NETWORKING SOLUTIONS

Passive components and active devices for networking

Italian innovation
SINCE 1933

FRACARRO

NETWORKING SOLUTIONS

With a dedicated internal **business unit**, **Fracarro is the ideal partner** for deploying broadband telecommunications networks in commercial, hospitality, and residential facilities.

Our **networking portfolio** includes all the devices needed to build fiber optic systems, from **passive copper and fiber components** to **active equipment**, with particular expertise in GPON (Gigabit Passive Optical Network) technology solutions.

FRACARRO NETWORKING SERVICES

Thanks to a team of dedicated professionals, Fracarro can provide remote support to designers and installers for the deployment of specialized systems.

For Network Designers

- Network Design Support
- Logical Network Diagrams
- Bill of Materials (BOM)
- Product Technical Data Sheets
- Budget Estimates
- Consulting Services

For Network Installers

- Remote Support
- IP Plan Definition
- Declaration of Conformity
- Technical Assistance
- Training
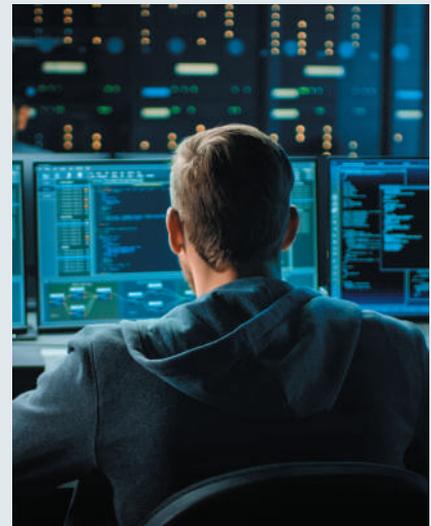
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COPPER PASSIVE COMPONENTS

ETHERNET CABLES

Fracarro Ethernet cables offer a high-quality, reliable solution for the electrical sector, with construction features that ensure **excellent performance**. Ideal for both complex environments, such as data centers, and residential installations, the cables are available in **305m reels for indoor** use and **500m reels for outdoor** applications.

VERSATILITY
The 0.5 mm thickness **(AWG 24)** ensures great flexibility, making the cable ideal for all types of installations.

HIGH QUALITY
The conductors are made of **100% flexible red copper**, ensuring minimal signal loss and optimal performance, especially for **PoE applications**.

FIRE RESISTANCE
In the specified models, the **CPR Cca** certification ensures safety in fire-risk environments and high-density areas.

INDOOR

	Sheath	Item	Code
CAT 5E	PVC	**CAT5E PVC**	287527
	LSZH	**CAT5E LSZH**	287528
CAT 6	PVC	**CAT6 PVC**	287529
	LSZH	**CAT6 LSZH**	287530
	CCA	**CAT6 CCA**	287782
CAT 6 shielded	LSZH	**CAT6 FU LSZH**	287853
CAT 6A	CCA	**CAT6A CCA**	287783

OUTDOOR

	Sheath	Item	Code
CAT 5E	PVC+PE	**CAT5E PVC+PE**	287532
CAT 6	PVC+PE	**CAT6 PVC+PE**	287533
CAT 6 shielded	PVC+PE	**CAT6 FU PVC+PE**	287854

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COPPER PASSIVE COMPONENTS

RJ45 UTP AND STP PLUGS

CAT5E/6/6A UTP and STP Plug for high-density installations, compatible with both solid and stranded cables. Constructed from high-quality plastics with gold-plated terminals. Also available in a pass-through version.

Category	Crimping	Item	Code
CAT 5E	Terminal	**CAT5E PLUG UTP**	287710
	Pass-through	**CAT5E PLUG PASS**	287708
CAT 6	Terminal	**CAT6 PLUG UTP**	287711
	Pass-through	**CAT6 PLUG PASS**	287709
CAT 6 shielded	Pass-through	**PLUG6SP**	287863
	Terminal	**PLUG6ST**	287862
CAT 6A	Terminal	**CAT6A PLUG UTP**	287712

MECHANICAL QUALITY

They provide wear resistance for at least **750 in/out cycles**.

DUAL VERSION

Available in both terminal and pass-through versions, with the latter facilitating correct cable crimping.

POE READY

They support a current flow of up to 1.5 A, making them suitable for PoE applications.

