

# STRUCTURED CABLING SOLUTIONS









# **CHALLENGES** IN STRUCTURED **CABLING**

A structured cabling system that has been designed and deployed effectively will include all the necessary cables and hardware to form a complete telecommunications infrastructure.

The type of structured cabling your data center needs will be determined by various factors, including the services you offer (bandwidth needs), your existing network equipment, and its layout. The top priorities for data centers are to ensure the network infrastructure is flexible, scalable, secure, and has the shortest possible business interruptions. Planning the network structure and selecting the right products to meet current and future requirements is a considerable challenge, and good quality structured cabling components are essential.

# **STRUCTURED CABLING SOLUTIONS**

Pre-assembled solutions have become the norm. Multifibre cables usually with 12 or 24 fibers end on 12-fiber MPO/MTP® connectors or LC or SC duplex connectors. Pre-terminated cables simplify and allow much faster installation and provisioning of necessary connections even during operation. When the new servers, switches, or other active equipment are installed or moved, the cables are already in place and ready for connection. Pre-assembled systems are not limited to fiber optic cables. Pre-assembled solutions for copper cables are also becoming increasingly popular as trunk-solutions with jacks on both ends or as multi-patch trunks for fast and easy connection.

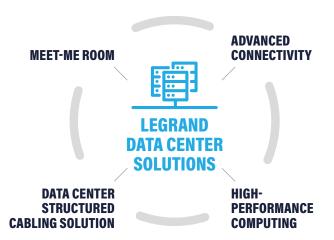


# **DIFFERENT SOLUTIONS** FOR DIFFERENT **CABLING AREAS**

Within the data centers, different areas have different requirements for density, performance, and technology. The increasing demand for bandwidth and the rapid changes in active equipment technology and interfaces are also setting new standards for structured cabling inside and outside the boundaries of the data center. The requirements for the main connection points of several data centres and the connection points to the outside world are completely different in many situations than in the classic white space of a data center.

# **SOLUTIONS FOR EVERY AREA** AND WE ARE HAPPY TO SUPPORT YOU

As a specialist in data center solutions and structured cabling, we offer you a comprehensive portfolio of solutions that can meet all your digital infrastructure requirements. In order to make this clearer and more intuitive, this catalogue is divided into precisely these core areas - we will be happy to advise and support you in making the right product selection if required.



# A variety of needs covered!

		GLOBAL ADVANTAGES			PRODUCT CRITERIA	
		EASY & FAST Installation	MODULARITY & SCALABILITY	VERY HIGH FLEXIBILITY	PRE-TERMINATED & SPLICE SOLUTIONS	FIBER & COPPER SOLUTIONS
	MEET-ME ROOM	<b>~</b>	<b>~</b>		<b>✓</b>	
	ADVANCED CONNECTIVITY	<b>~</b>	<b>~</b>	<b>~</b>		
The state of the s	DATA CENTER STRUCTURED CABLING SOLUTION	<b>✓</b>	<b>~</b>		<b>✓</b>	<b>~</b>
	HIGH- PERFORMANCE COMPUTING	<b>~</b>	<b>~</b>		<b>~</b>	



PRODUCT CRITERIA					CUSTOMER	ADVANTAGES
PASSIVE FIBER SOLUTIONS WITH HIGHEST DENSITY	PASSIVE FIBER SOLUTIONS WITH HIGHEST QUALITY	SOLUTIONS READY FOR NEW DD TRANSCEIVER	SOLUTIONS READY FOR BANDWIDTH 400G+	CONNECTION TO PROVIDERS AND/OR OTHER BUILDINGS / DATA CENTERS	SERVICE & Support	25-YEAR WARRANTY FOR APPLICATION & PERFORMANCE
<b>~</b>				<b>✓</b>	<b>✓</b>	<b>✓</b>
<b>✓</b>	<b>✓</b>	<b>✓</b>	<b>✓</b>		<b>✓</b>	<b>✓</b>
					<b>~</b>	<b>~</b>
	<b>✓</b>		<b>✓</b>		<b>~</b>	<b>~</b>

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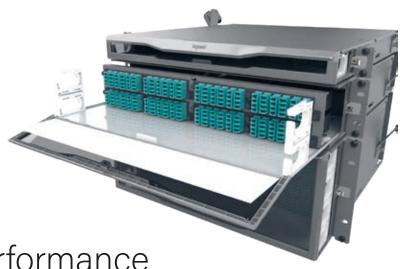
LCS<sup>3</sup> system

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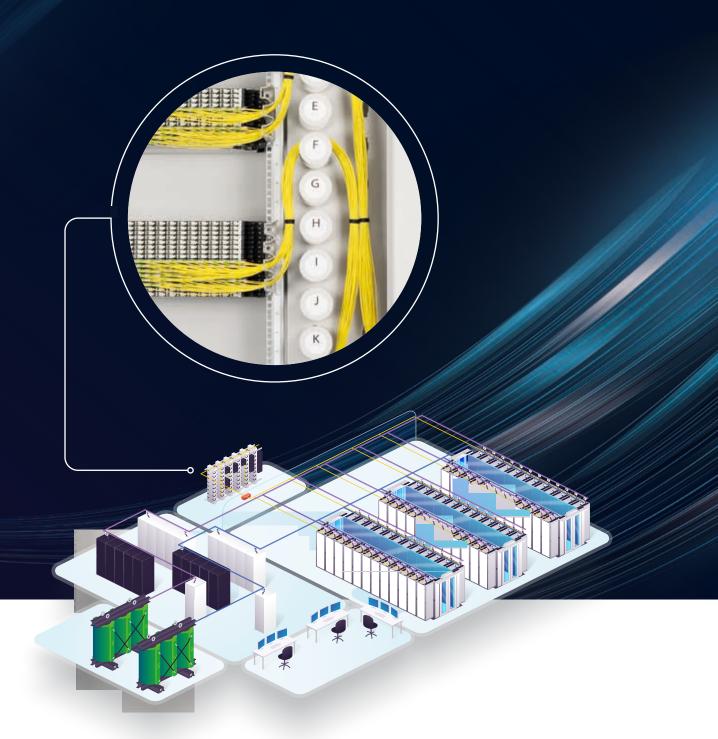
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# MEET-ME ROOM FIBER SOLUTIONS





An ever-increasing number of data centers are being used at ever-higher bandwidths to meet the growing demand for computing capacity. And whether it's a regional data center, a colocation data center or a hyperscaler, access to the outside world and therefore fiber connectivity is vital.

A Meet-Me Room (MMR) is a secure place where customers can connect to one or more carriers or to several customer cages throughout a campus. This area enables cable companies, ISPs, and other providers to cross-connect with tenants in the data center. An MMR contains cabinets and racks with carriers' hardware allowing quick and reliable data transfer. MMRs physically connect hundreds of different companies and ISPs located in the same facility. This peering process is what makes the internet exchange possible. The Meet-Me Room eliminates the round-trip traffic has to take and keeps the data inside the facility. Packets do not have to travel to the ISP's main network and back. Eliminating local loops makes data exchange more secure while also lowering costs.

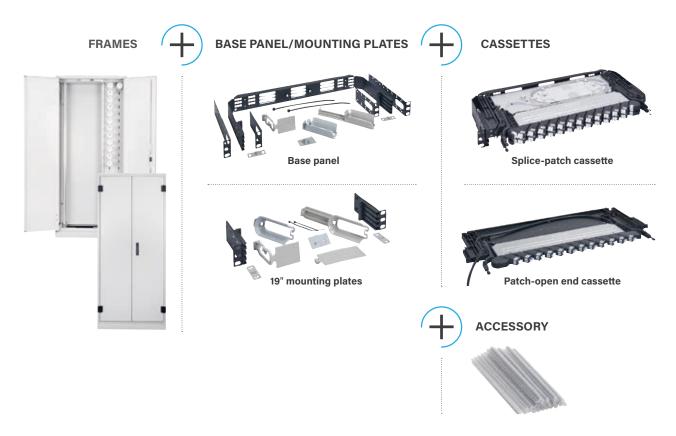
All colocation data centers house an MMR. Most data centers are carrier-neutral. Being carrier-neutral means tenants can choose from a wide selection of network providers. When there are more carriers, customers are more likely to contract with that data center. The main reason is that customers can improve flexibility, redundancy, and optimize their connection by having multiple choices for providers.

The benefits of Meet-Me Rooms include:

- Reduced latency: High-bandwidth, direct connection decreases the number of network hops to a minimum. By eliminating network hops, latency is reduced substantially.
- Reduced cost: By connecting directly through a Meet-Me Room, carriers bypass local loop charges. With many carriers in one place, customers may find more competitive rates.
- Quick expansion: MMRs are an excellent method to provide more fiber connection options for tenants. Carrier-neutral data centers can bring more carriers and expand their offering.

#### LEGRAND'S RESPONSE

The Legrand LCS3 Meet-Me Room concept is designed to provide high quality, high density, and high performance at all levels.



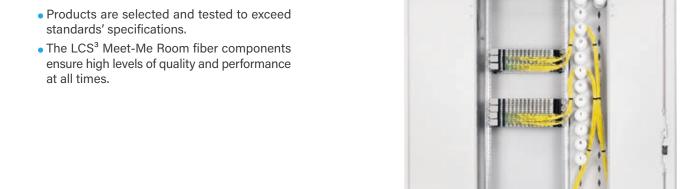
# LCS<sup>3</sup> Meet-Me Room solutions

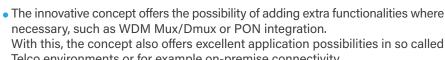
The Legrand LCS<sup>3</sup> Meet-Me Room portfolio offers a fully scalable solution that seamlessly responds to both the high fiber numbers used in this type of environment and the high quality and reliability that comes with it.



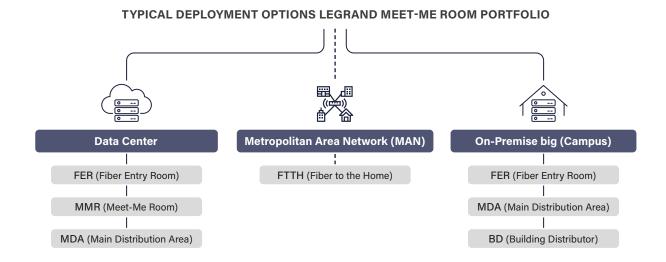
# MEET-ME ROOM SOLUTIONS

# **COMBINING HIGH QUALITY** AND ASTUTENESS





# Telco environments or for example on-premise connectivity.



# MEET-ME ROOM SOLUTIONS

# EASE OF WORK AT ALL LEVELS

A good network does not only stand or fall on the quality of its connectivity solution; all preconditions must also be fulfilled correctly.

#### Simple installation

- The LCS3 Meet-Me Room solutions have various mounting options, depending on the installation type (on a wall, uprights, etc.).
- All components can be assembled and disassembled simply and quickly thanks to adjustable uprights, stubs that can be positioned according to your needs...

Adjustable positioning of the 19" mounting brackets, enabling depth adjustment







#### Simple maintenance

 A unique advantage of the ODF patch panels is the ability to use them fully front-loaded. Patch cabling and incoming cabling are fed in from the front, separated from each other, so that moves, adds and changes are easy to perform.



• The ODF patch panels are equipped with a slide-forward function, which makes the patch surface easily accessible, even in case of full patching. Each cassette can be pulled independently 40mm to the front in order to facilitate adds, moves or changes.



#### **FULLY PRE-ASSEMBLED SOLUTION & EASY SCALABILITY**

Future-proof solutions based on a modular platform that is easy to upgrade with new functionalities by extending the installation with extra cassettes.

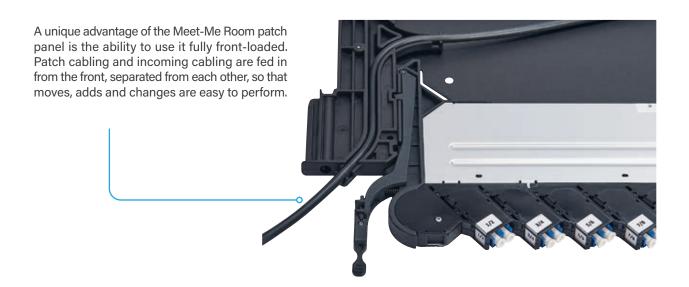


#### Optimized and simplified patching

A good network does not only stand or fall with a good connectivity solution, also all preconditions have to be fulfilled correctly. The Legrand Meet-Me Room portfolio therefore consists of an Optical Distribution Frame (ODF) with optimized patch management, especially designed for high density applications. Even with more than 4,000 patches in an ODF frame, this allows the patches to be ranked in a structured way.









## Legrand cabling system, LCS<sup>3</sup> Meet-Me Room solutions

#### cassettes, frames and accessory





Left patch-open end cassette Right patch-open end cassette

24 fibers - single-mode - LC/APC cassettes

Mounting plates
19" mounting plates for ODF patch-open end cassettes



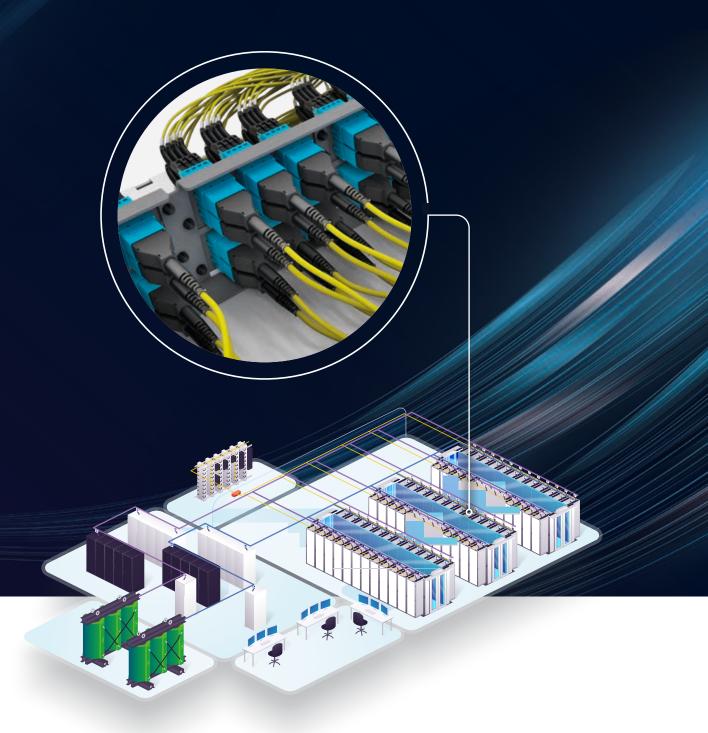
C44001

C49001 (equipped with cassettes)

C49002

Can be used in combination with other LCS³ solutions to create an optimal connectivity solution for the entire data center					
Pack	Cat.Nos	ODF splice-patch cassettes			ODF frames
		Designed for fast and easy splicing of large amounts of fibers Fully scalable: up to four cassettes on 1U allow for finishing up to 96 fibers, including Air Blown Fibers Completely preloaded delivery including adapters, pigtails, splice trays, heat shrink splice protectors and mounting materials			Dimensions: H 2050 x W 900 x D 400 mm 42U Completely closed: the most critical connections in the data center are well protected against external influences Delivered fully pre-assembled including side panels, back panel, doors, roof and integrated cable
1		<b>24 fibers - single-mode - LC/PC cassettes</b> Left splice-patch cassette Right splice-patch cassette	1 1	C44001 C44002	management Frame with cable management on the left Frame with cable management on the right
1		24 fibers - single-mode - LC/APC cassettes Left splice-patch cassette Right splice-patch cassette	25	C49004	Accessory Heat shrink splice protectors 40mm
1	C49001	Empty base panel Empty base panel (1U) for ODF splice-patch cassettes			
		ODF patch-open end cassettes			
		Designed for situations where a distribution box or outside-plant splice box is used for splicing Cable diameter 4.5 mm: can be used outside plant in combination with a (multi)duct Cassettes equipped with an open-end cable length 15 m (other lengths available on request)			

# ADVANCED CONNECTIVITY FIBER SOLUTION





Bandwidths in data centres are constantly increasing. The technology for transmitting data rates of up to 400 GBit/s and beyond is already in the starting blocks. Parallel to the data rates, the requirements for cabling solutions are also increasing. Those who want to make the fiber optic network in their data centre and fiber optic backbone future-proof, scalable, and at the same time application-neutral should rely on future-oriented technology.

With increasing data rates, the fiber optic cabling systems currently available are reaching their limits. The attenuation budgets to be met as well as flexibility to adapt to new active components and cabling structures are obstacles that cannot be overcome. In addition, these systems are incredibly complicated due to the variety of available components and polarities.

#### LEGRAND'S RESPONSE

The Infinium acclAIM cabling system closes exactly this gap and at the same time increases link performance many times over.



# Infinium acclAIM fiber solutions

Infinium accIAIM redefines connectivity by replacing preterminated cassette-based solutions with direct connections eliminating components, process, and cost. Infinium acclAIM delivers the only connectivity on the market with a near lossless link, almost unlimited scalability, and no gender considerations. The Direct Mating Breakout and Application Defined Polarity vastly improves density and flexibility and enables Sustainable Migration improving system life-cycle tremendously.

# INFINIUM acclAIM **REDEFINED** CONNECTIVITY

The acclAIM™ Alignment Independent Multifiber (AIM) fiber interconnect system is designed to mate multiples of 8-fiber trunk cable connectors directly to arrays of twin-fiber patch cord connectors using a "conversion adapter".

#### ■ Minimize loss - maximize optical headroom

- Lowest loss pre-term solution: insertion loss near zero
- Minimize or eliminate the need for splicing
- Maximize optical headroom to overcome barriers to performance

#### ■ Design Smarter - Longer Lifecycle

Simplicity of design combined with application-defined onsite polarity adjustment, fewer components, and near-lossless performance enables acclAIM to provide a multi-generational lifecycle with a single installation of a sustainable building asset for decades to come

#### Ultra-High Density Plus (UHD+)

Make the most of each rack unit (RU) with UHD+ offering up to 192 fibers per RU (33% more than High Density)

#### Simplify connectivity

- No gender considerations no pins, just direct connections
- Direct mating breakout acclAIM connectors mate directly to an array of 2-fiber mdc duplex patch cords
- Application defined polarity polarity can be adapted to nearly any link configuration; preplanned, on-site, or on the fly with no options to determine when ordering or designing
- Improved accessibility with the increased density of each connector and a smaller footprint enabled by acclAIM, there is more room to work on each panel

#### Approaching infinite scalability

Based on the simplified design, unparalleled performance. and architectural flexibility, Infinium acclAIM has an almost limitless migration path

#### Go live faster

Easy to stock and short lead times for conversion adapters enable rapid or emergency deployment

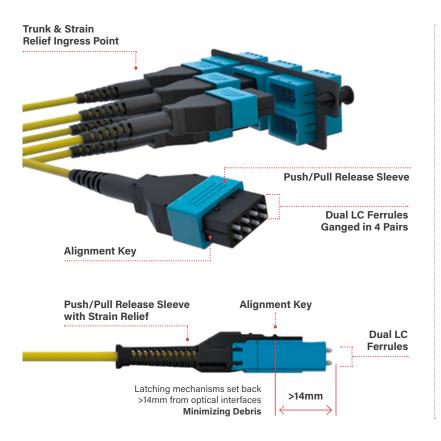
# CUT COST. **CUT** COMPLEXITY. **CUT** CASSETTES.

