

Category 6A UTP System

NEXTSPEED® Ascent Category 6A, Component Compliant Jacks

Color	Single Pack	25-Pack	Color	Single Pack	25-Pack
Almond	HJ6AAL	HJ6AAL25	Light Almond	HJ6ALA	HJ6ALA25
Black	HJ6ABK	HJ6ABK25	Office White	HJ6AOW	HJ6AOW25
Blue	HJ6AB	HJ6AB25	Orange	HJ6AOR	HJ6AOR25
Brown	HJ6ABN	HJ6ABN25	Purple	HJ6AP	HJ6AP25
Electric Ivory	HJ6AEI	HJ6AEI25	Red	HJ6AR	HJ6AR25
Gold	HJ6AGL	HJ6AGL25	White	HJ6AW	HJ6AW25
Gray	HJ6AGY	HJ6AGY25	Yellow	HJ6AY	HJ6AY25
Green	HJ6AGN	HJ6AGN25			

Note: Light Almond is the same color as Office White.



NEXTSPEED® Ascent Category 6A, Component Compliant Patch Panels

Ports	Height Inches (mm)	Width Inches (mm)	Rack Units	Style	Black	Silver
24	1.75" (45)	19" (483)	1	Straight	HP6A24U	HP6A24US
48	3.50" (89)	19" (483)	2	Straight	HP6A48U	HP6A48US
96	7.00" (178)	19" (483)	4	Straight	HP6A96U	HP6A96US
24	1.75" (45)	19" (483)	1	Angle	HP6A24AU	
48	3.50" (89)	19" (483)	2	Angle	HP6A48AU	

Note: **HP6Axx** angled panel protrudes 4.46" from the plane of the rack. Hubbell recommends one (1) extra inch of space between the door and panel angle.



NEXTSPEED® Ascent Category 6A, Component Compliant Patch Cords

		Catalog Number								
	Blue	Black	Brown	Green	Orange	Pink	Purple	Red	White	Yellow
1'	HC6AB01	HC6ABK01	HC6ABN01	HC6AGN01	HC6AOR01	HC6APK01	HC6AP01	HC6AR01	HC6AW01	HC6AY01
3'	HC6AB03	HC6ABK03	HC6ABN03	HC6AGN03	HC6AOR03	HC6APK03	HC6AP03	HC6AR03	HC6AW03	HC6AY03
5'	HC6AB05	HC6ABK05	HC6ABN05	HC6AGN05	HC6AOR05	HC6APK05	HC6AP05	HC6AR05	HC6AW05	HC6AY05
7'	HC6AB07	HC6ABK07	HC6ABN07	HC6AGN07	HC6AOR07	HC6APK07	HC6AP07	HC6AR07	HC6AW07	HC6AY07
10'	HC6AB10	HC6ABK10	HC6ABN10	HC6AGN10	HC6AOR10	HC6APK10	HC6AP10	HC6AR10	HC6AW10	HC6AY10
15'	HC6AB15	HC6ABK15	HC6ABN15	HC6AGN15	HC6AOR15	HC6APK15	HC6AP15	HC6AR15	HC6AW15	HC6AY15
20'	HC6AB20	HC6ABK20	HC6ABN20	HC6AGN20	HC6AOR20	HC6APK20	HC6AP20	HC6AR25	HC6AW20	HC6AY20

Made-to-order lengths are available from 1ft to 30ft in 1ft increments and 30ft to 100ft in 5ft increments.



NEXTSPEED® Ascent Category 6A, Component Compliant Cable

Color	Plenum Spool	Riser Spool
Blue	C6ASPB	C6ASRB
Gray	C6ASPGY	C6ASRGY
White	C6ASPW	C6ASRW
Yellow	C6ASPY	C6ASRY

Note: All category rated cable is packaged in 1000 foot quantities.





