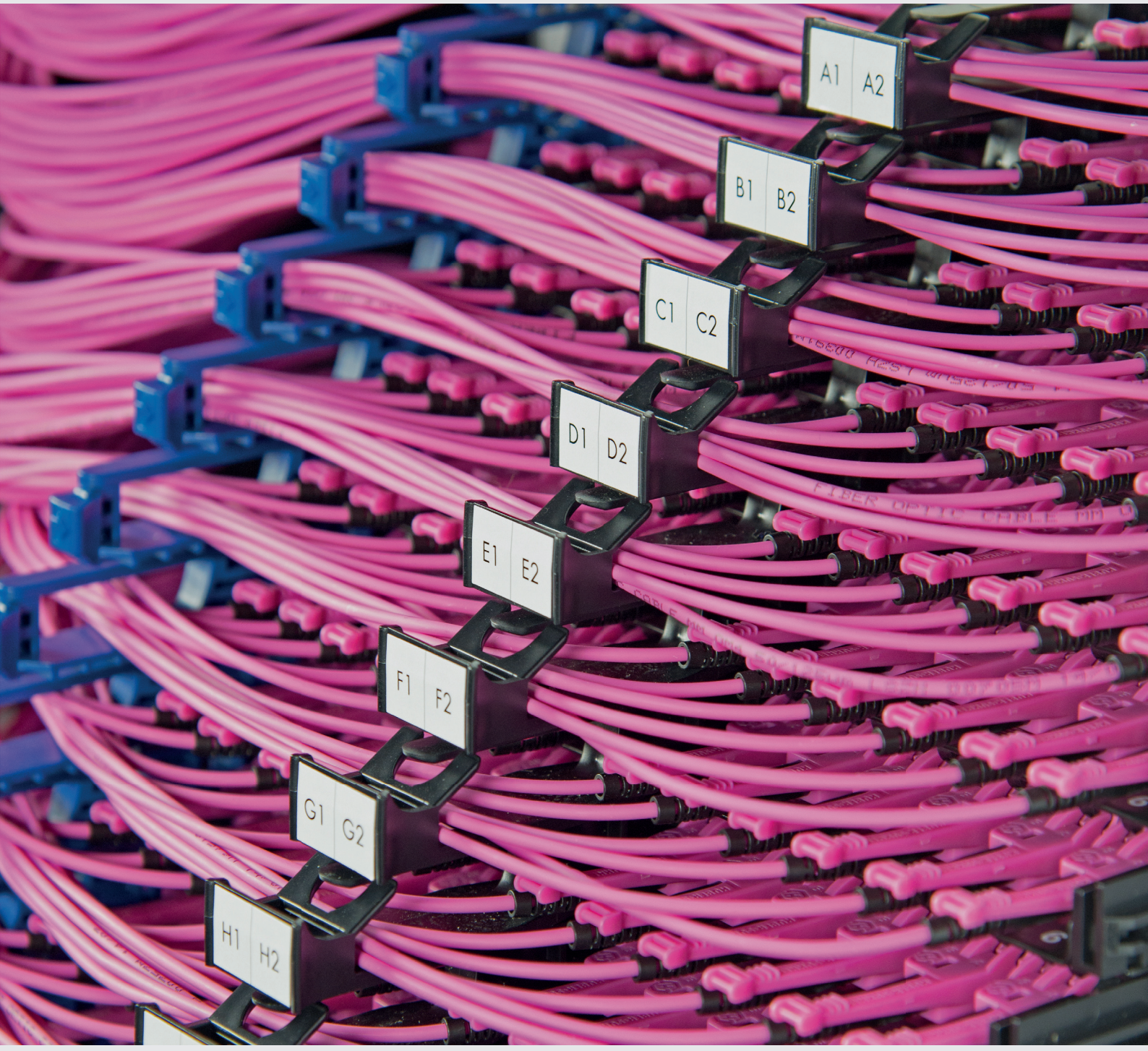
Data center solutions

Edition 2017/10



HUBER+SUHNER
Excellence in Connectivity Solutions

Building next generation data centers

HUBER+SUHNER
Excellence in Connectivity Solutions

IANOS® – high-density inter-connects

IANOS®

The IANOS® system from HUBER+SUHNER is a state-of-the-art fiber optic management system which facilitates fast, flexible and future-proofed connectivity in the data center. As its name suggests "IANOS" (as in Roman mythology) looks to the past as well as to the future. This means that "IANOS" is a combination of previous experience and valuable insight into the future.

Data centers are constantly adapting to reflect the demands placed on them, and today's fiber management systems need to accommodate these changes with the minimum amount of cost, time and disruption. As data centers evolve, we see a broad mixture of applications and data rates depending on the location, the business model and of course the data demand. IANOS® accommodates these changes by offering the widest range of connectivity scenarios in a single generic platform.

High packing density

The IANOS® chassis can accommodate a staggering 72 LC or MTP® ports in a single 1U rack space, and 288 ports in a 4U space. Alternatively you choose the IANOS® lite version which accomodates 48 LC or MTP® ports in a single 1U space. This extreme packing density reduces the total cost of ownership and allows valuable rack space to be occupied with revenue generating active equipment

1U and 4U chassis for server and switch connections

IANOS® is designed specifically for server and switch applications. The 1U chassis is for low-medium density and the 4U chassis is for high-density SAN switches. The IANOS® 4U chassis can also be used for end-of-row and middle-of-row distribution to nearby equipment cabinets.

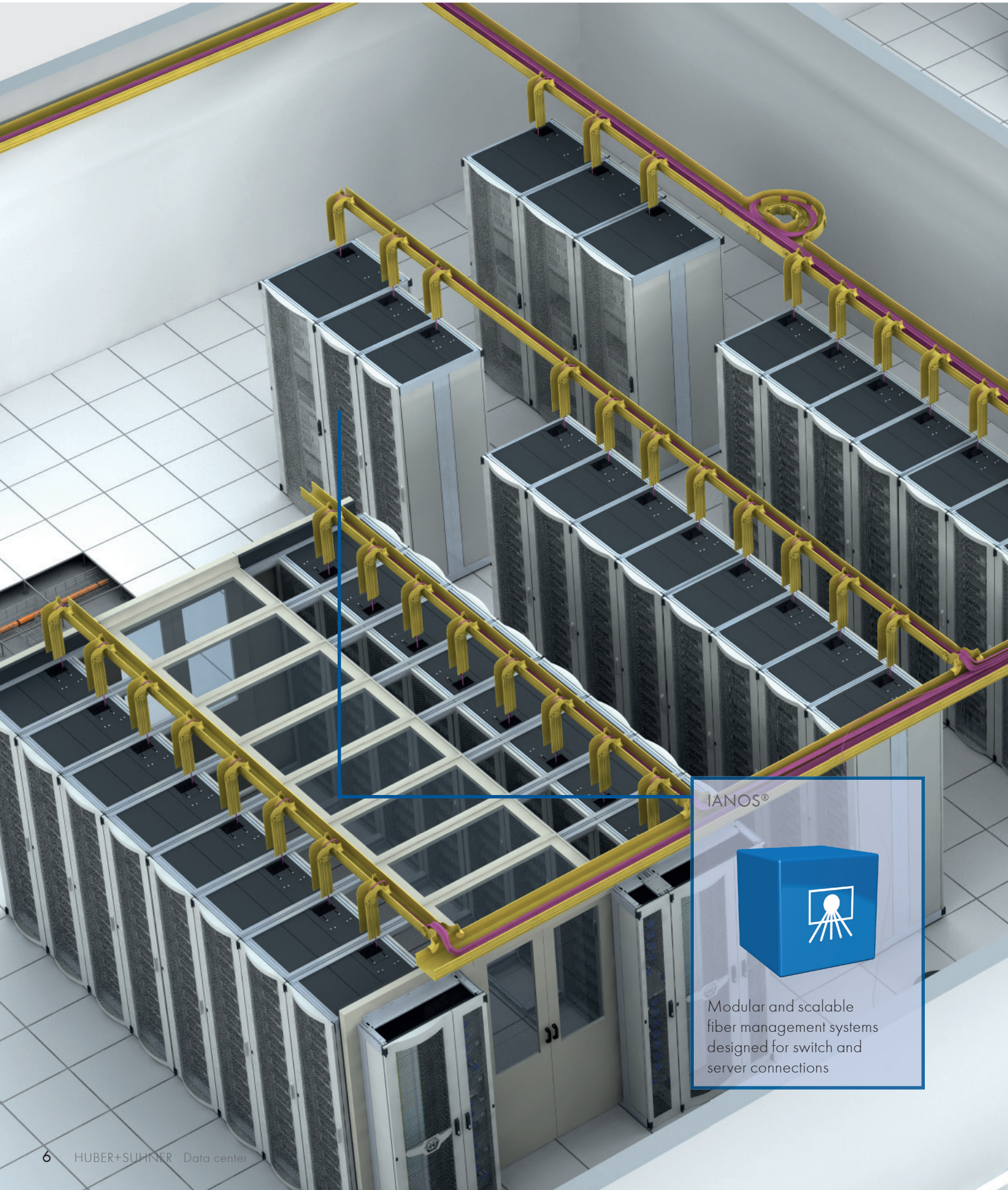
Easy migration from 10G to 40G/100G

IANOS® is suitable for accommodating 10G link designs using LC connectivity or 40G and 100G links using MTP® backbones. This flexibility is achieved with many different modules that can be mixed and matched in the same chassis. Operators who build a 10G infrastructure today can easily migrate to higher data rates in the future simply by swapping out modules within the chassis.

Supported by compact and robust cable systems

Optipack trunk cables are high-density multi-stranded cables which form the backbone of the data center. Available in different fiber-counts up to 144 fibers, the Optipack trunks reduce the installation time by consolidating multiple sub-units into a single cable. This approach significantly reduces the overall diameter of the cable and provides much better space utilisation of cable routing channels.

IANOS® chassis solutions guide



IANOS® 4U chassis

The IANOS® 4U chassis is designed for high-density applications where connections to high-density blade servers and switches are required in the same or adjacent racks. Generally mounted above or below switches, the IANOS® 4U chassis supports up to 576 fibers (288 ports) per 4U of rack space. The split design of the IANOS® chassis allows users to separate redundant cable feeds down different sides of the equipment cabinet so that there is less risk of disruption to live traffic.

IANOS® 1U chassis

The IANOS® 1U chassis is designed for medium to high-density applications where connections to servers and switches are required in the same or adjacent racks. Generally mounted at the top of equipment cabinets, the IANOS® 1U chassis supports up to 144 fibers (72 ports) per 1U of rack space and the IANOS® lite chassis supports up to 96 fibers (48 ports). The split design of the IANOS® chassis allows users to separate redundant cable feeds down different sides of the equipment cabinet so that there is less risk of disruption to live traffic.

IANOS® 19" chassis 1U and 4U

Characteristics

- Up to 12 modules/72 ports (LC duplex/MTP®) per 1U height space
- Insertion and removal of drawers and modules with one hand
- Horizontal opening front-door, separates redundant paths
- Labelling within front-door or as a slide-out system from within the chassis central dividing element
- Same modules for all IANOS® EDR applications
- Optional rear cable manager with divider plate (left/right)

IANOS® EDR chassis are high-density scalable sub-racks designed to accommodate the next generation of data rates and transceivers in rapidly evolving data centers. Available in 1U or 4U height increments, the IANOS® chassis delivers industry leading packing density and best-in-class handling across almost every application, be it splicing, pre-terminated cables or direct patching.

IANOS® modules can be inserted from the front or the rear of the chassis and it is possible to mix and match any of the IANOS® single or twin modules in the same individual chassis. Unlike other fiber panels on the market, the IANOS® chassis has a split design separating the left hand side of the chassis from the right hand side. This means that users are able to access just one half of the connectivity row without disrupting pre-installed business-critical fibers. The unique central door system of the IANOS® chassis further acts as a clear separation element between the two sides of the panel, and users are deliberately prevented from crossing fibers from one side of the chassis to the other. This split-panel principle also helps to maintain redundant cable paths and reduces the risk of possible downtime.