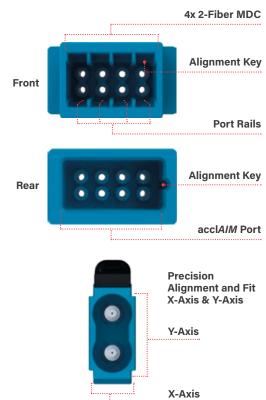


#### **REDUCE LABOR - LOWER COST**

- 40% faster install
- 60% faster removal
- Single link testing after mating
- Faster moves, adds & changes

# INFINIUM acclA/M **SOLUTION COMPONENTS**

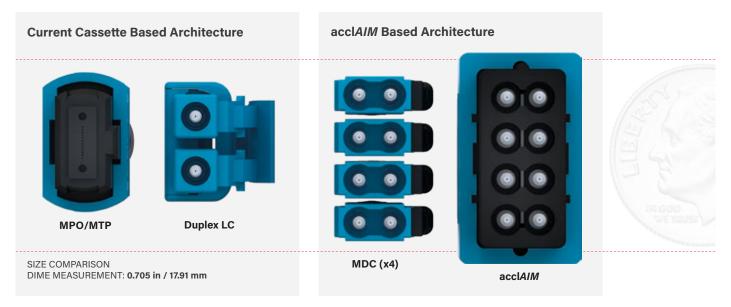






# **CONNECTOR COMPARISON**

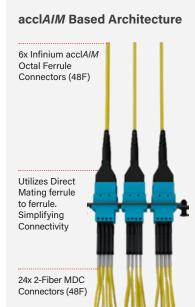
Infinium acclAIM utilizes a direct mating breakout - eliminating the need for a cassette to breakout multi-fiber cable.



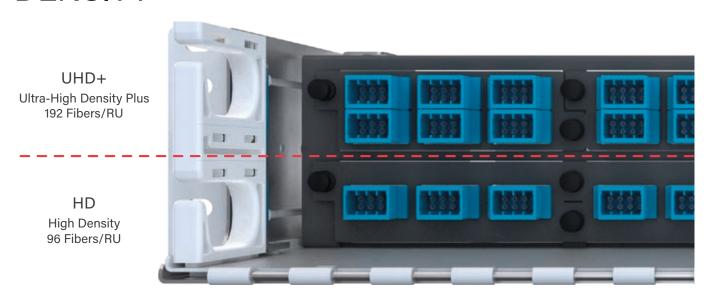
## INFINIUM acclAIM

# SIMPLIFIED INTERFACE



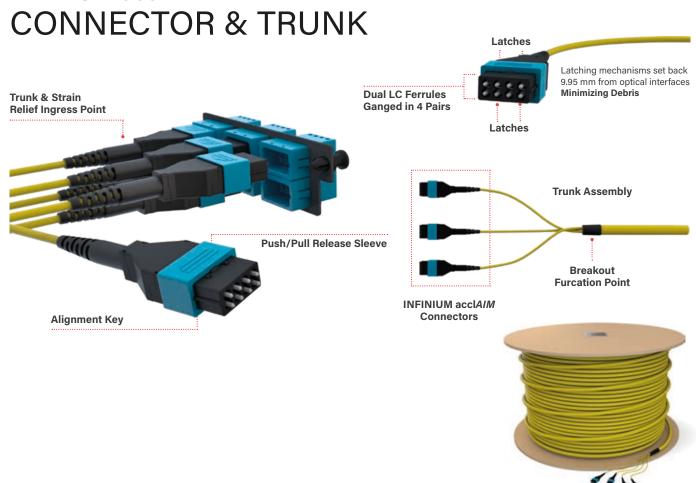


# **DENSITY**



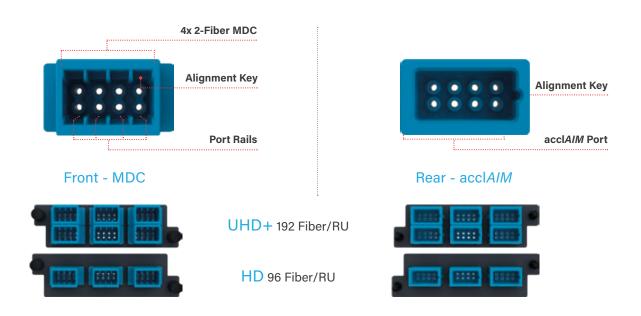
acclAIM Adapters Shown in INFC02U-M4-E Enclosure

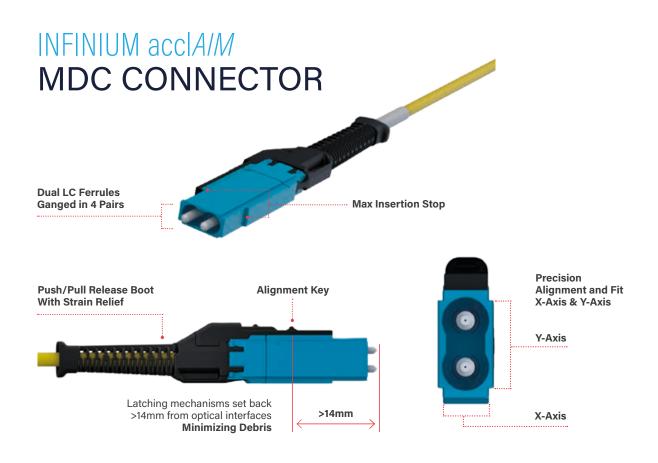
# INFINIUM acclA/M





# **CONVERSION ADAPTER PANEL - HDFP**





# **ERGONOMICS ADVANTAGE**

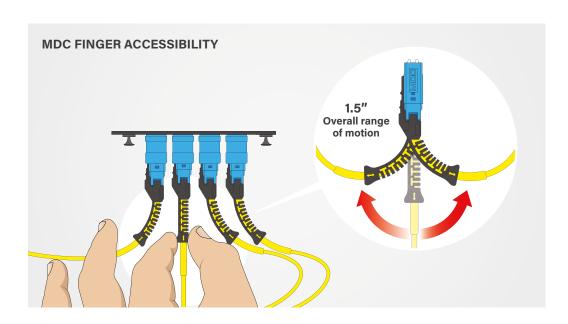
- Easy-grip and release connectors.
- The acclAIM solution delivers more hand/finger clearance than LC Patching - acclAIM with MDC offers 1.5 in of space vs. 1/8 in of space with LC.
- With LC connectors, technicians must reach almost an inch further into the cables to engage the latch vs. the acclAIM solution with MDC connectors.
- Less force required for insertion and removal than current connectivity options.

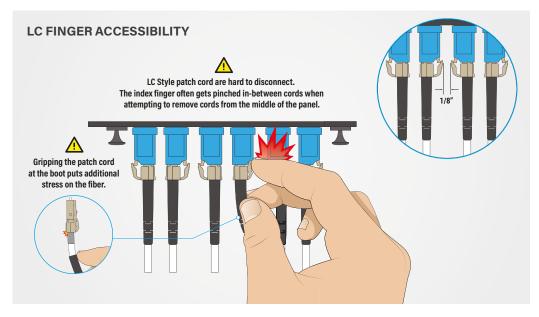
>40%

Faster Patch Cable Install

>60%

Faster Patch Cable Removal

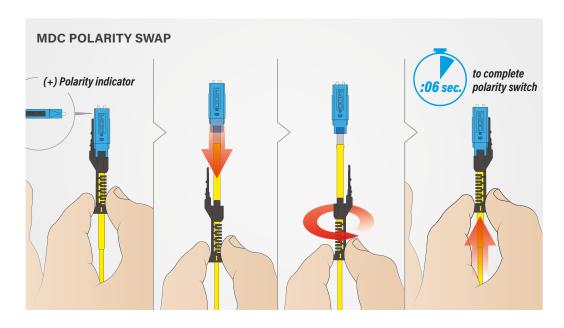


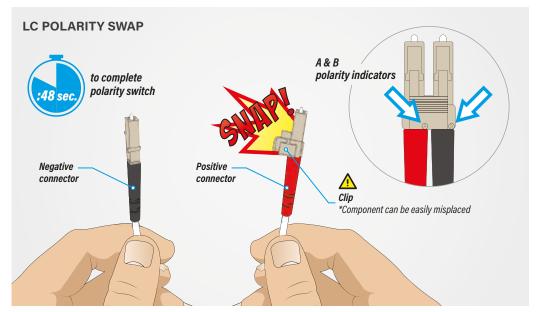




# INSTALL, MAINTENANCE & TESTING ADVANTAGE

- Faster cable installs and removal.
- acclAIM polarity is application-defined and can be adapted to nearly any link configuration; pre-planned, on-site, or on the fly vs. cassettes which must be pre-planned or reordered to change polarity.
- Patch cord polarity switching with acclAIM takes 6 seconds vs. LC Duplex which takes 48 with the potential of lost components - acclAIM solution with MDC patch cords saves 42 seconds on average vs. LC duplex and days faster than reordering a cassette to correct polarity.
- No cassette to inspect before mating.
- No front / rear connector troubleshooting one connection
- Adapters do not become obsolete if new grades of fiber are developed, can be reused indefinitely, and do not require delicate handling.
- Testing is completed with a single link after mating vs. testing both sides of a cassette, reducing significant time.



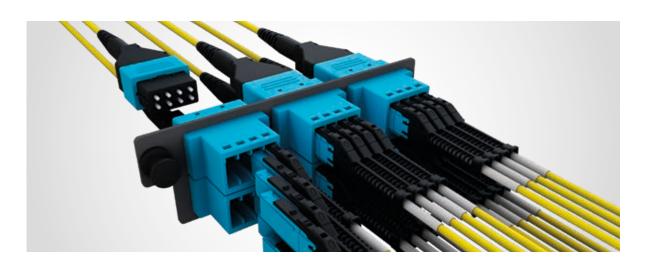


# PERFORMANCE ADVANTAGE

#### ■ Core level performance - maximizing optical headroom

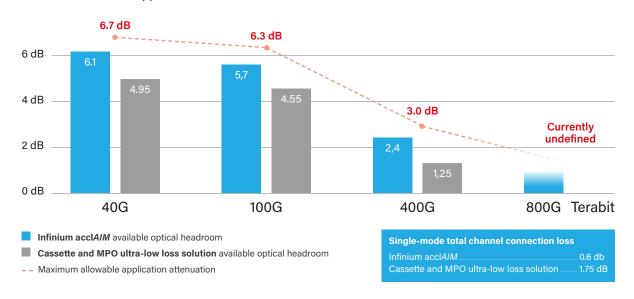
There is an inevitable correlation between maximizing optical performance margins (optical headroom) and optimizing overall costs from both an operational and procurement perspective\*. Infinium acclAIM delivers dramatically more optical headroom than any other pre-terminated solution!

<sup>\*</sup> Source: the "Quantum" Effect Paper, more information on multilaneinc.com



#### ■ Performance advantage

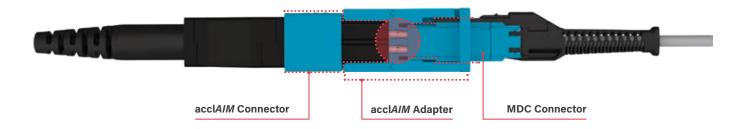
Maximum allowable application attenuation



	Industry standard pre-terminated solution	Infinium acclAIM core solution improvement
Bit error rate (errors over time)	2.35E-07	> 3.6 x
Total link loss (dB)	7.20 dB	> 1.0 dB
FEC corrections (codewords)	5.93E+05	> 1.77 x



#### **■** Core level performance







# **EASE OF INSTALLATION**

A single screwdriver is the only tool required for installing the enclosure in a rack. The mounting brackets with pin locks allow the enclosure to slide conveniently between 4 horizontal mounting positions. The open-ended design of the mounting brackets allows the enclosure to be installed by one person. Simply pre-mount the rack screws at the proper location on the rack, place the enclosure's mounting brackets on the pre-mounted screws to hold it in place, then tighten the screws.







# INFINIUM acclAIM **BEAUTIFUL AESTHETICS**

This enclosure features sleek styling that matches the design of Legrand racks, cabinets and other data center products and solutions, and a magnesium color scheme that fits all data center environments.







# **DESIGNED TO GROW**

# WITH THE NETWORK

#### INFINIUM™ Enhanced Fiber Enclosure

The Infinium Enhanced Fiber Enclosure is an ideal solution for fiber networks in data centers and building networks. The high-density footprint accommodates from 96 LC to 192 MDC fibers in 1U of rack space. This enclosure has many innovative features designed with the installer, contractor, and network professional in mind, providing a simplified process when installing or working within the enclosure.

- High Density, from 96 LC to 192 MDC connectors in 1U of rack space.
- Available in 1U, 2U, and 4U.
- Accommodates 4 mounting depth positions.
- Magnetic door latch.
- Versatile label card mounting locations (Door or Tray).
- Forward-sliding label card.
- 60/40 split toolless top cover.
- Toolless cable attachment arms.
- Pivot arms for fiber slack management.
- Magnesium color scheme.







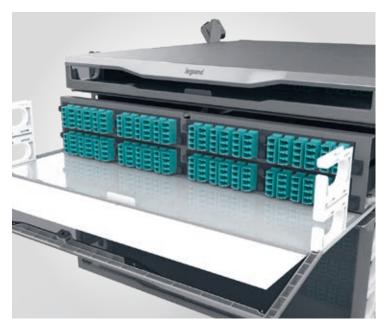
**2U Enclosure** 



**4U Enclosure** 

# **BETTER ACCESSIBILITY**

The magnetic latching mechanism of the enclosure door enables a simple one-handed pull to open, and push to close access. The enclosure door is attached to the sliding drawer face and tray, allowing easy clearance from equipment or other enclosures mounted below. A tray lock mechanism ensures that the tray stays in place when patching or dressing the fiber. The 60/40 split-top cover allows access from above and features toolless removal.





# INFINIUM acclA/M **INCREASED VISIBILITY**

A white tray in the front and integrated LED lighting in the rear, along with the split-top cover, provide maximum visibility when working within the enclosure.







# INFINIUM acclAIM **INTUITIVE CABLE MANAGEMENT**

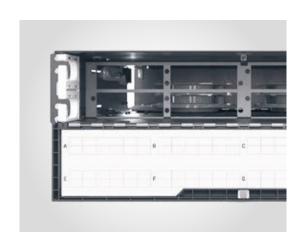
The unique pivot arms provide an innovative way to manage fiber slack storage. Each arm rotates out towards the rear of the enclosure and hosts a pivot disk that may be used with slack storage spools, fan-out kits, or attachment points for securing the Legrand HiLOC harness. The Cable Attachment brackets feature toolless adjustments for location based on which direction the cable is routed - either side of the enclosure, top or bottom. Simply make the adjustment for cable routing, load the grommet around the cable(s) and close the attachment cover.





# INFINIUM acclAIM **EASIER LABELING**

The label card is incorporated into the front door, positioning the labels directly below the ports for simple labeling and easy port identification. Templates created for both Brother and Dymo printers are available for download.

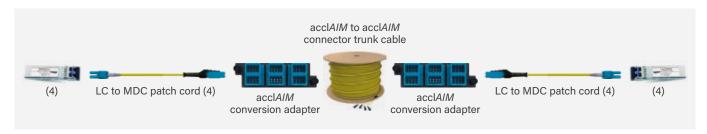


# REIMAGINING FIBER CABLING

Cassette-based forms of cable management within mission-critical spaces all pose varying challenges around polarity, optical loss, rapid deployment, and costs. Without a compelling alternative solution, these issues have often been viewed as an accepted frustration. Here is where the Legrand team swans opportunity to make life better and more lucrative for critical infrastructure operators.

Legrand's Infinium acclAIM redefines connectivity by replacing pre-terminated cassette-based cabling solutions with direct connections, eliminating costly components and time-consuming processes. A first-of-kind, Infinium acclAIM is the only fiber cabling connectivity solution on the market that offers the lowest optical loss and a significantly simplified installation and configuration process (the product design requires end-users to order only three parts) that results in virtually unlimited scalability for critical infrastructure operators. Simply put, Legrand's Infinium acclAIM cabling solution takes the antiquated, inefficient, and messy way of connecting or mating cables within the data center and other -critical environments, and reimagining that connection to be simpler, smaller, more intuitive, better performing and easier to use. Everything is possible, you can build every needed network architecture and connect all your equipment by just using Infinium acclAIM.

#### STANDARD LINK CONFIGURATION (8F)



#### **REPLACES**

 MPO cassettes and pre-terminated MPO trunks Pre-terminated LC-LC trunks and LC adapter panels MPO (F) to MPO (F) trunk cable LC to LC patch cord (4) LC to LC patch cord (4) (4)(4)MPO (M) MPO (M) cassette cassette

- ▶ No cassette
- **▶** Better performance
- ▶ Higher patch field density
- **▶** Simpler polarity
- **▶** Higher density
- ▶ No trunk furcation/stagger
- ▶ Simplified cable management
- ▶ Less bulk
- ▶ No cassette housing



#### ARRAY LINK CONFIGURATION (8F)



#### **REPLACES**



INFINIUM acclAIM advantages

- **▶** Better performance
- **▶** Simpler polarity

#### 8F DISTRIBUTION LINK CONFIGURATION

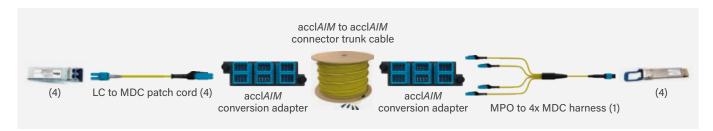


#### **REPLACES**



- ▶ No cassette
- **▶** Better performance
- ▶ Higher patch field density
- ▶ Simpler polarity (no gender pins)

#### **■ CONVERGENT LINK CONFIGURATION (8F)**



#### **REPLACES**



#### INFINIUM accl*AIM* advantages

- ▶ No cassette
- **▶** Better performance
- ▶ Higher patch field density
- ▶ Simpler polarity (no gender pins)

#### 24F DISTRIBUTION LINK CONFIGURATION



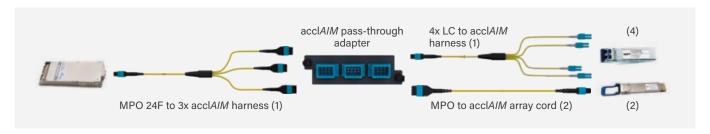
#### **REPLACES**



- ▶ No cassette
- **▶** Better performance
- ▶ Higher patch field density
- ▶ Simpler polarity (no gender pins)



#### ■ 24F MIXED LINK CONFIGURATION (acclAIM ONLY)



#### **REPLACES**



#### INFINIUM accl*AIM* advantages

- ▶ No cassette
- **▶** Better performance
- ▶ Higher patch field density
- ▶ Simpler polarity (no gender pins)

#### ■ 24F MIXED LINK CONFIGURATION (WITH MDC)



#### **REPLACES**



- ▶ No cassette
- **▶** Better performance
- ▶ Higher patch field density
- ▶ Simpler polarity (no gender pins)

# **G**legrand

## **HD Infinium**<sup>™</sup> enhanced fiber enclosures

### Infinium<sup>™</sup> accl*AIM*

#### trunk cable assembly



INFC01U-M4-E



Example of trunk cable assembly

Pack	Cat.Nos	HD enhanced enclosures
		High density, up to 96 LC connectors in 1U of rack space Integrated LED lighting and white tray Forward-sliding label card 60/40 split toolless top cover Toolless cable attachment arms Pivot arms for fiber slack management Magnesium color scheme
		With M4 (Base 12) drawer face
1	INFC01U-M4-E	1 U
1	INFC02U-M4-E	2 U
1	INFC04U-M4-E	4 U

Pack	Cat.Nos	Infinium™ Core
		Polarity: C Jacket type: Plenum Unit of measure: Meters / Feet
1 1 1	On demand <sup>1</sup> On demand <sup>1</sup> On demand <sup>1</sup>	OM5 8 fibers 24 fibers 48 fibers
1 1 1	On demand <sup>1</sup> On demand <sup>1</sup> On demand <sup>1</sup>	OM4 8 fibers 24 fibers 48 fibers
1 1 1	On demand <sup>1</sup> On demand <sup>1</sup> On demand <sup>1</sup>	OS2 8 fibers 24 fibers 48 fibers

<sup>1:</sup> For all pre-configured and customized options, consult us.