Airflow

- Category 6A FTP cable's reduced OD optimizes airflow throughout the infrastructure

Administration

- All NEXTSPEED® Ascent Category 6A components have provisions for labeling for easy administration

Space Utilization

- PSJ24 UDX panels maximize the total amount of shielded jacks for one rack unit

Response Time

- The NEXTSPEED® Ascent Category 6A enhanced performance FTP cabling system is designed specifically for 10GbE applications and provides a solid foundation for critical data intensive applications
- Tool-less jack termination reduces FTP termination under two minutes

Aesthetics

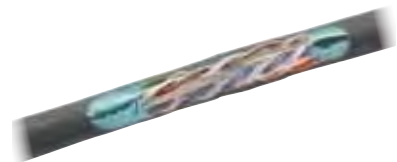
- One-piece shielded jack construction
- Smaller cable diameter reduces cable congestion



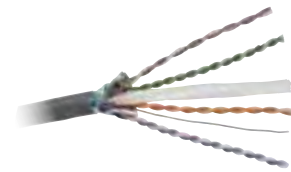
10GbE channel tested delivering 10dB of headroom @ 417MHz providing true 10GbE application assurance.



Wiring technique compartmentalizes pairs, ensuring maximum headroom.



Patented cable design suppresses AXT delivering full 10GBase-T error free transmission.



Small OD construction provides increased capacity in cabling runways.



Ascent technology improves AXT, increasing performance.



Two piece conductor sled design optimizes pair separation and maximizes NEXT performance.

Category 6A Shielded System

NEXTSPEED® Shielded Category 6A Jacks

Unit of Measure	A-Wired	B-Wired
2 per bag	SJ6A2A	SJ6A2B
24 per bag	SJ6A24A	SJ6A24B



NEXTSPEED® Shielded Patch Panels, Unloaded

Ports	Height Inches (mm)	Width Inches (mm)	Rack Units	Type	Color	Catalog No.
24	1.75" (45)	19" (483)	1	Flat	Silver	PSJ24S
24	1.75" (45)	19" (483)	1	Flat	Black	PSJ24BK
48	3.50" (89)	19" (483)	2	Flat	Silver	PSJ48S
48	3.50" (89)	19" (483)	2	Flat	Black	PSJ48BK
24	1.75" (45)	19" (483)	1	Angled	Black	PSJ24AU
48	3.50" (89)	19" (483)	2	Angled	Black	PSJ48AU



NEXTSPEED® Ascent Shielded Category 6A Patch Cords

Length	Catalog Number			
	Black	Blue	Gray	Yellow
3'	PC6ABK03	PC6AB03	PC6AGY03	PC6AY03
5'	PC6ABK05	PC6AB05	PC6AGY05	PC6AY05
7'	PC6ABK07	PC6AB07	PC6AGY07	PC6AY07
10'	PC6ABK10	PC6AB10	PC6AGY10	PC6AY10
15'	PC6ABK15	PC6AB15	PC6AGY15	PC6AY15
20'	PC6ABK20	PC6AB20	PC6AGY20	PC6AY20
25'	PC6ABK25	PC6AB25	PC6AGY25	PC6AY25

Made-to-order lengths are available from 30ft to 75ft in 5ft increments.

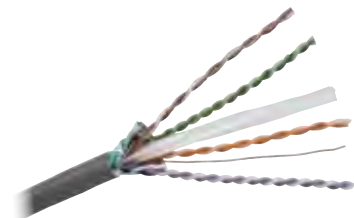
Spec sheets are available for these products online. Type the part number into the search box.



NEXTSPEED® Ascent 10GbE, FTP Cable, 4-Pair

Color	Plenum Spool	Riser Spool
Blue	C6AFTPSPB	C6AFTPSRB
Gray	C6AFTPSPGY	C6AFTPSRGY
White	C6AFTPSPW	C6AFTPSRW
Yellow	C6AFTPSPY	C6AFTPSRY

Note: All category rated cable is packaged in 1000 foot quantities.





Airflow

- Intuitive design optimizes airflow by creating designated cable pathways away from center of cabinet
- Can be used in front to rear, side to side, and bottom to top airflow configurations

Security

- 3-Point door locking system
- Standard locks for side covers

Administration

- Easier to identify and trace ports and cables
- Cable management spools with label fields to identify bundles of cable
- Unobscured cable pathways simplify tracing cables

Space Utilization

- Enhanced cable management features allow cable storage within the cabinet

Response Time

- Rack positions are identified on all four uprights aiding the installation of new gear
- Cable management spools snap into place
- Optional split rail kits maximize cabinet utilization by accommodating servers and switchgear in one cabinet

Aesthetics

- Stylized look enhances appearance of any computer room
- Cable management focused design manages and conceals cable bundles



Flexible

These Network Cabinets offer a high degree of flexibility and ease when managing cables.



Identification

RMU identification markings.



Efficiency

Perforated front and rear doors to optimize air flow.



