FCS

FURUKAWA
CONNECTIVITY
SYSTEM

Connecting people.

Connecting everything.

FURUKAWA
ELECTRIC GROUP

Index

FURUKAWA ELECTRIC GROUP

The history of Furukawa Electric Group began more than 130 years ago, in Japan. Since then, the group has transformed itself into a global corporation with diversified activities in metals, light metals, telecommunications, automotive systems, energy sector, among others, forming an international network of industries operating in Asia, North America, Europe, Africa and Latin America.

It underlines its values as a company of excellence, by providing products and technology that contribute to global development. Furukawa has more than 100 affiliates and modern research laboratories, prepared to generate new technologies and products.

TELECOMMUNICATIONS

Optical fiber cables / Metalic communication cables / Semiconductor optical devices / Electronic appliance wires / Optical components / Network equipment / Optical fiber cable accessories and installations / CATV system / Radio products, etc.

AUTOMOTIVE SYSTEMS AND ELECTRONICS

Automotive components and wiring harness / Magnet wires / Electronic component materials / Heat sinks / Hard disc drive (HDD) aluminum substrates / Battery products, etc.

METALS LIGHT METALS

Copper and copper alloy products (plates, strips, pipes, rods, foils, and wires) / Functional surface products (plating)/ Electrodeposited copper foil / Processed products for electronic parts / Superconducting products / Special metal materials (Shape-memory and super-elastic alloys), etc.

ENERGY & INDUSTRIALS

Copper wires and Aluminum wires / Power transmission cable / Insulated wires / Power transmission cable accessories and installations/ Cable conduits / Water-feeding pipe materials / Foam products / UV tapes for semiconductor manufacturing / Electrical Insulation Tape / Electric material products, etc.

SERVICES AND OTHERS

Logistics / Information processing service / Software development / Service business (real-estate leasing, hydraulic power generation and so on), etc.

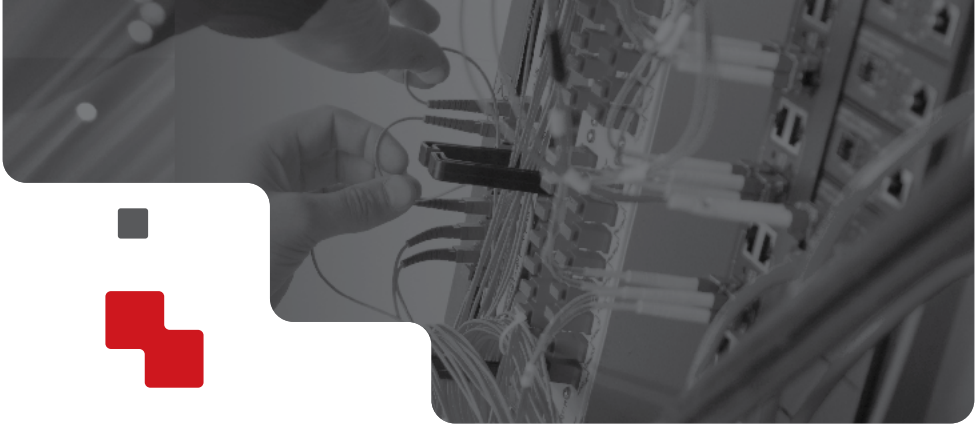
A connected world requires innovation and technology.

Through integration of all companies in Furukawa Electric Group, each of them market and customer oriented, we can meet society needs in all five continents.

One Furukawa
Global Presence

As a global company, Furukawa Electric Group understands how vital it is to identify and develop products and solutions, replying to customer´s demands in a quick, open and innovative way.

Despite that as a group we are well aware of future and unknown needs which must be faced not only as a market positioning, but must also aim at a safer, peaceful and more comfotable life to people through continuous technological innovation.



FCS, Furukawa Connectivity System offers several products, from twisted pair to optical technologies aiming at an efficient network infrastructure that allows multimedia services for multiple segments.

Our system is divided by product families: TeraLan, GigaLan Augmented, GigaLan, MultiLan, Fisaflex and Fisacesso.

Data Center

High-density, future-proof solutions

Enterprise

Assured performance for business continuity

Laserway

Passive optical networks for your enterprise

Furukawa's commitment to human's quality of life is well reflected by our productive process and products. Encouraging actions to reduce negative environmental impacts from the beginning we resulted internationally recognized and certified. All of this to offer you the choice of which type of connection you want to build.

Creating Complete Solutions

Furukawa focuses on expanding relationships, shortening distances and anticipating technological needs of society.

In order to do so we are always carefully monitoring actions and global trends to offer advanced solutions in infrastructure that meets the demands for high-speed and access to one of today's most valuable assets: knowledge.

Research and Development

Technology in constant evolution.

Furukawa has invested heavily on its laboratories and in research of broadband and networking applications. It is a center of excellence that offers complete solutions, adapted to the most diverse needs in its area of expertise: telecommunication network infrastructure and information technology.

Located in different regions on the world, we have R&D laboratories in US, Brazil, Japan and other location, where multiple realities provide multiple inputs for constantly improving our solutions.

Socio-Environmental Responsibility

The socio-environmental policies practiced by Furukawa Electric Group shows its commitment to building an evolutionary and sustainable society.

Certifications

ISO 9001

The ISO 9001 certificate of Quality Management System is awarded to Furukawa Electric's manufacturing unit in Brazil.

ISO 14001

Another representation is ISO 140001, regarding an environmental awareness of the Furukawa Electric Group.

OHSAS 18001

In relation to the safety and health of employees, we also comply with Occupational Health and Safety Management.

RoHS Compliant

The European RoHS directive restricts the use of certain hazardous substances in electrical and electronic equipments and stimulates the reuse of products and determines a proper management, with the objective to improve the effectiveness of the environmental protection by reducing the amount of industrial waste and the risk of the components.

Furukawa stablished since 2007 the RoHS compliant requirement for the entire line of products of structured cabling.

Affiliation

Furukawa Electric Group also has active participation and holds leadership position in global standards and organization that facilitate and promote the deployment of broadband technologies.

Proven Quality

The Furukawa Electric Group is committed to quality in every stage of its production processes. This commitment is evidenced by important international certificates the company has earned.

Such awareness is confirmed by periodic updates regarding new standards and norms. Example of it is our compliance with CENELEC (European Committee for Electrotechnical Standardization) standards and CPR (Construction Products Regulation) certificated cables, in accordance with Regulation (European Union) No 305/2011.

CPR

The Construction Products Regulation (CPR) applied to European market became a reference for structured cabling, as it demands reliable information to professionals, public authorities, and consumers in order to guarantee the right to choose freely the components for such environment. By doing so, it offers the market only products labeled as euroclass. Furukawa is commited to such improvements and already delivers specific cables to that market.