RJ45 CRIMPING TOOLS

Crimping tools for RJ45 plugs, available in both standard and pass-through versions. Designed to ensure precise and reliable terminations, they feature a rubberized grip for increased comfort and control.

Crimping	Item	Code
Pass-through	**RJ45 PASS TOOL**	287726
Terminal	**RJ45 UTP TOOL**	287725

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COPPER PASSIVE COMPONENTS

RJ45 KEYSTONE JACKS

RJ45 UTP and STP Keystone jacks, ideal for **high-density installation solutions** and suitable for data networks with performance up to **10 Gbps**. Tool-free for both installation and connection, ensuring significant time savings during assembly.

10 Gbit/s BANDWIDTH UP TO

INDOOR

TOOL-FREE INSTALLATION
Designed for easy installation without the need for additional tools.

WIDE COMPATIBILITY
Compatible with cables ranging from 0.40 mm to 0.65 mm in diameter, both solid and stranded.

HIGH DURABILITY
Made from high-quality plastics to ensure long-lasting performance.

	Item	Code	Color
CAT 5E	**CAT5E KEYSTONE**	287705	white
	CAT5E KEY NERO	287809	black
CAT 6	**CAT6 KEYSTONE**	287706	white
	CAT6 KEY NERO	287810	black
CAT 6 shielded	**KEY6S**	287860	metal
CAT 6A	**CAT6A KEYSTONE**	287707	white
	CAT6A KEY NERO	287811	black

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COPPER PASSIVE COMPONENTS

KEYSTONE BOX

Wall-mounted distribution box for 2x RJ45 Keystone jacks, ideal for terminating Ethernet cables near cameras, access points, and other devices. In GPON solutions, it is installed in the false ceiling to distribute cabling to 503 outlets.

	Item	Code
Box CAT 5E/6/6A	**RJB2IP**	287785

PATCH PANEL

Patch panel with **up to 24x RJ45 Keystone UTP/FTP ports**, ideal for terminating CAT 5e, CAT 6, and CAT 6A cables in 19" racks. It features a stainless steel rear panel and a fixed bar for neat cable management.
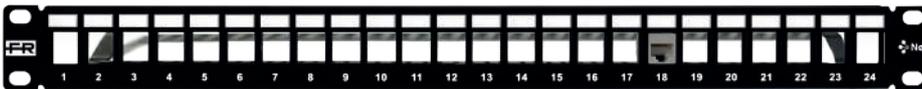
EFFICIENT MANAGEMENT
Supports up to 24 RJ45 Keystone connections in a single panel.

DURABILITY
Made of stainless steel for enhanced longevity and stability.

STRUCTURED INSTALLATION
Designed with a rear bar to ensure organized cable management.

	Item	Code
Patch panel 1U	**RJB24IR**	287784

COPPER PASSIVE COMPONENTS

KEYSTONE OUTLET MODULES

RJ45 Keystone jack adapters compatible with the main civil series from AVE®*, BTICINO®*, GEWISS®*, and VIMAR®*. Made of high-quality polycarbonate for durability and wear resistance.

TOOLESS INDOOR UTP Unshielded Twisted Pair FTP Foiled Twisted Pair
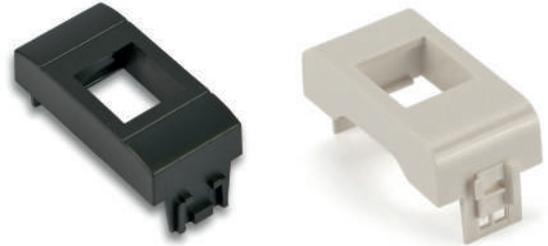
AVE			
	Item	**Code**	**Color**
DOMUS®*	**AV-44DO-KEY**	287799	white
TEKLA®*	**AV-44TEK-KEY**	287800	black

GEWISS			
	Item	**Code**	**Color**
SYSTEM®*	**GW-SYW-KEY**	287609	white
	GW-SYB-KEY	287598	black
CHORUS®*	**GW-CB-KEY**	287601	white

BITCINO			
	Item	**Code**	**Color**
AXOLUTE®*	**BT-AX-B-KEY**	287801	white
LIVING INTERNATIONAL®*	**BT-INT-KEY**	287605	anthracite
LIVING LIGHT®*	**BT-LIG-KEY**	287606	white
LIVING LIGHT TECH ®*	**BT-LIGT-KEY**	287599	grey
LIVING NOW®*	**BT-LNOW-B-KEY**	287802	white
	BT-LNOW-N-KEY	287803	black
MAGIC®*	**BT-MA-KEY**	287603	ivory
MATIX®*	**BT-MAT-KEY**	287608	white
MATIX GO®*	**BT-MG-W-KEY**	287804	white