#### Infinium™ acclAIM

#### fiber conversion adapter panels

HDFP-AME48AC

Pack	Cat.Nos	HDFP adapter panels
1 1	HDFP-AME24QC HDFP-AME48QC	QC Lime 3 LC for 24 fibers OM5 6 LC for 48 fibers OM5
1 1	HDFP-AME24LC HDFP-AME48LC	LC Aqua 3 LC for 24 fibers OM4 6 LC for 48 fibers OM4
1 1	HDFP-AME24AC HDFP-AME48AC	AC Blue 3 LC for 24 fibers OS2 6 LC for 48 fibers OS2

#### Infinium™ acclAIM

#### technical characteristics

#### Trunk cable assembly

	Single-mode	Multimode		
General specifications				
Cable assembly type	Infinium acclAIM trunk	Infinium acclAIM trunk		
Fiber category	9 µm Single-Mode (OS2)	50 µm Multimode (OM4/OM5)		
Fiber category	United States	United States		
Connector design (co	nnector -A, connector -B)			
Connector type	Infinium acclAIM	Infinium acclAIM		
Connector color	Blue	Aqua (OM4) / Lime - coming soon (OM5)		
Ferrule material	Ceramic	Ceramic		
Boot color	Black	Black		
Performance specifications - per connector (connector -A, connector -B)				
Insertion loss max.	0.30dB	0.50 dB		
Return loss min.	55 dB	26 dB		
Cable design				
Jacket color	Yellow	Aqua (OM4) / Lime - coming soon (OM5)		
Polarity	С	С		
Fiber Specifications				
Wavelengths	1310/1550/1625 nm	850/1300 nm		

#### Fiber conversion adapter panels

#### **General information**

Color	OM4 (MM) Aqua, OM5 (MM) Lime, OS2 (SM) Blue	
Country of Origin	Mexico	
Туре	50 μm Multimode (OM4 or OM5) / 9 μm Single-Mode (OS2)	

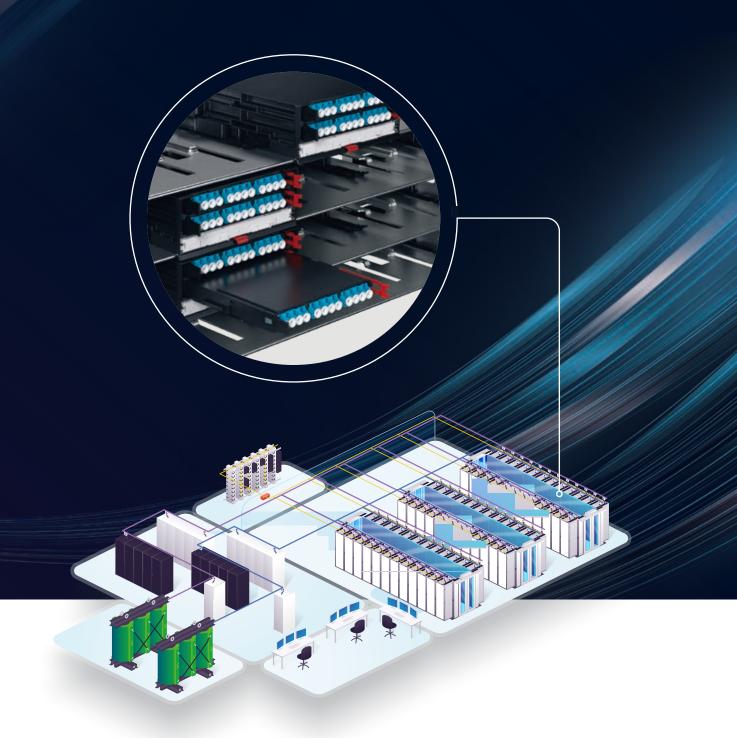
#### **Dimensions**

<b>Width</b> 3.45 in <i>i</i>		3.45 in / 87.63 mm
	Height	1.14 in / 28.96 mm
	Depth	1.02 in / 25.9 mm

#### **Technical information**

Adapter Front / Rear	MDC (4) per conversion adapter / acclAIM (1) per conversion adapter
Compatibility	Infinium HD-E Enclosure and RFPHD Panels - (4) Conversion Adapter Panels per RU
Density	Conversion Adapters per Panel (3) Hign Density (HD), (6) Ultra- High Density Plus (UHD+)
Fiber Count	48F (6 accIAIM UHD+), 24F (3 accIAIM)

# DATA CENTER STRUCTURED CABLING SOLUTION





With the complexities of today's data centers, as well as the promise of higher speeds and technological breakthroughs in the not-too-distant future, it's no wonder that the importance of structured cabling is also increasing.

In contrast to the many limitations inherent in point-to-point connections, structured cabling — or the use of smaller standardized subsystems — allows easier individual connections to be found, moved, and generally managed. Clearly, for forward-thinking data centers, structured cabling infrastructure is the way to go when it comes to data cabling solutions.

#### **UPTIME**

With newer data centers, access to critical information is the business's lifeblood, which means that uptime requirements — often with a rating as high as 99 percent — must be supported by the cabling system you install.

#### **SCALABILITY**

Whatever cabling solution you choose today will undoubtedly be required to make room for more bandwidth and higher speeds in the future. Scalability is as essential in your cabling infrastructure as it is to the equipment it connects.

#### **FUTURE-PROOF**

Along with scalability, your cabling system must be easy to adapt for future equipment changes, such as the push for more modular device usage and migrations to the cloud and virtual services.

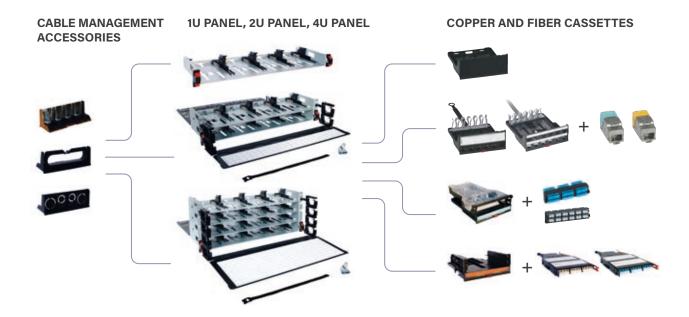
#### LEGRAND'S RESPONSE

The LCS<sup>3</sup> cabling system is a modular and flexible connection and distribution system for:

- copper and fiber optic technology
- 19" installation
- pre-assembled copper and fiber trunking technology
- splicing technology and on-site assembly of copper connection modules

The overall system is designed in such a way that the various basic housings and basic support systems for accommodating the module housings can be configured for the most diverse areas of use and application conditions via standardised components and individual parts.

This very high degree of flexibility means that customer-specific requirements can be configured individually.



# LCS<sup>3</sup> system: Performance

Legrand's LCS<sup>3</sup> system offers you a complete range of copper solutions as well as fiber optic solutions designed to deliver advanced network performance:

- ▶ 25 Gbps and 40 Gbps Ethernet applications (Copper system)
- ▶ 40 Gbps, 100 Gbps and 400 Gbps Ethernet applications (Fiber optic system)
- ▶ MTP/MPO high density and up to Cat. 8 solutions (Copper and Fiber optic systems)

LCS<sup>3</sup> system: Efficiency 50

LCS<sup>3</sup> system: Scalability & Maintenance 54



# INSTALLATION **KITS**

#### Zero-U kit for universal fixing

The Zero-U kit Cat.No 0 321 03 enables you to mount cassettes on 19" uprights, raised access floors, wire and sheet metal cable trays, structural uprights of the enclosure, etc.

The kit can take up to 2 slim High Density cassettes Cat.Nos 0 321 68/69/70 or 1 universal High Density cassette Cat.No 0 321 59 or 0 321 60.

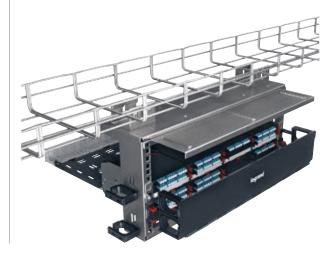
- Efficient solution to optimize space without the need to add an enclosure.
- Compatible with 1U, 2U and 4U High Density modular
- Easy mounting on cable trays (such as Cablofil) thanks to quick-fixing solutions.



#### ■ 1U to 4U kit for overhead fixing

No space available in your LCS<sup>3</sup> enclosure? The innovative kit Cat.No 0 321 89 enables you to fix the High Density modular panels on wire cable trays, above the enclosure.

- Perfect toolless fitting on cable trays. It can also be installed on roofs of racks.
- Maintains duplex multimode fiber architecture.
- Scalable (move, add, change) and efficient (space optimization) system.
- Easy installation and maintenance.
- Can be equipped with fiber optic and copper solutions.
- Compatible with automatically removable cassettes.
- Accommodates the same solutions as 19" patch panels.



# HIGH DENSITY

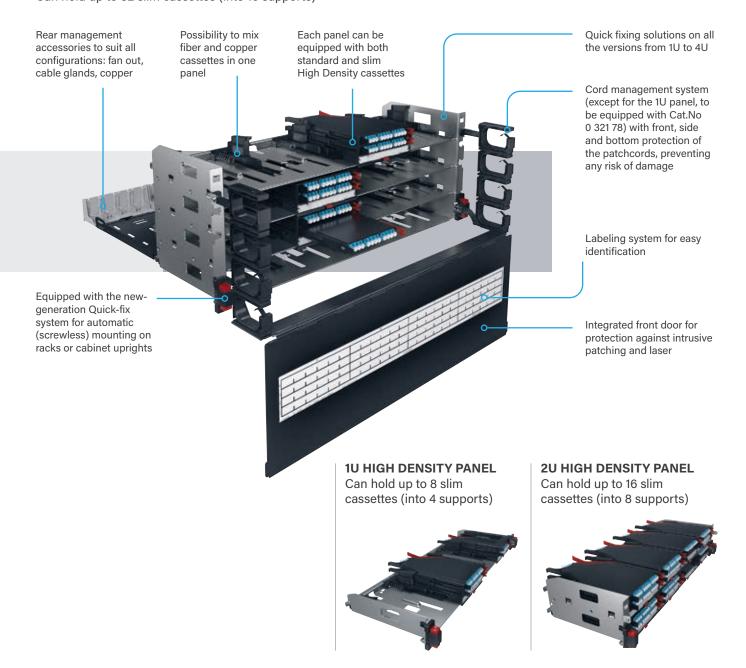
# **MODULAR PANELS**

#### From 1U to 4U

Optimize space and connectivity with our three HD modular panels! These quick-fixing solutions (automatic mounting and automatic grounding on 19" uprights) offer you optimum capacities per U: 96 in LC version, 48 in SC version, and 24 in ST version! Keeping link connections accessible and manageable, they offer slim and mix-media cassettes.

#### **4U HIGH DENSITY PANEL**

Can hold up to 32 slim cassettes (into 16 supports)





Fiber optic is a transmission medium that enables a larger bandwidth to be used than copper cables. With fiber optic cables, transmission is based on the propagation of light pulses, generated by an LED or a laser source in the infrared band, along a glass fiber. Inside an optical fiber, the signal can either be propagated in a straight line, or be reflected many times. Straight line propagation mode is said to be zero order. Singlemode fibers only use one mode to propagate light. The diameter of their cores is between 8 and 10 µm. Multimode fibers allow several propagation modes, and the diameter of their cores is 50 µm or 62.5 µm (the latter is hardly ever used now).

The diameter of the cladding is usually 125 µm. Multimode fibers are used in indoor installations and enable more economical devices to be used. They are subject to modal distortion when the different modes propagate at slightly different speeds, limiting the maximum distance at which the signal can be received correctly.

Singlemode fibers are used in outdoor installations as they can cover much longer distances and reach much higher speeds.

# FIBER OPTIC SYSTEM MTP SOLUTIONS

#### **High-speed solution**

With data centers, increased data rates have become a priority requirement. The IEEE has introduced parallel optics as an alternative to higher bandwidth fiber, starting with 40Gbps and now reaching 800Gbps Ethernet.

To answer this need, Legrand has introduced the MTP (Multiple-Fiber Push-On/Pull-Off compatible MPO) fiber solution to the catalogue. It guarantees speed, resistance, high performance, and high density.



#### ■ 40/100/400 Gigabit ethernet connectivity and cable

Identified by IEEE, TIA and ISO/IEC as the solution for non-duplex applications. The term MPO is the generic name, while the term MTP is a specific higher performance version with lower insertion loss.

#### MTP connector features:

- a high-speed connection with 12 fibers (2x12 for 24 fibers and with cassettes 8 fibers compatible).
- precise and safe connection.
- optimized cable management.
- high-density fibers.
- scalable system for future upgrades.
- simple maintenance operations.
- ease of extraction. No complex installation on site plug and play.
- the MTP is a multi-core connector. 1 cable = 1 connector.



#### With standard active equipment, we need to convert the MTP to LC or SC



#### **Optical performance**

MTP° connectors	Multimode Ultra Performance*	Single-mode Ultra Performance*
IL/Master	0.1 dB typical (all fibers) 0.35 dB maximum (single fiber) <sup>(2) (3)</sup>	0.1 dB typical (all fibers) 0.35 dB maximum (single fiber) <sup>(1) (4)</sup>
IL Max/Random*	0.35 dB (single fiber)	0.35 dB (single fiber)
Optical return loss(5)	> 20 dB	> 60 dB (8° angle-polished)

<sup>\*</sup> Performance is guaranteed only with other components of the same Legrand range (Core, Ultra, and Quantum). Mixing ranges or using other brands' components may lead to a different system performance. The uncertainty value for field measurement with LSPM testing using a reference cord defined in ISO/IEC 14763-3 applies to field testing with proposed Legrand testing cords. Refer to the Fiber Optic Testing Guide for Legrand Solutions.

<sup>(5)</sup> As tested in accordance with IEC 61300-3-6 and ANSI/TIA-455-107A

LC, SC, LC APC, SC APC connectors	Multimode Ultra Performance*	Single-mode Ultra Performance*
IL Max/Master*	0.15 dB	0.15 dB
IL Max/Random** ***	0.2 dB	0.25 dB
Typ. IL/Master*	0.08 dB	0.12 dB
Typ. IL/Random** ***	0.10 dB	0.12 dB
Return loss (UPC/APC)	> 25 dB	> 55/65 dB

<sup>\*</sup> IEC 61300-3-4

\*\*\* Performance is guaranteed only with other components of the same Legrand range (Core, Ultra and Quantum). Mixing ranges or use of components of other brand may lead to a different performance of the system. The uncertainty value for field measurement with LSPM testing using a reference cord defined in ISO/IEC 14763-3 applies to field testing with proposed Legrand testing cords. Refer to the Fiber Optic Testing Guide for Legrand Solutions.

<sup>(1)</sup> As tested in accordance with ANSI/TIA-455-171 Method D3 / IEC 61300-3-4

<sup>(2)</sup> As tested in accordance with ANSI/TIA-455-171 Method D1 / IEC 61300-3-4

<sup>(3)</sup> As tested on 50 µm fibers at a wavelength of 850 nm in accordance with IEC 61280-4-1

<sup>(4)</sup> Complies with IEC 61755-3-31/GRADE B

<sup>\*\*</sup> IEC 61300-3-34



#### **COMMON DATA CENTER APPROACHES**

Multimode fiber systems have been the most cost-effective fiber solution to use in the data center because the transceivers are much less costly than single-mode transceivers. Multimode transceivers use a vertical cavity surface emitting laser (VCSEL) light source, which is easy to manufacture and package. Multimode fiber systems have a shorter reach than single-mode systems; however, surveys have shown that more than 80% of data centers links extend to 100m or less. Although single-mode cable is less expensive, after factoring in the total system cost of multimode versus single-mode, multimode is still far more cost-efficient.

#### Maximum data rate according to fiber type and number of cores used

	ОМЗ	OM4	OM5	OS1a	OS2
2-core	1Gbps: 550m 10Gbps: 300m 25Gbps: 70m 50Gbps: 70m	1Gbps: 550m 10Gbps: 400m 25Gbps: 100m 50Gbps: 100m 100Gbps: 100m	1Gbps: 550m 10Gbps: 400m 25Gbps: 100m 50Gbps: 100m 100Gbps: 100m	1Gbps to 400Gbps: 2km	1Gbps: 5km 10Gbps to 400Gbps: 10km
4-core	100Gbps: 70m	100Gbps: 100m 200Gbps: 100m	100Gbps: 100m 200Gbps: 100m	100Gbps: 500m	100Gbps: 500m
8-core	40Gbps: 100m 100Gbps: 70m 200Gbps: 70m 400Gbps: 100m	40Gbps: 150m 100Gbps: 100m 200Gbps: 100m 400Gbps: 100m	40Gbps: 150m 100Gbps: 100m 200Gbps: 100m 400Gbps: 150m	200Gbps: 500m 400Gbps: 500m 800Gbps: 500m	200Gbps: 500m 400Gbps: 500m 800Gbps: 2km
16-core	400Gbps: 100m 800Gbps: 70m	400Gbps: 100m 800Gbps: 100m	400Gbps: 100m 800Gbps: 100m	800Gbps: 100m 1.6Tbps: 500m	800Gbps: 2km 1.6Tbps: 2km

Data in orange: draft applications (distances may vary at time of publication)

# FIBER OPTIC SYSTEM **CASSETTES**

#### Slim solutions for greater connectivity

Optimize space and increase the connectivity capacity of your infrastructure with slim cassettes! They are easy to install and maintain from the rear and front, and they are agile and flexible under all circumstances.

- Mounting either on High Density modular panels or in a Zero-U kit.
- Single-mode and multimode MTP solutions that can be mixed on the same support.
- Sliding cassettes individually removable from front and rear: accessible and easily manageable.
- Equipped with extraction button for easy maintenance: reduced time, cost and risk of MAC.
- High-performance with low insertion loss.
- Universal polarity offers flexibility in case of changes.

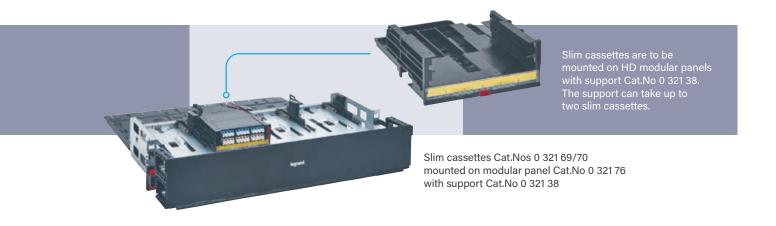
TYPE	CAT. NO
12 LC OM5 multimode	On demand
12 LC OM4 multimode	0 321 69
12 LC OM3 multimode	0 321 68
12 LC OS2 single-mode	0 321 70
Blanking module	0 321 39



OM4 multimode slim cassette - Cat.No 0 321 69



OS2 single-mode slim cassette - Cat.No 0 321 70



# Ready for **FUTURE APPLICATIONS!**

Our on-demand OM5 offer meets all your requirements in terms of connectivity! The infrastructure can easily evolve from 25 G or 50 G to 100 G and to 400 G thanks to parallel and multiplexing applications.