Technical data

Attribute	Value
Rack height	1U and 4U
Mounting type	standard 19" rails
Dimensions (W × D × H)	1U: 482.6 × 328 × 44 mm/19 × 12.9 × 1.7 in 4U: 482.6 × 328 × 177 mm/19 × 12.9 × 6.97 in
Weight	1U: 3.6 kg/129 Oz 4U: 12.4 kg/437 Oz
Material	chassis and drawers: stainless steel powder coated other components: PC/ABS
Colour	grey housing (RAL 7047) with blue control elements
Capacity	1U: up to 12 × IANOS® modules 4U: up to 48 × IANOS® modules
Density	1U: up to 72 ports (LC duplex/MTP®) 4U: up to 288 ports (LC duplex/MTP®)

Environmental data for all chassis and modules

Attribute	Value
Free of halogen	yes
2011/65/EC (RoHS)	fully compliant

Key features IANOS® chassis

Clearer and faster identification

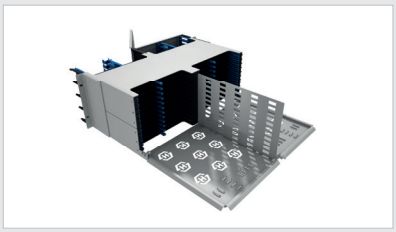
The IANOS® chassis is fully loaded with numerous identification areas for clearer and faster traceability. Doors can be labelled for identification or to show redundant feeds. Patching rows, module positions and of course port positions are all clearly marked on the product itself. There is even a slide out label in the center of the chassis for additional information.

Quick and easy access to patch cords

Because the IANOS® chassis is constructed with three sliding trays on the left and right hand side of the chassis, access to connectors is fast and easy. Each tray can be slid out independently so that there is minimum disruption to pre-installed cords.

Split design for improved cable separation

Standardisation bodies such as TIA and IEC, recommend that redundant cable paths are created in the data center. The IANOS® system facilitates this by completely separating cables entering or exiting the chassis. The benefit of this is zero disruption to redundant paths and much clearer identification of live/ redundant traffic.



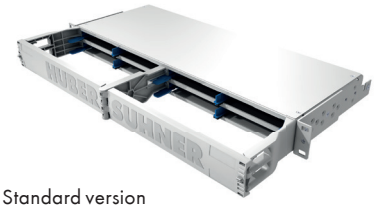
IANOS® chassis 1U, 4U and zero-space

Ordering information

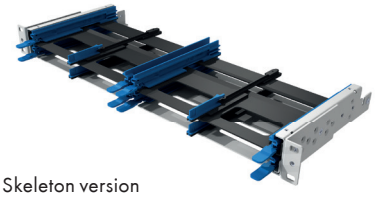
Description	Item no.
IANOS® 1U EDR chassis, grey, for up to 12 × IANOS® modules *	85069469
IANOS® 4U EDR chassis, grey, for up to 48 × IANOS® modules *	85069470
IANOS® 1U rear cable manager, grey	85069473
IANOS® 4U rear cable manager, grey	85069474
IANOS® zero space chassis, grey, for up to 6 IANOS® modules	85069471

* Chassis supplied with standard white label and front doors. Rear cable manager needs to be ordered additionally.

IANOS® 19" lite chassis 1U



Standard version



Skeleton version

Characteristics

- High density sub-rack for up to 8 modules 48 x ports (LC-duplex/MTP®) per 1U height space
- Quick and simple installation of sub-rack, modules and cables
- Insertion of single and double modules from the rear and front
- Easy access and protection of ports through horizontal opening front door (optional)
- Fixed tray design
- Labelling within front-door or as a slide-out system
- Compatible to all double or single IANOS® modules

IANOS® lite chassis are high-density scalable sub-racks designed to accommodate the next generation of data rates and transceivers in the rapidly evolving data center market. Available in 1U height increments, the IANOS® lite chassis delivers industry leading packing density and best-in-class handling across almost every application be it splicing, pre-terminated cables or direct patching.

IANOS® modules can be inserted from the front or the rear of the chassis and can be mixed and matched with any of the IANOS® single or twin modules in the same individual chassis. Unlike other fiber panels on the market, the IANOS® lite chassis has a non-moving tray design. This means that end-users are able to access connectivity rows without disrupting pre-installed business-critical fibers by sliding modules out of the chassis. The unique central door system of the IANOS® chassis further acts as a clear separation element between the two sides of the panel assuring that users are deliberately prevented from crossing fibers from one side of the chassis to the other. This split-panel principle also helps to maintain redundant cable paths and reduces the risk of possible downtime.

Technical data

Attribute		Value
Rack height		1U
Mounting type		standard 19" rails
Dimensions (W × D × H)	Skeleton version: Standard version:	482 x 217.6 x 44 mm / 18.98 x 8.57 x 1.73 inch 482 x 301.3 x 44 mm / 18.98 x 11.86 x 1.73 inch
Weight	Skeleton version: Standard version:	0.696 kg / 24.55 oz 1.027 kg / 36.23 oz
Material		chassis and drawers: stainless steel powder coated other components: PC/ABS
Colour		grey housing (RAL 7047) with blue control elements
Capacity		Other components: PC/ABS
Density		1U: up to 48 ports (LC-duplex/MTP®)

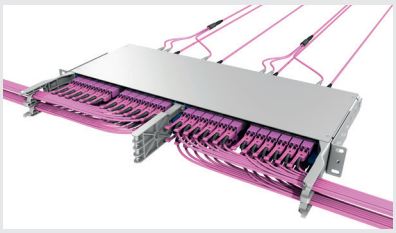
Environmental data for all chassis and modules

Attribute	Value
Free of halogen	yes
2011/65/EC (RoHS)	fully compliant

Key features IANOS® 19" lite chassis

Quick and easy access to patch cords

The IANOS® lite chassis is designed to provide easy handling and a fast and complete access to the connectors. The unique design also allows installers easy access from the back and the front of the IANOS® lite chassis when installing fibers. Cable guides allow an easy and safe handling and routing of the patch cords on both sides.

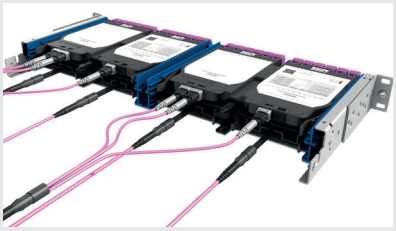


No disrupting of live patch cords

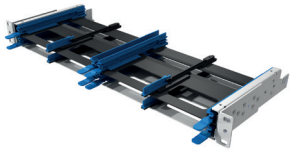
The fixed tray design provides highly secure connections with no disruption to pre-installed patch cords and modules. The simple design of the chassis and extra space between the modules allows the addition or removal of patch cords even when other connections are live. This in turn reduces the risk of downtime and additional damage to the patch cords.

Fast MACs

Because the modules do not need to be pulled out during patching, a fast and straightforward patching is possible. The integrated cable management system enables easy, quick and scalable cabling throughout the life cycle of the product.



IANOS® lite chassis 1U, standard and skeleton



Ordering information

Description	Item no.
IANOS® lite standard 1U chassis, grey for up to 8 x IANOS® modules	85086220
IANOS® lite skeleton 1U chassis, grey for up to 8 x IANOS® modules	85089215

IANOS® modules

IANOS® modules are interchangeable connectivity blocks that can be inserted into the IANOS® chassis from the rear or front side. A wide range of different modules are available to cover many different applications such as patching, splicing, transition and conversion. Single and twin modules are available to give users a higher degree of flexibility and choice as to how they want to build their fiber optic infrastructure.

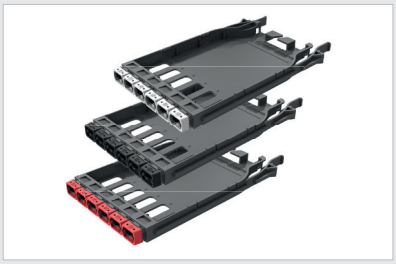
IANOS® modules are extremely compact and lightweight and they can easily be inserted and removed as the infrastructure evolves. Operators who upgrade their infrastructure to higher data rates can remove their legacy 10G modules and then replace them with modules more suitable for 40G and 100G for example. This building block approach is what makes the IANOS® system so scalable and adaptive.

All of the IANOS® modules contain high-performance optical fibers and components so that the total hardware loss is reduced to an absolute minimum. This is important in higher data rate environments because allowable optical budgets are significantly lower at 40G and 100G than they are for legacy 1G and 10G systems. This enhanced performance helps operators to maintain flexibility whilst achieving performance.

Key features IANOS® modules

Colour-coded MTP® adapters

A unique feature of the IANOS® patching module are colour-coded adapters by base type. Coloured frames are added to the outer face of the adapter so that users can quickly identify MTP® types. This colour scheme is also continued through the cable system portfolio so that users can visually check that the correct trunks or cords are connected together.



Polarity flippable adapters

The MTP® adapter fitted to all IANOS® modules can be removed and rotated so that the polarity can be adjusted in the field. This allows users to convert a type A adapter (key-up to key-down) to a type B adapter (key-up to key-up). A clear marking is provided on the top of the adapter to show the type being deployed.

Supported by high performance Optipack harnesses

The IANOS® patching modules can either be fed from the rear with an Optipack trunk cable or alternatively harnesses can be connected to the front of the module. The Optipack cable harnesses from HUBER+SUHNER are extremely compact both in terms of cable diameter and furcation body. These two products compliment each other superbly and offer the customer a total solution that is compact and optimised for performance and handling.

IANOS® patching modules

Characteristics

- 6 adapters per module (LC/MTP®)
- Fast and tool-less installation
- Cable guide at rear
- Facilitates patching to transceiver
- Available in singlemode and multimode OM3/OM4 performance
- Compatible with IANOS® EDR 1U/4U and EDR zero space chassis
- Colour-coded LC adapters by performance
- Colour-coded MTP® adapter shrouds by base type

The IANOS® patching module is a straight through MTP® or LC patching field which allows trunk cables to be connected directly to patch cords or harnesses. In Base-2 singlemode applications the IANOS® patching module provides a fast plug-and-play alternative to fusion splicing, and for MTP® multimode applications the patching module is designed to facilitate end-to-end parallel optics using Base-8, Base-12 or Base-24 connectivity.

Technical data

Attribute		Value
Product family		IANOS®
Suitable for		EDR chassis EDR zero space chassis
Dimensions (W × D × H)		97 × 172 × 12 mm/3.81 × 6.77 × 0.47 in
Material		PC/ABS
Colour		black (RAL 9005)
Number of adapters	front	6 × LC duplex adapter/6 × MTP® adapters
	rear	n/a
Adapter types	front	LC duplex/MTP® key-up/key-down (reversible to key-up/key-up if needed)
	rear	n/a
Adapter colours	LC	blue (SM/PC) turquoise (MM/OM3) heather violet (MM/OM4)
	MTP® MM	black body/grey shroud (8 fiber) black body/black shroud (12 fiber) black body/red shroud (24 fiber)
	MTP® SM	black body/grey shroud (8 fiber) black body/black shroud (12 fiber) black body/red shroud (24 fiber)

Key features patching modules

Simpler upgrades with MTP® patch and LC harness

As data centers migrate to higher data rates, the LC connector can be replaced by MTP®. MTP® is generally used for 40G and 100G switch ports that aggregate to 10G at the server. Because the majority of LC-MTP® upgrades are at the switch end, it makes sense to deploy a MTP® patch module in the switch rack and then run harnesses to the transceiver. MTP®-LC harnesses can be used on day 1 and then MTP® conversion harnesses or jumpers can be used for the upgrade.

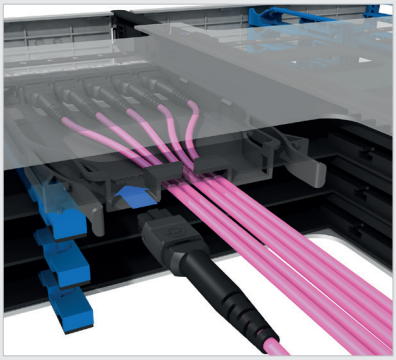
Base-8 for easier upgrade

Deploying a Base-8 backbone today will make it easier to upgrade to the higher data rates tomorrow. 40G is already defined as an 8 fiber interface, but in the future 100G, 200G and beyond will also be developed with SR4 8 fiber transceivers. For this reason, it would make sense to build your backbone with Base-8 from the start.