VIMAR			
	Item	**Code**	**Color**
ARKÈ®*	**VI-ARK-B-KEY**	287600	black
	VI-ARK-W-KEY	287604	white
EIKON®*	**VI-EKW-B-KEY**	287805	white
IDEA®*	**VI-ID-KEY**	287602	anthracite
LINEA®*	**VI-LI-B-KEY**	287806	white
	VI-LI-C-KEY	287807	sand
	VI-LI-N-KEY	287808	black
PLANA®*	**VI-PL-KEY**	287607	white

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Simplified, tool-free installation

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COPPER PASSIVE COMPONENTS

RJ45 PATCH CORD

Fracarro's range of patch cords ensures connections up to 10 Gbps. Made with **LSZH** (Low Smoke Zero Halogen) sheath for fire resistance, they offer high quality and performance in various environments. For easy cable identification, **interchangeable color clips** are available in packs of 100 pieces with mixed colors.
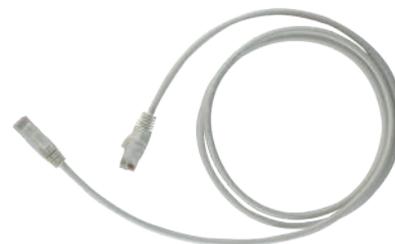
CLIP

SIMPLIFIED MANAGEMENT

Interchangeable color clips can be applied to simplify cable identification during installation, eliminating the need to map each individual connection.

TANGLE-FREE DESIGN

Engineered to prevent tangling, these cables are more durable, reducing the need for future replacements.

GUARANTEED QUALITY

The conductors are made of **100% flexible red copper**, ensuring minimal signal loss and optimal performance, especially for PoE applications.

PATCH CORD			
	Item	**Code**	**Length (m)**
CAT 5E	**CAT5E UTP 1/4M**	287820	0.25
	CAT5E UTP 1/2M	287713	0.50
	CAT5E UTP 1M	287714	1
	CAT5E UTP 2M	287715	2
	CAT5E UTP 3M	287823	3
	CAT5E UTP 5M	287716	5
CAT 6	**CAT6 UTP 1/4M**	287822	0.25
	CAT6 UTP 1/2M	287717	0.50
	CAT6 UTP 1M	287718	1
	CAT6 UTP 2M	287719	2
	CAT6 UTP 3M	287824	3
	CAT6 UTP 5M	287720	5
CAT 6A	**CAT6A UTP 1/4M**	287825	0.25
	CAT6A UTP 1/2M	287721	0.50
	CAT6A UTP 1M	287722	1
	CAT6A UTP 2M	287723	2
	CAT6A UTP 3M	287821	3
	CAT6A UTP 5M	287724	5

COLORED CLIPS		
Description	**Item**	**Code**
Box of 100 clips, mixed colors	**CLIPBOX100P**	287829

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THE HEART OF THE SYSTEM

Designing a network infrastructure using **networking switches of different levels** (Layer 2, 2+, and 3) allows for the creation of a **scalable, high-performance, and segmented system**.
Depending on their functionalities, switches are placed at different points within the network.

Layer 3 Switches (e.g., Fracarro Series 9)
Layer 3 switches serve as the **network's central hub**, responsible for:
- Routing traffic between subnets and VLANs using advanced routing services and dynamic routing protocols such as OSPF and BGP.
- Ensuring security and Quality of Service (QoS) by applying Access Control List (ACL) rules and prioritizing critical traffic.
- Enhancing network security and scalability through stacking connections and support for protocols like STP and VRRP.
- Maintaining network operation even in case of failures by implementing redundancy and failsafe solutions.
- Managing multicast traffic via IGMP and multicast routing through the PIM protocol.

Layer 2+ Switches (e.g., Fracarro Series 8)
Layer 2+ switches handle VLAN traffic and provide proper segmentation by:
- Supporting static routing and VLAN creation, allowing network segmentation into logical groups.
- Routing traffic between VLANs, reducing the load on Layer 3 switches and optimizing resources.
- Minimizing latency through MAC address-based switching.