Access

The network cabinets' extra width provides enhanced internal cable management maximizing the quantity of cables while allowing access to gear.

Hubbell Enclosures Full Size Cabinets

Network Cabinet

Type	Rack Units	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Color	Catalog No.
Standard w/sides	43	80" (2032)	30" (762)	32" (813)	Black	H2N8032
Standard w/sides	43	80" (2032)	30" (762)	36" (914)	Black	H2N8036
Standard w/sides	45	84" (2134)	30" (762)	32" (813)	Black	H2N8432
Standard w/sides	45	84" (2134)	30" (762)	36" (914)	Black	H2N8436
Seismic Z4 w/sides	43	80" (2032)	30" (762)	32" (813)	Black	H2N8032Z4
Seismic Z4 w/sides	43	80" (2032)	30" (762)	36" (914)	Black	H2N8036Z4
Seismic Z4 w/sides	45	84" (2134)	30" (762)	32" (813)	Black	H2N8432Z4
Seismic Z4 w/sides	45	84" (2134)	30" (762)	36" (914)	Black	H2N8436Z4
Without sides	43	80" (2032)	30" (762)	32" (813)	Black	H2N8032E
Without sides	43	80" (2032)	30" (762)	36" (914)	Black	H2N8036E
Without sides	45	84" (2134)	30" (762)	32" (813)	Black	H2N8432E
Without sides	45	84" (2134)	30" (762)	36" (914)	Black	H2N8436E



Server Cabinet

Type	Rack Units	Height Inches (mm)	Width Inches (mm)	Depth Inches (mm)	Color	Catalog No.
Standard w/sides	43	80" (2032)	24" (610)	42" (1067)	Black	H2S8042
Seismic Z4 w/sides	43	80" (2032)	24" (610)	42" (1067)	Black	H2S8042Z4
Without sides	43	80" (2032)	24" (610)	42" (1067)	Black	H2S8042E



Joining Kit



Contents	Catalog No.
6 each of the following: 1/4"-20 x 3/4" hex bolts, 1/4" lock washers, 1/4" flat washers, 1/4"-20 hex nuts	HPWJKIT

Caster Kit

Catalog No.
H2KMB



Vertical Cable Management Bar

Size	Catalog No.
For 80" cabinet	H280CM
For 84" cabinet	H284CM



Cabinet Fan Kit, 460 CFM

• Enclosure will accept 2 Fan Kits	
Description	Catalog No.
Network Cabinet Fan Kit	H2KNF
Server Cabinet Fan Kit	H2KSF



Equipment Shelves, Cantilevered

- Content: Stationary 16ga shelf, #12-24 mounting hardware

Type	Load Capacity	Dimensions In (mm)	Catalog No.
Solid	50lb	3.5" (89)H x 17" (432)W x 14" (356)D	MCCCS19
Perforated	50lb	3.5" (89)H x 17" (432)W x 14" (356)D	MCCCS19P
Solid	200lb	7.0" (178)H x 19" (483)W x 20" (508)D	MCCCWS19HD



Equipment Shelves, Center-Weighted

- Content: Stationary 16ga shelf, #12-24 mounting hardware

Type	Load Capacity	Dimensions In (mm)	Catalog No.
Solid	75lb	3.5" (89) H x 17" (432) W x 19" (483) D	MCCCWS19





Airflow

- Open design removes all barriers to forced and convective airflow

Administration

- Cable management spools with label fields to identify bundles of cable
- Un-obscured cable pathways simplify tracing cables much easier to identify and trace ports and cables

Space Utilization

iFRAME®

- Columns mount on 2' pitch to align with floor and ceiling grids
- 1,400 lb load capacity and 100% utilization of rack space maximizes equipment density per square foot

NEXTFRAME®

- Modular components can be field configured to meet the unique needs of each application

Response Time

- Cable pathways are easily and completely open facilitating movement and additions of servers

iFRAME®

- Top ladder pieces cut to length and pre-drilled for 4" square work boxes at factory

- Cable management spools snap into place

NEXTFRAME®

- Organizers designed with rounded components to reduce the risk of cold flow and cable kinks to optimize transmission performance

Aesthetics

- Double hinging covers project image of quality
- Stylized look enhances appearance of any computer room



iFrame® Network Hardware Management System

Design

Innovative iFRAME® column system integrates grounding and bonding, power distribution, cable management, and equipment racking.