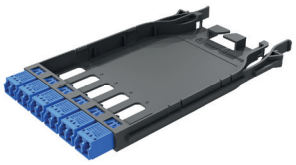
› Base-8 overview on page 22

Quick feed-through functionality to pre-installed modules

The IANOS® patching module incorporates a cable guiding system at the rear of the module which facilitates fast and easy installation of trunk cables. New trunks can be parked at the rear and then pulled forward from the front of the chassis so that improved access can be made to the patching field. Final connections of the trunk cables are made from the front of the IANOS® chassis.



IANOS® patching modules



Ordering information

Description	Item no.
Patching module, single size, Base-2, 6 × LCD adapter blue, singlemode PC	85072924
Patching module, single size, Base-2, 6 × LCD adapter turquoise, OM3 PC	85073354
Patching module, single size, Base-2, 6 × LCD adapter heather violet, OM4 PC	85073355

Ordering information

Description	Item no.
Patching module, single size, Base-8, 6 × MTP8 adapter body black, shroud grey, key-up/key-down	85072925

Ordering information

Description	Item no.
Patching module, single size, Base-12, 6 × MTP12 adapter body black, shroud black, key-up/key-down	85072929
Patching module, single size, Base-12, 6 × MTP12 adapter body black, shroud black, key-up/key-up	85072930

Ordering information

Description	Item no.
Patching module, single size, Base-24, 6 × MTP24 adapter body black, shroud red, key-up/key-down	85072931


C1 C2
D1 D2
E1 E2
F1 F2
G1 G2
H1 H2
I1 I2
J1 J2
K1 K2

IANOS® MTP®-LC transition modules

Characteristics

- MTP® to LC transition
- Single and double module available
- Fast and tool-less installation
- Facilitates patching to serial transceiver
- Available for Base-8, 12 and 24
- Available in multimode OM3/OM4 performance
- Compatible with IANOS® EDR 1U/4U and EDR zero space chassis
- Colour-coded LC adapters by performance
- Colour-coded MTP® adapter shrouds by base type

IANOS® transition modules convert MTP® backbone cables to LC connectivity at the front of the module so that LC patch cords can be connected to nearby active equipment. Generally used for lower data rates such as 1G, 10G, or 16G. IANOS® transition modules offer users the possibility to upgrade their LC based links in the future simply by replacing the transition module with an MTP® based conversion module, patching module or conversion harness. Transition modules are available in single or double versions and are suitable for Base-8, Base-12 or Base-24 MTP® backbones.

Technical data

Attribute		Value
Product family		IANOS®
Suitable for		EDR chassis/EDR zero space chassis
Dimensions (W × D × H)		single module 97 × 172 × 12 mm/3.81 × 6.77 × 0.46 in double module 196 × 172 × 12 mm/7.71 × 6.77 × 0.46 in
Material		PC/ABS
Colour		black (RAL 9005)
Adapter types	front	LC duplex
	rear	MTP® 8, 12 or 24 (key-up/key-down)
Adapter colours	LC	turquoise (MM/OM3), heather violet (MM/OM4), blue (SM/OS2)
	MTP® MM	black body/grey shroud (8 fiber) black body/black shroud (12 fiber) black body/red shroud (24 fiber)
	MTP® SM	green body/grey shroud (8 fiber) green body/black shroud (12 fiber) green body/red shroud (24 fiber)
Ferrule	LC	zirconia ceramic
	MTP®	composite

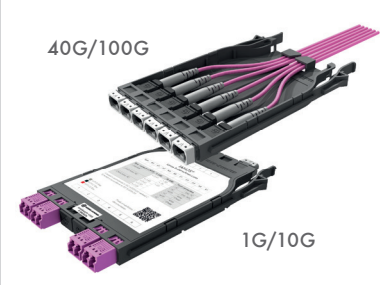
Optical data

Attribute	Value
Fiber count	single module 8 or 12, double module 24
Fiber type	Multimode 50/125 µm OM3 Multimode 50/125 µm OM4 Singlemode 9/125 µm OS2
Module insertion loss	MM OM3: ≤0.45 dB MM OM4: ≤0.35 dB SM OS2: ≤0.50 dB
Module return loss	MM OM3: ≥30 dB MM OM4: ≥30 dB SM OS2 PC: ≥50 dB SM OS2 APC: ≥60 dB

Key features transition modules

MTP® 10G systems that are upgradeable in the future

Transition modules using MTP® connectivity at the rear of the module allows users to build an upgradeable backbone suitable for 40G or 100G in the future. Deploying MTP® in the backbone also offers users a high degree of flexibility when connecting different types of interfaces and equipment.



Single and twin modules for increased flexibility

Having the flexibility of a single or a twin module in the IANOS® portfolio is crucial for many applications. The twin module offers improved routing space and handling when splicing cables and it also allows high fiber-count trunk cables to be better utilised in chassis. A Base-8 twin module supports a trunk cable that has 24 fibers and splits to 3 × 8 fiber MTPs® at the rear of the module. This reduces the size and installation time of the cable and also provides 100 % port density in the chassis.

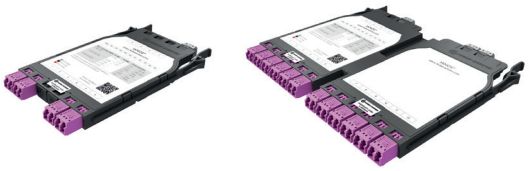
Low-loss performance 0.35 dB

As data rates increase in a data center, the distance over which you can transmit data is reduced significantly. Furthermore, the total optical loss budget also comes down at higher data rates. To compensate this effect, operators need to deploy super low-loss components in all areas of the link so that flexibility can be maintained without compromising performance.

Base-8 for simpler upgrades

Base-8 transition modules are designed for environments requiring LC connectivity today, and SR4 compatibility tomorrow. Deploying eight fibers from day one, allows users to upgrade their existing LC links to SR4 parallel optics without wasting any of the fibers inside the cable.

IANOS® MTP®-LC transition modules



Ordering information

Description	Item no.
Transition module, single size, Base-8, front 4 × LCD adapter turquoise, rear 1 × MTP8, non-pinned, adapter body black, shroud grey, key-up/key-down, OM3, fiber allocation neutral straight	85072938
Transition module, single size, Base-8, front 4 × LCD adapter heather violet, rear 1 × MTP8, non-pinned, adapter body black, shroud grey, key-up/key-down, OM4, fiber allocation neutral straight	85072939
Transition module, single size, Base-8, front 4 x LCD adapter blue, rear 1 x MTP8, non-pinned, adapter body green, shroud grey, key up/ key down, OS2, fiber allocation neutral straight	85072940
Transition module, double size, Base-8, front 12 × LCD adapter turquoise, rear 3 × MTP8, non-pinned, adapter body black, shroud grey, key-up/key-down, OM3, fiber allocation neutral straight	85072954
Transition module, double size, Base-8, front 12 × LCD adapter heather violet, rear 3 × MTP8, non-pinned, adapter body black, shroud grey, key-up/key-down, OM4, fiber allocation neutral straight	85072955
Transition module, double size, Base-8, front 12 x LCD adapter blue, rear 3 x MTP8, non-pinned, adapter body green, shroud grey, key up/ key down, OS2, fiber allocation neutral straight	85072956

Ordering information

Description	Item no.
Transition module, single size, Base-12, front 6 × LCD adapter turquoise, rear 1 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM3, fiber allocation A straight	85072942
Transition module, single size, Base-12, front 6 × LCD adapter heather violet, rear 1 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM4, fiber allocation A straight	85072944
Transition module, single size, Base-12, front 6 x LCD adapter blue, rear 1 x MTP12, pinned, adapter body green, shroud black, key up/ key down, OS2, fiber allocation A straight	85072946
Transition module, double size, Base-12, front 12 × LCD adapter turquoise, rear 2 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM3, fiber allocation A straight	85072957
Transition module, double size, Base-12, front 12 × LCD adapter heather violet, rear 2 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM4, fiber allocation A straight	85072959
Transition module, double size, Base-12, front 12 x LCD adapter blue, rear 2 x MTP12, pinned, adapter body green, shroud black, key up/ key down, OS2, fiber allocation A straight	85072961

Ordering information

Description	Item no.
Transition module, double size, Base-24, front 12 × LCD adapter turquoise, rear 1 × MTP24, non-pinned, adapter body black, shroud red, key-up/key-down, OM3, fiber allocation R1 split fibers per row	85072963
Transition module, double size, Base-24, front 12 × LCD adapter heather violet, rear 1 × MTP24, non-pinned, adapter body black, shroud red, key-up/key-down, OM4, fiber allocation R1 split fibers per row	85072964


A1
A2
B1
B2
C1
C2
D1
D2
E1
E2
H1
H2
I1
I2
J1
J2
K1
K2
L1
L2

IANOS® MTP® conversion modules

Characteristics

- Converts Base-8, 12 and 24 backbones
- Fast and tool-less installation
- Facilitates patching to transceiver
- Available as single module only
- Available in multimode OM3/OM4 performance
- Compatible with IANOS® EDR 1U/ 4U and EDR zero space chassis
- Colour-coded MTP® adapter shrouds by base type

IANOS® conversion modules provide an easy upgrade path for users who want to convert their pre-installed MTP® backbone cables to match new transceiver requirements. This process allows users to get full fiber utilisation from their existing backbones without any existing fibers. For example, two Base-12 backbone trunks can be converted to three Base-8 MTP® connectors (40G SR4) or alternatively they can be converted to a single Base-24 MTP® connector (100G SR10).

Technical data

Attribute		Value
Suitable for		EDR chassis EDR zero space chassis
Dimensions (W × D × H)		97 × 165 × 12 mm/3.81 × 6.51 × 0.47 in
Material		PC/ABS
Colour		black (RAL 9005)
Adapter types	front	MTP® 8, 12 or 24 (key-up/key-down)
	rear	MTP® 8, 12 or 24 (key-up/key-down)
Adapter colours	front/rear	black adapter with grey shroud (MTP8)
	front/rear	black adapter with black shroud (MTP12)
	front/rear	black adapter with red shroud (MTP24)
Ferrule	MTP®	composite (male/female)

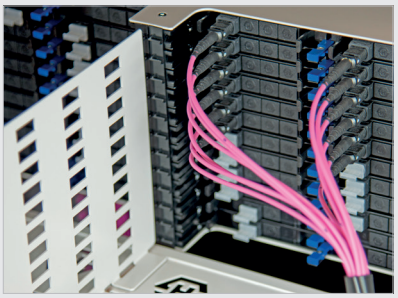
Optical data

Attribute	Value
Fiber type	Multimode 50/125 µm OM3 Multimode 50/125 µm OM4
Module insertion loss	MM OM3: ≤ 0.50 dB MM OM4: ≤ 0.50 dB
Module return loss	MM OM3: ≥ 30 dB MM OM4: ≥ 30 dB

Key features conversion modules

100 % utilisation of existing backbone

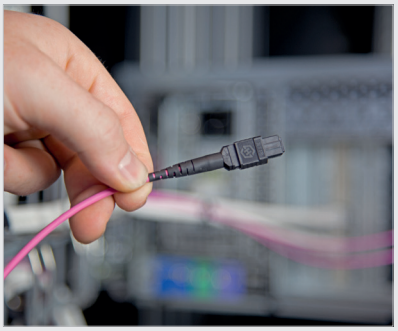
Conversion modules allow users to re-use their existing backbone cables even though the MTP® connectivity does not match their new equipment. Therefore Base-12 backbone cables can be converted to Base-8 or Base-24 depending on the required data rate.



Patch directly to nearby equipment

IANOS® conversion modules are the preferred conversion method for many operators because MTP® jumpers can be used to connect directly from the module to nearby equipment. Generally the conversion module will have a male connector at the front which allows female to female jumpers to be patched. This makes the management of jumpers easier and prevents any risk of damaging the transceiver with a pinned connector.