Extended Warranty

Furukawa offers extended warranty of 15 to 25 years, under analysis, which ensures the reliability of the materials used as well as the installation services of its authorized channels.

Furukawa Institute of Technology

Education as a frontline

The objective of Furukawa Institute is to train partners and clients allowing the best usage of Furukawa solutions. In order to do so, we offer multiple trainings as of best installation practices and modules regarding both FBS and FCS. It is a continuous education system that is divided into modules.

FCP training program

Developed to prepare network installation professionals and create technical competence for the market, reducing the training time of teams. The scarcity of experienced professionals in the market makes the practical courses become a solution to reduce the training time.

Furukawa provides practical and theoretical courses in network infrastructure, which trains the professional in short period of time.

Technology

Innovation and quality in certified and recognized products.

Structured cabling shall be designed to fulfill not only current applications but also future demand. The infrastructure can be made by optical fiber and/or twisted pair cabling.

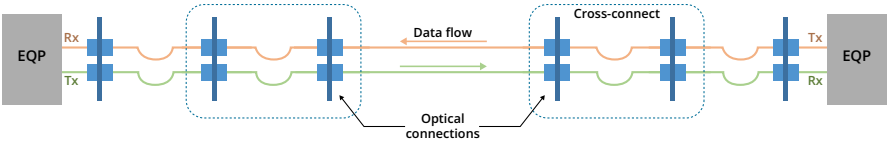
Copper Twisted Pair

EIA/TIA 568, dated 1991, was the first American standard for structured cabling systems. In 1995, the standard was first amended and was called EIA/TIA 568 A, and in May of 2001, it was transformed into 568 B. A new revision is in force and got the nomenclature ANSI/TIA 568 C2. All these standards were based on the ISO/IEC 11801 standard, amended in 2002. The objective of these standards is to provide a flexible and reliable cabling system, able to be connected with equipment from different manufacturers. Another differential is the easy expansion of an already existing network.

CAT.5e	100 MHz	**1 Gbps**	**Up to 100 m**
CAT.6	250 MHz	**1 Gbps**	**Up to 100 m**
CAT.6A	500 MHz	**10 Gbps**	**Up to 40 m**
CAT.8	2000 MHz	**25 e 40 Gbps**	**Up to 30 m**

Optical Fibers

When it comes to long distance and transmission rate's performance, optical cabling is the best option. It is by far, a better choice than copper cabling. Installation of optical networks follows the same rules as those for buildings, datacenter or MDUs. The optical channel presented at the figure below is an example of performance measurement for any optical solution.



Aiming at higher transmission rates, different multimode fibers MM(50/125µm) were developed, from OM1 and OM2 - no longer recommended according to TIA - up to fibers such as OM3, OM4 and more recently OM5. These fibers are compatible with VCSEL, a semiconductor-based laser diode that allows higher taxes of transmission, within distances compatible with local networks. Among the fibers applied in critical environments or with high taxes of data transmission, OM5 should be highlighted, as it is the only one which bandwidth is characterized to be used with SWDW (Short Wavelength Division Multiplexing). The following table shows the performance of multimode optical fibers under the use of SWDM.

OM3 – LaserWave 300	240 m	**40G-SWDM4**
	75 m	**100G-SWDM4**
OM4 – LaserWave 500	350 m	**40G-SWDM4**
	100 m	**100G-SWDM4**
OM5 – LaserWave FLEX Wideband	440 m	**40G-SWDM4**
	150 m	**100G-SWDM4/ 400G BASE-SR4.2***

*Under development by IEEE.

OM5 Multimode Fiber

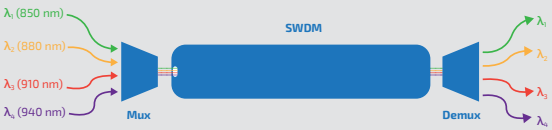
The Wide band multimode optical fiber (WBMMF), optimized for SWDM application.

The new generation of the 50 µm multimode fibers, known as OM5, comes to enlarge the performance from previous versions, allowing data traffic in rates such as 400G, for now. Besides being totally compatible with current application of Multimode fibers, the new model was developed in order to support and promote the use of SWDM, which operation and use is explained and depicted as it follows:

SWDM TECHNOLOGY

This technology allows data transmission through several wavelength, from 850 nm up to 950 nm trough one single fiber. This way, transmission capacity is multiplied by the number of different wavelengths used during transmission. Currently, there are 4 predetermined wavelengths for SWDM use.

In the following sketch, there is the representation of 4 different wavelengths going through the cable simultaneously, each one of it carrying a diverse information. In this manner, contends can travel by the mean of transmitting without suffering interference from one λ to another.



The equipment represented, Mux and Demux (transceivers), have the function of reunite and filter the existing information at the channel.

In order to establish minimum condition for performance of SWDM technology usage with multimode fibers, it is necessary to establish and determine the bandwidth necessity to transit all used wavelengths. The main differential of the OM5, when comparing with previous fibers, is this characterization.

Currently, the technology SWDM supports 4 wavelengths, that means an improvement of 4 times the transmission rate in face of conventional transmission. OM5 fiber is still under standardization phase, it is still awaiting for the creation of a norm, such as TIA-942AAAE, to stablish specifications for its specific multimode optical fibers.

Single-Mode Fibers for premises applications

Convencional (G.652.B)

It presents excellent performance and low attenuation coefficient in transmission bands O (1260 to 1360 nm), C (1530 to 1565 nm), as well as L band (1565 to 1625 nm).

Data, access networks and long distance.

“Low Water Peak” (G.652.D)