Simplified

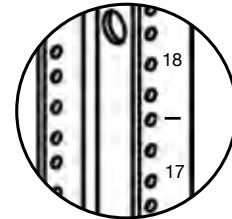
Straightforward, structured, comprehensive system.

Installation

Integrated vertical management with racking system consolidates hardware infrastructure components.



NextFrame® Equipment Racks



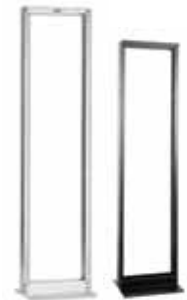
Identify

Rack mount unit is individually numbered for easy equipment location.



Rigidity

6" rack supplies additional support for larger cable bundling and Category 6A applications.



Versatility

Available in a variety of sizes and mounting configurations, NEXTFRAME® racks provide easy access to cabling and equipment.

iFrame Network Hardware Management System

iFRAME® Column

Contents: 1 iFRAME® column weldment, 1 bottom alignment installation aid and 1 iFRAME® top plate floor template, 1 full height front cover with 4 heavy-duty floor anchor washers dual-acting hinges and 2 dual-acting front cover hinges (not included in **IS7E**), 20 #12-24 x 5/8" dog point machine screws, 4 4" gates (Catalog No. **VCG4**) and washers, 12 snap in place cable routing spools, and 1 assembly hardware kit.

Rack Units	Height Inches (mm)		Width In. (mm)	Rail Depth In. (mm)	Overall Depth In. (mm)	Hole Type	Color	Catalog No.
	Overall	Usable						

Use: Without Raised Floor

45	84" (2134)	78.8" (2002)	5" (13)	3" (8)	14.17" (360)	12-24 Threaded	Black	IS7
45	84" (2134)	78.8" (2002)	10" (25)	3" (8)	14.17" (360)	12-24 Threaded	Black	IS710
45	84" (2134)	78.8" (2002)	15" (38)	3" (8)	14.17" (360)	12-24 Threaded	Black	IS715

Use: Square Holes with Cage Nuts

45	84" (2134)	78.8" (2002)	5" (13)	3" (8)	14.17" (360)	Square	Black	IS7M6
45	84" (2134)	78.8" (2002)	10" (25)	3" (8)	14.17" (360)	Square	Black	IS7M610

Use: As the Rear Columns in 4-Post Applications

45	84" (2134)	78.8" (2002)	5" (13)	3" (8)	14.17" (360)	12-24 Threaded	Black	IS7E
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Note: Order two columns for the first rack in a line, then order only one column for each additional rack.

iFRAME Column Seismic

45	84" (2134)	78.8" (2002)	5" (13)	3" (8)	14.17" (360)	12-24 Threaded	Black	IS7Z4
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IS7

Shown: door open, door closed

NextFrame Equipment Racks

3" Equipment Rack

Rack Units	Height Inches (mm)	Width Inches (mm)	Rail Depth Inches (mm)	Hole Type	Color	Catalog No.
24	48" (1219)	19" (483)	3" (76)	#12-24 Threaded	Black	HPW48RR19*
24	48" (1219)	23" (584)	3" (76)	#12-24 Threaded	Black	HPW48RR23*
36	68.5" (1676)	19" (483)	3" (76)	#12-24 Threaded	Black	HPW66RR19*
45	84" (2134)	19" (483)	3" (76)	#12-24 Threaded	Black	HPW84RR19*
45	84" (2134)	23" (584)	3" (76)	#12-24 Threaded	Black	HPW84RR23*
48	89.7" (2286)	19" (483)	3" (76)	#12-24 Threaded	Black	HPW90RR19*
48	89.7" (2286)	23" (584)	3" (76)	#12-24 Threaded	Black	HPW90RR23
51	96" (2438)	19" (483)	3" (76)	#12-24 Threaded	Black	HPW96RR19*
51	96" (2438)	23" (584)	3" (76)	#12-24 Threaded	Black	HPW96RR23*

*Add "**ML**" at end of Catalog No. for Mill Finish.