Layer 2 switches connect endpoints to the network and are used in environments where bandwidth demand between switches is limited. They are also available in Unmanaged and Unmanaged PoE versions, suitable for small networks that still require reliable Gigabit performance.

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ACTIVE DEVICES

Net

SERIES 9 - LAYER 3 SWITCH

The Series 9 switch is the **heart of the network infrastructure**. Designed for use as a Layer 3 switch, it is commonly deployed as the central hub to manage server, controller, and central system connections. It features 6 SFP+ ports for interconnection with other parts of the system via fibre optics.

10 Gbit/s
SFP+ PORT
UP TO

FSW-948C-6SFP+

Description	Item	Code
48-Port Ethernet Switch	**FSW-948C-6SFP+**	287764

CONSTANT HEARTBEAT

Ensures 100% uptime with hot-swappable power supplies that can be replaced without interruptions

EXTENSIVE NETWORK COVERAGE

48 Ethernet ports and 6 SFP+ ports with data transfer speeds of up to 10 Gbps.

EFFICIENT DATA TRANSPORT

215 Gbps backplane to ensure instantaneous internal data exchange between switch ports.

SFP & SFP+

SFP modules for fibre optic interconnections between switches, whether within the same rack or across different environments. They provide data transfer speeds of 1 Gbps or 10 Gbps RX/TX, depending on the model, with coverage up to 20 km.

10 Gbit/s
BANDWIDTH
UP TO

SFP 10G LC SM

SFP 1G LC SM

Descrption	item	Code
SFP+ 10GE Module for Uplink or Trunk Switch	**SFP 10G LC SM**	287761
SFP 1GE Module for Uplink or Trunk Switch	**SFP 1G LC SM**	287555

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ACTIVE DEVICES

SERIES 8 - LAYER 2+ SWITCH

Layer 2+ switch for **medium and large-scale networks**, available in versions with 24 or 48 10/100/1000 GE ports, 4 or 6 SFP+ 10GE slots, and a backplane of up to 216 Gbps. Stackable and equipped with IGMP snooping support, they are ideal for common areas, offices, and large-scale networks.

FSW-824-4SFP+

Description	SFP ports	Item	Code
24-Port Ethernet Switch	4	**FSW-824-4SFP+**	287765
24-Port Ethernet PoE Switch	4	**FSW-824P-4SFP+**	287767
48-Port Ethernet Switch	4	**FSW-848-4SFP+**	287766
48-Port Ethernet PoE Switch	6	**FSW-848P-6SFP+**	287768

SERIES 7 - LAYER 2 SWITCH

Layer 2 switch for **small-scale networks**, available in versions with 8 or 24 10/100/1000 GE ports, 2 or 4 SFP 1GE slots, and a backplane of up to 56 Gbps. They support IGMP snooping, and two of the three available variants are equipped with PoE functionality.

FSW-708P-2SFP

Description	SFP ports	Item	Code
8-Port Ethernet PoE Switch	2	**FSW-708P-2SFP**	287771
24-Port Ethernet PoE Switch	4	**FSW-724P-4SFP**	287770
24-Port Ethernet Switch	4	**FSW-724-4SFP**	287769

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ACTIVE DEVICES

Net

SERIES UNMANAGED - LAYER 2

The new range of Fracarro Unmanaged Ethernet Switches consists of compact 5- and 8-port models, also available in PoE+ versions.These devices enable stable connections and Gigabit performance even in small systems..

GES08

GES08P

1 Gbit/s BANDWIDTH UP TO | Watch Dog | Plug & Play | Energy Saving

Description	PoE+	Item	Code
Switch Ethernet 5 porte 1Gbit	-	**GES05**	287865
Switch Ethernet 8 Porte 1Gbit	-	**GES08**	287867
Switch Ethernet PoE+ 4P + 1 Uplink	YES	**GES05P**	287866
Switch Ethernet PoE+ 8P + 2 Uplink	YES	**GES08P**	287868

ACCESS POINT

Indoor access points for **high-density connections**, equipped with omnidirectional antennas to ensure maximum coverage and high bandwidth.
They can manage up to 128 connected devices per access point.