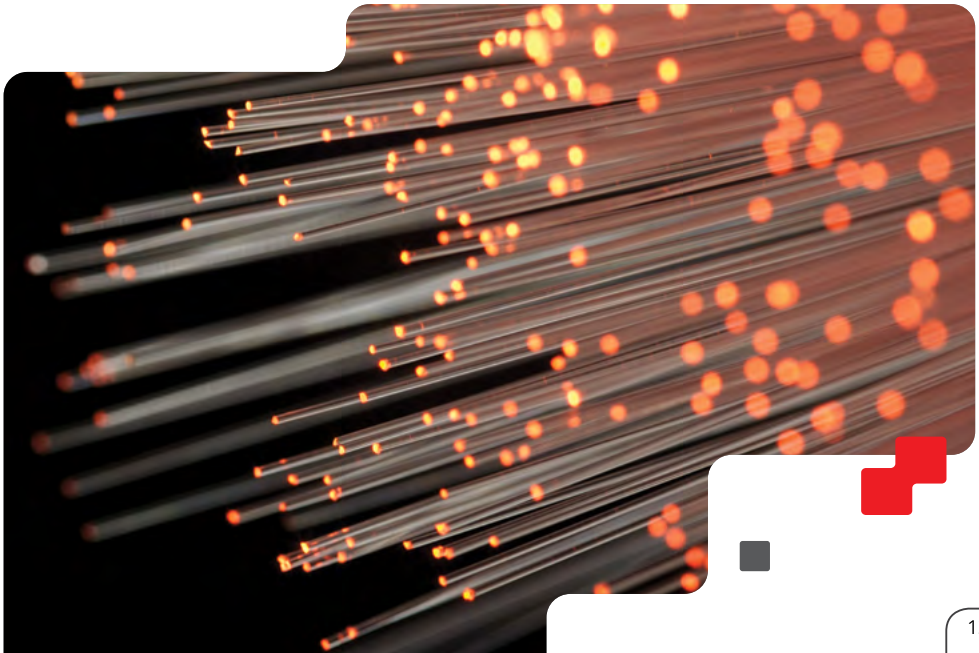
It enables future expansion of the network for new users via CWDM in up to 16 channels. Fifty percent increase of the transmission capacity in relation to the conventional single-mode fibers. Low attenuation coefficient at the water absorption peak (1383±3 nm), assuring additional use of the E band (1360 to 1460 nm), as well as along the other transmission bands (1270 to 1610 nm).

Metropolitan and access networks.

“Bending Loss Insensitive” (G.657.A)

Low values of loss, due to curvature, along its entire transmission spectrum, from 1260 to 1625 nm. It allows bending at diameters up to 20 mm generating maximum loss of 0.5 dB at 1625 nm and 0.2 dB at 1550 nm.

FTTH Access networks (Fiber-To-The-Home) and local networks.



Technological Highlighs

Green Solution

Furukawa Electric works towards a better connected world. In this sense, we present you our Green product line. With green polyethylene, a plastic derived from sugarcane, our twisted pair cables that belongs to this line are 100% recyclable. Thus, you can responsibly choose the technological solutions which meets the demands of your company from now on.

Cables and Patch Cords CAT.6 and CAT.6A made of green polyethylene, plastic derived from sugarcane and 100% recyclable.

1 TON of
Green resine captures
2,5 tons of CO_2
from the environment

*Product under consult, please contact us.

Reduced Diameter Patch Cord -28 AWG

As part of our improvements, we present you our 28 AWG patch cords, that have smaller diameter up to 50% in comparison to average 6A patch cords and the same efficiance. This not only allows better refrigeration at your environment, but it also reduces stress over your infrastructure.

For this, we have an adaptative, effective solution for your environment, whether your objective is to reduce or is just update connections.

Such reduction is also beneficial when it comes to maneuver the patch cords, which also present an improved bending.

Universal MPO

When it comes to critical adjusting, Data Centers are the application on the edge. The cost of the smallest downtime can sum up millions. Moreover, for this reason, reducing time during migrations equals reducing cost. In this direction, Furukawa brings its first Universal MPO, that allows polarity and gender Exchange in field.

In order to do so we are always carefully monitoring actions and global trends to offer advanced solutions in infrastructure that meets the demands for high-speed and access to one of today's most valuable assets, knowledge.

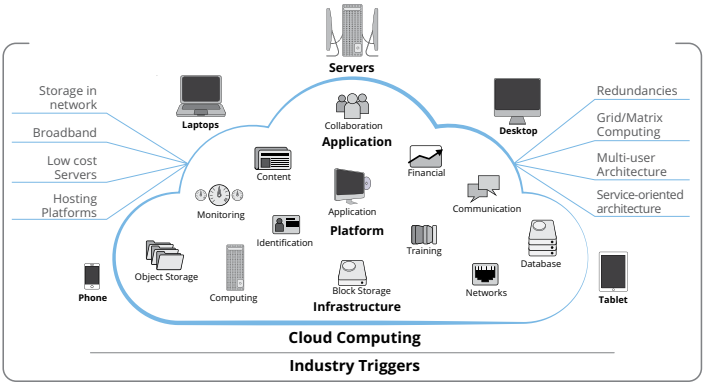
DATA CENTER

Security and reliability, where you need it the most.

Most of existing Data Centers have been created using decentralized approach, with sizes, which often do not exceed 180 m² and a dedicated IT team. However, this reality has been transformed due to the fast global increase of data consumption and the need to fulfill this demand at the same speed. Thus, we faced the appearance of the mega Data Centers.

The IT resources have been increasingly more consolidated, once the operational efficiency of the whole data center is under its control: simplify and minimize the failure points and manage the recovery; in addition to more efficient power management by means of low power consumption and heat generation.

Another revolution we are accompanying is the impacting use of the Cloud Computing. The simultaneous increase of data consumption, storage, security and hardware requirements combined with the reduction of the world costs of servers and bandwidth is driving an exponential growth either in the use or in the demand for these services.



It means that the increase in network traffic and the new era of IP devices are forcing companies to invest in infrastructure. But this investment must be conscious, as pointed in 2018 report by Gartner*. Which means that first considerantions must be very well built as it will affects the upcoming activities for the following years.

Considering this scenario, the technological requirements for telecom systems of a Data Center are critical and, in addition to hardware, the cabling shall be able to support new technologies and future services, fulfilling the current and future demand of network. In order to do so, we recommend you to:

1. Choose a solution which offers the best benefit over time, because as physical construction of a Data Center is done only once.
2. Study the products performance in advance, whether they have certifications from independent laboratories and their compatibility with the other accessories and equipment in the network.
3. Be sure that the selected technology is stipulated in the standard, in order to be well informed in case of changes in the performance parameters.

Whichever application is used in your Data Center, Furukawa has the right solution for you.

*(https://www.gartner.com/doc/reprints?id=1-56H26OT&ct=180711&st=sb) "Through 2023, 90% of current applications will still be in use."

Check out the advantages of Furukawa's quality in the ITMAX solution for Data Center:

- **High Availability**: Communication channels tested in factory to assure full availability in different topologies, and proven by means of third party's laboratories – which reduces any potential points of failure and minimizes the risks of downtime.
- **Modularity**: It is possible to expand optical networks without the need of splices and with high density, reducing the time of installation and the possibility of communication failure.
- **Performance**: Systems that guarantee transmission with Zero Bit Error are essential - CAT.6, CAT.6A - and Optical Links, which fulfill 10 G and the trends for future migration to 40/100 Gbps.
- **Physical Layer Management**: This system assures the automatic update of the documentation in the cross-connection areas of the network, and facilitates the physical localization of the devices connected in the network, making the infrastructure management more agile and secure.
- **Security**: By means of implementation of a physical layer management system, it is possible to manage the physical point of the network and map it in a software platform, so that the IT Manager can be sure of what is interconnected. Any non-authorized movement in the patch panels and/or the optical distributors will generate alarms, and the IT team will be able to identify the failures instantly.
- **High Density**: Solutions that enable expansions for fast fulfillment of future demands and which do not compromise the performance of the communication channels, with no need of physical expansion, valuing the square meter of the Data Center.
- **Operational Efficiency**: Cabling infrastructure designed to take maximum benefits from the civil project, refrigeration and power systems (open racks, cabling accessories adequate for the layout – hot and cold corridors, etc.).