6" Equipment Rack

Rack Units	Height Inches (mm)	Width Inches (mm)	Rail Depth Inches (mm)	Hole Type	Color	Catalog No.
45	84" (2134)	19" (483)	6" (152)	#12-24 Threaded	Black	HPW84RR19D

4-Post, 19" Equipment Rack

Rack Units	Overall Height Inches (mm)	Usable Height Inches (mm)	Overall Width Inches (mm)	Depth Inches (mm)	Hole Type	Color	Catalog No.
45	84" (2134)	79" (2007)	20.2" (513)	24" (610)	#12-24 Threaded	Black	SF841924T
45	84" (2134)	79" (2007)	20.2" (513)	29.23" (742)	#12-24 Threaded	Black	SF841929T
45	84" (2134)	79" (2007)	20.2" (513)	36" (914)	#12-24 Threaded	Black	SF841936T
45	84" (2134)	79" (2007)	20.2" (513)	24" (610)	Square M6	Black	SF841924
45	84" (2134)	79" (2007)	20.2" (513)	29.23" (742)	Square M6	Black	SF841929
45	84" (2134)	79" (2007)	20.2" (513)	36" (914)	Square M6	Black	SF841936



HPW84RR19



HPW84RR19D



SF841924T



Ladder Rack



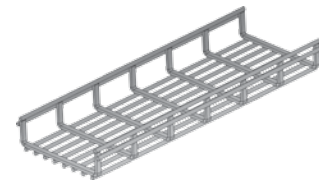
Modular System

Easily Configured for New and Existing Cable Routing

Versatility

Mounts to Floors, Walls, Ceilings, Equipment Racks and Cabinets

Wire Tray



Configurable

Tray can be installed overhead or under raised floors.

Security

- Pathways keep cabling secure and away from unnecessary handling
- High side walls help to contain cables

Administration

- Ladder Rack and Wire Tray have smooth welds to avoid snags when pulling cable

Space Utilization

- Wire Tray can be installed in overhead or in raised floor applications
- Configuring on-site allows for efficient space usage and installing around obstacles

Response Time/Performance

- Ladder rack and Wire Tray have high weight loading per foot capacities to meet the most demanding installation
- Wire Basket flat style ribbing has greater surface area to reduce cabling jacket stress, this reduces strain and protects cabling integrity

Aesthetics

- Available in standard powder coated stock colors, additional colors available for wire basket at request
- Hubbell's Basket Tray sweeps or right angled options allow for an easy installation



Ease of Use

Splice kit installs easily for joining tray sections and building corners.

Versatility

Shaped cross bars have more surface area and reduce pressure/strain on cables.



Round



Flat Style

Cross sectional view of cross members.

NextFrame Cable Management

Ladder Rack

Straight Section

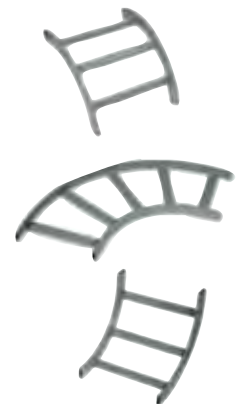
Width Inches (mm)	6' (1829) Length		10' (3048) Length	
	Black	Gray	Black	Gray
6" (152)	HLS0606B	HLS0606G	HLS1006B	HLS1006G
12" (305)	HLS0612B	HLS0612G	HLS1012B	HLS1012G
18" (457)	HLS0618B	HLS0618G	HLS1018B	HLS1018G
24" (610)	HLS0624B	HLS0624G	HLS1024B	HLS1024G

Note: Please order straight sections in multiples of 10 pieces. Width = outside to outside dimensions.

90° Turns

Width Inches (mm)	Inside Radius 90° Black	Flat Turns 90° Black	Outside Radius 90° Black
6" (152)	HLI0690B	HLF0690B	HLO0690B
12" (305)	HLI1290B	HLF1290B	HLO1290B
18" (457)	HLI1890B	HLF1890B	HLO1890B
24" (610)	HLI2490B	HLF2490B	HLO2490B

Width Inches (mm)	Inside Radius 90° Gray	Flat Turns 90° Gray	Outside Radius 90° Gray
6" (152)	HLI0690G	HLF0690G	HLO0690G
12" (305)	HLI1290G	HLF1290G	HLO1290G
18" (457)	HLI1890G	HLF1890G	HLO1890G
24" (610)	HLI2490G	HLF2490G	HLO2490G