OM5 multimode MTP adaptor

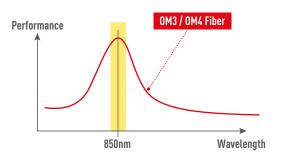


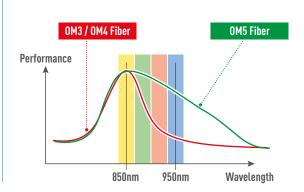
OM5 12 LC multimode block

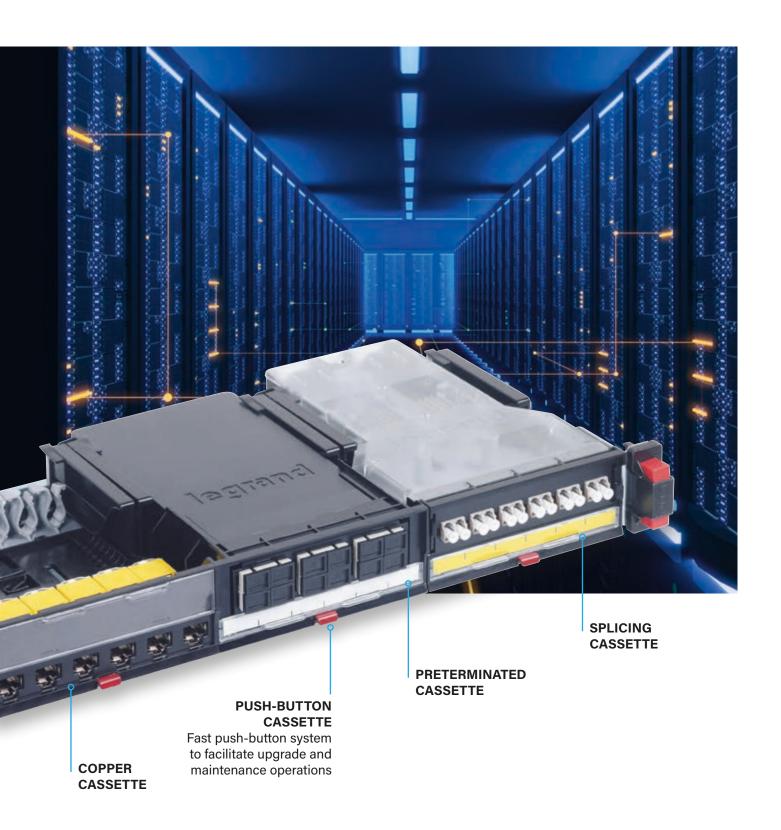


#### PERFORMANCE AND WAVELENGTH

OM3 and OM4 fibers are optimized according to the wavelength traditionally used: 850nm. To accept the four signals used in multimode WDM, OM5 has been redesigned to accept wavelengths from 850nm to 950nm. The diagrams below provide a graphical representation.





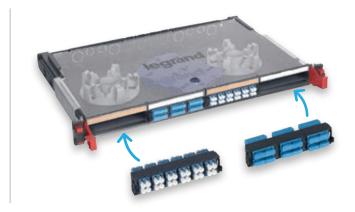




# FIBER OPTIC SYSTEM **PANELS**

#### Modular panels

- Innovative quick-fixing solution.
- Modular blocks to adapt to modular panel or drawer: LC, SC, ST, LC, APC, SC APC.
- Possible to add modular blocks, blank panel, MTP adaptor.



#### HD Modular panels

- Cassettes slide in from front & rear.
- Fast push-button on cassette.
- Splicing cassette which takes all modular blocks.
- Mixture of fiber/copper on cassette
- Trunk & cord management system.



# LCS<sup>3</sup> system: Efficiency

Legrand's LCS<sup>3</sup> system offers you copper and fiber optic solutions designed to enhance your infrastructure's efficiency:

- ▶ 48 ports per unit for high density (Copper system)
- ▶ 90 LC per unit for high density (Fiber optic system)
- ▶ 144 LC per Unit for ultra-high density (Copper and Fiber optic systems)

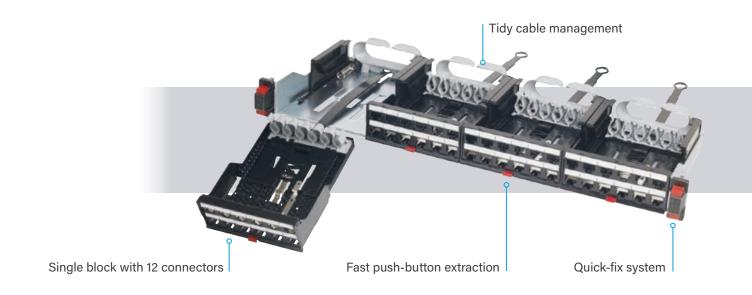
LCS<sup>3</sup> system: Scalability & Maintenance

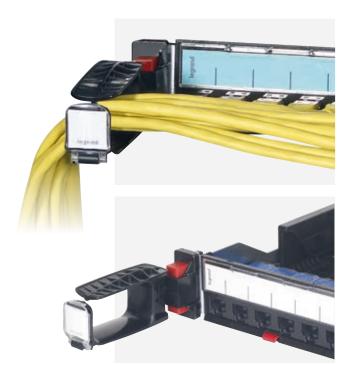


# **COPPER SYSTEM**

# PATCH PANEL HD SOLUTION **UP TO 48 PORTS PER UNIT**

High-density patch panel. It has changed from 24 to 48 ports, guaranteeing a reduced space occupied and making future upgrades easier. Designed to house four blocks of 12 connectors each.





#### QUICK-FIX system

Innovative quick-fixing solution:

- Push and connect system.
- Automatic earth connection.
- In-rack cabling optimized.
- Accessory for patch cords with rotating system for angle adjustment and label holder.

Compatible with all panels (flat, angled, HD)



# **COPPER SYSTEM**

# PATCH PANELS

The patch panels have been designed and produced to optimize space, with up to 48 ports per unit, and make maintenance and future upgrades easier.

They are available in both flat and angled versions.

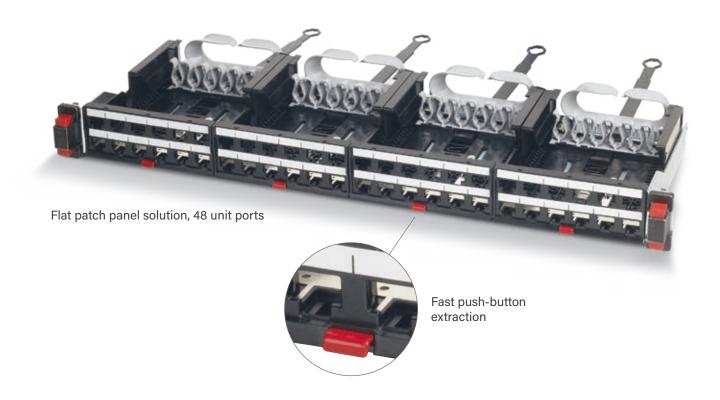
They have a quick system for pulling out the unit and an innovative cable guiding system for tidy and easy cable management.

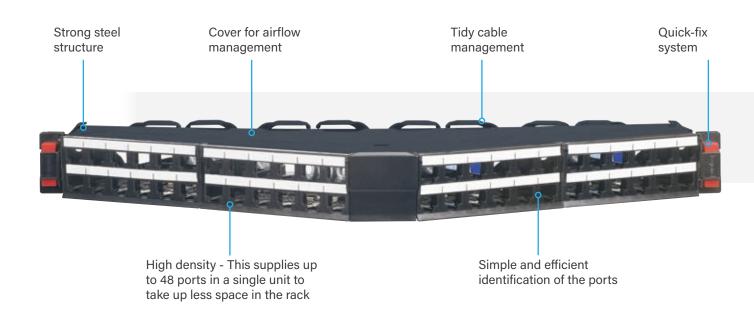


Block of 12 connectors for patch panel

#### Innovative cassettes

- Sliding cassettes: easier maintenance.
- Fast push-button extraction.
- Innovative modular cassette system.
- Easy maintenance: hands-free solution, cassette maintained after extraction.
- Easy to mix with Legrand fiber optic solutions.





#### ■ Angled patch panel solution from 24 to 48 ports per unit

Patch panels with an angled design allow the cable to run into each side of the rack, creating a correct cable radius of curvature.

This avoids the need to manage the cables horizontally, and allows the patch cords to be carried directly in the vertical cavities.

> Also available in the 24-port version



# LCS<sup>3</sup> system: Scalability & Maintenance

Legrand's LCS<sup>3</sup> range offers you innovative systems to facilitate wiring and installation, while offering increased data rates with both the copper solution and the fiber optic solution.



# **COPPER SYSTEM**

# **RJ45 CONNECTORS**

The **TOOLLESS CONNECTORS** with toolless fast connection are available in all categories for installation on patch panels and in the workstation. A perfect connection can be obtained in a few seconds, guaranteeing the optimum performance of the link from the patch panel to the workstation.



WANT TO KNOW ABOUT PoE AND INCREASE THE POWER OF YOUR **NETWORK?** 





CONTACT YOUR LOCAL SALES REP TO GET OUR PoE **INSTALLATION GUIDES!** 

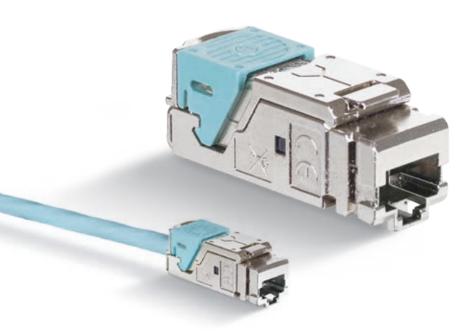
# **COPPER SYSTEM**

# **OPTIMUM PERFORMANCE** WITH CAT. 8

#### Cat.8 connectors

The toolless Cat. 8 STP connectors with transmission speed (bit rate) from 25 Gbps to 40 Gbps, are integral to the performance of the LCS<sup>3</sup> system.

- In accordance with ISO/IEC 11801 series standards.
- Tested up to 2500 connection/disconnection cycles.
- A perfect connection in just a few seconds.



#### Connection & cabling

To maximize performance, combine the Legrand Cat. 8 connector with the Legrand Cat. 8 cable supporting up to 40 Gbps over a single cable.

The Cat. 8 cable is terminated with an improved dedicated RJ45 connector, which can support future performance.

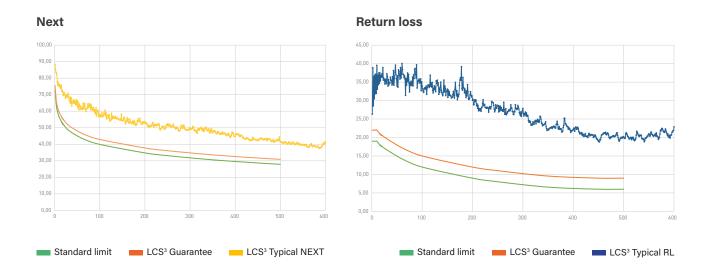
The performance is 4 times better than that of a Cat.6a cable with up to 2000 MHz bandwidth.

- Double screening to avoid interference and loss of data.
- Dedicated to higher capacity in data centers and equipment rooms.
- Compliant with ISO/IEC 11801 series standards.



Legrand guarantees the following performance on end-to-end links of Cat. 6a/Class Ea: 3dB margin on Channels, on Return Loss (RL) and Near End Cross Talk (NEXT) performance, for the complete frequency range, based on ISO/IEC limits.

- No marginal results (shown with Asterisk on test results) on Permanent Links.
- Valid on standard compliant 2 connectors channels.



#### **Applications distances according to category of Cabling**

	LCS³ Cat.5e	LCS³ Cat.6	LCS³ Cat.6 <sub>A</sub>	LCS³ Cat.8
Frequency <sup>(1)</sup>	100MHz	250MHz	500Mhz	2000MHz
Application				
1000Base-T	100m	100m	100m	100m
2.5Gbase-T	Possible <sup>(2)</sup>	Possible <sup>(2)</sup>	100m	100m
5Gbase-T	Possible <sup>(2)</sup>	Possible <sup>(2)</sup>	100m	100m
10Gbase-T	N/A <sup>(4)</sup>	Possible <sup>(3)</sup>	100m	100m
25Gbase-T	N/A <sup>(4)</sup>	N/A <sup>(4)</sup>	Possible <sup>(5)</sup>	30m
40Gbase-T	N/A(4)	N/A <sup>(4)</sup>	Possible <sup>(5)</sup>	30m

<sup>(1)</sup> Maximum frequency defined in the standards

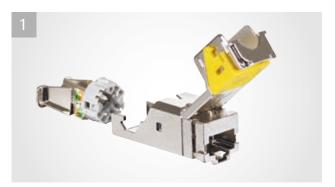
<sup>(2)</sup> Follow ISO/IEC TR 11801-9904 or TIA TSB 5021 to evaluate the possibility on installed links. Distance will depend on many factors.

<sup>(3)</sup> Follow ISO/IEC TR 24750 or TIA TSB 155-A to evaluate the possibility on installed links. Distance will depend on many factors.

<sup>(4)</sup> Not Available.

<sup>(5)</sup> Follow ISO/IEC TR 11801-9905 to evaluate possibility on installed links. Distance will depend on many factors.

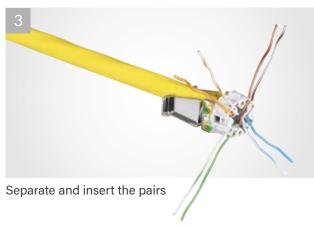
# TOOLLESS CONNECTOR CONNECTION PHASES



Take the wire housing



Pass the cable through the back of the wire housing





Cut the pairs



Install the wire housing without pushing



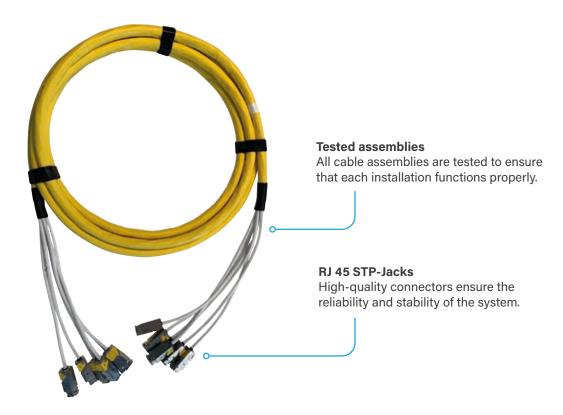
Push down the lever and lock the connector



# **COPPER SYSTEM**

# PRE-TERMINATED COPPER TRUNK CABLE SOLUTION

In a data center, copper cables are an ideal solution as they can offer significant advantages in terms of capital expenditures, operating expenditures, and reliability. Pre-terminated copper trunk cables as a structured cabling option for quick and easy deployment in permanent link trunks and equipment port harnesses of data center architectures can be used for interconnect and cross-connect applications.



#### ■ Different trunk solutions are possible for different applications

#### Jack-to-jack copper trunk

The use of pre-assembled copper Ethernet trunk cables from Jack to Jack requires the use of empty patch panels at both ends.

#### Plug-to-plug copper trunk

Plug-to-Plug copper cables are used to establish a direct connection between active devices (e.g. between server and switch). They can also be used in an open workspace as a bundled patch cable group.

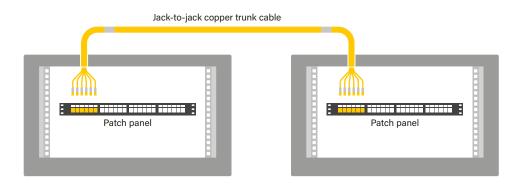
#### Jack-to-plug copper trunk

Jack-to-plug copper cables are used to extend switch ports and for cross-connect connections. They are plugged directly into the active components on one side and require the use of empty patch panels on the other side.

#### Examples of use

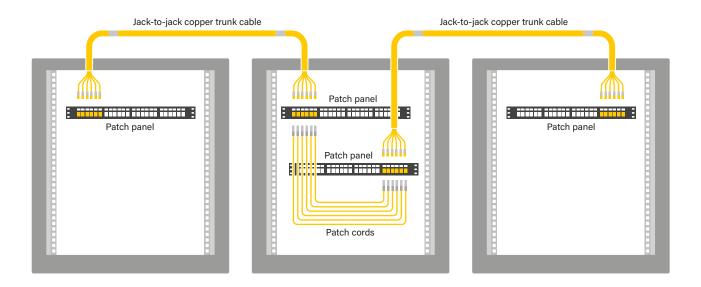
#### Interconnect

In general data center cabling, copper Ethernet trunk cables provide a permanent connection between patch panels at both ends - one end is in a switch/network cabinet, and the other is in a server cabinet.



#### Cross-connect

Cross-connect cabling usually uses a defined patch area (often with two or more adjacent patch panels) between the control/network cabinet and the server cabinets. Copper patch cables are used to connect the active devices and patch panels at the control/network cabinet, the cross-connect cabinet, and the server cabinet.





#### Details

#### Use

- Preterminated trunks made of 6x4 twisted pairs cables and 6x RJ 45 connectors at each end. Designed for ease of installation and space saving in data center environment.
- Delivered with an individual test report.

#### Nota:

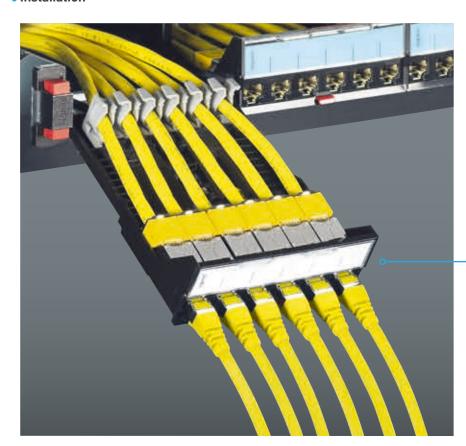
- this solution is not intended for the use of PoE. In the case of PoE, to be installed according to ISO/IEC 14763-2 and EN 50174-2. Contact Legrand for any temperature derating calculations linked to the environment or PoE.
- maximum patch cord length associated with these pre-terminated trunks: 5m

#### Description

Preconnectorised solution composed of:

- 1 surgain cable 6 x 4 pairs
- 6 RJ 45 LCS<sup>3</sup> connectors at each extremity (protected in bubble bags)
- factory recipe
- cable tracking 1 to 6

#### Installation



To be installed in LCS<sup>3</sup> copper cassette To be ordered separately

#### • Technical, mechanical and electrical features

Refer to components technical data sheets.

#### Environmental features

Refer to components technical data sheets.