INDOOR | OUTDOOR

WAP6-2GE-CM-HD

WAP6-1GE-EXT-HD

INDOOR		
Description	**Item**	**Code**
2 Ports WiFi 6 up to 1.8 Gbps	**WAP6-2GE-CM-HD**	287773

OUTDOOR		
Description	**Item**	**Code**
1 Port WiFi 6 up to 3 Gbps	**WAP6-1GE-EXT-HD**	287786

CONTROLLERS

Professional controllers for configuring and managing WiFi connectivity.

WCTRL-256-SFP+

WCTRL-128-SFP

Description	Additional Ports	Item	Code
8 Ports 1 Gbps, supports up to 128 APs	1 SFP 1GE port	**WCTRL-128-SFP**	287774
8 Ports 10 Gbps, supports up to 2048 AP users	3 SFP+ 10GE ports	**WCTRL-256-SFP+**	287775

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RACK

CABINETS & ACCESSORIES

The **19" floor-standing and wall-mounted rack** cabinets are ideal for telecommunications, IT, and audio/video installations. The floor-standing models offer high load capacity and modular structures, while the wall-mounted versions are compact and easy to install. Both come pre-assembled and ready for use.

The range also includes a **selection of accessories** for managing copper and fibre cables, as well as supports for equipment not designed for 19" rack mounting.

RK42U810S

FLOOR-STANDING RACKS

Unit	Dimensions (mm)	Mounting Rails	Front Door	Item	Code
42U	800x1000x2000	4	Mesh	**RK42U810S**	287676
	800x800x2000	4	Mesh	**RK42U88S**	287677
	600x800x2000	4	Tempered Glass	**RK42U68P**	287683
36U	600x800x1735	2	Tempered Glass	**RK36U68P**	287678
	600x600x1735	2	Tempered Glass	**RK36U66P**	287679
24U	600x800x1200	2	Tempered Glass	**RK24U68P**	287681
	600x600x1200	2	Tempered Glass	**RK24U66P**	287680

WALL-MOUNTED RACKS

Unit	Dimensions (mm)	Mounting Rails	Front Door	Item	Code
12U	600x450x615	Fixed	Tempered Glass	**RK12U64PW**	287682
9U	600x450x485	Fixed	Tempered Glass	**RK9U64PW**	287684

RACK ACCESSORIES

Type	Description	Item	Code
Vertical Rail	Vertical rails for 42U cabinets	**RKA CCV 842U**	287659
Cable Management Panels	1U slotted horizontal cable management panel	**RKA PPO19A**	287665
	1U solid horizontal cable management panel	**RKA PPO19C**	287685
	1U horizontal cable management panel with brush	**RKA PS1U**	287662
Shelves	Adjustable shelf, depth up to 1000 mm	**RKA RR1000**	287669
	Adjustable shelf, depth up to 800 mm	**RKA RR800**	287672
	Adjustable and sliding shelf, depth up to 800 mm	**RKA RE800**	287670
	Fixed shelf, depth 350 mm	**RKA RF350**	287671

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FIBRE OPTICS

The use of **fibre optics** in network infrastructures **enhances system efficiency**, thanks to its technical characteristics, enabling the transmission of high-quality signals even over long distances.

Advantages of Fibre Optics

- **Efficiency**: High bandwidth availability.
- **Signal Quality**: Extremely low attenuation (0.2 to 0.5 dB/Km) and complete immunity to electromagnetic interference.
- **Durability and Resistance**: Fibre optics are not subject to oxidation.
- **Ease of Installation**: Lightweight and compact dimensions.

Hybrid Fibre Optic + Copper Networks

Fibre optics can also be used in combination with **copper cabling**.
In **hybrid networks**, fibre optics serve as the main backbone to transmit data between core devices, while copper can be used for local terminations.

This configuration offers the following advantages:

- **Greater Efficiency and Coverage**: Fibre optics as a backbone reduces cable bulk and ensures more stable and faster connections, while copper covers final connections where shorter distances are involved.
- **Compatibility with Existing Infrastructure**: Hybrid networks allow the reuse of existing copper infrastructure, reducing the cost of a full fibre upgrade.
- **Future Expandability**: A fibre backbone ensures that the network is ready for future expansion or speed upgrades up to 100 Gbps or beyond, minimising the need for new installations.