Wire Tray for Overhead

Wire Trays



Round



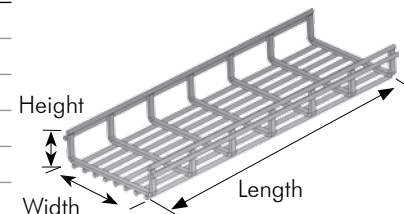
Flat Style

Height x Width x Length Inches (mm)	Round Wire Tray		Flat Style Wire Tray	
	Pre-Galvanized	Black	Pre-Galvanized	Black
x 4" (102) x 118" (3000)	HPWW0x04	HPWW0x04BK	HPWW0x04S	HPWW0x04SBK
x 6" (152) x 118" (3000)	HPWW0x06	HPWW0x06BK	HPWW0x06S	HPWW0x06SBK
x 8" (203) x 118" (3000)	HPWW0x08	HPWW0x08BK	HPWW0x08S	HPWW0x08SBK
x 12" (305) x 118" (3000)	HPWW0x12	HPWW0x12BK	HPWW0x12S	HPWW0x12SBK
x 16" (406) x 118" (3000)	HPWW0x16	HPWW0x16BK	HPWW0x16S	HPWW0x16SBK
x 18" (457) x 118" (3000)	HPWW0x18	HPWW0x18BK	HPWW0x18S	HPWW0x18SBK
x 20" (508) x 118" (3000)	HPWW0x20	HPWW0x20BK	HPWW0x20S	HPWW0x20SBK

Note: x= Height: 2 (2" 51mm), 4 (4" 102mm), 6 (6" 152mm) or 8 (8" 203mm)

All dimensions are +/- 0.25".

Additional widths available. Consult the Premise full line catalog for further details.



Supports

Width Inches (mm)	Shelf Support	Ceiling Support
4" (102)	HPWWSSP04	—
6" (152)	HPWWSSP06	—
8" (203)	HPWWSSP08	—
12" (305)	HPWWSSP12	HPWWGSP12
16" (406)	HPWWSSP16	HPWWGSP16
18" (457)	HPWWSSP18	HPWWGSP18
20" (508)	HPWWSSP20	HPWWGSP20
24" (610)	HPWWSSP24	HPWWGSP24



Accessories

Description	Catalog No.
Splice kit	HPWWSKT



Administration

- Raised floor clamps used in Mesh Bonding Network can be installed in either Parallel or Grid configurations
- Grid Configured Floor Clamp has the easiest and quickest installation in the industry

Space Utilization

- Clamping devices allow for installation in overhead or underfloor applications
- Grounding kits are available in many configurations of lengths and mounting lug options to conform to unique installations

Response Time/Performance

- A properly designed and installed grounding system that adheres to UL, BICSI or TIA Standard will protect active equipment from electrical interferences

Aesthetics

- Full Grounding and Bonding products are compatible with Busbars, Lugs, Grounding Kits, Terminals, for a uniform installation



Complete Installation Ground Kit

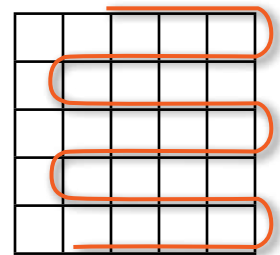
Kits provide all components, mounting hardware and supplies to complete the installation to code requirements.
See page 23 for ground kit part number configurator.

Raised Floor Clamps

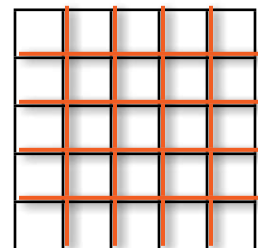
Complete Installation Ground Wire Kits all components, mounting hardware and supplies to complete the installation to code.



Parallel Configuration



Grid Configuration



Busbars

Busbars for on-rack, in-cabinet, in room or in entrance facility. Tin plating options for required environments and standards.

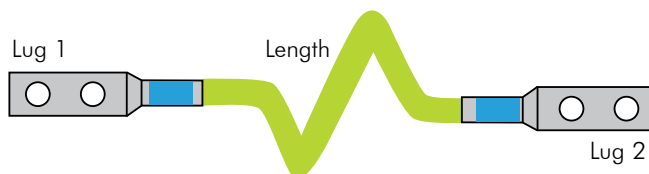
ShieldBond Grounding and Bonding



#6 AWG Ground Wire Kit Contents

Lugs	Installed and Die Index verified
Labeled	Installed Caution label applied at both ends
AntiOxidant	0.5oz tube Penetrox A
Hardware	Mounting to Rack Busbar M6 and #12-24 Mounting to TGB/TMGB 1/4" nuts and bolts