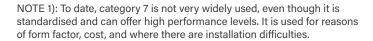
# **COPPER SYSTEM**

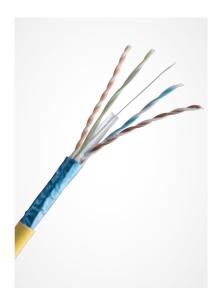
# **CABLES**

The cable is one of the most critical components in horizontal wiring for the performance of the whole link, in terms of both the product's quality and the installation's conformity. Any cable installation error will seriously compromise the performance of the installation. For structured cabling systems, the standard requires the use of category 5e, 6 and 6a (100 MHz, 250 MHz and 500 MHz respectively) twisted, symmetrical 4-pair cables with an impedance of 100  $\Omega$  1).

The cable can be of the following type:

- Unshielded U/UTP (Unshielded Twisted Pairs).
- Shielded F/UTP (Foiled Twisted Pairs).
- Double shielding SF/UTP or S/FTP.





#### **EXAMPLES OF LEGRAND CABLES**

	Sheath	Storage/installation temperature	Operating temperature
Cat. 6 <sub>A</sub> F/UTP 100 Ω	LSZH (zero halogen cables) conforming to standard NFC 32062, flame retardant conforming to standards IEC 332-1 and NFC 32070	0 to +50°C	-20 to +60°C
Cat. 6 U/UTP 100 Ω	PVC or LSZH cables conforming to standard NFC 32062, flame retardant conforming to standards IEC 332-1 and NFC 32070	0 to +50°C	-20 to +60°C
Cat. 6 F/UTP 100 Ω	PVC or LSZH cables conforming to standard NFC 32062, flame retardant conforming to standards IEC 332-1 and NFC 32070	0 to +50°C	-20 to +60°C
Cat. 5e U/UTP 100 Ω	PVC or LSZH cables conforming to standard NFC 32062, flame retardant conforming to standards IEC 332-1 and NFC 32070	0 to +50°C	-20 to +60°C

NOTE: For all other types of cable, please contact the Legrand sales network



# CONSTRUCTION PRODUCTS REGULATION

The CPR regulation aims to guarantee the free circulation of products made in the European Union, adopting a harmonised technical language which can define the performance and essential features of all construction products.

Electrical cables are rarely the cause of a fire, but when they are involved, they may form a seriously hazardous component because of their large quantities and because they are found in all rooms of the building. With careful prevention and making state-of-the-art systems with safe and high-quality components in accordance with the CPR regulation, fire propagation, the lack of visibility in smokefilled rooms, and the diffusion of corrosive and toxic gases can be reduced or almost eliminated.

The CPR regulation (EU 305/2011) concerns all the products made to be permanently incorporated (installed/used) in buildings and other civil engineering works (e.g. homes, industrial and commercial buildings, offices, hospitals, schools, undergrounds, etc.). As part of the features considered important for the safety of constructions included in the CPR, the European Commission has decided to consider cables' Reaction to Fire and Resistance to Fire, recognising the importance of their behaviour and role in fire. The release of harmful substances is one of the performances considered important for cables; however, no minimum performance levels have been established at present because when typically used, the cables do not release harmful substances.

All the cables installed permanently in constructions, to transport power or for telecommunications, of any voltage level and with copper or fiber optic conductors, must be classified based on the classes of premises where they will be installed.

The cables are classified in seven classes of Reaction to Fire: Aca, B1ca, B2ca, Cca, Dca, Eca and Fca identified by the subscript "ca" (cable) as a function of their decreasing performance. As well as this main classification, the European authorities have also regulated the use of the following additional parameters:

- a = acidity which defines the hazard of the fumes for people and the corrosiveness for things. Varies from a1 to a3
- **s** = opaqueness of the smoke. Varies from s1 to s3
- d = dropping of incandescent particles which could propagate fire. Varies from d0 to d2.

A more severe check (System 1+) is required for the classes from Aca to Cca. It lays down the initial check and continuous monitoring of the product and checks of the manufacturing control system, while for the classes from Dca to Eca the check only lays down the initial product check (System 3). Class F, however, is based on the manufacturer's selfdeclaration (System 4).



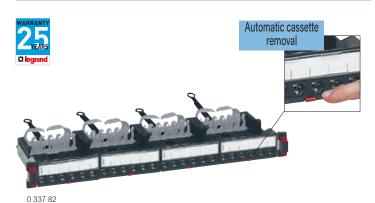


## Legrand cabling system, LCS<sup>3</sup> cat. 8

#### flat patch panels - equipped and to be equipped

## Legrand cabling system, LCS<sup>3</sup> cat. 8

angled patch panel to be equipped with connectors





0 337 92

Equipped with new-generation Quick-Fix for automatic (screwless) mounting on enclosure and cabinet uprights
Universal mounting on all cabinets or enclosures
Panels ensure automatic earthing of each connector
Equipped with four bundles guides fixed at the rear

Pack	Cat.Nos	Cat. 8 patch panel equipped with 24 RJ 45 connectors
		19" panel - 1U Equipped with 4 cassettes of 6 pre-fitted Cat. 8 LCS³ RJ 45 connectors Automatic cassette removal by simple pressure Each connector can be removed individually T568A and B marking with colour codes Equipped with rear cable guide to hold cable during maintenance Supplied with coloured labels Compliant with ISO/IEC 11 801, EN 50173 and ANSI/ TIA 568 standards
1	0 337 82	Flat panel STP panel - Metal shielding - PoE++
		Patch panels 24 connectors - to be equipped
		19" panels - 1U Equipped with rear cable guide to hold cables during maintenance
1	0 337 90	Flat panel with empty cassettes to be equipped with connectors With 4 automatically removable cassettes to be equipped with Cat. 5e to Cat. 8 RJ 45 connectors
1	0 337 91	Flat panel without connectors to be equipped with cassettes Can take a maximum of 4 automatically removable cassettes: - copper to be equipped with Cat. 5e to Cat. 8 RJ 45 connectors

- fiber optic

Pack	Cat.Nos	Angled patch panel with 24 connectors
		19" panel - 1U Equipped with new-generation Quick-Fix for automatic mounting (screwless) on cabinet and enclosure uprights Universal mounting on all cabinets or enclosures Panels ensure automatic earthing of each connector Equipped with rear cable guide to hold cables during maintenance
		Angled patch panel to be equipped with
1	0 337 92	connectors Can take up to 24 Cat. 5e to Cat. 8 RJ 45 connectors



# Legrand cabling system, LCS<sup>3</sup> cat. 8

#### connector, cords and cables

# Legrand cabling system, LCS<sup>3</sup> cat. 8

#### accessories





Pack	Cat.Nos	Cat. 8 RJ 45 connector for flat or
6	0 337 85	angled STP panel Set of 6 STP RJ 45 Quick-connect connectors (no tools required) T568A and B marking with colour codes Compliant with ISO/IEC 11 801, EN 50173 and ANSI/TIA 568 standards To be installed in cassettes for flat panels or directly in an angled panel or a zone distribution box to be equipped
		Cat. 8 cable for local networks
500 <sup>1</sup>	0 337 88	Performance 2000 MHz Cable with 4 twisted pairs 100 Ω LSZH sheath: zero halogen EIA/TIA colour code Compliant with ISO/IEC 11 801, EN 50173 and ANSI/TIA 568 standards Product conforming to the CPR regulations S/FTP - 4 pairs Length 500 m, supplied on a drum Weight 45 kg
		Cat. 8 RJ 45 patch cords
	LSZH	RJ 45/RJ 45 - straight Compliant with ISO/CEI 11801 and EIA/TIA 568 standards
1 1	RAL 6027 0 337 03 0 337 04	Shielded S/FTP, impedance 100 $\Omega$ Length 2 m Length 3 m
		Marking kit
200	0 518 90	Kit of 200 coloured rings for marking RJ 45 cords 4 colors (green/red/yellow/blue). 50 pieces of each color Rings to be clipped onto the patch cords

Pack	Cat.Nos	Common accessories for flat and angled panels
10	0 337 56	Port blanking modules Separable blanking plate For covering 1 to 6 ports or 1 to 12 ports individually (High Density solutions)
1	0 337 59	Cord management 2 cable guides to be clipped onto new-generation Quick-Fix Provide side cord management Label-holder for identification
		Specific accessories for flat panels
1	0 337 55	Cassette for flat panels to be equipped Removable empty cassette to be equipped with connectors, takes 6 Cat. 5e to Cat. 8 connectors Can be removed by simple pressing on the cassette, for ease of installation and maintenance For equipping flat panels
1		Cassette with shutters for flat panels to be equipped Removable empty cassette to be equipped with connectors, takes 6 Cat. 5e to Cat. 8 connectors Can be removed by simple pressing on the cassette, for ease of installation and maintenance Equipped with 6 individual shutters to protect RJ 45 connectors contacts For equipping flat panels  Blanking cassette To be used to fill gaps in the panel
		Specific accessory for angled panels
1	0 337 58	Cover

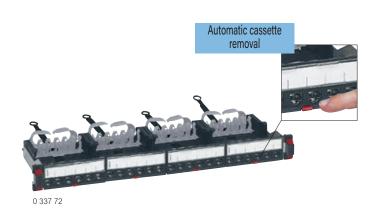
# **L**legrand

#### Legrand cabling system, LCS<sup>3</sup> cat. 6A

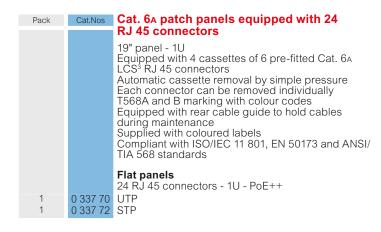
#### flat patch panels - equipped

#### Legrand cabling system, LCS<sup>3</sup> cat. 6A

#### flat patch panels, to be equipped



Equipped with new-generation Quick-Fix for automatic (screwless) mounting on enclosure and cabinet uprights
Universal mounting on all cabinets or enclosures
Panels ensure automatic earthing of each connector
Equipped with four bundles guides fixed at the rear





Equipped with new-generation Quick-Fix for automatic (screwless) mounting on enclosure and cabinet uprights
Universal mounting on all cabinets or enclosures
Panels ensure automatic earthing of each connector
Equipped with four bundles guides fixed at the rear

Pack	Cat.Nos	19" flat patch panels - to be equipped
		19" panels - 1U Equipped with rear cable guide to hold cables during maintenance Automatic cassette removal by simple pressure Each connector can be removed individually
		Flat panel with empty cassettes to be equipped
1	0 337 90	with connectors Equipped with 4 automatically removable cassettes, takes up to 24 Cat. 5e to Cat. 8 RJ 45 connectors
1	0 337 91	Empty flat panel to be equipped with cassettes Takes a maximum of 4 automatically removable cassettes: - copper to be equipped with Cat. 5e to Cat. 8 RJ 45 connectors - fiber optic
1	0 337 93	High Density flat panel with empty cassettes to be equipped with connectors Equipped with 4 High Density cassettes, takes up to 48 Cat. 5e to Cat. 6A RJ 45 connectors
		10" flat patch panels - to be equipped
1		10" panels - 1U Takes up to 6 Cat. 5e to Cat. 8 RJ 45 connectors Takes up to 12 Cat. 5e to Cat. 6A RJ 45 connectors



## Legrand cabling system, LCS<sup>3</sup> cat. 6A

#### angled patch panels to be equipped, connectors

# Legrand cabling system, LCS³ cat. 6A

#### accessories







0 337 75

Equipped with new-generation Quick-Fix for automatic (screwless) mounting on enclosure and cabinet uprights.
Universal mounting on all cabinets or enclosures
Panels ensure automatic earthing of each connector
Equipped with four concentric strand guides fixed at the rear

Pack	Cat.Nos	Angled patch panels - to be equipped
		19" panels - 1U
		Angled patch panel to be equipped with connectors
1	0 337 92	Takes up to 24 Cat. 5e to Cat. 8 RJ 45 connectors
		High Density angled panel to be equipped with connectors
1	0 337 94	Takes up to 48 Cat. 5e to Cat. 6A RJ 45 connectors
		Cat. 6 <sub>A</sub> High Density RJ 45 connectors
		Quick-connect connection (no tools required) T568A and B marking with colour codes Compliant with ISO/IEC 11 801, EN 50173 and ANSI/ TIA 568 standards
		To be installed in cassettes for flat panels or directly in an angled panel or a zone distribution box to be equipped Set of 6 RJ 45 connectors
6	0 337 73	
6	0 337 75	STP



Pack	Cat.Nos	Common accessories for flat and angled panels
10	0 337 56	Port blanking modules
1	0 337 59	Cord management 2 cable guides to be clipped onto new-generation Quick-Fix Provide side cord management Label-holder for identification
		Specific accessories for flat panels
1	0 337 55	Cassette for flat panels to be equipped Removable empty cassette to be equipped with connectors, takes 6 Cat. 5e to Cat. 8 connectors Can be removed by simple pressing on the cassette, for ease of installation and maintenance For equipping flat panels
		Cassette with shutters for flat panels to be
1	0 337 66	equipped Removable empty cassette to be equipped with connectors, takes 6 Cat. 5e to Cat. 8 connectors Can be removed by simple pressing on the cassette, for ease of installation and maintenance Equipped with 6 individual shutters to protect RJ 45 connectors contacts For equipping flat panels
		High Density cassette for flat panels to be
1	0 337 95	equipped Removable empty cassette to be equipped with connectors, takes 12 Cat. 5e to Cat. 6A connectors Can be removed by simple pressing on the cassette, for ease of installation and maintenance For equipping flat panels
1	0 337 57	Blanking cassette To be used to fill gaps in the panel
		Specific accessory for angled panels
		Cover
1	0 337 58	Optimises air flow management in the enclosure

# **la legrand**

# Legrand cabling system, LCS<sup>3</sup> cat. 6A and cat. 7

#### cables and cords



0 327 77	0 517 82				
Deal	O-t NI	Cat. 6A cables for local networks	DI-	O-t NI	Cat. 6 <sub>A</sub> RJ 45 patch cords and user cords
Pack	Cat.Nos		Pack	Cat.Nos	•
		Performance 500 MHz 4 twisted pair cables, 100 Ω LSZH sheath: zero halogen ANSI/TIA colour code		PVC	RJ 45/RJ 45 - flat With special "easy grip" plug Compliant with ISO/IEC 11 801, EN 50173 and ANSI/ TIA 568 standards
	LSZH	Compliant with ISO/IEC 11 801, EN 50173 and ANSI/ TIA 568 standards Products conforming to the CPR regulations	1	0 518 82	Unscreened U/UTP, impedance 100 $\Omega$ Length 1 m Length 2 m
500¹	0 327 87	<b>U/UTP - 4 pairs</b> Length 500 m. Supplied on reel. Weight 35 kg Euroclass Dca	1	0 518 84 0 518 85	Length 3 m Length 5 m
500¹	0 328 28	Length 500m. Supplied on reel. Weight 36 kg Euroclass Cca		LSZH	
500¹	0 328 38	Length 500m. Supplied on reel. Weight 33kg Euroclass B2ca	1	0 518 79	Length 1 m Length 2 m
500¹	0 327 78	<b>F/UTP - 4 pairs</b> Length 500 m. Supplied on reel. Weight 29.2 kg Euroclass Dca	1	0 518 80	Length 3 m Length 5 m
500¹	0 328 78	<b>F/UTP - 2 x 4 pairs</b> Length 500 m. Supplied on reel. Weight 58 kg Euroclass Dca	1 1 1	0 518 75 0 518 76	Length 1 m Length 2 m Length 3 m Length 5 m
500¹	0 328 83	<b>F/FTP - 4 pairs</b> Length 500 m. Supplied on reel. Weight 32 kg Euroclass Cca	ı	PVC	
500¹	0 327 99	Length 500 m. Supplied on reel. Weight 26 kg Euroclass Dca	1 1 5	0 518 48 0 518 16	Shielded S/FTP, impedance 100 $\Omega$ Length 0.3 m Length 0.5 m Length 1 m
500¹	0 327 98	<b>F/FTP - 2 x 4 pairs</b> Length 500 m. Supplied on reel. Weight 62 kg Euroclass Dca	5 5 5	0 517 81 0 517 82	Length 2 m Length 3 m Length 5 m
500¹	0 328 84	<b>U/FTP - 4 pairs</b> Length 500 m. Supplied on reel. Weight 39 kg Euroclass Cca	1	0 518 49 LSZH	Lenğth 10 m
		Cat. 7 cables for local networks	1	0 518 70	Length 1 m
		Performance 600 MHz 4 twisted pair cables, 100 $\Omega$ LSZH sheath: zero halogen	1 1 1	0 518 72	Length 2 m Length 3 m Length 5 m
	LSZH	ANSI/TIA colour code Compliant with ISO/IEC 11 801 and EN 50173 standards	1	0 518 66	Length 1 m Length 2 m
		Products conforming to the CPR regulations  S/FTP - 4 pairs	1	0 518 68	Length 3 m Length 5 m
500¹	0 328 82	Length 500 m. Supplied on reel. Weight 33 kg Euroclass B2 ca	·	0 010 00	Cat. 6A RJ 45 patch cords and user cords -
500¹	0 328 49	Length 500m. Supplied on reel. Weight 31 kg Euroclass Cca			High Density
500¹	0 327 77	Length 500 m. Supplied on reel. Weight 30 kg Euroclass Dca S/FTP - 2 x 4 pairs		LSZH	RJ 45/RJ 45 - flat With special "easy grip" plug Compliant with ISO/IEC 11 801, EN 50173 and ANSI/
500¹	0 327 79	Length 500 m. Supplied on reel. Weight 63 kg Euroclass Dca	1		TIA 568 standards
		Cat. 7 indoor/outdoor cable for local networks	1 1 1	0 515 52 0 515 53	Length 1 m Length 2 m Length 3 m
		Performance 600 MHz 4 twisted pair cable, 100 Ω LSZH sheath: zero halogen	1	0 515 54	Length 5 m   <b>Marking kit</b>
	LSZH	ANSI/TIA colour code Compliant with ISO/IEC 11 801 and EN 50173 standards Product conforming to the CPR regulations	200	0 518 90	Kit of 200 coloured rings for marking RJ 45 cords 4 colors (green/red/yellow/blue). 50 pieces of each color
500¹	0 338 90	S/FTP - 4 pairs - indoor/outdoor Length 500 m. Supplied on reel. Weight 26 kg Euroclass Eca			Rings to be clipped onto the patch cords  1: in metre(s)