› MTP® jumpers on page 132



IANOS® MTP® conversion modules

Ordering information

Description	Item no.
Conversion module, single size, Base-8, front 1 × MTP24 pinned, adapter body black, shroud red, key-up/key-down, rear 3 × MTP8, non-pinned, adapter body black, shroud grey, key-up/key-down, OM3, fiber allocation split fibers per row S0	85073360
Conversion module, single size, Base-8, front 1 × MTP24 pinned, adapter body black, shroud red, key-up/key-down, rear 3 × MTP8, non-pinned, adapter body black, shroud grey, key-up/key-down, OM4, fiber allocation split fibers per row S0	85073361

Ordering information

Description	Item no.
Conversion module, single size, Base-12, front 6 × MTP8 pinned, adapter body black, shroud grey, key-up/key-down, rear 4 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM3, fiber allocation split fibers per row S2	85072948
Conversion module, single size, Base-12, front 6 × MTP8 pinned, adapter body black, shroud grey, key-up/key-down, rear 4 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM4, fiber allocation split fibers per row S2	85072951
Conversion module, single size, Base-12, front 2 × MTP24 pinned, adapter body black, shroud red, key-up/key-down, rear 4 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM4, fiber allocation split fibers per row S1	85072949
Conversion module, single size, Base-12, front 2 × MTP24 pinned, adapter body black, shroud red, key-up/key-down, rear 4 × MTP12, pinned, adapter body black, shroud black, key-up/key-down, OM3, fiber allocation split fibers per row S1	85073362

Ordering information

Description	Item no.
Conversion module, single size, Base-24, front 6 × MTP8 pinned, adapter body black, shroud grey, key-up/key-down, rear 2 × MTP24, non-pinned, adapter body black, shroud red, key-up/key-down, OM3, fiber allocation split fibers per row S4	85072950
Conversion module, single size, Base-24, front 6 × MTP8 pinned, adapter body black, shroud grey, key-up/key-down, rear 2 × MTP24, non-pinned, adapter body black, shroud red, key-up/key-down, OM4, fiber allocation split fibers per row S4	85072953


A1 A2
B1 B2
C1 C2
D1 D2
E1 E2
F1 F2
G1 G2
H1 H2
I1 I2
J1 J2
K1 K2
L1 L2

IANOS® LC splicing modules

Characteristics

- 24 × LC splicing
- Fast splicing and reduced coiling time
- Lid with fiber identification
- Quick access to fiber
- Quick fix cable fixation for incoming cables (2, 3 and 5 mm)
- Suitable for 5 mm conduit
- Bend radius control throughout (min. 30 mm)
- Fiber over-length storage with integral heat shrink or optional sandwich splice comb
- Available in singlemode OS2 and multimode OM3/OM4 performance
- Compatible with IANOS® EDR 1U/4U and EDR zero space chassis
- Colour-coded LC adapters by performance

The IANOS® splicing module is a twin module which facilitates the fusion splicing of 24 individual heat shrink splices or 4 ribbon heat shrink splices. The splicing module is suitable for all "Optipack 8, 12 and 24 strand" cables and can also accommodate bend-limiting.

Technical data

Attribute		Value
Suitable for		EDR chassis/EDR zero space chassis
Dimensions (W × D × H)		199 × 177 × 12 mm (5.1 × 5.4 × 1.9 in)
Material		PC/ABS
Colour		black (RAL 9005)
Adapter types	front	LC duplex
	rear	cable fixation
Adapter colours	front	blue (SM/PC) green (SM/APC) turquoise (MM/OM3) heather violet (MM/OM4)
	rear	n/a
Ferrule	LC	zirconia ceramic

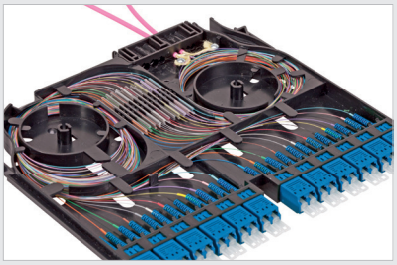
Optical performance

Type	Measurement method (IL/RL)	IL (dB)	RL (dB)
SM UPC	IL: IEC 61300-3-4 method B	≤ 0.30	≥ 50
SM APC	RL: IEC 61300-3-6	≤ 0.30	≥ 65
MM OM3	IL: IEC 61300-3-34 method B	≤ 0.25	≥ 35
MM OM4	RL: IEC 61300-3-6	≤ 0.15	≥ 35

Key features splicing modules

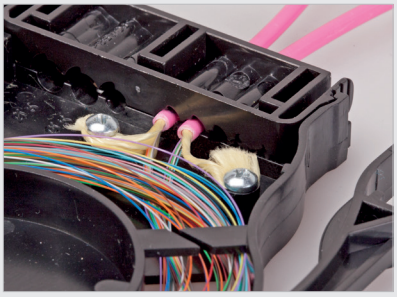
Clear routing and separation of incoming and outgoing fibers

The IANOS® splicing module incorporates two independent storage areas which keep incoming and outgoing fibers separate from each other. This feature simplifies the splicing process and reduces the time required for installation and servicing.



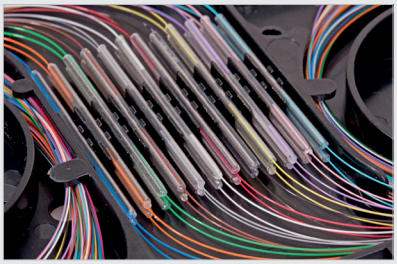
Fast and secure cable fixation

The IANOS® splicing module allows users to fix cables simply by clamping the outer jacket of the cable. This innovative feature eliminates the need for cable ties or other wrap-around ties that can cause damage to the cable. Additional kevlar fixation is available inside the module to provide additional strain-relief and security. The IANOS® module is designed for Optipack cable systems with a diameter of 2 mm, 3 mm and 5 mm. Protective conduit can also be fixed to the rear of the module if required.



Up to 24 heat-shrink splices per module

As data rates increase in a data center, the distance over which you can transmit data is reduced significantly. Furthermore, the total optical loss budget also comes down at higher data rates. To compensate this effect, operators need to deploy super low-loss components in all areas of the link so that flexibility can be maintained without compromising performance.



IANOS® LC splicing modules

Ordering information

Description	Item no.
Splice module, double size, Base-2, front 12 × LCD adapter blue (SM/PC)	85072934
Splice module, double size, Base-2, front 12 × LCD adapter green (SM/APC)	85072935
Splice module, double size, Base-2, front 12 × LCD adapter turquoise (MM/OM3)	85072936
Splice module, double size, Base-2, front 12 × LCD adapter heather violet (MM/OM4)	85072937

IANOS® pre-terminated modules

Characteristics

- Fast and tool-less installation
- Breaks out 40GBase-SR4 to 4 × 10GBase-SR
- Available as a single module only
- Available in Singlemode OS2 and multimode OM3/OM4 performance
- Compatible with IANOS® EDR 1U/ 4U and EDR zero space chassis
- Colour-coded MTP® and LC adapters

The IANOS® pre-terminated module is a single module which is pre-connectorised directly with a length of cable. The pre-terminated system can be supplied with a module at both ends or alternatively at one end only for fusion splicing to pigtails. Pre-terminated modules reduce the installation time considerably compared to spliced pigtails and they also help data center operators to achieve near-perfect length management of cables between racks. Generally the pre-terminated module will be placed in a server rack and the other end will be spliced into a high-density LISA cross-connect rack. Pre-terminated systems can also be used to reduce the optical loss across a link by reducing the number of mated connector pairs, but care should be taken not to compromise flexibility if and when the infrastructure is upgraded to higher data rates.

Technical data

Attribute		Value
Suitable for		EDR chassis/EDR zero space chassis
Dimensions (W × D × H) module only		97 × 172 × 12 mm/3.81 × 6.16 × 0.47 in
Material		PC/ABS
Colour		black (RAL 9005)
Adapter types	front	LC duplex
	rear	MTP® 8 and MTP® 12
Adapter colours	LC	blue (SM/PC) green (SM/APC) turquoise (MM/OM3) heather violet (MM/OM4)
	MTP® MM	black body/grey shroud (8 fiber) black body/black shroud (12 fiber)
	MTP® SM	green body/grey shroud (8 fiber) green body/black shroud (12 fiber)
Ferrule	LC	zirconia ceramic
	MTP®	composite/female gender
Tailed cable length		1 to 99 m

Optical performance

Performance classes "patch field"	Attenuation "reference measuring"			
	IEC 61300-3-4, method B		IEC 61300-3-6	
	IL max	IL mean	RL UPC	RL APC
Singlemode standard class	0.30 dB	0.20 dB	> 50 dB	> 85 dB [1]
Multimode standard class	0.25 dB	n/a	> 35 dB	n/a
Multimode low-loss class	0.15 dB	n/a	> 35 dB	n/a
Performance classes "MT"				
Singlemode elite class	0.35 dB	0.10 dB	n/a	> 60 dB [1]
Multimode elite class	0.35 dB [2]	0.10 dB	> 30 dB	n/a

[1] Measurement method 3 (OLCR)
[2] All connectors are tuned acc. to IEC 61755-3-1/2, grade B

Key features pre-terminated modules

Combine with LISA fiber trays for the perfect end-to-end solution

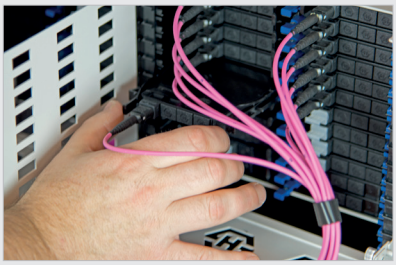
IANOS® pre-terminated modules are the perfect solution for those operators wanting to deploy pre-termination at the server/switch cabinet but splicing in the central cross-connect. This combined approach reduces the optical loss across a link and also eliminates much of the cable slack management required with double ended pre-terminated solutions.

Fast deployment straight from the reel

IANOS® modules can be installed directly from the reel with the innovative 2-part reel system. The pre-terminated module is protected inside the reel and later removed after the cable has been fully installed. The reel system has a central hole which allows it to be mounted on poles or axles for fast deployment.

Fast and simple installation from the rear

The IANOS® pre-terminated module can be easily inserted into the IANOS® chassis from the rear of the cabinet. This feature makes the complete installation faster because the pre-terminated modules do not need to be fed through the chassis.



IANOS® pre-terminated modules

2

Ordering information

Description	Item no.
Pre-term module, single size, Base-2, front 6 × LCD adapter body blue, rear tailed, 15 m, 2 mm, 1 × MTP12, non-pinned, connector body green, shroud black, OS2, fiber allocation A straight	85072933

IANOS® pre-terminated modules – order code

Customer-specific products of the pre-terminated modules are available on request. For more details on customer-specific solutions contact your local sales representative or choose from our configurable options in the order code below.

OM	1	2	3	–	4	5	6	7	8	–	9	10	11	12	–	13	14	15	16

1	Number of fibers
0 8	Base-8
1 2	Base-12
2 4	Base-24

2	Fiber allocation
N S	Type N - straigth (for Base-8)
N P	Type N - pair-flipped (for Base-8)
A S	Type A - straight (for Base-12)
A P	Type A - pair-flipped (for Base-12)
R 1	Type R1 (for Base-24)

3	Optical performance
L	Low Loss (same performace classes for SM and MM)
S	Standard ECO (same performace classes for SM and MM)

4	Cable jacket rating
0	unrated cable

5	Cable type
A	reduced aramide armouring (Optipack Gen2)
B	regular aramide armouring (Optipack Gen1)

6	Fiber type
0	SM E9/125 (G.657.A2)
3	MM G50/125 OM3
4	MM G50/125 OM4

7	Cable length
n n n	Cable length in meter

8	Packaging option
F	particle-free packaging
D	standard packaging

9	Fan-out A-Side
0	No fan-out (pre-terminated module on A side)

10	Fan-out A-Side, length
0 0 0	No fan-out (pre-terminated module on A side)

11	Fan-out A-Side, connector
L	LC Module
S	SC Module

12	Fan-out A-Side, connector options
P	PC polish (only applicable for LC)
A	APC polish (only applicable for LC)

12	Fan-out B-Side
0	No fan-out (use this in case the product also has a pre-term module on the B-Side, MTP® connector or in case of splice version)
1	Type 1 fan-out (15 mm staggering, shortest leg on #1)
2	Type 2 fan-out (15 mm pairwise staggering, shortest leg on #1)
3	Type 3 fan-out (15 mm staggering, longest leg on #1)
4	Type 4 fan-out (15 mm pairwise staggering, longest leg on #1)
5	Type 5 fan-out (equal length)

12	Fan-out A-Side, length
n n n	Longest fan-out length B in centimeter (In case of pre-term module, MTP® connector or splice on B-Side use '000')

12	Fan-out A-Side, connector
0	no connector (pre-term module to splice harness)
L	LC Module or LC-XD connector
S	SC Module
M	MTP® connector

12	Fan-out A-Side, connector options
0	no connector (pre-term module to splice harness)
M	male connector (only applicable for MTP®)
F	female connector (only applicable for MTP®)
P	PC polish (only applicable for LC)
A	APC polish (only applicable for LC)

LISA – centralised cross-connects

LISA (Leading Inter-connect System Approach)

LISA is a dedicated high-density fiber management system commonly used as a centralised cross-connect in the main distribution area (MDA) of large data centers. With a 300 mm depth and full access from the front side, LISA cabinets can be positioned against unused walls, at the end of cold aisles or back-to-back on a single floor tile.