Understand how a Data Center is structured:

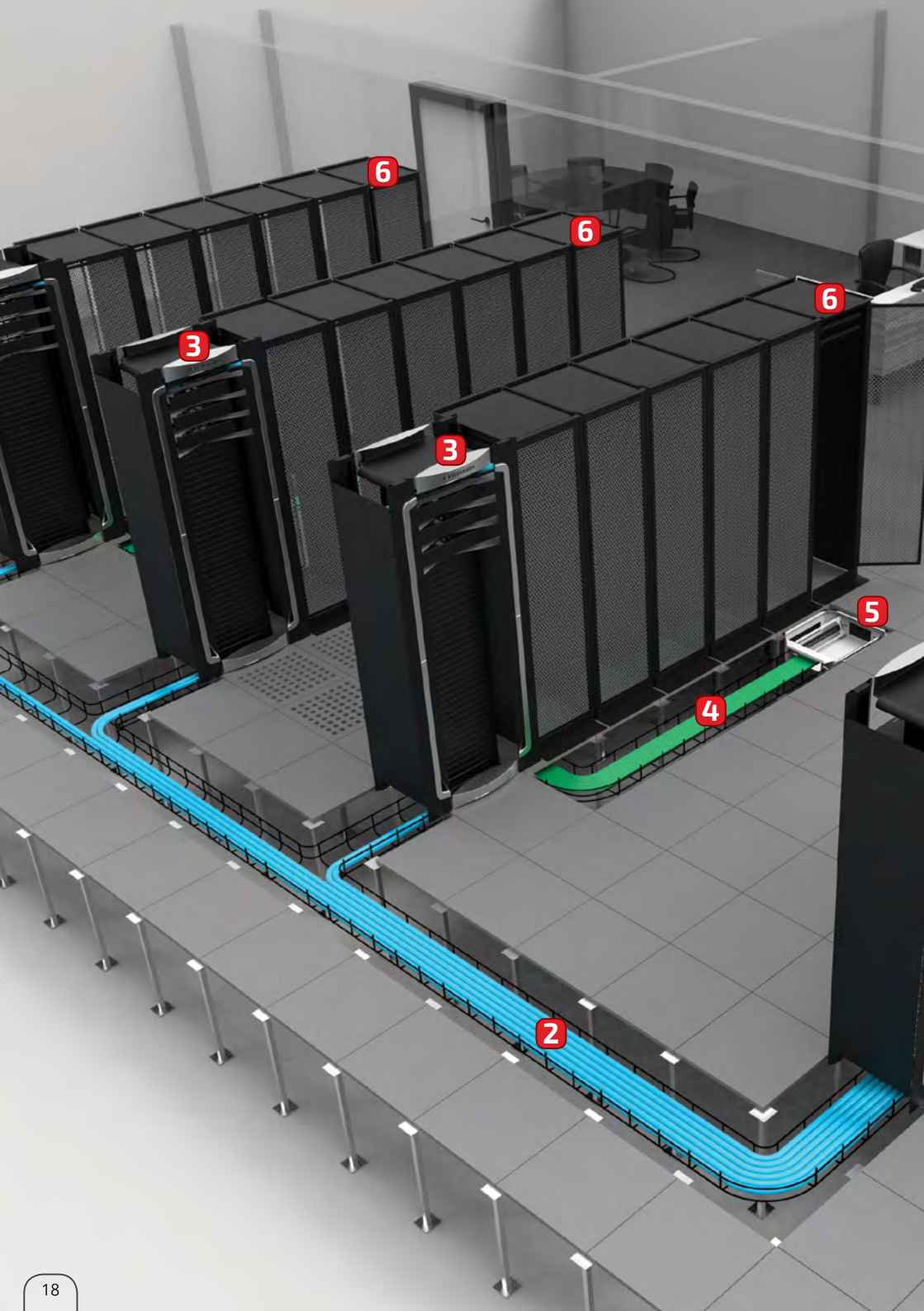
- **Entrance Room (ER)**
  The Entrance Room is a space for interconnection between the structured cabling of the Data Center and the cabling coming from the telecommunication operators.
- **Main Distribution Area (MDA)**
  It includes the main cross-connect, which is a main point of distribution of the structured cabling of a Data Center. This is a critical area, where the main maneuvers of the Data Center are carried out.
- **Horizontal Distribution Area (HDA)**
  This is an area used for connection with the equipment areas. It includes horizontal cross-connect (HC) and intermediary equipment.
- **Zone Distribution Area (ZDA)**
  Point of optional interconnection of the horizontal cabling. Placed between HDA and EDA, it enables fast and frequent configuration, generally placed under the floor. It aggregates flexibility to the Data Center.
- **Equipment Distribution Area (EDA)**
  A space designated for terminal equipment (Servers, Storage) and the data or voice communication equipment (switches).

Rules to classify a Data Center:

According to the TIA-942-A standard, there are a series of applicable rules for the classification of a Data Center called ratings. The rating considers 4 independent levels for the Telecommunications, Electric, Architecture and Mechanical systems. These levels are related to the availability of the Data Center and can be different in each of the areas mentioned above.
For the general rating, the lowest level is always considered.
Ex. $T_2E_3A_1M_2$ is rated as: Level 1

Data Center

I	Data Center:	Basic
II	Data Center:	Redundant Components
III	Data Center:	Concurrently Maintainable
IV	Data Center:	Fault Tolerant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6
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2

DATA CENTER

		Pg.
1 MDA		
Optical Distribution Frames	HDX Optical Distribution Frame	34
Optical Cords	HDX Cassette	34
Management Products	Intelligent Optical Distribution Frame	*Under consult*
	Intelligent Optical Cord	
	Intelligent Modular Patch Panel	
	Intelligent Patch Cord	
	Control Hardware	
2 Backbone		
Pre-Terminated Optical Cables	MPO Trunk Cables 24F to 72F	49
3 HDA		
Open Racks	ITMAX Open Racks 2P and 4P	123
Optical Distribution Frame	Accessories for ITMAX Rack	123
Patch Panels	LGX Optical Distribution Frame	36
Keystone Jacks	LGX Cassette	37
Copper Patch Cords	Patch Panels	134
	Angled Patch Panels	133
	Shielded CAT.6A Keystone Jack	78
	CAT.6A Shielded Patch Cord	49
4 Horizontal Cabling		
Copper Cables	Data Cable GigaLan CAT.6A F/UTP	73
Pre-Terminated Copper Cables	Pre-Terminated CAT.6A Cable	79
Pre-Terminated Optical Cables	12F MPO Trunk Cables	49
5 ZDA		
Connection Boxes	ZDA Connection Box	135
	12P Connection Box	136
	LGX Connection Box	38
	HDX Connection Box	35
6 EDA		
Cabinets	Server Cabinet	120
Patch Panels	Shielded Patch Panel ½ U	134
Patch Cords	CAT.6A Patch Cords	85
Optical Cords	Fanout Trunk Cables	50
	MPO Trunk Cable	49

ENTERPRISE

Integrated systems in a single cabling.