# Legrand cabling system, LCS<sup>3</sup> fiber optic

#### 19" fiber optic drawers



Pack	Cat.Nos	Equipped 19" fiber optic drawers	Pack	Cat.Nos	Fiber optic blocks
		Metal 19" pre-equipped fiber optic drawers, 4 cable entries, supplied with screw fixing kit, 2 cable glands (Ø 13.5 and 16 mm), coiling system and splice			To be clipped directly onto modular fiber optic drawers to be equipped Cat.Nos 0 321 00/01 or onto fiber optic splice cassette Cat.No 0 321 41
		cassette Panel and optical ports marked on dedicated marking area	1	0 321 17	Single-mode fiber blocks (9/125 µm) ST block for 6 single-mode fibers SC duplex block for 6 single-mode fibers
		Sliding End stop at a 30° angle	1		SC duplex High Density block for 12 single-mode fibers
1	0.224.64	Maximum capacity: 48 fibers in LC version, 24 fibers in ST and SC versions Depth 220 mm, height 1 U	1 1 1	0 321 14	SC APC duplex block for 6 single-mode fibers LC duplex block for 6 single-mode fibers LC duplex block for 12 single-mode fibers LC duplex High Density block for 24 single-mode
1 1 1	0 321 62 0 321 63 0 321 64	SC duplex for 24 multimode fibers LC duplex for 48 multimode fibers ST duplex for 24 multimode fibers SC duplex for 24 single-mode fibers	1	0 321 16	fibers LC APC duplex block for 12 single-mode fibers Single-mode 4 MTP¹ feedthrough adaptor, key up/
1 1 1	0 321 66	LC duplex for 48 single-mode fibers SC APC duplex for 24 single-mode fibers LC APC duplex for 48 single-mode fibers	1	0 321 19	key down Single-mode 8 MTP¹ feedthrough adaptor, key up/ key down Multimode fiber blocks (62.5 and 50/125 um)
		Rotating Supplied with reversible left or right opening Maximum capacity: 72 fibers in LC version, 36 fibers in SC version	1 1 1	0.321.20	Multimode fiber blocks (62.5 and 50/125 μm) ST block for 6 multimode fibers SC duplex block for 6 multimode fibers SC duplex High Density block for 12 multimode
1 1 1	0 321 72	Depth 260 mm, height 1 U LC duplex for 72 multimode fibers SC duplex for 36 multimode fibers LC duplex for 72 single-mode fibers	1 1 1	0 321 24	fibers LC duplex block for 6 multimode fibers LC duplex block for 12 multimode fibers LC duplex High Density block for 24 multimode fibers
1	0 321 74	SC duplex for 36 single-mode fibers	1	0 321 34	Multimode 4 MTP¹ feedthrough adaptor, key up/ key down
		Flat and angled 19" modular fiber optic drawers	1	0 321 18	Multimode 8 MTP¹ feedthrough adaptor, key up/ key down
		Metal 19" modular fiber optic drawers, 8 cable entries, supplied with 2 cable glands (Ø 13.5 and	1	0 321 36 0 321 37	LC duplex block for 6 multimode fibers - aqua LC duplex block for 12 multimode fibers - aqua
		9 mm), coiling system Equipped with the new-generation Quick-Fix system			RJ 45 copper block for fiber optic drawer
		for automatic (screwless) mounting on enclosure or cabinet uprights Supplied with numbered labels Maximum capacity: 96 fibers in LC version, 48 in SC	1	0 321 32	To be clipped directly onto modular fiber optic drawers to be equipped Cat.Nos 0 321 00/01 Allows the mixing of fiber optic and copper Takes up to 5 RJ 45 connectors
		version or 24 in ST version Depth 290 mm, height 1U			Accessories for fiber optic drawer to be
1	0 321 04	Sliding, equipped End stop at a 20° angle SC duplex for 24 multimode fibers LC duplex for 48 multimode fibers	1	0 321 28	equipped  Accessory for receipt of a fan-out To be clipped onto the back of the drawer Enables the entry of preterminated links
1	0 321 06	SC duplex for 24 single-mode fibers  Sliding, to be equipped with fiber optic blocks	1	0 321 29	Blanking plate Blanking plate
1	0.221.00	Takes any fiber optic block, up to 4 blocks maximum. End stop at a 20° angle Empty drawer	1		Cassette for pigtails Capacity: 24 fibers
'	0 321 00	Sliding, to be equipped with fiber optic blocks -	1		Coiling kit 1 accessory
		angled Takes any fiber optic block, up to 4 blocks maximum. End stop at a 20° angle		, , , , , , , , , , , , , , , , , , , ,	1: MTP is a registered trademark of US Conec Ltd
1	0 321 01	Empty drawer			

# **G**legrand

# Legrand cabling system, LCS<sup>3</sup> fiber optic

#### 19" High Density fiber optic panels (1/2/4 U) and patching kits





Pack Cat.Nos 19" High Density fiber optic panels











	0 321 69	0 321 70
Pack	Cat.Nos	Preterminated MTP¹ High Density cassettes (MPO compatible) (continued)
1	0 321 38	Ultra™ slim cassettes Support for High Density slim cassettes Takes up to 2 High Density slim cassettes Cat.Nos 0 321 68/69/70 and up to 2 blanking cassettes Cat.No 0 321 39 or 1 cassette + 1 blanking cassette Possibility to mix slim single-mode and multimode
1	0 321 69	cassettes on the same support Slim multimode OM4 cassette (50/125 μm)
1	0 321 68	12 LC fibers, Universal polarity Slim multimode OM3 cassette (50/125 µm) 12 LC fibers, Universal polarity
1	0 321 70 0 321 39	Slim single-mode OS2 cassette (9/125 µm) 12 LC fibers, Universal polarity
		Core™ pre-equipped cassettes
		For installation in modular panels Cat. Nos 0 321 75/76/77 and Zero-U kit Cat.No 0 321 03 Pre-equipped cassettes with fitted fiber optic block + sets of 6 or 12 OM3 pigtails Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front
		Pre-equipped cassettes for multimode
1 1 1	0 321 80 0 321 81 0 321 82 0 321 83	installation (50/125 μm) Equipped with 1 SC duplex block for 6 fibers Equipped with 1 LC duplex block for 6 fibers Equipped with 1 SC duplex block for 12 fibers Equipped with 1 LC duplex block for 12 fibers
1 1 1	0 321 85 0 321 86	Pre-equipped cassettes for single-mode installation (9/125 µm) Equipped with 1 SC duplex block for 6 fibers Equipped with 1 LC duplex block for 6 fibers Equipped with 1 SC duplex block for 12 fibers Equipped with 1 LC duplex block for 12 fibers
		Cassettes to be equipped and blanking plate For installation in modular panels Cat. Nos 0 321 75/76/77 and Zero-U kit Cat. No 0 321 03 Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front
1	0 321 41	Fiber optic splice cassette Takes any modular fiber optic block
1	0 337 57	
1	0 321 55	Copper cassette to be equipped Takes six Cat. 5e, 6 and 6a copper connectors
		Patching kits
1	0 321 89	1 U to 4 U patching kit Compatible with all LCS³ fiber optic and copper 19" panels Supplied with top protection, cable guides and specific accessories for installation on cable trays, wire meshed cable trays (Cablofil) and cabinets
1	0 321 03	Zero-U patching kit To bring few fiber optic or copper connections outside 19" panels Takes 1 cassette (fiber optic preterminated cassettes, pre equipped cassettes, fiber optic splice cassette or RJ 45 copper cassette) Supplied with a comprehensive range of accessories for fixing in or outside enclosures (raised access floors, cable trays, walls, ceiling)

		Panels to be equipped with cassettes Equipped with Quick-Fix system for automatic (screwless) mounting on enclosure or cabinet
1	0 321 75	uprights To be equipped directly with a maximum of 4 automatically removable cassettes or 4 supports for slim cassettes Cat. No 0 321 38 per U Maximum capacity per U: 48 fibers in SC version, 24 fibers in ST version or 96 fibers in LC version 2U and 4U versions equipped with door and cord management at the front, and with cable management at the back  1 U height, depth 182 mm
1	0 321 76 0 321 77	2 U height, depth 393 mm 4 U height, depth 393 mm
1	0 321 78	Accessories for panels Front cord management kit for 1 U panel Fits on 1 U modular panel Cat.No 0 321 75 2 side cord guides and front door with integrated marking to ensure correct front and side cord management Cord holder to be mounted on cassette to make it
1	0 321 46	easier to pass cords through the side Rear cable management accessory
1	0 321 28	Fits on 1 U panel Cat. No 0 321 75 Accessory for receipt of a fan-out To be clipped onto the back of the drawer Enables the entry of preterminated links
1 4	0 321 22 0 321 26	Copper cable management accessory Set of 4 cord holders To be mounted on any cassette to make it easier to
1	0 321 05	pass cords through the side Rear accessory for fixing 4 cable glands
		Ultra™ preterminated MTP¹ High Density cassettes (MPO compatible)
		cussettes (iiii o compatible)
		For installation in modular panels Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03 Slim cassettes to be installed with support Cat. No 0 321 38 Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random <sup>2</sup> : 0.55 dB Single-mode - Insertion Loss Max/Random <sup>2</sup> : 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front
1	0 321 42	Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03 Slim cassettes to be installed with support Cat. No 0 321 38 Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front Ultra™ cassettes Multimode OM4 cassette (50/125 μm)
1		Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03 Slim cassettes to be installed with support Cat. No 0 321 38 Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front Ultra™ cassettes Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm)
		Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03 Slim cassettes to be installed with support Cat. No 0 321 38 Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front Ultra™ cassettes Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm)
1	0 321 48	Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03  Slim cassettes to be installed with support Cat. No 0 321 38  Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front  Ultra™ cassettes Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm)
1	0 321 48	Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03  Slim cassettes to be installed with support Cat. No 0 321 38  Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front  Ultra™ cassettes  Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, niversal Single-mode OS2 cassette (9/125 μm)
1 1	0 321 48 0 321 43 0 321 59	Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03  Slim cassettes to be installed with support Cat. No 0 321 38  Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front  Ultra™ cassettes Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, universal Single-mode OS2 cassette (9/125 μm) 24 LC fibers, A/C polarity Single-mode OS2 cassette (9/125 μm)
1 1 1	0 321 48 0 321 43 0 321 59 0 321 44	Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03  Slim cassettes to be installed with support Cat. No 0 321 38  Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front  Ultra™ cassettes  Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, nuiversal Single-mode OS2 cassette (9/125 μm) 12 LC fibers, A/C polarity Single-mode OS2 cassette (9/125 μm)
1 1 1 1	0 321 48 0 321 43 0 321 59 0 321 44 0 321 49	Cat. Nos 0 321 75/76/77 and in Zero-U kit Cat. No 0 321 03  Slim cassettes to be installed with support Cat. No 0 321 38  Sliding cassettes which can be removed automatically by simply pressing them, simplifying installation and maintenance Removable from the front and back Multimode - Insertion Loss Max/Random²: 0.55 dB Single-mode - Insertion Loss Max/Random²: 0.6 dB Prewired, equipped at the rear with one or two male MTP¹ connectors with 12 fibers LC or SC connectors at the front  Ultra™ cassettes Multimode OM4 cassette (50/125 μm) 24 LC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, A/C polarity Multimode OM4 cassette (50/125 μm) 12 SC fibers, universal Single-mode OS2 cassette (9/125 μm) 24 LC fibers, A/C polarity Single-mode OS2 cassette (9/125 μm) 12 LC fibers, A/C polarity



# Legrand cabling system, LCS<sup>3</sup> fiber optic

#### 19" UHD¹ fiber optic drawers











Pack	Cat.Nos	UHD¹ modular fiber optic drawers, to be equipped with 12-fiber cassettes
		Fixed modular chassis for holding cassettes 4 U maximum capacity (holds up to 48 cassettes): 576 LC fibers 2 U maximum capacity (holds up to 24 cassettes): 288 LC fibers 1 U maximum capacity (holds up to 12 cassettes): 144 LC fibers
1	0 321 51	Fiber optic drawer with cord management at the front for 12-fiber cassettes $1\ \cup$
		Fiber optic drawers with cord management at the front and back for 12-fiber cassettes
1	0 321 50	Depth: 595 mm 1 U
1	0 321 52 0 321 53	
		UHD¹ 12-fiber cassettes
		Clip directly into fiber optic drawers Cat.Nos. 0 321 50/51/52/53 Cassettes slide into above chassis Cassettes can be removed from the front and back MPO high-performance cassettes Low insertion loss < 0.35 dB

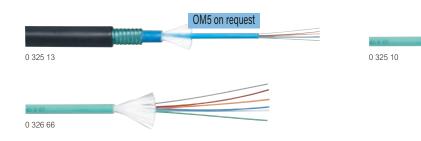
ı	0 321 53	4 0
		UHD¹ 12-fiber cassettes
		Clip directly into fiber optic drawers Cat.Nos. 0 321 50/51/52/53 Cassettes slide into above chassis Cassettes can be removed from the front and back MPO high-performance cassettes Low insertion loss < 0.35 dB A/C polarity
		Multimode OM4 cassettes (50/125 μm)
1	0 321 54	For 50/125 µm multimode installation, OM4 type MPO cassette (MTP² compatible) 12 OM4 LC fibers, polarity A/C
1	0 321 55	Single-mode OS2 cassette (9/125 μm) For 9/125 μm single-mode installation, OS2 type MPO cassette (MTP² compatible) 12 OS2 LC fibers, polarity A/C
		Adaptors for 12-fiber UHD¹ installation
		Clip into UHD¹ fiber optic drawers for 12-fiber cassettes Cat.Nos 0 321 50/51/52/53
	0.004.50	MPO adaptors (MTP² compatible)
1	0 321 56	Multimode 4 MTP² adaptor - key up/key down Single-mode 4 MTP² adaptor - key up/key down
		LC adaptor
1	0 321 58	12 LC multimode adaptor

Pack	Cat.Nos	UHD¹ modular fiber optic drawers, to be
		equipped with 8-fiber cassettes
		Fixed modular chassis for holding cassettes 4 U maximum capacity (holds up to 72 cassettes):
		<ul><li>- 576 LC fibers</li><li>2 U maximum capacity (holds up to 36 cassettes):</li></ul>
		- 288 LC fibers
		1 U maximum capacity (holds up to 18 cassettes) - 144 LC fibers
1 1 1	0 321 90 0 321 91 0 321 92	2 U
		UHD¹ 8-fiber cassettes
		Clip directly into fiber optic drawers Cat.Nos. 0 321 90/91/92 Cassettes slide into above chassis Cassettes can be removed from the front and back MPO high-performance cassettes Low insertion loss < 0.35 dB Universal polarity
		Multimode OM4 cassettes (50/125 μm) For 50/125 μm multimode installation, OM4 type
1	0 321 93	MPO cassette (MTP <sup>2</sup> compatible) 8 OM4 LC fibers, universal polarity
1	0 321 94	Single-mode OS2 cassette (9/125 μm) For 9/125 μm single-mode installation, OS2 type MPO cassette (MTP² compatible) 8 OS2 LC fibers, universal polarity
		Adaptors for 8-fiber UHD¹ installation
		Clip into UHD¹ fiber optic drawers for 8-fiber cassettes Cat.Nos 0 321 90/91/92
1 1	0 321 95 0 321 96	MPO adaptors (MTP² compatible) Multimode 4 MTP² adaptor - key up/key down Single-mode 4 MTP² adaptor - key up/key down
1	0 321 97	LC adaptors 8 LC multimode adaptor
1	0 321 98	8 LC single-mode adaptor
1	0 321 99	8 LC-APC single-mode adaptor 1: Ultra High Density
		2: MTP is a registered trademark of US Conec Ltd

# **L**legrand

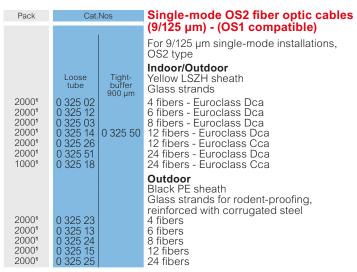
## Legrand cabling system, LCS<sup>3</sup> fiber optic

#### cables



Colour code: FOTAG Compliant with EN 50173-2 and ISO IEC 11801 standards Packed on a 2000 m reel except for tight-buffer OM4 Tight-buffer: "easy strip"

Other configurations on request



			Multimode OM4 fiber optic cables (50/125 μm) For 50/125 μm multimode installations, OM4 type Suitable for 10 Gb Ethernet networks Bend insensitive
	Loose tube	Tight- buffer 900 µm	Indoor/Outdoor Aqua LSZH sheath Glass strands
2000¹ 500¹ 1000¹	0 325 43	0 326 65	4 fibers - Euroclass Dca 6 fibers - Euroclass Dca - 500 m drum 6 fibers - Euroclass Dca - 1000 m drum
2000¹ 2000¹ 2000¹	0 325 44 0 325 45 0 325 49		8 fibers - Euroclass Dca 12 fibers - Euroclass Dca 12 fibers - Euroclass Cca
1000¹ 1000¹ 1000¹	0 325 19		12 fibers - Euroclass Dca - 1000 m drum 24 fibers - Euroclass Dca - 1000 m drum 24 fibers - Euroclass Cca - 1000 m drum
2000¹ 2000¹ 2000¹	0 325 46 0 325 47 0 325 48		Outdoor Black PE sheath Glass strands for rodent-proofing, reinforced with corrugated steel 4 fibers 8 fibers 12 fibers

Pack	Cat.Nos		Multimode OM3 fiber optic cables (50/125 µm)	
			For 50/125 µm multimode installations, OM3 type Suitable for 10 Gb Ethernet networks Bend insensitive	
2000¹ 2000¹ 2000¹ 2000¹ 2000¹	Loose tube  0 325 37  0 325 38  0 325 39  0 325 53		Indoor/Outdoor Aqua LSZH sheath Glass strands Euroclass Dca 4 fibers 6 fibers 8 fibers 12 fibers 24 fibers	
2000¹ 2000¹ 2000¹	0 325 40 0 325 41 0 325 42	0 020 02	Outdoor Black PE sheath Glass strands for rodent-proofing, reinforced with corrugated steel 8 fibers 12 fibers 24 fibers	

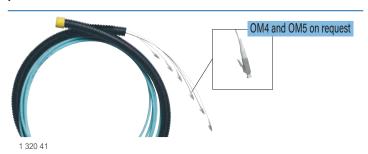
1: in metre(s)



# Legrand cabling system, LCS<sup>3</sup> fiber optic Legrand cabling system, LCS<sup>3</sup> fiber optic

### preterminated links

## **High Density preterminated links**





Supplied with pulling element. In coil up to 50 m, on a small drum between 51 m and 150 m, on a large drum over 151 m and up to 200 m Connection in fiber optic drawers. OM3 aqua LSZH sheaths. Supplied with test reports
Possible to obtain customised preterminated links: cable type,

structure, length, connector type, etc

Supplied on a drum Micro cables for high density cassettes Aqua (OM3) and yellow (OS2) LSZH sheaths Supplied with test reports (photometry) Other configurations on request

Pack	Cat.Nos	Core™ SC/SC tight-buffer OM3 links
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 320 02 1 320 03 1 320 04 1 320 05 1 320 06 1 320 07 1 320 08 1 320 10 1 320 12 1 320 14 1 320 18	6 SC simplex - 6 SC simplex Length 10 m Length 20 m Length 30 m Length 40 m Length 50 m Length 60 m Length 70 m Length 80 m Length 90 m Length 100 m Length 100 m Length 120 m Length 140 m Length 180 m Length 180 m
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 320 21 1 320 22 1 320 23 1 320 24 1 320 25 1 320 26 1 320 27 1 320 29 1 320 30 1 320 30 1 320 34 1 320 36 1 320 38	Length 200 m  12 SC simplex - 12 SC simplex Length 10 m Length 20 m Length 30 m Length 40 m Length 60 m Length 60 m Length 80 m Length 80 m Length 100 m Length 100 m Length 100 m Length 120 m Length 140 m Length 160 m Length 180 m Length 200 m
		Core™ LC/LC tight-buffer OM3 links

1 1 1 1 1 1 1 1 1 1	1 320 29 1 320 30 1 320 32 1 320 34 1 320 36 1 320 38	
		Core™ LC/LC tight-buffer OM3 lin
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 320 44 1 320 45 1 320 46 1 320 47 1 320 48 1 320 50 1 320 52 1 320 54 1 320 56	6 LC simplex - 6 LC simplex Length 10 m Length 20 m Length 30 m Length 40 m Length 50 m Length 60 m Length 70 m Length 80 m Length 90 m Length 120 m Length 120 m Length 140 m Length 160 m Length 180 m Length 180 m Length 120 m
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 320 66 1 320 67	Length 30 m Length 40 m Length 50 m Length 60 m Length 70 m