LISA racks have a density of 1500 LC ports per rack or 3000 LC ports per tile when placed back-to-back. For MTP® applications the density is 1080 or 2160 MTP® ports respectively.

The main difference between LISA and conventional 19" panels is the fact that LISA is fully accessible from the front side. This means that users can install, patch or remove fiber trays simply by sliding out the tray. This feature is much more attractive than 19" panels which generally require access to the rear side of the cabinet.

Patching to the LISA rack is fast and easy and a dedicated slack storage area for jumpers allows users to make "any-to-any" patching with just two lengths of cord.

Modular and scalable

The CDR is the most flexible and scalable fiber management system on the market. Tray units and fiber trays can be used like building blocks to create high-density systems from smaller, more scalable sub-segments.

Different fiber performances, connectivity types and applications can be mixed and matched in the same rack so that the overall solution can evolve at the same pace as the data center.

100 % access from front side

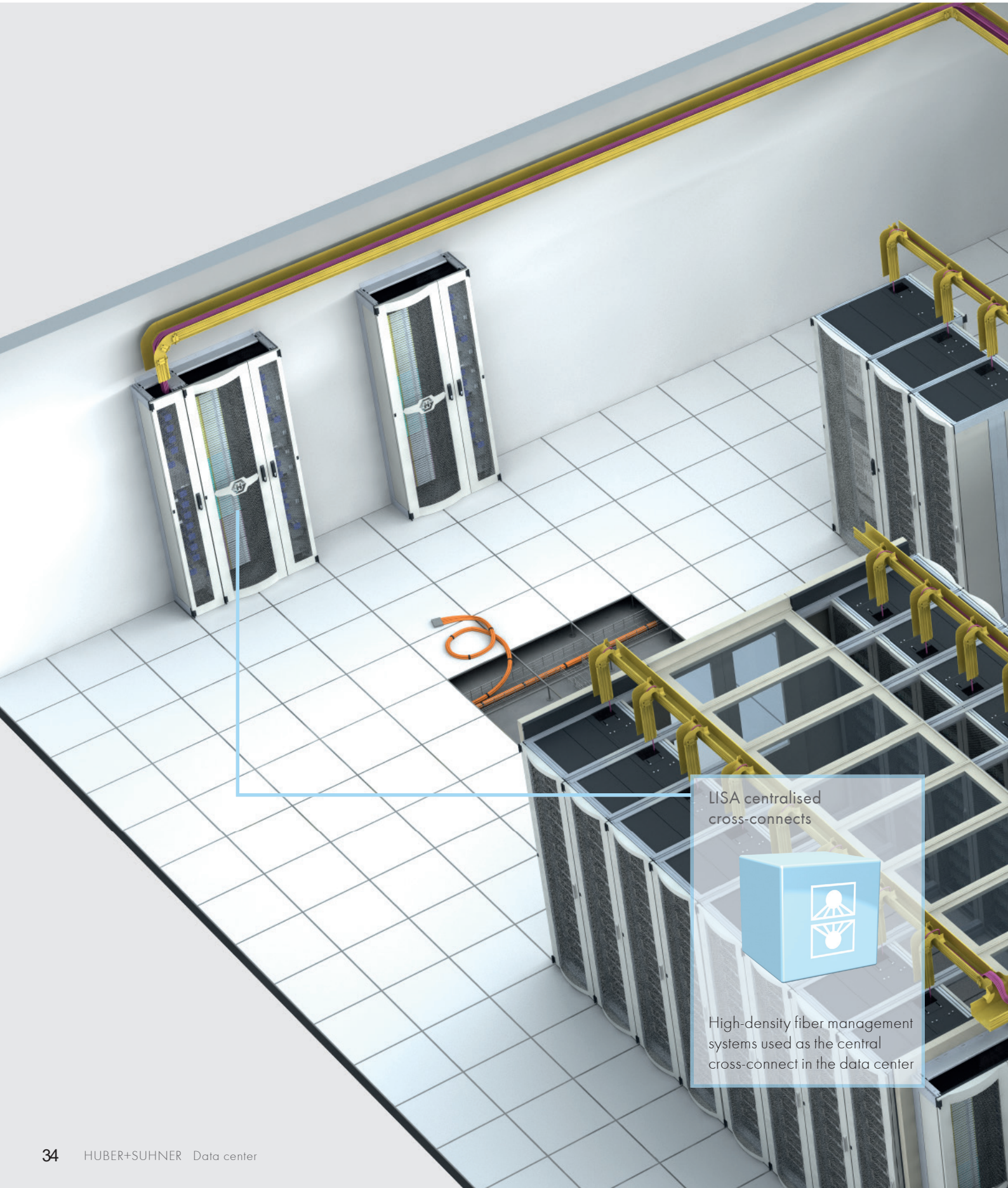
Unlike other fiber management systems on the market, LISA is allows complete access to all incoming and outgoing fibers from the front side. Conventional systems require access to the rear of the cabinet but with LISA everything is "front access". This innovative approach allows operators to position the LISA rack back to back on a single floor tile for increased density, or alternatively against an unused wall. LISA racks can also be placed against the side of equipment cabinets or at the end of cold/hot aisle containment systems.

Simpler moves, adds and changes

The LISA side access system benefits from integrated cable service loops that facilitate "anytime access" to all cables and connectivity. Because of the innovative side-facing design, rear and front connections can be accessed quickly and intuitively without any risk to pre-installed fibers. The integrated cable management system is easy to follow and allows users to add or remove cables at any time during the life cycle of the product.

The fiber tray is available in different colours for faster identification and traceability. Our side-facing system makes visibility of the channel faster and more intuitive for the user reducing the operational costs incurred during the life cycle of the data center.

LISA solutions guide



LISA patching solution for Greenfield LC and MTP® installations 10G/40G/100G

A new or refurbished facility is an ideal opportunity to consider the long-term needs of your cabling infrastructure. Cabling is there to support your switching architecture and active devices, so implementing a system which supports future data rates like 40G and 100G is strongly recommended.

The rise in parallel-optics MTP® transceivers means that end-to-end pre-terminated cabling systems are often the main cabling system within the data center. Being able to install and patch these new cables quickly and easily is critical from an operational perspective and also a business-ready perspective.

The LISA patching solution is purpose-made for this application and subsequently simplifies the complete process of installing and servicing MTP® cable systems. The LISA patching tray can also be used for LC serial patching as an alternative to pigtail splicing.

LISA splicing and MTP®-LC transitions for Greenfield/Brownfield 1G/10G

Brownfield data centers are often faced with the challenging task of maintaining mixed applications and data rates within the same environment. Some operators prefer to deploy singlemode fiber over LC connectivity and others prefer to deploy multimode fiber with a mix of MTP® and LC connectivity.

Whatever the preference, HUBER+SUHNER recognises the importance of serving our customers with legacy fiber management systems which are individually tailored to the application.

The LISA system has consistently proven to be the most flexible and modular fiber management system on the market.
Data center operators can benefit from "mixing and matching" different cable types, connectivity types and termination methods all within the same universal rack system.

CDR cable distribution rack and tray units

Highest packing density for evolving data centers

The CDR (Cable Distribution Rack) is a purpose-built high-density fiber management rack which serves as a central cross-connect in the main distribution area of data centers. With a footprint depth of only 300 mm, the CDR is fully modular and scalable up to 1620 ports (3240 fibers) using LC connectivity and 1080 ports (25 920 fibers) using MTP® connectivity. Users can benefit from a C-shaped construction where all internal sub-elements are completely installable and accessible from the front side. This important feature means that CDRs can be placed back-to-back on a single floor tile or alternatively against an unused wall for minimal space consumption.

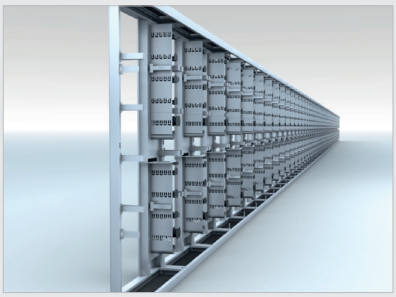
Configured to suit your needs

The CDR is 47U high, 300 mm deep and comes in two standard width dimensions of 900 mm and 1200 mm. The 900 mm version is designed for splicing and MTP®-LC furcation trays and the 1200 mm version is intended for patching only, whether it be LC or MTP® cable systems.

Key features CDR and tray units

C-shaped design for easy patching and improved access

The "two-post" construction of the LISA CDR dramatically improves the access to connectivity when making moves, adds and changes. CDR racks can be positioned side-by-side, and cables can be routed from one rack to the other without the need to feed jumpers behind vertical posts.

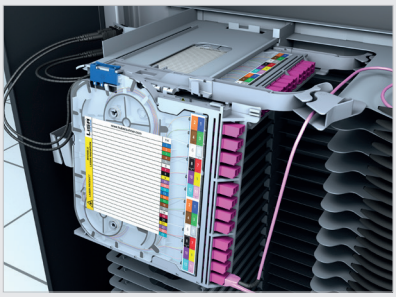


Integrated slack management of jumpers

Managing thousands of fibers in a single rack is virtually impossible without dedicated patch cord management. The LISA rack is supplied with this feature fully integrated from the start so that installers can safely route and manage patch cord slack every time they make a patch. Furthermore, the integrated management reduces the quantity of different length patch cords required to make connections. Only two different length cords are required to connect any of the ports.

Clear identification and traceability

The second you walk up to a LISA rack you know that a great deal of time and investment has been spent on making this system visible. Fiber trays inside the rack are coloured for immediate identification and clear labelling on the front of the fiber tray allows users to locate connections in seconds. These features help to reduce installation and serving times and have a significant impact on the operational costs of the data center.



CDR cable distribution rack

Characteristics

- Enhanced visual appearance
- Highly stable and rigid construction
- Better door locking repeatability
- Less weight
- More luxurious look and feel
- Easier fitment and removal of doors and side panels
- Increased internal space usage
- Increased density

Technical data

Attribute		Value
Dimensions (W × L × H)		900 × 328 × 2236 mm/47 U
Capacity		1620 ports, 3240 fibers using LC connectivity 1080 ports, 25 920 fibers using MTP®
Material	frame	aluminium extrusions, anodised colourless
	cover	metal sheet powder coated
Colour		black all cover metal sheets, silver aluminium extrusions, internal metal parts
Ingress protection degree (EN60529)		IP30
Temperature resistance (short-term)	Celsius	–46 to +120 °C
	Fahrenheit	–50 to +250 °F
Temperature resistance (long-term)	Celsius	–46 to +81 °C
	Fahrenheit	–50 to +178 °F
Flammability rating		UL 94V 0
UV resistance		resistant
Free of halogen		yes
Chemical resistance		good
RoHS requirements		fully compliant

LISA side access racks

Suitable for splicing and MTP®-LC transition

Ordering information

Description	Item no.
CDR 900 rack black	
Cable distribution rack 900 mm, perforated doors, 47U, black, with integrated patch cord management, doors 600 mm and 300 mm wide	85029082

Description	Item no.
CDR 900 rack grey	
Cable distribution rack 900 mm, perforated doors, 47U, grey, with integrated patch cord management, doors 600 mm and 300 mm wide	85029085

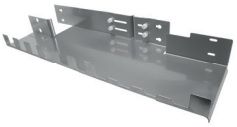
Suitable for MTP®-MTP® and LC-LC patching

Ordering information

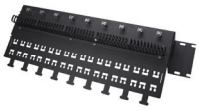
Description	Item no.
CDR 1200 rack black	
Cable distribution rack 900 mm, perforated doors, 47U, black, with integrated patch cord management, doors 600 mm and 300 mm wide	85029082
CDR 300 with integrated patch cord management and perforated doors and side panels, black (47U high, 300 mm door)	85029083