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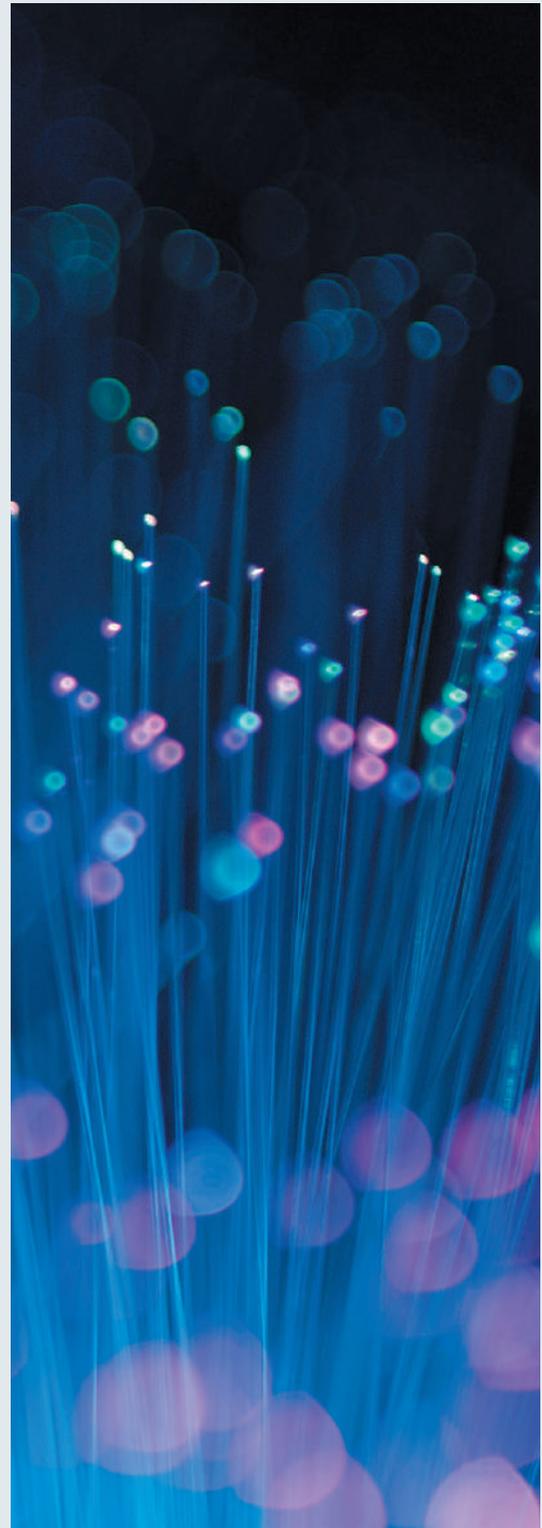
PASSIVE FIBRE COMPONENTS

MULTIFIBRE CABLES

Single-mode multifibre cables for indoor use and **armored cables for** outdoor use. The loose tube structure provides enhanced protection against moisture and mechanical stress, while the 9/125 single-mode fibres ensure high performance and reduced signal loss.

OPC4IN_CCA

OPC24MULTI457

OPC8ARM457

INDOOR CABLES

No. Fibres	Class	Item	Code	Diameter (mm)	Sheath	Length (m)
4	CCA	**OPC4IN_CCA**	287736	3	Single	250
8	CCA	**OPC8IN457CCA**	287795	3	Single	457
4	B2CA	**OPC4IN_DG_B2CA**	287840	4	Double	250
8	B2CA	**OPC8IN_DG_B2CA**	287841	4	Double	457
24	B2CA	**OPC24MULTI457**	287819	8.5	Single	457

OUTDOOR CABLES

No. Fibres	Class	Item	Code	Diameter (mm)	Sheath	Length (m)
4	FCA	**OPC4ARM457**	287814	6	Single	457
8	FCA	**OPC8ARM457**	287815	6	Single	457

PRE-TERMINATED MULTIFIBRE CABLES

Pre-terminated 4-fibre cables with SC/APC connectors and a PULL traction system. They offer increased robustness in critical situations thanks to the dual sheath design of the cable.

| No. Fibres	Class	Item	Code	Diameter (mm)	Sheath	Length (m)
4	B2CA	**BR4B30-AA-PS**	287846	4	Double	30
4	B2CA	**BR4B40-AA-PS**	287847	4	Double	40
4	B2CA	**BR4B50-AA-PS**	287848	4	Double	50
4	B2CA	**BR4B70-AA-PS**	287849	4	Double	70
4	B2CA	**BR4B100-AA-PS**	287850	4	Double	100