Pack	Cat.Nos	Ultra™ Fan-out/Fan-out pre	terminated High
		Density fiber optic links With fan-out (2 mm output) for se between the cable and the ends Low insertion loss for LC connec connector	
		Fan-out/Fan-out OM3 micro ca	bles
1 1 1 1 1 1 1 1	0 324 01 0 324 02 0 324 03 0 324 04 0 324 05 0 324 11 0 324 12 0 324 13 0 324 14 0 324 15	6 LC duplex - 6 LC duplex 6 LC duplex - 6 LC duplex	Length (m) 10 20 30 40 50 10 20 30 40 50
		Fan-out/Fan-out OS2 micro cal	
1 1 1 1 1 1 1 1 1	0 324 21 0 324 22 0 324 23 0 324 24 0 324 25 0 324 31 0 324 32 0 324 33 0 324 33 0 324 34	6 LC duplex - 6 LC duplex 6 LC duplex - 6 LC duplex 6 LC duplex - 6 LC duplex 12 LC duplex - 12 LC duplex 12 LC duplex - 12 LC duplex 12 LC duplex - 12 LC duplex	Length (m) 10 20 30 40 50 10 20 30 40 50 10 20 30 40 50
		Ultra™ MTP¹/MTP¹ High Der preterminated fiber optic lir	
		For connecting cassettes in High panels and Ultra High Density dr Female MTP¹, A polarity Low insertion loss for MTP¹ conn connector	Density fiber optic rawers
		MTP¹ OM3 micro cables	
1 1 1 1		Description 12 MTP¹-MTP¹ fiber optics	Length (m) 10 20 30 40 50

Description

12 MTP¹-MTP¹ fiber optics
12 MTP¹-MTP¹ fiber optics 1: MTP is a registered trademark of US Conec Ltd

MTP<sup>1</sup> OS2 micro cables

# **la legrand**

# Core<sup>™</sup> fiber patch cords

# Legrand cabling system, LCS<sup>3</sup> fiber optic Legrand cabling system, LCS<sup>3</sup> fiber optic

# Ultra™ fiber patch cords





Fitted at each end with 2 connectors with ceramic ferrule Individually packed and tested (report supplied) Max. optical losses/Master: 0.25 dB LSZH Zipcord sheath

Fitted at each end with 2 connectors with ceramic ferrule Individually packed and tested (report supplied) Max. optical losses/Master: 0.15 dB LSZH Zipcord sheath

Pack	Cat.Nos	OS2 single-mode fiber optic cords (9/125 µm)	Pack	Cat.Nos	OS2 single-mode fiber optic cords (9/125 μm)
		For 9/125 µm single-mode installations, OS2 type Yellow sheaths			For 9/125 µm single-mode installations, OS2 type Yellow sheaths
3 3 3	0 326 01	SC/SC duplex cords Length: 1 m Length: 2 m Length: 3 m	5 5 5	0 325 28	SC/SC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3	0 326 04	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m	5 5 5	0 325 31	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3 3	0 326 06 0 326 07 0 326 08	LC/LC duplex cords Length: 0.5 m Length: 1 m Length: 2 m Length: 3 m Length: 5 m	5 5 5 5	0 325 34 0 325 35	LC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m Length: 5 m
3	0 320 29	OM3 multimode fiber optic cords (50/125 µm)	3	0 226 96	LC/LC Uniboot duplex cords Reversible polarity Length: 1 m
		For 50/125 µm multimode installations, OM3 type Aqua sheaths	3 3 3	0 326 87	Length: 7 m Length: 2 m Length: 3 m Length: 5 m
3	0 326 09	SC/SC duplex cords Length: 1 m	3	0 326 92	Length: 10 m
3	0 326 10 0 326 11	Length: 2 m Length: 3 m			<b>OM4 multimode fiber optic cords (50/125 μm)</b> For 50/125 μm multimode installations, OM4 type
3 3 3	0 326 13	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m	3	0 326 30	Aqua sheaths  SC/SC duplex cords Length: 1 m
3	0 326 15	LC/LC duplex cords Length: 1 m	3	0 326 32	Length: 2 m Length: 3 m
3	0 326 16 0 326 17	Length: 2 m Length: 3 m	3	0 326 33	Length: 0.5 m Length: 1 m
		OM4 multimode fiber optic cords (50/125 μm)	3 3	0 326 35 0 326 36	Length: 2 m Length: 3 m Length: 5 m
		For 50/125 µm multimode installations, OM4 type Aqua sheaths	3	0 326 37	LC/LC Uniboot duplex cords
5 5 5	0 322 61	SC/SC duplex cords Length: 1 m Length: 2 m Length: 3 m	3 3 3	0 326 96 0 326 97	Reversible polarity Length: 0.5 m Length: 1 m Length: 2 m
5 5 5	0 322 64	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m	3	0 326 98	Length: 3 m Length: 5 m
5 5 5	0 322 67	LC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m			



# pigtails, glue-on connectors and fan-out units

# Legrand cabling system, LCS<sup>3</sup> fiber optic Legrand cabling system, LCS<sup>3</sup> fiber optic

# case and quick-connect connectors





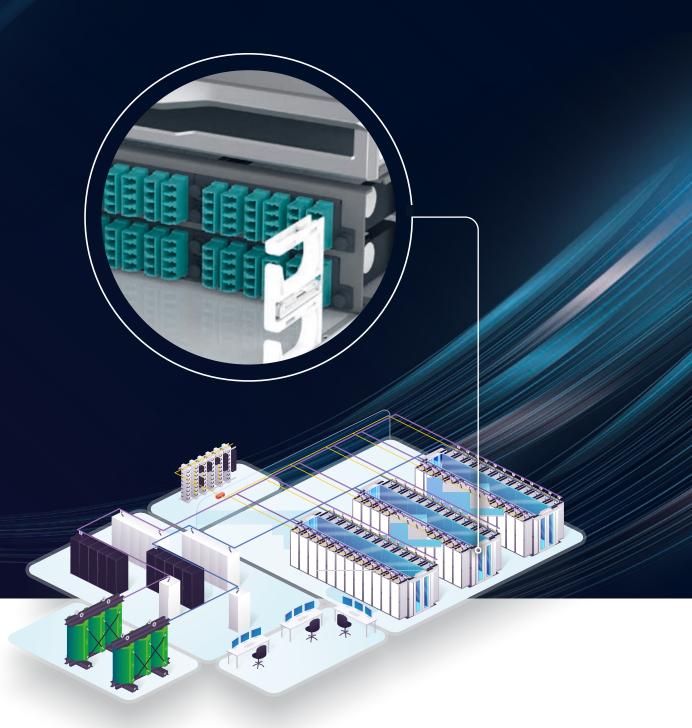
Pack	Cat.Nos	Core™ pigtails
		LSZH For making quick, reliable and high- performance fiber optic cable connections on site: - OM2/OM3/OM4 IL Typical/Master = 0.15 dB - OS2 IL Typical/Master = 0.18 dB Compatible with all commercially-available splicers
1 1 1	0 322 20 0 322 23 0 322 21 0 322 24 0 322 22	
1 1 1	0 322 30   0 322 33 0 322 31   0 322 34 0 322 32	
1 1 1 1	0 322 41   0 322 46 0 322 42   0 322 48 0 322 43   0 322 47	9/125 µm - OS2 (APC or UPC) - OS1 compatible SC-APC connectors SC-UPC connectors LC-APC connectors LC-UPC connectors ST-UPC connectors
1 1 1	0 326 24 0 326 26 0 326 71	Sets of 12 LC pigtails  1m length - 12 different colors  12 OS2 LC-UPC pigtails  12 OM3 LC-UPC pigtails  12 OM4 LC-UPC pigtails
1	0 327 44	<b>Heat-shrinkable sleeve for pigtails</b> 40 mm - pack of 50 sleeves
10 10	0 331 47 0 331 00	50/125 and 62,5/125 μm glue-on connectors Supplied with 900 μm sleeve Connectors with ceramic ferrule Typical attenuation: 0.3 dB SC connectors LC connectors
1 1	0 330 48 0 330 49	Fan-out units For 900 µm sheathing of optical fibers Take 250 µm fiber diameters 6-fiber fan-out unit 12-fiber fan-out unit

0 322 72	2	0 322 73	0 322 75
	00	10	
0 322 83		0 322 81	0 322 85
Pack	Cat.Nos	Tool case for prep	paring optical fiber for

0 322 63		0 322 61	0 322 65
Pack	Cat.Nos		eparing optical fiber for iber optic connectors
1	0 322 70	cables, for carrying of fibers to connect connection in all si Comprises:  - Precision cleaver  - Kevlar stripping a  - Visual fault locate  - Installation instruct	nd cutting tool
		Quick-connect	connectors
		Quick-connect, rel To be used to lock An indicator light is No glue or polishin Can be installed or For 250 µm fiber, u the connectors; typ	made with case Cat.No 0 322 70 able and reusable up to 5 times the fiber inside the connector used to test the connection g needed 1 900 µm fiber optics se the special tubes supplied with point of the supplied with sical IL: multimode OM3/OM4 = 1 mode OS2 = 0.2 dB (PC) and
		OM3/OM4 multime Set of 12 connecto	
12 12	0 322 71 0 322 72	LC PC 50/125 $\mu m,$ SC PC 50/125 $\mu m,$	900/250 μm 900/250 μm
		OS2 single-mode Set of 12 connecto	
40	0.000.70	1011000405	000/050

		Set of 12 connectors
12 12 12	0 322 73 0 322 74 0 322 75	LC UPC 9/125 μm, 900/250 μm SC UPC 9/125 μm, 900/250 μm SC APC 9/125 μm, 900/250 μm
		Precision cleaver for updating case Cat.Nos 0 326 90
1	0 322 80	Enables precision-cutting of fiber optics and the use of quick-connect connectors Cat.Nos 0 322 71 to 0 322 75 with case Cat.No 0 326 90
		Fiber optic cleaning accessories
1 1 1 1 1 1 1	0 322 81 0 322 82 0 322 84 0 322 85 0 322 76 0 322 77	MPO/MTP¹ ferrule cleaner LC ferrule cleaner (PC/APC) SC ferrule cleaner (PC/APC) LC replacement cartridge SC replacement cartridge Fiber stripper

# HIGH-PERFORMANCE COMPUTING (HPC) FIBER SOLUTIONS





With increasing density and power in HPC, the requirements for the structured cabling components are growing in two ways:

#### **PERFORMANCE**

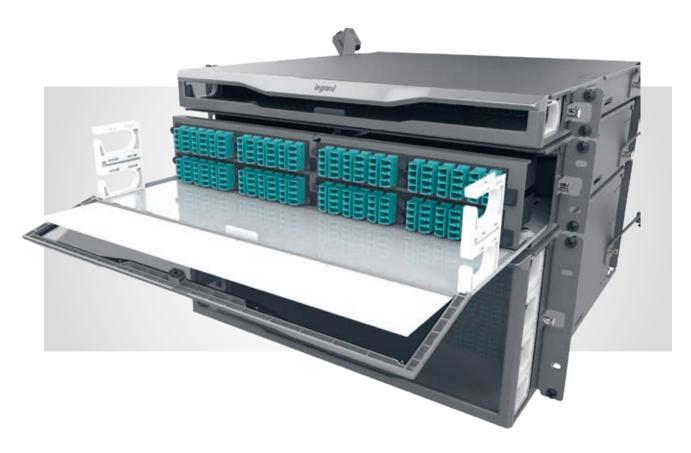
HPC deals with the highest possible bandwidths and transmissions. Therefore, it sets the highest demands on the quality of the detachable connections (coupling points) of fiber optic connections. The best possible quality and lowest possible insertion loss is the key to getting the highest possible reserves on the transmission line and ensuring safe and stable operation.

#### **DESIGN**

The high number of connections and cables must be safely handled on the front and the back sides of the connection panels. Cables must be prevented from interfering with the flow of cooling air in HPC racks at all times. In addition, the panel must allow easy access while maintaining high packing density. For this reason, it is also important to use patch cords of different lengths to reach each server in the rack without unnecessary excess length.

## LEGRAND'S RESPONSE

Legrand's HPC structured cabling solutions combine both!



# Infinium Quantum fiber system

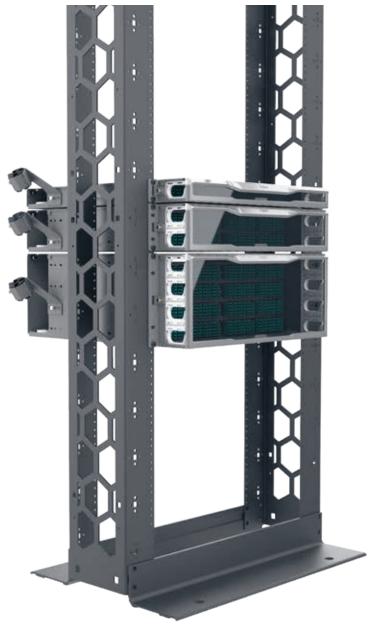
Our solution offers the lowest total system loss on the market, opening the opportunity to challenge the limits of what was previously impossible. With a total channel attenuation of 0.75 dB, the Solution is ideal for AI, hyperscale, cloud, supercomputing, and other high bandwidth demand environments.

Infinium HD™ enhanced fiber enclosure



# STRUCTURED CABLING

# **FOR HIGH PERFORMANCE COMPUTING**



#### Accessibility

The magnetic latching mechanism of the enclosure door enables a simple one-handed pull to open and push to close access. The enclosure door is attached to the sliding drawer face and tray, allowing easy clearance from equipment or other enclosures mounted below. A tray lock mechanism ensures that the tray stays in place when patching or dressing the fiber. The 60/40 split-top cover allows access from above and features toolless removal.

#### Intuitive cable management

The unique pivot arms provide an innovative way to manage fiber slack storage. Each arm rotates towards the rear of the enclosure and hosts a pivot disk that may be used with slack storage spools, fan-out kits, or attachment points to secure the Legrand HiLOC harness. The Cable Attachment brackets feature toolless adjustments for location based on which direction the cable is routed either side of the enclosure, top or bottom. Simply make the adjustment for cable routing, load the grommet around the cable(s) and close the attachment cover.

#### Scalability

The scalable jumper management allows layers of management to be added only when needed, making it easy to keep patch cords neatly organized. The drawer faces are removable and replaceable, allowing the enclosure to easily convert between standard LM4 and optional M8 cassette and adapter footprints. This allows the enclosure scalability to support increasing bandwidth and higher speed requirements that utilize different cables, cassettes, or adapters.

# INFINIUM QUANTUM™

# THE INDUSTRY'S LOWEST TOTAL **CHANNEL CONNECTION LOSS**



No longer bound by Ultra Low Loss - Infinium Quantum has redefined performance in the data center with a total channel connection loss that is an order of magnitude greater than any other fiber system on the market today. Infinium Quantum changes everything by opening up the opportunity to challenge what's possible.

Characterized by performance, Infinium Quantum is engineered to enable greater sustainability, future-proofing, and the lowest total channel connection loss, highly configurable and scalable, with innovative features that simplify the process of installing or working with the system.

### ■ 67% improvement over standard systems

- Single-mode total channel connection loss: 0.75dB.
- Single-mode total channel connection return loss: 49dB.
- Multimode total channel connection loss: 0.75dB.
- Multimode total channel connection return loss: 34dB.

# ■ Future proofing: open path to 400G and beyond

- Reducing or eliminating the need to replace link to meet demands of 400G and beyond.
- Reduce need for fusion splicing to obtain low link loss.
- · Ability to add cross connections, signal drops, splitting, or switching components into the link for a particular transmission distance.

# Innovative features: simplify installation, management, and configurability

- Options for 12 and 24 fiber connectivity.
- Better accessibility and visibility inside the enclosure.
- Improved cable management: Front, Side, Rear, Slack.

# Sustainability: Corporate Social Responsibility

- Reduce overall energy consumption –up to 30% reduction in power consumption for transceivers.
- High performance infrastructure.
- Environmental stewardship.
- Contribute to LEED points.



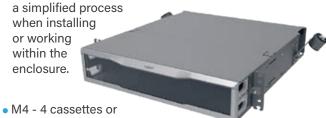


# INFINIUM QUANTUM™ UNPARALLELED **PERFORMANCE**

The Infinium Quantum fiber system solution must include several components.

#### Enclosures

• Infinium" HD-E (Enhanced) Fiber Enclosure. The Infinium HD-E Fiber Enclosure is an ideal solution for fiber networks in data centers and building networks. The high-density footprint accommodates up to 96 LC fibers in 1U of rack space. This enclosure has many innovative features designed with the installer, contractor, and network professional in mind, providing



- adapter panels per RU.
- 96 LC connectors per RU.
- 384 fibers (12F MPO) per RU.
- 768 fibers (24F MPO) per RU.
- High Density, up to 96 LC connectors in 1U of rack space.
- Available in 1U, 2U, and 4U.
- Accommodates 4 mounting depth positions.
- Magnetic door latch.
- Versatile label card mounting locations (Door or Tray).
- Forward-sliding label card.
- 60/40 split toolless top cover.
- Toolless cable attachment arms.
- Pivot arms for fiber slack management.
- Magnesium color scheme.

#### Cassettes

- High density preterminated cassettes. Designed to support MTP to LC connectivity. Universal polarity for simple installation.
- Form Factor: M4.
- Mode: Single-Mode and Multimode.
- Fiber Count: 12 and 24.

#### Trunks

- Fully configurable and manufactured with an innovative furcation method.
- Mode: Single-Mode and Multimode.
- Length: Made to order 2m or greater.
- Breakout Configuration & Labeling.
- Jacket Type: Plenum or Non-Plenum, Indoor or Outdoor Rated.

### Patch Cords

- Built to exceed industry standards for insertion and return loss.
- Mode: Single-Mode and Multimode.
- Length: Made to order 0.5m or greater.
- Jacket Type: Plenum or Non-Plenum.





# INFINIUM QUANTUM™

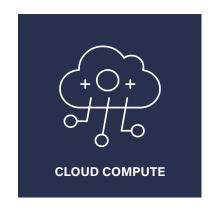
# PERFORMANCE ADVANTAGE

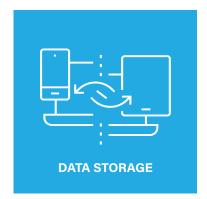
Developed for AI, Super Compute, and other High Bandwidth Applications

Legrand's Infinium Quantum offers a fiber optic solution designed to deliver the most advanced network performance, with a variety of density, enclosure, and application options for maximum compatibility. Our modular system is engineered with installation efficiency and performance in mind - providing the flexibility to design and efficiently install in any application.

55% 67% 0.75 dB Infinium Quantum Improvement Improvement 1.70 dB Ultra Low Total Channel Connection Loss 2.30 dB Standard Low Total Channel Connection Loss

# **THE ONLY CABLING SOLUTION OPTIMIZED FOR 400G AND BEYOND**

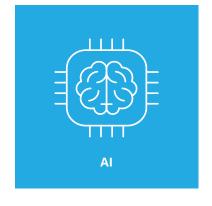
















# Infinium HD™ enhanced fiber enclosure





# INFINIUM HD™ **GREATER SCALABILITY**

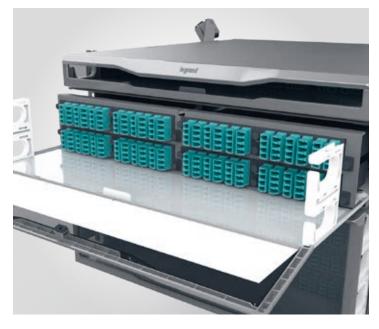
The scalable jumper management allows layers of management to be added only when needed, making it easy to keep patch cords neatly organized.