Corporate building's cabling is constituted by several kinds of cables mutually incompatible, and each of them was adequate for a single specific application, such as: voice transmission, data, images, automation and control system, security systems, etc.

Dedicated cabling, proprietary systems, centralized processing and new structured cabling technologies made manufacturers and international entities develop norms and standards for this sector, looking for compatibility between current and future applications.

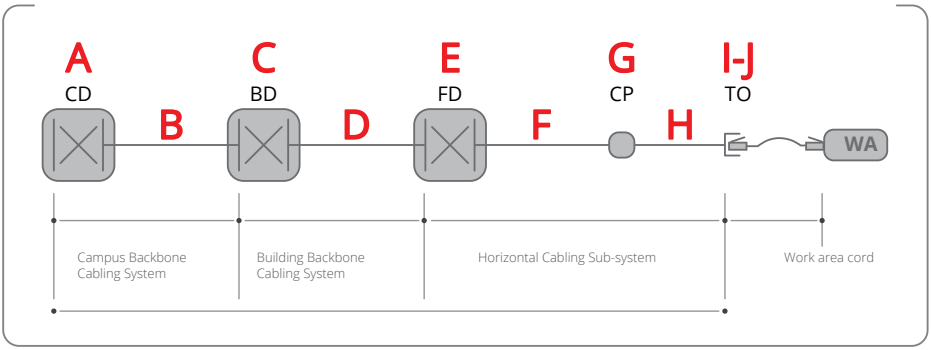
The international standards, such as TIA 568C and its addendums set forth electrical and mechanical requirements for the components in the whole infrastructure.

In order to implement an appropriate cabling system in a commercial building, it is very important to analyze the integration among systems and routes' definition. The earlier the initial planning is done, the bigger the flexibility and service life of systems will be.

In order to choose the best technology to be installed, it is necessary to analyze the currently offered services and the future expansions, selecting between optic, copper or mixed cabling (optical + copper).

The cabling systems in corporate buildings are composed of up to three sub-systems: campus backbone, building backbone and horizontal cabling. The sub-systems are interconnected to form a cabling system as the structure illustrated below.

Generic Cabling Sub-System



Structured cabling in corporate buildings according to the TIA-568-C standard.

The structured cabling elements are:

A) Campus Distributor (CD);

B) Campus Backbone;

C) Building Distributor (BD);

D) Building Backbone;

E) Floor Distributor (FD);

F) Horizontal Cabling;

G) Connection Point (CP);

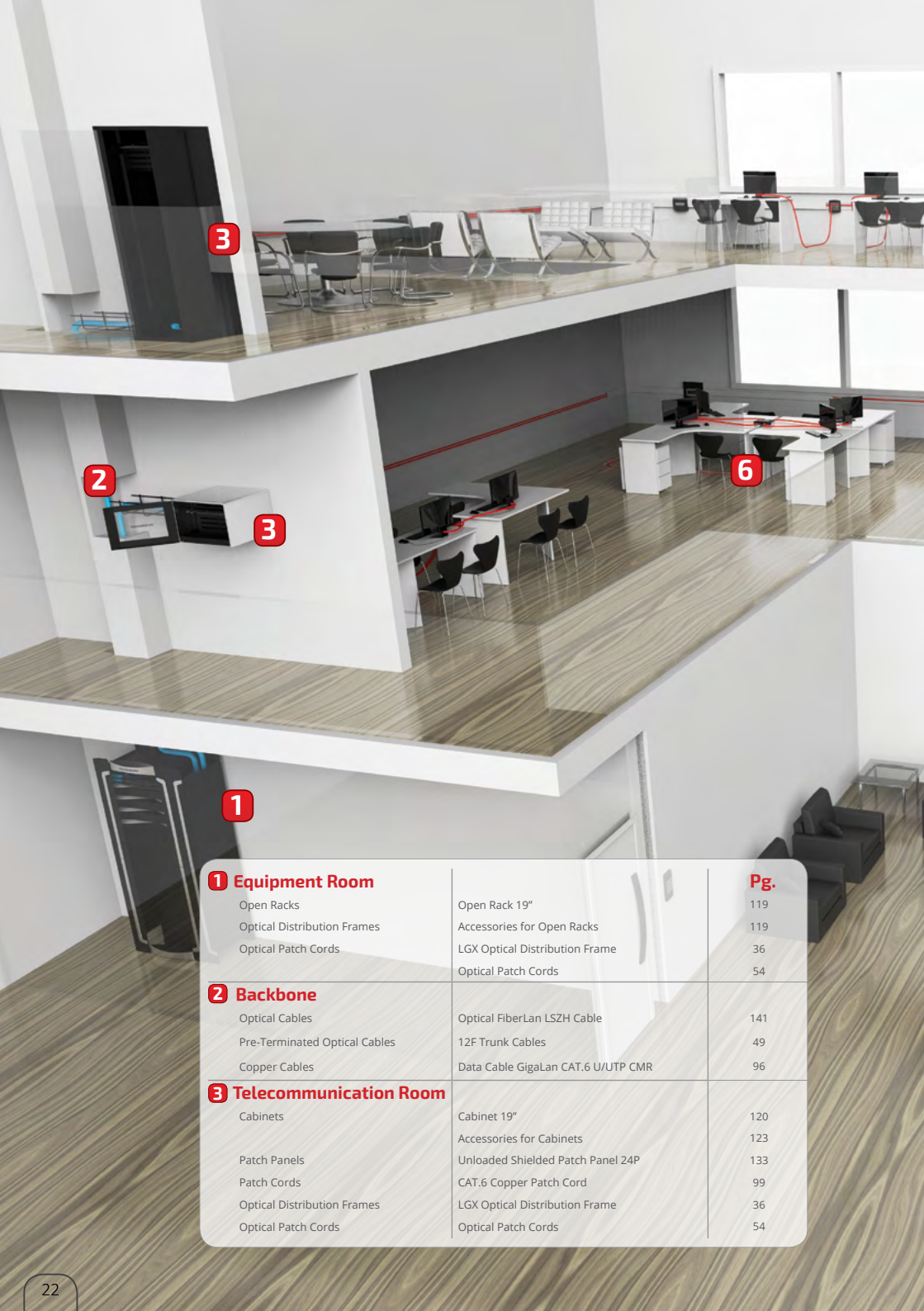
H) Connection Point Cable (CP Cable);

I) Multi-user Telecommunication Outlet Assembly (MUTOA);

J) Telecommunication Outlet (TO).