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PASSIVE FIBRE COMPONENTS

OPTICAL PATCH CORDS

Single-mode fibre optic patch cords with a semi-loose tube configuration and **single-fibre G657 A1 type**.
Also available with a **PULL traction system** for additional support during installation.
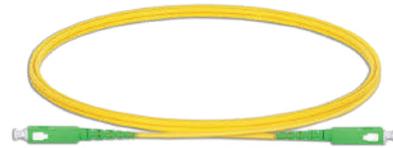
Connectors		Length (m)	item	Code	PULL
SC/APC - SC/APC		1	**PIG TAIL**	287426	-
SC/APC - SC/APC		0,5	**BR1/2-AA**	287832	-
		1	**BR1-AA**	287522	-
		2	**BR2-AA**	289360	-
		4	**BR4-AA**	289362	-
		5	**BR5-AA**	287690	-
		10	**BR10-AA-PS**	287689	YES
		20	**BR20-AA-PS**	287645	YES
SC/APC - SC/UPC		1	**BR1-PA**	287828	-
		2	**BR2-PA**	289359	-
		4	**BR4-PA**	289361	-
		5	**BR5-PA**	287688	-
		10	**BR10-PA-PS**	287687	YES
		20	**BR20-PA-PS**	287686	YES
SC/APC - FC/APC		1	**FC-SC/APC PATCH**	280011	-
		2	**BR2SCAPC-FCAPC**	287427	-
SC/APC - FC/PC		2	**BR2FC/PC-SC/AP**	287521	-
SC/UPC - SC/UPC		1	**BR1-PP**	287691	-
SC/APC - LC/UPC		1	**BR1E-SA-LU-D**	287695	-
		2	**BR2E-SA-LU-D**	287694	-
LC/UPC - LC/UPC		1	**BR1E-LU-LU-D**	287693	-
		2	**BR2E-LU-LU-D**	287692	-

BEND Insensitive

LZSH Low Smoke Zero Halogen

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PASSIVE FIBRE COMPONENTS

OPTICAL ADAPTORS

Optical bushings for the flexible connection of optical pigtails, suitable for mounting on patch panels and Keystone adapters. Also available in a flangeless version.

INDOOR

BFO-SC-APC

BFO-SC-APC FL

BFO-SC-APC KEY

MIN/MIN

Adapters	Flangless	Item	Code
SC/APC on Patch Panel	-	**BFO-SC-APC**	289349
	Yes	**BFO-SC-APC FL**	287593
SC/APC on Keystone	Yes	**BFO-SC-APC KEY**	287595
Mini-Mini on Patch Panel	-	**MIN/MIN**	287225

OPTICAL ATTENUATORS

Inline attenuators with SC/APC connector, available with attenuation levels ranging from 3 dB to 14 dB.
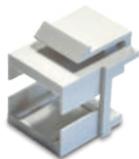
INDOOR

OPTATT3DB

OPTATT7DB

OPTATT14DB

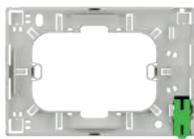| Attenuation	Item	Code
3 dB	**OPTATT3DB**	287239
7 dB	**OPTATT7DB**	287238
14 dB	**OPTATT14DB**	287237

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PASSIVE FIBRE COMPONENTS

ADAPTERS

Keystone adapters, frame with safety lock, and fibre spool holder.

INDOOR

ADP-SC-KEY

FTTH-EXT-FRAME

OPO-503

Description	Item	Code
SC/APC Bushing Adapter for Keystone Supports	**ADP-SC-KEY**	287594
Frame with SC/APC Adapter	**FTTH-EXT-FRAME**	287597
Fibre Spool Holder for 503 Box	**OPO-503**	287596

SPLICE BOXES AND ORGANISERS

Optical drawers and organizers for fibre interconnection.

INDOOR
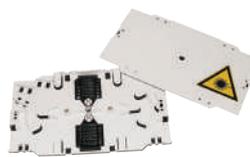
OPB18I

OPB24IR

OPO12P

Description	Item	Code
8-Port SC/APC Splice Box	**OPB8I**	289405
18-Port SC/APC Splice Box	**OPB18I**	289403
Fibre Organizer for 12 Splices	**OPO12P**	289402
Optical Drawer 24 SC/APC Ports with Splice Tray	**OPB24IR**	289404
Optical Drawer 48 SC/APC Ports with Splice Tray	**OPB48IR**	287757

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