The drawer faces are removable and replaceable, allowing the enclosure to easily convert between standard LM4 and optional M8 cassette and adapter footprints. This gives the enclosure the scalability to support increasing bandwidth and higher speed requirements that utilize different cables, cassettes, or adapters.



# INFINIUM HD™ BETTER **ACCESSIBILITY**

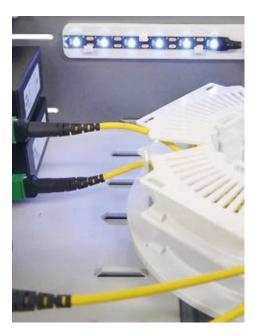
The magnetic latching mechanism of the enclosure door enables a simple one-handed pull to open, and push to close access. The enclosure door is attached to the sliding drawer face and tray, allowing easy clearance from equipment or other enclosures mounted below. A tray lock mechanism ensures that the tray stays in place when patching or dressing the fiber. The 60/40 split-top cover allows access from above and features toolless removal.





# INFINIUM HD™ **INCREASED VISIBILITY**

A white tray in the front and integrated LED lighting in the rear, along with the split-top cover, provide maximum visibility when working within the enclosure.







# INFINIUM HD™ **INTUITIVE CABLE MANAGEMENT**

The unique pivot arms provide an innovative way to manage fiber slack storage. Each arm rotates out towards the rear of the enclosure and hosts a pivot disk that may be used with slack storage spools, fan-out kits, or attachment points for securing the Legrand HiLOC harness. The Cable Attachment brackets feature toolless adjustments for location based on which direction the cable is routed - either side of the enclosure, top or bottom. Simply make the adjustment for cable routing, load the grommet around the cable(s) and close the attachment cover.





# INFINIUM HD™ **EASIER LABELING**

The label card is incorporated into the front door, positioning the labels directly below the ports for simple labeling and easy port identification. Templates created for both Brother and Dymo printers are available for download.



# INFINIUM HD™ EASE OF **INSTALLATION**

A single screwdriver is the only tool required for installing the enclosure in a rack. The mounting brackets with pin locks allow the enclosure to slide conveniently between 4 horizontal mounting positions. The open-ended design of the mounting brackets allows the enclosure to be installed by one person. Simply pre-mount the rack screws at the proper location on the rack, place the enclosure's mounting brackets on the pre-mounted screws to hold it in place, then tighten the screws.







# INFINIUM HD™ **BEAUTIFUL AESTHETICS**

This enclosure features sleek styling that matches the design of Legrand racks, cabinets and other data center products and solutions, and a magnesium color scheme that fits all data center environments.







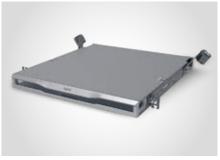
# **DESIGNED TO GROW**

# WITH THE NETWORK

#### INFINIUM™ Enhanced Fiber Enclosure

The Infinium Enhanced Fiber Enclosure is an ideal solution for fiber networks in data centers and building networks. The high-density footprint accommodates up to 96 LC fibers in 1U of rack space. This enclosure has many innovative features designed with the installer, contractor, and network professional in mind, providing a simplified process when installing or working within the enclosure.

- High Density, up to 96 LC connectors in 1U of rack space.
- Available in 1U, 2U, and 4U.
- Accommodates 4 mounting depth positions.
- Magnetic door latch.
- Versatile label card mounting locations (Door or Tray).
- Forward-sliding label card.
- 60/40 split toolless top cover.
- Toolless cable attachment arms.
- Pivot arms for fiber slack management.
- Magnesium color scheme.









**4U Enclosure** 

# INFINIUM™

# **CASSETTES**

#### Infinium Ultra™ cassettes

- Ultra low loss system
- Single-mode total channel connection loss: 1.2 dB
- Single-mode total channel connection return loss: 49 dB
- Multimode total channel connection loss: 1.0 dB
- Multimode total channel connection return loss: 19 dB
- High Density: 12 or 24-fiber cassette compatible with Infinium HD M4 enclosures
- Versatile installation: Infinium modular panel enables mixed media installations
- Fiber type: supports either single-mode OS2 or multimode Infinium Ultra fiber
- Polarization: universal

#### Infinium Quantum™ cassettes

- Single-mode total channel connection loss: 0.75 dB
- Single-mode total channel connection return loss: 49 dB
- Multimode total channel connection loss: 0.75 dB
- Multimode total channel connection return loss: 34 dB
- High Density: 12 or 24-fiber cassette compatible with Infinium HD M4 enclosures
- Versatile installation: Infinium modular panel enables mixed media installations
- Fiber type: supports either single-mode OS2 or multimode Infinium Ultra fiber
- Polarization: universal









## **CASSETTE TERMINATION AND SPLICE OPTIONS**

#### Pre-terminated cassettes

Legrand's pre-terminated cassettes are available in single-mode and multimode. Both are universal polarity for simple ordering and installation.

#### Splice cassettes

Legrand splice cassettes offer the convenience of working outside the enclosure with a patented removable splice manager that also aids in dressing the fiber.



# **HD Infinium™ enhanced fiber enclosures**

## **Infinium cassettes**

#### High density pre-terminated cassettes



INFC01U-M4-E









LM4-LC24J-2A2UN



LM4-LC12H

Pack	Cat.Nos
1	INFC01U-M4-E
1	INFC02U-M4-E
1	INFC04U-M4-E

# HD enhanced enclosures High density, up to 96 LC connectors in 1U

of rack space
Integrated LED lighting and white tray
Forward-sliding label card
60/40 split toolless top cover Toolless cable attachment arms Pivot arms for fiber slack management Magnesium color scheme

With M4 (Base 12) drawer face

2 U 4 U Universal polarity for simple installation Each cassette is designed to support MPO to LC connectivity Pre-terminated for fastest installation, highest performance and consistent factor quality Fiber port labeling provides easier administration Compact high density design Toolless installation

Pack	Cat.Nos	Infinium Quantum M4
		Industry leading performance is available only when mated with matched Infinium Quantum Trunk and Infinium Quantum Fiber Patch Cords
1 1 1		Single mode IL <sup>(1)</sup> Max/Random*: 0.375 dB 12 Fiber MTP to Duplex LC OS2 24 Fiber 2MTP to Quad LC OS2 24 Fiber MTP to Quad LC OS2
1 1		Multimode IL <sup>(1)</sup> Max/Random*: 0.35 dB 12 Fiber MTP to Duplex LC OM4 24 Fiber 2MTP to Quad LC OM4
		Infinium Ultra M4
1 1 1	LM4-LC24J-2A2UN	Single mode IL <sup>(1)</sup> Max/Random*: 0.6 dB 12 Fiber MTP to Duplex LC OS2 24 Fiber 2MTP to Quad LC OS2 24 Fiber 3MTP to Quad LC OS2
1 1 1	LM4-LC12H LM4-LC24H LM4-LC24H-3C3UN	Multimode IL <sup>(1)</sup> Max/Random*: 0,55 dB 12 Fiber MTP to Duplex LC OM4 24 Fiber 2MTP to Quad LC OM4 24 Fiber 3MTP to Quad LC OM4

<sup>1:</sup> Insertion Loss \*When mated with the same Legrand range (Quantum, Ultra, Core) trunks and patch cords.



# **Adapter panels**

# Infinium Quantum™ fiber patch cords





HDFP-LCD12CC





HDFP-LCQ24LC

HDFP-LCD12AC

HDFP-BLANK

These high-density adapter panels fit within the M4 drawer face and provide a pass-through connection with LC duplex, LC quad, or MPO ports

Pack	Cat.Nos	M4 adapter panels
1	HDFP-LCD12AC	LC Duplex 6 LC Duplex for 12 fiber monomode OS2
		Blue
1	HDFP-LCD12CC	6 LC Duplex for 12 fiber monomode OS2 Green
1	HDFP-LCD12MB	6 LC Duplex for 12 fiber multimode OM1 Beige
1	HDFP-LCD12LC	6 LČ Duplex for 12 fiber multimode OM3 Agua
1	HDFP-LCD08LC	4 LC Duplex for 8 fiber multimode OM3 Agua
1	HDFP-LCD08AC	HD, 4 LC Duplex CER Blue
1	HDFP-SCD12AC	SC Duplex 6 SC Duplex for 12 fiber monomode OS2 Blue
1	HDFP-SCD12CC	6 SC Duplex for 12 fiber monomode OS2
1	HDFP-SCD12LC	Green 6 SC Duplex CER SM,1U,BLACK Aqua
1	LIDED LOOJOAC	LC Quad
	HDFP-LCQ16AC	4 LC Quad for 16 fiber monomode OS2 Blue
1	HDFP-LCQ24CC	6 LC Quad for 24 fiber monomode OS2 Green
1	HDFP-LCQ24AC	6 LC Quad for 24 fiber monomode OS2 Blue
1	HDFP-LCQ24MB	6 LC Quad for 24 fiber multimode OM1 Beige
1	HDFP-LCQ16LC	4 LČ Quad for 16 fiber multimode OM3
1	HDFP-LCQ24LC	Aqua 6 LC Quad for 24 fiber multimode OM3 Aqua
		MPO adapter Base 12
1	HDFP-MPA72AA	6 MPO for fiber monomode OS2
1	HDFP-MPA72CA	Blue 6 MPO for fiber monomode OS2
1	HDFP-MPA72ED	Green 6 MPO for fiber monomode OS2
1	HDFP-MPA72LA	Grey 6 MPO for 72 fiber multimode OM3
1	HDFP-MPA96CA	Aqua 6 MPO for 96 fiber monomode OS2
1	HDFP-MPA96ED	Green 8 MPO for 96 fiber Aligned key
	HDFP-MPA96LA	Grey 8 MPO for 96 fiber multimode OM3, OM4 Aqua
		Blank panel

HDFP-BLANK Black





Pack	Cat.Nos	Patch cords
	on demand	Fiber patch cords are built to exceed industry standards for insertion and return loss Available in A-B polarity, per TIA 568 standard Available with Plenum, riser, low-smoke zero halogen (LSZH), rated jackets (or CPR – rated for EU use) Bend-insensitive fiber for optimal cable management TAA/BAA Compliant TIA Channel Compliant



# **Ultra**™ fiber patch cords

# **Core**<sup>™</sup> fiber patch cords



Fitted at each end with 2 connectors with ceramic ferrule Individually packed and tested (report supplied) Max. optical losses/Master: 0.15 dB LSZH Zipcord sheath



Fitted at each end with 2 connectors with ceramic ferrule Individually packed and tested (report supplied) Max. optical losses/Master: 0.25 dB LSZH Zipcord sheath

Pack	Cat.Nos	OS2 single mode fiber optic cords (9/125 $\mu$ m)
		For 9/125 µm single mode installations, OS2 type Yellow sheaths
5 5 5	0 325 27 0 325 28 0 325 29	
5 5 5	0 325 31	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m
5 5 5 5	0 325 35	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m Length: 5 m
3 3 3 3 3	0 326 86 0 326 87 0 326 88 0 326 89	LC/LC Uniboot duplex cords Reversible polarity Length: 1 m Length: 2 m Length: 3 m Length: 5 m Length: 10 m
		OM4 multimode fiber optic cords (50/125 $\mu m$ )
		For 50/125 µm multimode installations, OM4 type Aqua sheaths
3 3 3	0 326 31	SC/SC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3 3 3	0 326 35 0 326 36	SC/LC duplex cords Length: 0.5 m Length: 1 m Length: 2 m Length: 3 m Length: 5 m
3 3 3 3 3	0 326 95 0 326 96 0 326 97 0 326 98	LC/LC Uniboot duplex cords Reversible polarity Length: 0.5 m Length: 1 m Length: 2 m

Pack	Cat.Nos	OS2 single mode fiber optic cords (9/125 µm)
		For 9/125 $\mu m$ single mode installations, OS2 type Yellow sheaths
3 3 3	0 326 00 0 326 01 0 326 02	SC/SC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3	0 326 03 0 326 04 0 326 05	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3 3 3		Length: 1 m
		OM3 multimode fiber optic cords (50/125 µm)
		For 50/125 $\mu m$ multimode installations, OM3 type Aqua sheaths
3 3 3	0 326 09 0 326 10 0 326 11	SC/SC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3	0 326 12 0 326 13 0 326 14	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m
3 3 3	0 326 15 0 326 16 0 326 17	
		OM4 multimode fiber optic cords (50/125 μm)
5	0 322 60	For 50/125 µm multimode installations, OM4 type Aqua sheaths  SC/SC duplex cords Length: 1 m
5 5	0 322 61 0 322 62	Length: 2 m Length: 3 m
5 5 5	0 322 63 0 322 64 0 322 65	SC/LC duplex cords Length: 1 m Length: 2 m Length: 3 m
5 5 5	0 322 66 0 322 67 0 322 68	Length: 2 m

# Legrand's 25-year warranty for applications & performance



Confident in the quality of our solutions, Legrand guarantees the applications and performance of our copper and fiber cabling systems for 25 years.

Subject to certain conditions described hereafter, the "25-year application warranty" provides assurance that all expected applications function on the Legrand structured cabling solutions for a period of 25 years, and the "25-year performance warranty" provides assurance of correct functioning of the Legrand structured cabling solutions for a period of 25 years.

#### 25-YEAR APPLICATION WARRANTY

Legrand offers the end user the guarantee that all applications defined in the standards will function on the corresponding channel\* of copper and fiber of Legrand structured cabling solutions. If the PoE option is requested, Legrand also guarantees distances for the copper applications under PoE.

For 25 years, Legrand guarantees, subject to certain cumulative conditions of assignment, all applications defined for corresponding channels of the Legrand structured cabling solutions composed of:

- Class E (Cat. 6), Class Ea (Cat.6A), Class I (Cat. 8.1) channels for copper
- OM3, OM4, OM5, OS1a / OS2 channels for fiber optic

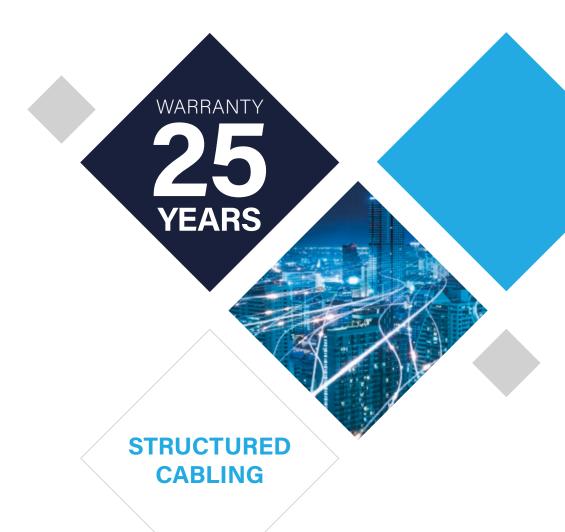
Note: fiber applications are length and budget dependent.

#### **■ 25-YEAR PERFORMANCE WARRANTY**

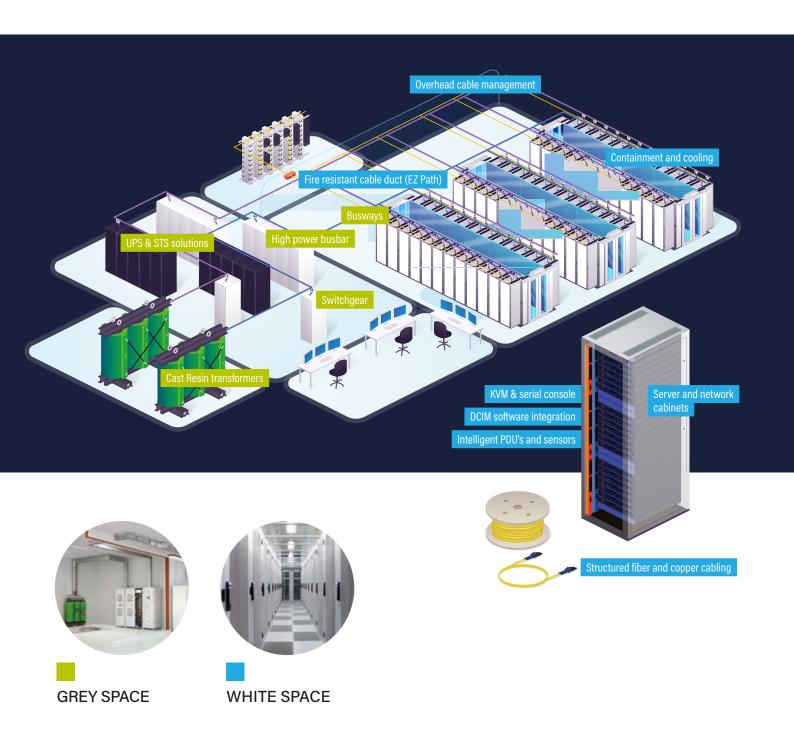
Legrand offers the end user the guarantee all permanent links and channels\* (copper and fiber) from Legrand structured cabling solutions will comply to standards for a period of 25 years.

For 25 years, Legrand guarantees, subject to certain cumulative conditions of assignment, the performances of Legrand structured cabling solutions system classified as:

- Class E (Cat. 6), Class Ea (Cat.6A), Class I (Cat. 8.1) permanent links for copper
- OM2, OM3, OM4, OS1 and OS2 for fiber optic
- \* Channels are assemblies of the following components:
- copper: connectors, cables, field installable plugs, cords, preterminated cables
- fiber optic: pigtails, couplers, cables, cords, preterminated cable, cassettes



# OUR DATA CENTER **GLOBAL OFFER**



# Covering all your IT infrastructure, cable management, and critical power needs!

With award-winning solutions from strong data center players, you benefit from optimal uptime of mission-critical operations. Our team of local specialists design and build innovative solutions, including enclosures, cooling, power, structured cabling, and access management, to meet your unique requirements.

# □ legrand®

**COMP**SE

Specialist in passive

data communication

solutions, cabling

buildings and fiber

optic infrastructures.

of data centers,

modulan Provider of fully

customizable

containment

solutions. Maximum

flexibility to cover

customer needs.

Complete global solutions for digital and electrical infrastructure.

Specialist in UPS for industrial applications and datacenters.

Data center fiber optic infrastructures, data center design and DCIM (monitoring & management) service and implementation.

### **GEIGER**

# Raritan.

Proven leader of intelligent PDUs, transfer switches, environmental sensors, serial consoles and KVM-over-IP Remote Access switches.

# Systems

USystems provide cooling products that enhance data center cooling, providing these to global businesses, making their data centers more environmentally friendly.

#### CABLOFIL

Using its global strength and market leading position, Cablofil has developed a complete range of cable management solutions.

# MINKELS

Turn-key hot/cold aisle containment and enclosures for data center infrastructures.

# <u>S</u>erver Technology.

Leading specialist in customer-driven power, access and control solutions for monitoring and managing critical IT assets.

#### ZUCCHINI

Zucchini has become a leading brand of cast resin transformers, offering one of the most comprehensive ranges on the market.

# Starline.

Starline has grown to become a global leader in busbar power distribution equipment

# **NOTES**



**NOTES** 



# **D**legrand

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