Structured cabling benefits:

- *Flexibility for layout changes and possibility to include new systems upon demand;*
- *Intercommunication between different systems, generating additional features;*
- *Network systems based on protocols that allow remote management;*
- *Cabling standardization and performance assurance.*



		Pg.
1 Equipment Room		
Open Racks	Open Rack 19”	119
Optical Distribution Frames	Accessories for Open Racks	119
Optical Patch Cords	LGX Optical Distribution Frame	36
	Optical Patch Cords	54
2 Backbone		
Optical Cables	Optical FiberLan LSZH Cable	141
Pre-Terminated Optical Cables	12F Trunk Cables	49
Copper Cables	Data Cable GigaLan CAT.6 U/UTP CMR	96
3 Telecommunication Room		
Cabinets	Cabinet 19”	120
	Accessories for Cabinets	123
Patch Panels	Unloaded Shielded Patch Panel 24P	133
Patch Cords	CAT.6 Copper Patch Cord	99
Optical Distribution Frames	LGX Optical Distribution Frame	36
Optical Patch Cords	Optical Patch Cords	54

ENTERPRISE

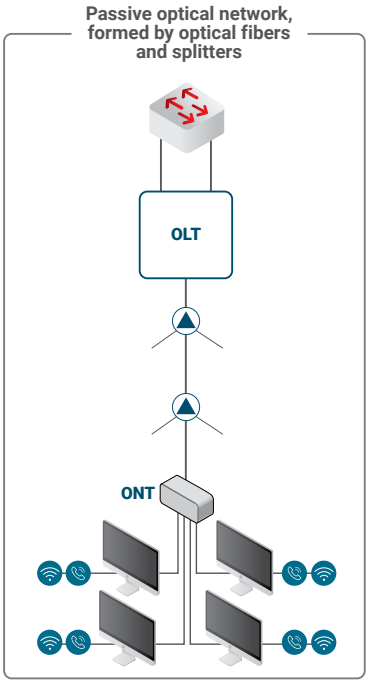
Cost effective, control and convergence.

Furukawa's Laserway solution was created to offer an innovative solution of Local Area Network (LAN) infrastructure to our Enterprise market segment. The solution is based on GPON (Gigabit Passive Optical Network) technology, which is a network based on single-mode fibers with point-multi-point topology, considering that between one single network aggregation equipment (Core) and all the equipment in work areas, there are only passive optical elements.

In Laserway solution, data transmission occurs between the equipment called OLT (Optical Line Termination), located in the equipment room and the ONT (Optical Network Termination), located in work areas. ONTs provide connectivity by copper patch cords to any final devices 10/100/1000 BaseT Ethernet of the network, such as, computers, IP telephones, access points, printers, IP surveillance cameras, automation systems, access control, etc. In addition to the connectivity with IP equipment, services, such as analogue telephony and analogue video may also be offered.

Between OLT and ONTs, there is the optical distribution network ODN (Optical Distribution Network).

In this network, there are single-mode fibers and optical splitters, which are signal dividers. The splitters are passive equipment, i.e., they do not require any power or cooling, and their function is to split the input – optical signal coming from an OLT – in multiple outputs for fibers connected to the ONTs in the work areas.



QR Code for web Calculator

Benefits from the solution:

- **Simplified Infrastructure**: reduction of technical rooms, electric trays and ducts due to the fact that each fiber can distribute the different users´ information to each optic OLT port.
- **Reduction in Energy Consumption**: due to the reduction of the number of necessary technical rooms in the local network, it reduces the need for power and cooling equipment in these rooms. In addition to this fact, the equipment in the Laserway solution present low energy consumption as they transmit data through optical means.
- **Better Band Control**: as in the Laserway solution, the OLT and ONTs are located only at the terminals of the optical network, the control of the band used in each ONTs becomes easy. This characteristic of having one equipment that centralizes the traffic commutation in one central point of the network perfectly fits the traffic profile of the current local networks.
- **Future-proof Network**: the Laserway solution distribution network, formed of optical fiber, splitters and optical accessories, has transmission capacity in TeraBps (Terabits per second). It is known that the active equipment have significant increase of their data transmission rates over time. The infrastructure of the solution implemented nowadays would be ready to support such rates.
- **Network for Green Buildings**: many of the features of the Laserway ONTs are essential to serve the programs for encouraging the use of efficient resources, because they contribute with the reduction of energy consumption, cooling systems and quantity of material used for cabling.
- **Investment Savings**: the Laserway ONTs equipment brings important reduction in the CAPEX (material cost) and OPEX (operational cost) investments.
    - CAPEX: with significant reduction of the space occupation – each equipment port can attend up to 64 different services; smaller technical rooms can be provided without exclusive infrastructure for air conditioning systems, stabilized energy and peripheral equipment. In extreme cases, these may be reduced to one optic cabinet.
    - OPEX: the network operation and maintenance are simplified due to the smaller technical rooms, less assets and consequently less quantity of points of failure, control of all served points from one equipment unit only. However, the biggest impact is the reduction of energy consumption, which may reach 70%.