Lug	Hole Size	Hole Spacing	Angle
D	0.25"	0.625"	0
DF	0.25"	0.625"	45
DN	0.25"	0.625"	90
DA	0.25"	0.75"	0
DB	0.375"	1.0"	0



Complete Installation Ground Kit Part Number Configurator

To create a ground kit part number, add 3 characteristics to the base **HGRKT**. For Example **HGRKTDA30DN**

BASE Catalog No.	LUG 1 Catalog No.	LENGTH (IN) Catalog No.	LUG 2 Catalog No.
HGRKT	D DA DB	30 45 60 90 144	D DF DN DA DB
HGRKT	DA	30	DN



Many configurations possible to fit any installation.

Raised Floor Clamps



Catalog No.	HGBGXP1828RF	HGBGRF4C3	HGBGP1526G1
Pedestal Size	0.75" (19) – 2.0" (51)	0.75" (19) – 1" (25)	1" (25) – 1.25" (32)
Pedestal Type	Round or Square	Round or Square	Round
Ground Wire Min.	6 AWG	8 AWG	4 AWG
Ground Wire Max.	4/0 AWG	2 AWG	2/0 AWG
Configuration	Grid or Parallel	Parallel	Parallel

Busbars

Insulator standoffs included

99% Copper UL Listed	99% Copper Tin Plated UL Listed	Hole/Stud	Spacing	Total QTY	Double Lug QTY	Lug Type
HBBBHR19KT -19" Rack Mount -Mounting Hardware	HBBBHR19KTP -19" Rack Mounted -Mounting Hardware	6-32 UNF	1.0"	8	4	S
HBBBVR36KT -36" Vertical Mount -Mounting Hardware	HBBBVR36KTP -36" Vertical Mount -Mounting Hardware	1/4-20	0.625"	16	8	D/DF/DN
HBBB14210A TGB: 2" X 10"	HBBB14210ATP 2" X 10"	0.25"	0.625"	16	8	D/DF/DN
HBBB14224B TGB: 2" X 24"	HBBB14224BTP 2" X 24"	0.25"	0.625"	18	9	D/DF/DN
HBBB14416H TMGB: 4" X 16"	HBBB14416HTP 4" X 16"	0.25"	0.75"	18	9	DA
HBBB14420J TMGB: 4" X 20"	HBBB14420JTP 4" X 20"	0.44"	1.0"	16	8	DB
		0.25"	0.75"	16	8	DA
		0.44"	1.0"	34	17	DB
		0.25"	0.75"	34	17	DA



DATA CENTER

Wiring Devices for
Power Distribution, Surge Protection,
Support and Energy Savings



Hubbell Twist-Lock® Power Devices prevent unintentional disconnects to ensure uptime of critical active equipment. Available in 15A, 20A and 30A configurations. Watertight Safety-Shroud® designs further enhance safety and reliability of data center electrical connections. Twist-Lock Receptacles can be integrated into vertical and horizontal power strips.



Escalating data center power requirements are easily managed with Hubbell 50A Insulgrip® Twist-Lock® plugs and connectors. These super tough nylon devices provide maximum safety, heat resistance, and strain relief. Their rigid construction and stainless steel shroud assures reliable mating and secure terminations.



Hubbell IEC Pin and Sleeve 20A to 100A connections enable distribution of 3 phase electrical power to server cabinets, extending the capacity of power distribution units for space savings and reducing the amount of power cables beneath the raised floor for effective airflow and cooling.



Hubbell lighting controls used throughout all areas of the data center save energy by automatically turning lights on when the area is occupied and off when vacant. Lighting controls can also be deployed to trigger a security alert when motion is detected in the data center.



Kellems® strain relief grips support power drops from above to help remove obstacles from airflow in plenum spaces. They also reduce waste by eliminating the need for rigid wire management systems and ensure reliable electrical connections through proper strain relief, which reduces costly data center downtime.



Hubbell SpikeShield® service entrance and branch panel surge protection devices reliably handle peak amperage capacity of 40kA to 320kA. They can be easily installed next to the panel to prevent over voltage that can impact sensitive data center equipment and mechanical systems.

For complete wiring device offerings, visit www.hubbell-wiring.com



HUBBELL®
Premise Wiring

www.hubbell-premise.com



**Hubbell Premise
Wiring Your
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