Description	Item no.
CDR 1200 rack grey	
Cable distribution rack 900 mm, perforated doors, 47U, light grey, with integrated patch cord management, doors 600 mm and 300 mm wide	85029085
CDR 300 with integrated patch cord management and perforated doors and side panels, grey (47U high, 300 mm door)	85029089

LISA side access accessories



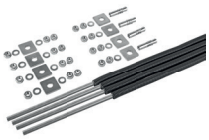
Description	Item no.
CDR 900 mm wide 2U routing channel in silver	85029682
CDR 300 mm wide 2U routing channel in silver	85029837



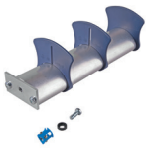
Description	Item no.
19" breakout plate for conduit fixation, black	84088572
Protective cover for 19" breakout plate, black	84076533

Description	Item no.
Cable conduit, solid wall, Ø 5 mm, black (only for splice applications), 100 m	84014502
Cable conduit, slitted wall, Ø 5 mm, black (for retrofitting conduits to helical loose-tubes), 100 m	85017566

Description	Item no.
Zipping tool for slitted conduits, Ø 5 mm,such as 85017566	84025983



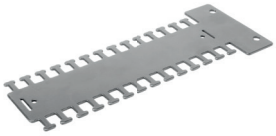
Description	Item no.
Fastening kit for raised computer floors incl. anchors, threaded-rod, nuts and washers	85029106
Fastening kit for solid concrete floors incl. anchor, nuts and washers	84091849



Description	Item no.
Front mountable mandrel assembly incl. 2 divider plates and end cap	85029681

Description	Item no.
Cable distribution rack, patch cord guiding brackets for vertical divide plate, silver	85029918

Description	Item no.
Cable distribution rack, patch cord guiding bracket for patch cord management plate, silver	85029919



Description	Item no.
Cable distribution rack, conduit tie plate for extrusion, silver	85021672

Description	Item no.
Cable distribution rack, vertical cable bracket for extrusion, silver	85021673

LISA side access tray units

Characteristics

- Integration of MTP® transition fiber trays
- 19" rear-mounting for improved access to front
- Horizontal fiber tray mounting maximises available height in rack
- Universal fixing plate for 2 conduits (splicing) or 3 MTP® adaptors
- Integral service loop for patch cords
- Horizontal and vertical patch cord guides
- Integrated patch cord mandrels for bend-radius protection
- Patch cord retaining ring ensures safe strain-relief of patch cords exiting the unit

Standard tray units for pigtail splicing and MTP®-LC transition

The LISA standard tray unit is a high-density chassis which manages pigtail splicing or MTP®-LC transition fiber trays inside the centralised cross-connect rack. Incoming backbone cables enter the tray unit from the left hand side and jumper cables are connected on the right hand side of the tray unit.

Due to 19" fixings at the rear of the tray unit, full access can be enjoyed to all incoming and outgoing fibers and the integrated service loops allow the fiber tray to be inserted and retracted quickly and easily.

Standard tray units are supplied in 7U units with a density of 15 fiber trays in total. Fully loaded 47U high CDR racks will accommodate a maximum of 6 7U tray units or 90 fiber trays.

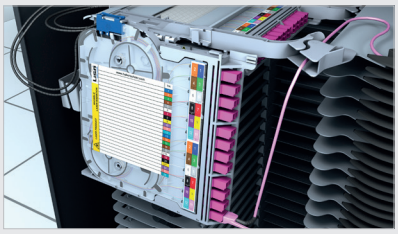
Technical data

Attribute	Value
Dimension (W × H × D)	7U: 498 × 264 × 310.2 mm
Capacity	15 fiber trays per unit
Compatibility	CDR 900/1200 mm
Material and colour	sub-rack body: aluminum/steel – powder coated (available on request in grey) mandrels at the front: ABS, black mandrels on the side: HDPE/PC, blue
Weight	7U: 9.1 kg
Ingress protection degree (EN60529)	IP20
Resistance to impact (EN62262)	IK03
Bending radius	35 mm
Temperature resistance (long term)	–40 to +70 °C (–40 to +158 °F)

Key features tray units

100 % accessibility from front side

The LISA tray unit allows incoming cables and outgoing jumpers to be fully installed and serviced from the front side without the need to access the rear of the cabinet. Integrated slack storage areas allow fiber trays to be slid in and out of the tray unit in just a few seconds without disrupting pre-installed fibers.



Mix and match in the same rack

Splicing fiber trays and MTP®-LC transition trays can be mixed together in the same centralised cross-connect rack due to the universal fixing plate on the side of the tray unit. This is a great feature for operators who have pre-installed spliced fibers but want to move to a more flexible MTP® backbone. Multimode and singlemode trays can also be mixed and matched giving even more flexibility and scalability.

Ordering information

Description	Item no.
Tray unit black for splicing and MTP®-LC transition	
7U tray unit for connecting up to 15 fiber trays	85013562

Description	Item no.
Tray unit black for MTP® and LC patching	
7U sub-rack for patch to patch solution, accomodates up to 15 patching trays	85017846

LISA fiber trays

LISA fiber trays are the side-facing connectivity blocks that are inserted into tray units within high-density CDR racks. Designed for speed of installation and improved accessibility, the LISA fiber trays can be installed and removed in under 10 seconds.

Fiber trays are available to cover a wide range of applications including pigtail splicing and MTP®-LC transitions. Within the data center the majority of splicing applications are singlemode LC because this combination provides a future-proofed infrastructure which is low-loss and precise in terms of cable slack management.

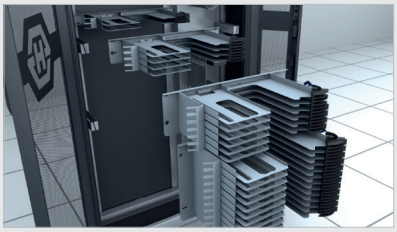
MTP®-LC transitions on the other hand are generally multimode OM3 or OM4, allowing the operator to re-use the MTP® backbone and upgrade it later to parallel optics up to 40G and 100G.

In addition to the pigtail splicing and transition fiber trays, HUBER+SUHNER also offers a patching fiber tray which is designed to serve the increasing trend towards MTP® parallel optic applications. The patching tray is also suitable for singlemode LC patching in applications where fast, factory tested links are required.

Key features fiber trays

100 % accessibility from front side

The LISA tray unit allows incoming cables and outgoing jumpers to be fully installed and serviced from the front side without the need to access the rear of the cabinet. Integrated slack storage areas allow fiber trays to be slid in and out of the tray unit in just a few seconds without disrupting pre-installed fibers.



Mix and match in the same rack

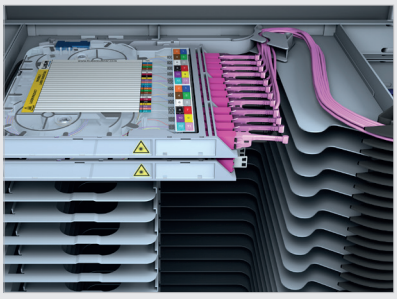
Splicing fiber trays and MTP®-LC transition trays can be mixed together in the same centralised cross-connect rack due to the universal fixing plate on the side of the tray unit. This is a great feature for operators who have pre-installed spliced fibers but want to move to a more flexible MTP® backbone. Multimode and singlemode trays can also be mixed and matched giving even more flexibility and scalability.

Installation in under 10 seconds

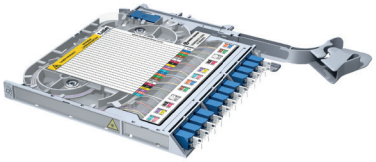
The fiber tray can be installed in under 10 seconds without any special tools or training. The integrated sliding feature and self-locking system makes the installation simple, fast and repeatable. This core feature contributes to faster deployment times and tighter project windows.

Excellent fiber routing with bend-radius protection

The fiber tray is designed to manage fibers safely and neatly without compromising user-handling or optical performance. The internal guiding elements of the tray maintain the minimum bend-radius of fibers and also provide clear separation between incoming fibers and pre-loaded pigtails. Out-going patch cords are safely guided away from the tray with an integrated guiding arm. This guiding arm maintains a horizontal guidance of the cables and provides a consistent service loop for regular moves, adds and changes.



Splice to patch fiber trays



Characteristics

- Quick installation and easy handling because of a double staged pull-in mechanism
- Module access completely from the front side
- Hinge-down fiber tray offers immediate access to internal fibers even during service
- Side-facing adapter alignment for higher laser safety
- Pull-out feature with service loop offers immediate access to connectors
- Patch cords horizontally supported
- Up to 24 small form factor (SFF) connectors
- Incoming fibers and pigtail fibers are stored in separate areas
- Pigtails pre-stripped to 250 µm for faster splicing
- Both fiber storage areas provide storage space of 1.5 m each
- Central splice bridge for heat shrink and sandwich splice protectors
- Easy traceability by colour and label

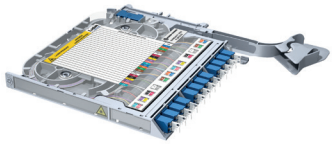
Technical data

Attribute		Value
Dimension (W × H × D)		288 × 18 × 262 mm (with hinge and patch cord arm)
Rack height unit		0.5U
Capacitiy (maximum)	overall per module	up to 24 splices/fibers
	overall per height unit	2 modules, up to 48 splices/fibers **Note**: for certain adapter types the maximum fiber count is limited
Conduit fastening (Ø 5 mm)		up to 3 conduits
Material flammability		UL 94-V0 rated [1]
Halogen free		yes
UV resistance		resistant
Chemical resistance		good
RoHS requirements		fully compliant
Weight		module incl. packaging: 540 gr (without packaging: 350 gr)
Ingress protection degree (EN 60529)		IP20
Resistance to impact (EN 62262)		IK03
Bend radius limitation		30 mm
Temperature range (long term)		–40 to +70 °C (–40 to +158 °F)

Optical performance

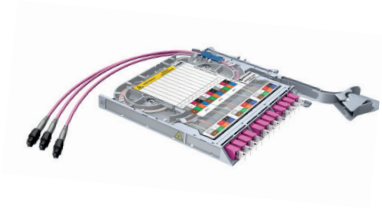
Type	Measurement method (IL/RL)	IL (dB)	RL (dB)
SM UPC	IL: IEC 61300-3-4 method B	≤ 0.30	≥ 50
SM APC	RL: IEC 61300-3-6	≤ 0.30	≥ 65
MM OM3	IL: IEC 61300-3-34 method B	≤ 0.25	≥ 35
MM OM4	RL: IEC 61300-3-6	≤ 0.15	≥ 35

[1] Cover: UL94-HB



Description	Item no.
Singlemode G.652 D fiber, PC/APC polishing, standard performance	
Grey tray, 12 LC duplex adapters PC, 24 pigtails, no colour code, sandwich comb without protectors 1.5 × 40 mm	85088674
Grey tray, 12 LC duplex adapters PC, 24 pigtails, no colour code, heat shrink comb with protectors 1.5 × 40 mm	85088090
Grey tray, 12 LC duplex adapters APC, 24 pigtails, no colour code, heat shrink comb with protectors 1.5 × 40 mm	85088093
Multimode OM3 fiber, PC polishing, standard performance	
Grey tray, 12 LC duplex adapters, 24 pigtails OM3, TIA colour code, heat shrink comb with protectors 1.5 × 40 mm	85088675
Multimode OM4 fiber, PC polishing, standard performance	
Grey tray, 12 LC duplex adapters, 24 pigtails OM4, TIA colour code, heat shrink comb with protectors 1.5 × 40 mm	85088676

MTP®-LC transition fiber trays



Characteristics

- Pre-terminated MTP® transition module for instant "plug-and-play" connectivity
- MTP® elite connectivity
- Super low-loss multimode OM4
- Module access completely from the front side
- Side-facing adapter alignment for higher laser safety
- Patch cords horizontally supported
- For up to 36 × LC or 18 × SC simplex connections per tray
- High protection of fibers
- Upgrade path from 10G to 40G and 100G
- Easy traceability by Color and label
- Fast installation without tools
- Clear label platforms for fast traceability