LASERWAY
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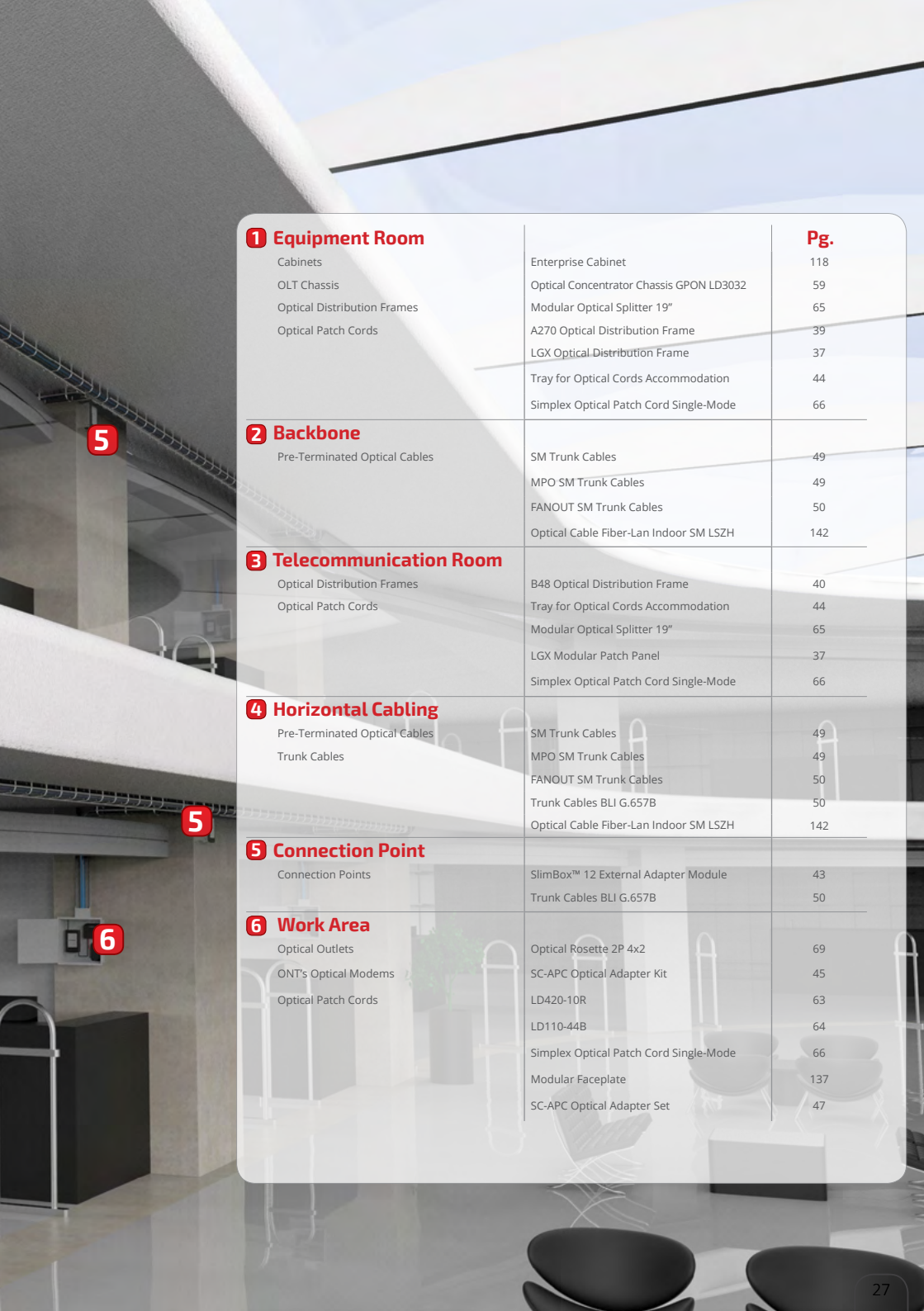

		Pg.
1 Equipment Room		
Cabinets	Enterprise Cabinet	118
OLT Chassis	Optical Concentrator Chassis GPON LD3032	59
Optical Distribution Frames	Modular Optical Splitter 19"	65
Optical Patch Cords	A270 Optical Distribution Frame	39
	LGX Optical Distribution Frame	37
	Tray for Optical Cords Accommodation	44
	Simplex Optical Patch Cord Single-Mode	66
2 Backbone		
Pre-Terminated Optical Cables	SM Trunk Cables	49
	MPO SM Trunk Cables	49
	FANOUT SM Trunk Cables	50
	Optical Cable Fiber-Lan Indoor SM LSZH	142
3 Telecommunication Room		
Optical Distribution Frames	B48 Optical Distribution Frame	40
Optical Patch Cords	Tray for Optical Cords Accommodation	44
	Modular Optical Splitter 19"	65
	LGX Modular Patch Panel	37
	Simplex Optical Patch Cord Single-Mode	66
4 Horizontal Cabling		
Pre-Terminated Optical Cables	SM Trunk Cables	49
Trunk Cables	MPO SM Trunk Cables	49
	FANOUT SM Trunk Cables	50
	Trunk Cables BLI G.657B	50
	Optical Cable Fiber-Lan Indoor SM LSZH	142
5 Connection Point		
Connection Points	SlimBox™ 12 External Adapter Module	43
	Trunk Cables BLI G.657B	50
6 Work Area		
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ONT's Optical Modems	SC-APC Optical Adapter Kit	45
Optical Patch Cords	LD420-10R	63
	LD110-44B	64
	Simplex Optical Patch Cord Single-Mode	66
	Modular Faceplate	137
	SC-APC Optical Adapter Set	47

Data transmission experience.

Furukawa strongly invests in big diversity of products aimed at high speed through optic fibers, in order to fulfill the most diverse needs. The attention to quality control is present in the whole production process, with the constant objective to exceed the standards, going beyond.

TERALAN - Optic Category

Transmission rates at the speed of light.

TeraLan is the category of optical cords and accessories designed to transmit high data rates, providing an end-to-end solution suitable for high occupation of optical fibers. TeraLan offers simplified management, installation and operation.

GIGALAN AUGMENTED - Category 6A

10 Gb in 100 meters, without interference.

The products that compose the CAT.6A channel have unique design characteristics, which minimize any interference affecting the data traffic, especially in Data Center.

GIGALAN - Category 6

Security and guarantee in various environments.

The products from the GigaLan category offer high performance in structured systems for voice, data and image transmission, which require guarantee of support for future expansions. Performance is guaranteed for a channel with up to 6 connections and 100 meters.

MULTILAN - Category 5e

The simplest connection between you and the world.