Technical data

Attribute		Value
Dimension (W × H × D)		288 × 18 × 262 mm (with hinge and patch cord arm)
Rack height unit		0.5U
Capacitiy (maximum)	overall per module	up to 24 fibers
	overall per height unit	2 modules, up to 48 fibers **Note**: for certain adapter types the maximum fiber count is limited
Material flammability		UL 94-V0 rated [1]
Halogen free		yes
UV resistance		resistant
Chemical resistance		good
RoHS requirements		fully compliant
Weight		module incl. packaging: 540 gr (without packaging: 350 gr)
Ingress protection degree (EN 60529)		IP20
Resistance to impact (EN 62262)		IK03
Bend radius limitation		30 mm
Temperature resistance (long term)		–40 to +70 °C (–40 to +158 °F)

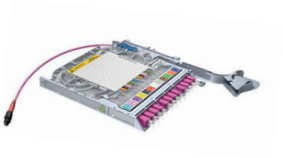
Optical performance

Performance classes "patch field"	Attenuation "reference measuring"			
	IEC 61300-3-4, method B		IEC 61300-3-6	
	IL max	IL mean	RL UPC	RL APC
Singlemode standard class	0.30 dB	0.20 dB	> 50 dB	> 85 dB [2]
Multimode standard class	0.25 dB	n/a	> 35 dB	n/a
Multimode low-loss class	0.15 dB	n/a	> 35 dB	n/a
Performance classes "MT"				
Singlemode elite class	0.35 dB	0.10 dB	n/a	> 60 dB [2]
Multimode elite class	0.35 dB [3]	0.10 dB	> 30 dB	n/a

[1] Cover: UL94-HB
[2] Measurement method 3 (OLCR)
[3] All connectors are tuned acc. to IEC 61755-3-1/2, grade B
[4] Measured at 850 nm, launch conditions according to IEC 61300-3-4

Description	Item no.
Singlemode G.652 D fiber, APC polishing, elite performance	
3-way MTP® tray, 24 fiber MTP8 non-pinned – OS2 elite class, 12 LC duplex ports – standard class, TIA code, polarity NS	85088657
Multimode OM3 fiber, PC polishing, elite performance	
3-way MTP® tray, 24 fiber MTP8 non-pinned – OM3 elite class, 12 LC duplex ports – standard class, TIA code, polarity NS	85088658
Multimode OM4 fiber, PC polishing, elite performance	
3-way MTP® tray, 24 fiber MTP8 non-pinned – OM4 elite class, 12 LC duplex ports – standard class, TIA code, polarity NS	85088659

Description	Item no.
Singlemode G.652 D fiber, APC polishing, elite performance	
2-way MTP® tray, 24 fiber MTP12 pinned – OS2 elite class, 12 LC duplex ports – standard class, TIA code, polarity A	85088660
Multimode OM3 fiber, PC polishing, elite performance	
2-way MTP® tray, 24 fiber MTP12 pinned – OM3 elite class, 12 LC duplex ports – standard class, TIA code, polarity A	85088661
Multimode OM4 fiber, PC polishing, elite performance	
2-way MTP® tray, 24 fiber MTP12 pinned – OM4 elite class, 12 LC duplex ports – standard class, TIA code, polarity A	85088662



Description	Item no.
Singlemode G.652 D fiber, APC polishing, elite performance	
1-way MTP® tray, 24 fiber MTP24 non-pinned – OS2 elite class, 12 LC duplex ports – standard class, TIA code, polarity R1	85088663
Multimode OM3 fiber, PC polishing, standard performance	
1-way MTP® tray, 24 fiber MTP24 non-pinned – OM3 elite class, 12 LC duplex ports – standard class, TIA code, polarity R1	85088664
Multimode OM4 fiber, PC polishing, standard performance	
1-way MTP® tray, 24 fiber MTP24 non-pinned – OM4 elite class, 12 LC duplex ports – standard class, TIA code, polarity R1	85088671

LISA patching tray

LISA patching trays are generally used to build a cross-connect (system-to-line) configuration either within the same optical distribution rack (ODR) or between adjacent ODRs and servers with highest flexibility when using pre-terminated and factory tested cable systems.

Cable systems can be patched easily thanks to a sliding and pivoting design. Cables enter the patching tray from the rear left and right hand side of the tray unit and are then horizontally managed before entering the patching tray. This unique system differs from other patching trays because the tray is side facing and not forward facing. This means that cables connected to both sides of the LISA patching tray can be accessed simply by sliding out the tray. All cables that enter or exit the LISA patching tray have an integrated service loop so that removal and insertion off the LISA patching tray can be made without having to manage a lot of cables each time a patch is made.

In data centers, the LISA patching tray provides a simple upgrade path from LC based 10G systems to MPO based 40G and 100G systems. This is possible because each LISA patching tray in the patching tray unit can be individually removed and replaced. In other words, LC patch panels can be replaced by MTP® patch panels during the life cycle of the data center.

Key features patching trays

100 % accessibility from front side

The LISA patching tray unit allows incoming cables and outgoing jumpers to be fully installed and serviced from the front side without the need to access the rear of the cabinet. Integrated slack storage areas allow fiber trays to be slid in and out of the tray unit in just a few seconds without disrupting pre-installed fibers.

Suitable for next generation data rates of 40G and 100G

Data centers are steadily moving away from LC based serial connectivity to parallel based MTP® connectivity. This evolution requires a new range of distribution products and connectivity methods that offer flexibility and scalability for the future. The patching tray facilitates this evolution path because it manages both incoming and outgoing MTP® trunks and jumper cables. Base-8, 12 and 24 MTP® cable types can be accommodated in LISA patching trays.

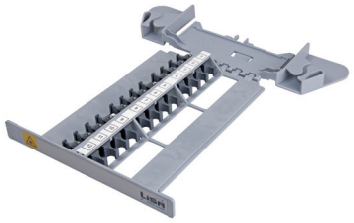
Installation time under 10 seconds

The patching tray can be installed in less than 10 seconds without any special tools or training. The integrated sliding feature and self-locking system makes the installation simple, fast and repeatable. This core feature contributes to faster deployment times and tighter project windows

Excellent fiber routing with bend-radius protection

Every aspect of a professional fiber management system needs to balance the usability of the product with important technical requirements. Bend-radius limitation ensures that the light within a fiber-optic cable travels from one end of the link to the other. Even despite the rise in popularity for bend-optimised cables, safe and clear guiding systems are paramount to a future-proofed system.

Patch to patch trays

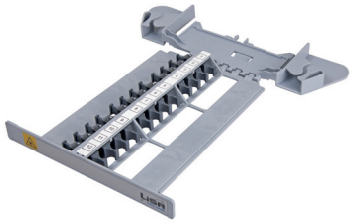


Features
- Patching tray for cross-connect configuration
- MTP®, LC or SC connectivity
- Up to 18 adaptors per tray (LC only)
- Fast installation without tools
- Module access completely from the front side
- Side facing adapter alignment for higher laser safety
- Patch cords horizontally supported
- Full 30 mm bend-radius limitation throughout
- Upgrade path from 10G to 40G and 100G
- Clear labelling for quick identification and traceability

Technical data

Attribute		Value
Dimension (W × H × D)		240.5 × 19 × 257.8 mm
Rack height unit		0.5U
Capacitiy (maximum)	overall per module	up to 18 channels (36 fibers LC) up to 12 channels (288 fibers using MTP®)
	overall per height unit	2 modules, up to 36 channels (72 fibers LC) up to 24 channels (576 fibers using MTP®)
Material flammability		UL 94-V0 rated
Halogen free		yes
UV resistance		resistant
Chemical resistance		good
RoHS requirements		fully compliant
Weight		module incl. packaging: 240 g (module without packaging: 136 gr)
Ingress protection degree (EN60529)		IP20
Resistance to impact (EN62262)		IK03
Bend radius limitation		30 mm
Temperature resistance (long term)		–40 to +70 °C (–40 to +158 °F)

MTP® connectivity



Ordering information

Description	Item no.
Patching tray, 12 MTP® adapters black, key-up/key-down	85015429

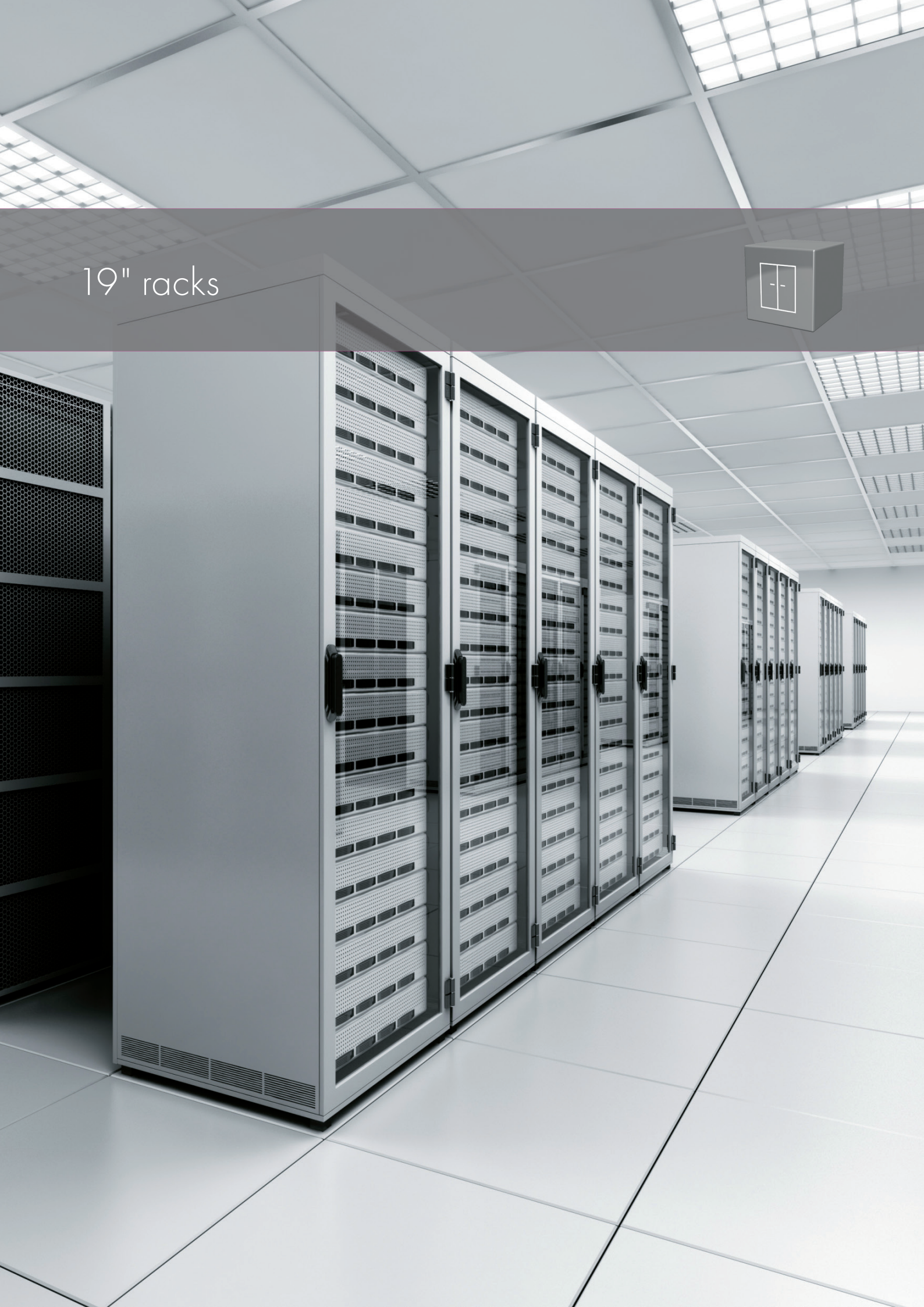
LC connectivity

Ordering information

Description	Item no.
Patching tray, 12 LC PC duplex adapters blue	85074415
Patching tray, 12 LC APC duplex adapters green	85024771

For customised patching trays, please contact your HUBER+SUHNER representative.

19" racks



19" racks

HUBER+SUHNER's comprehensive range of equipment cabinets is designed to fulfil the diverse needs of the typical data center operator. The cabinet range is based around a common construction of anodised aluminium extrusions which match the innovative CDR passive optical rack system. Available as active, switch, network or cabling variants, all 19" cabinets meet the detailed technical requirements for these environments and focus on adjustability, ease of access, high capacity and mechanical strength.

Racks are equipped with adjustable equipment mounting rails with position indicators, fully bonded in compliance with the requirements of EN50310, and offer easy door and panel removal features that allow full access to the adjustable working areas without the need for tools.

EDR cabinets can be supplied with strengthened, curved vented doors that deliver 85 % air-flow to the inside of the cabinet. This improves the amount of cold air that reaches business-critical switches and servers.

Improved air-flow to equipment

EDR cabinets can be constructed with central post or offset post design which significantly improves the amount of access to equipment and cables at the front or rear of the cabinet. Structural stability is not compromised due to the high stability of the aluminium extrusions.

Easy access to internal equipment

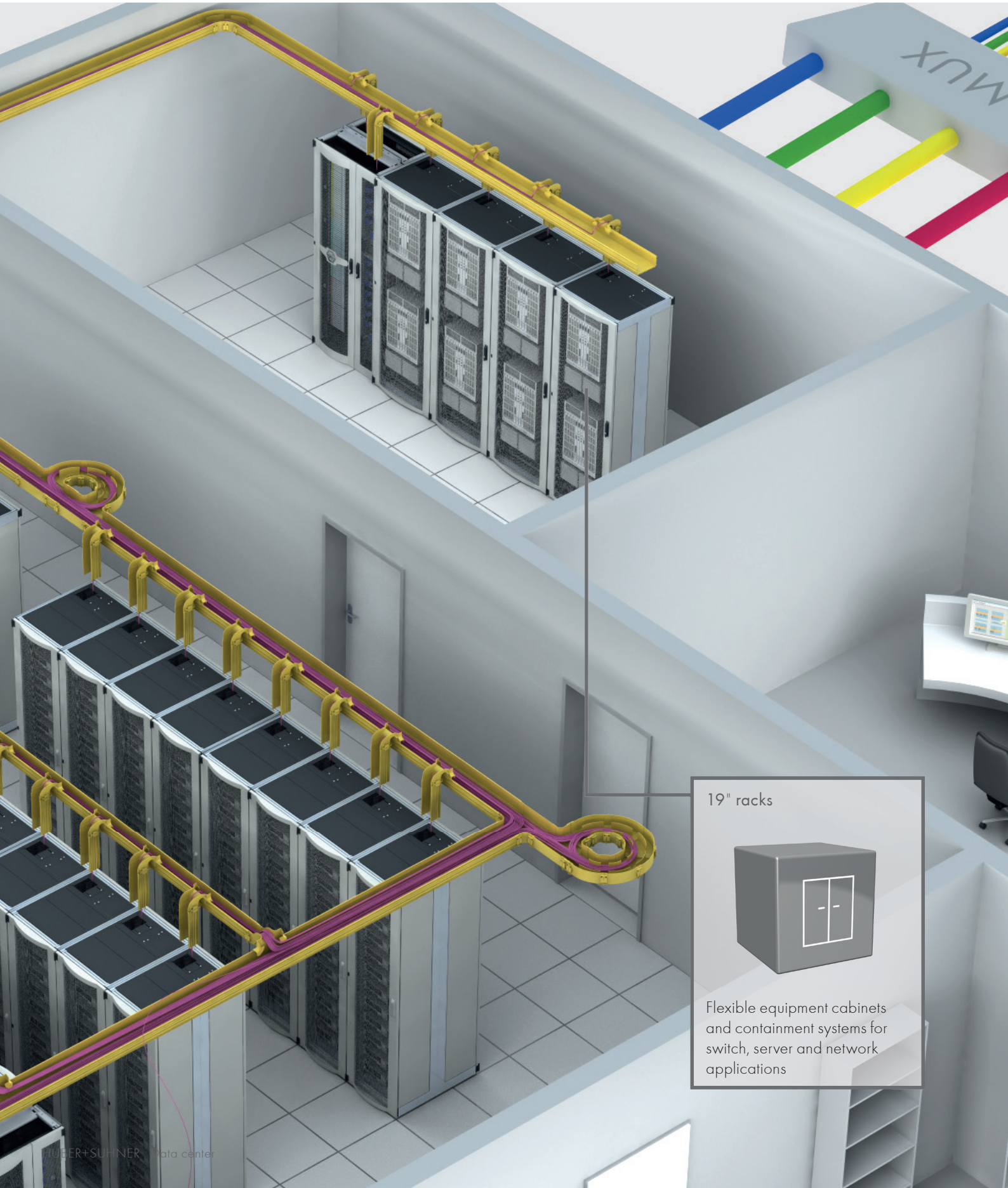
Aluminium is lightweight yet strong. Removing the doors and side panels from the EDR makes the complete cabinet lighter and more manageable in the field. Aluminium extrusion also provides less sharp edges for cables to become damaged compared with steel fabrications.

Lightweight aluminium construction

Vertical mounting rails can be adjusted quickly on site thanks to an integrated ratchet tool at each end of the rail. A measuring tape helps to maintain perfect alignment and within minutes, the rack can be customised to suit different types of equipment.

Tool-less adjustable rails

19" racks


19" racks
Flexible equipment cabinets and containment systems for switch, server and network applications

Key features 19" racks

Fast tool-less removal of doors and side panels

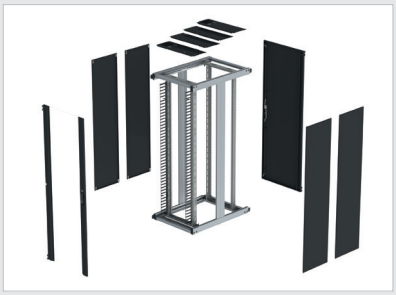
All of the CDR and EDR side panels can be removed in seconds by releasing pins on the inner side of the rack. The doors can be released and removed simply by disengaging the fixing pins on the hinge and then lifting the door away from the rack. No tools are required for reconfigurations of racks.

Increased air-flow to business-critical equipment

EDR racks are supplied with strengthened full mesh doors that deliver 85 % air-flow. This optimises cold air flow to critical equipment such as high-density servers and switches. HUBER+SUHNER also offers passive CDR racks with full mesh doors so that a seamless look and feel across the data center is maintained.

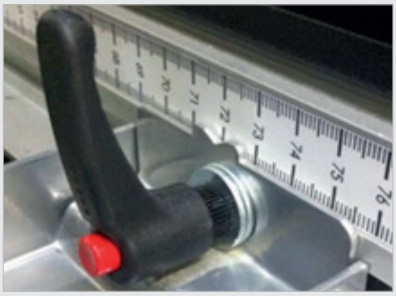
Lightweight and flexible construction

The EDR and CDR range of cabinets are constructed from robust aluminium extrusions which deliver flexibility, strength and ease of handling. This flexibility allows racks to be constructed with a central and offset post design for improved access to equipment and cabling.



Fast and simple on-site adjustments

The vertical mounting rails within the EDR can be adjusted with an integrated ratchet tool. This tool-less operation allows the depth of rails to be adjusted to match the specific equipment being installed. A dimension setting strip allows users to accurately set rails to the correct positions.



Delta³ enhanced active rack

Features
- Rack configured in standard centre frame layout (option "C")

Assembly includes:
- Centre frame assembly with PDU mounting brackets
- 2 × pairs of fully adjustable 19" mounting rails fitted centrally with U labels at front
- Earth kit
- Baffle kit
- For alternate (same cost) frame options please contact customer services
- Supplied fully assembled and palletised as standard
- Plain top panels with the exception of an enhanced brush strip entry panel fitted at rear
- 80 % vented server door front and 80 % plain vented door fitted rear
- Fitted with standard multi point locking swing handles
- 2 × pairs side panels

Ordering information

Description	Item no.
EDR active rack (with sides), 47U × 600 × 1200 mm, black	85032454
EDR active rack (with sides), 47U × 600 × 1200 mm, grey	85073327

Delta³ enhanced switch rack

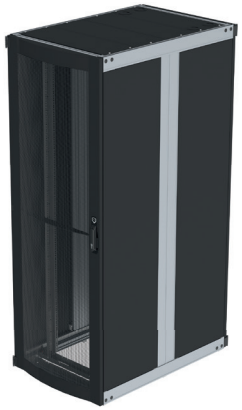
Features
- Rack configured in standard offset frame layout (option "R")

Assembly includes:
- Offset frame assembly with PDU management brackets
- 2 × pairs of fully adjustable 19" mounting rails fitted centrally with U labels at front
- Earth kit
- Baffle kit
- For alternate (same cost) frame options please contact customer services
- Supplied fully assembled and palletized as standard
- Enhanced cable entry top panel fitted front and rear with remaining aperture filled with plain panels
- 80 % vented server door front and 80 % double vented door rear
- Fitted with standard multi point locking swing handles
- 2 × pairs side panels

Ordering information

Description	Item no.
EDR switch rack (with sides), 47U × 800 × 1200 mm, black	85032455
EDR switch rack (with sides), 47U × 800 × 1200 mm, grey	85073329

Delta³ equipment distribution rack (EDR)



Features
- Rack configured in standard post layout (option «F»)

Assembly includes:
- 4 post corner frame assembly
- 2 × pairs of fully adjustable 19" mounting rails fitted centrally with U labels at front
- Earth kit
- For alternate (same cost) frame options please contact customer services
- Supplied fully assembled and palletised as standard
- Plain top panels with the exception of a standard grommet top panel fitted at rear
- 80 % vented server door front and 80 % plain vented door fitted rear
- Fitted with standard multi point locking swing handles
- 2 × pairs side panels

Ordering information

Description	Item no.
EDR network rack (with sides), 47U × 800 × 1200 mm, black	85032453
EDR network rack (with sides), 47U × 800 × 1200 mm, grey	85073328

Delta³ enhanced cabling rack

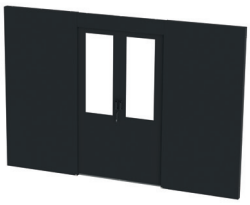
Features
- Rack configured in standard centre frame layout (option "C")

Assembly includes:
- Centre frame assembly
- 2 × pairs of adjustable 19" mounting rails fitted centrally with U labels and RCM fingers at front
- Earth kit
- For alternate (same cost) frame options please contact customer services
- Supplied fully assembled and palletised as standard
- Enhanced cable entry top panel fitted front and rear with remaining aperture filled with plain panels
- 80 % vented server door front and plain steel door fitted rear
- Fitted with standard multi point locking swing handles
- 2 × pairs side panels

Ordering information

Description	Item no.
EDR cabling rack (with sides), 47U × 800 × 1200 mm, black	85032456
EDR cabling rack (with sides), 47U × 800 × 1200 mm, grey	85073330

Sliding door



Features
- Metal duo-sync sliding doors
- Perspex viewing windows
- Locking and non-locking options
- Manual type or automatic type with sensor
- Easy-to-install

Ordering information

Description	Item no.
EDR aisle containment, sliding door system, manual opening, black	85067031
EDR aisle containment, sliding door system, manual opening, grey	85073344

Aisle containment roof

Features
- For a standard 1200 mm wide aisle
- The roof panels will be either 600 mm or 800 mm wide
- Perspex panel with metal frame
- Fits directly to the top of the rack
- Perspex panels provide excellent levels of light into the aisle

Ordering information

Description	Item no.
EDR aisle containment, roofs, top window, Perspex windows, 600 mm wide, black	85067033
EDR aisle containment, roofs, top window, Perspex windows, 800 mm wide, black	85067034
EDR aisle containment, roofs, top window, Perspex windows, 600 mm wide, grey	85073346
EDR aisle containment, roofs, top window, Perspex windows, 800 mm wide, grey	85073347

Panel Support Frame – PSF

Features
- Robust steel construction
- 19" compatible
- Available in 2U, 3U and 4U versions
- Retrofittable door kit available for 4U version
- Flexible mounting options to suit any environment
- Can be floor-mounted also (upside down)
- Sufficient space for cable guides
- Side fixings for customised brackets

Order code

Description	Item no.
Panel support frame (PSF), 2U, black	85008425
Panel support frame (PSF), 3U, black	85008426
Panel support frame (PSF), 4U, black	85013642
Panel support frame (PSF), incl. door, 4U, black	85008427
Retrofittable door kit for panel support frame (PSF), 4U, black	85013643

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