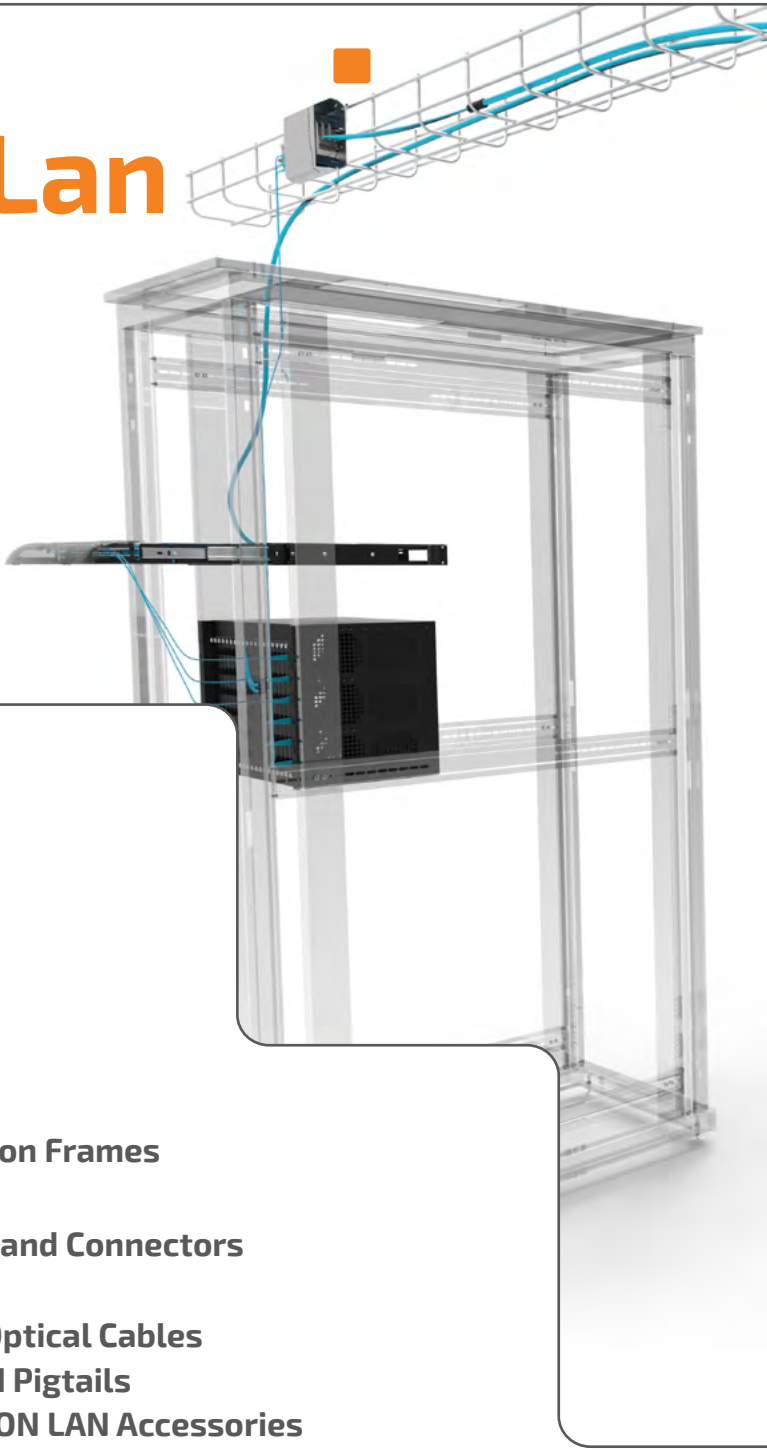
The MultiLan product category is recommended for installations which require Fast-Ethernet transmission (100 Mbps) or Ethernet Gigabit (1000 Mbps) maximum, fulfilling the current demands for Category 5e services and applications.

FISACESSO - Infrastructure

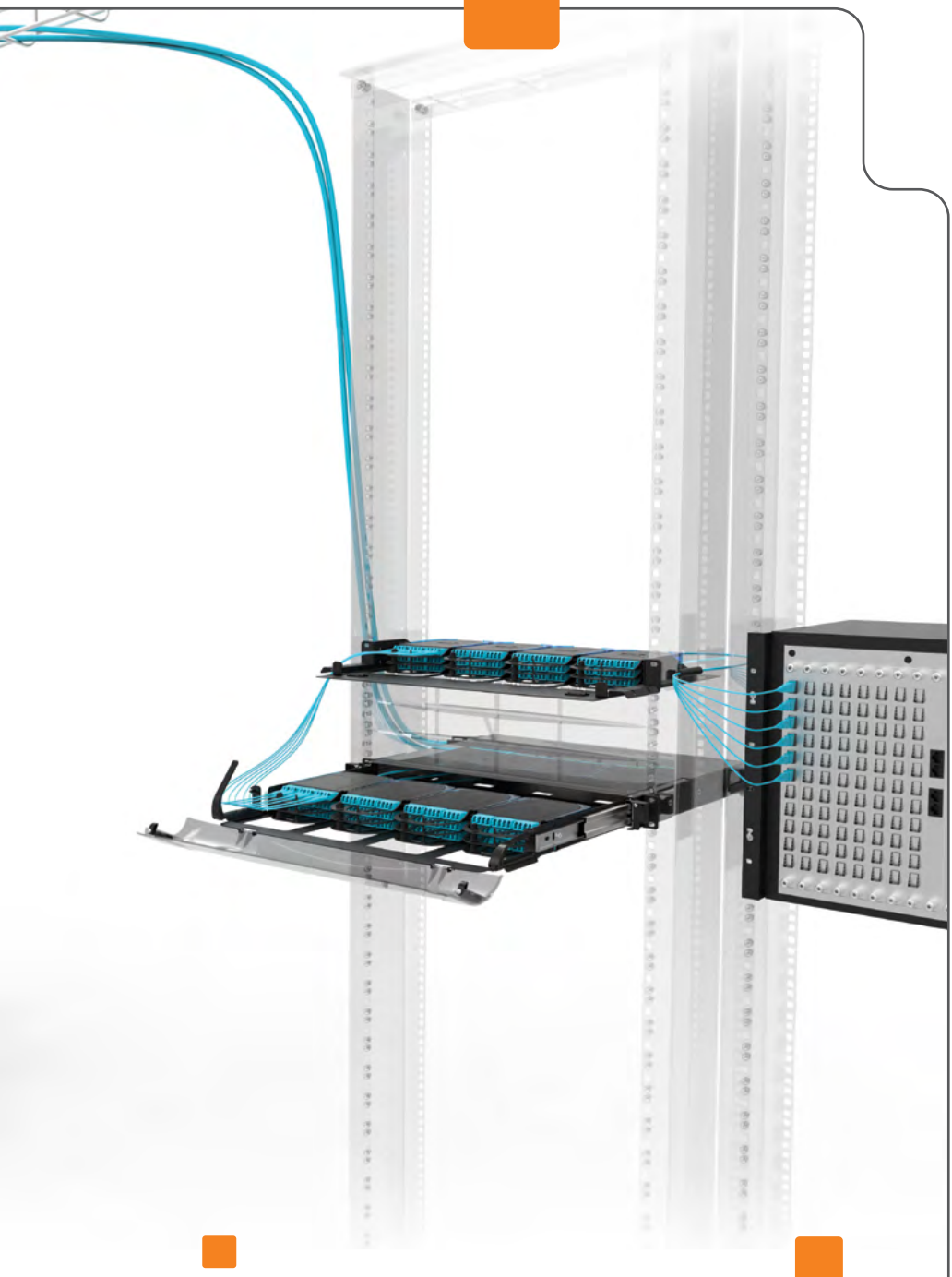
Tailored accessories for fast and secure installation.

The Fisacesso products guarantee correct installation of cables, outlets and patch cords, according to cabling standards, always keeping the best performance of the network infrastructure.

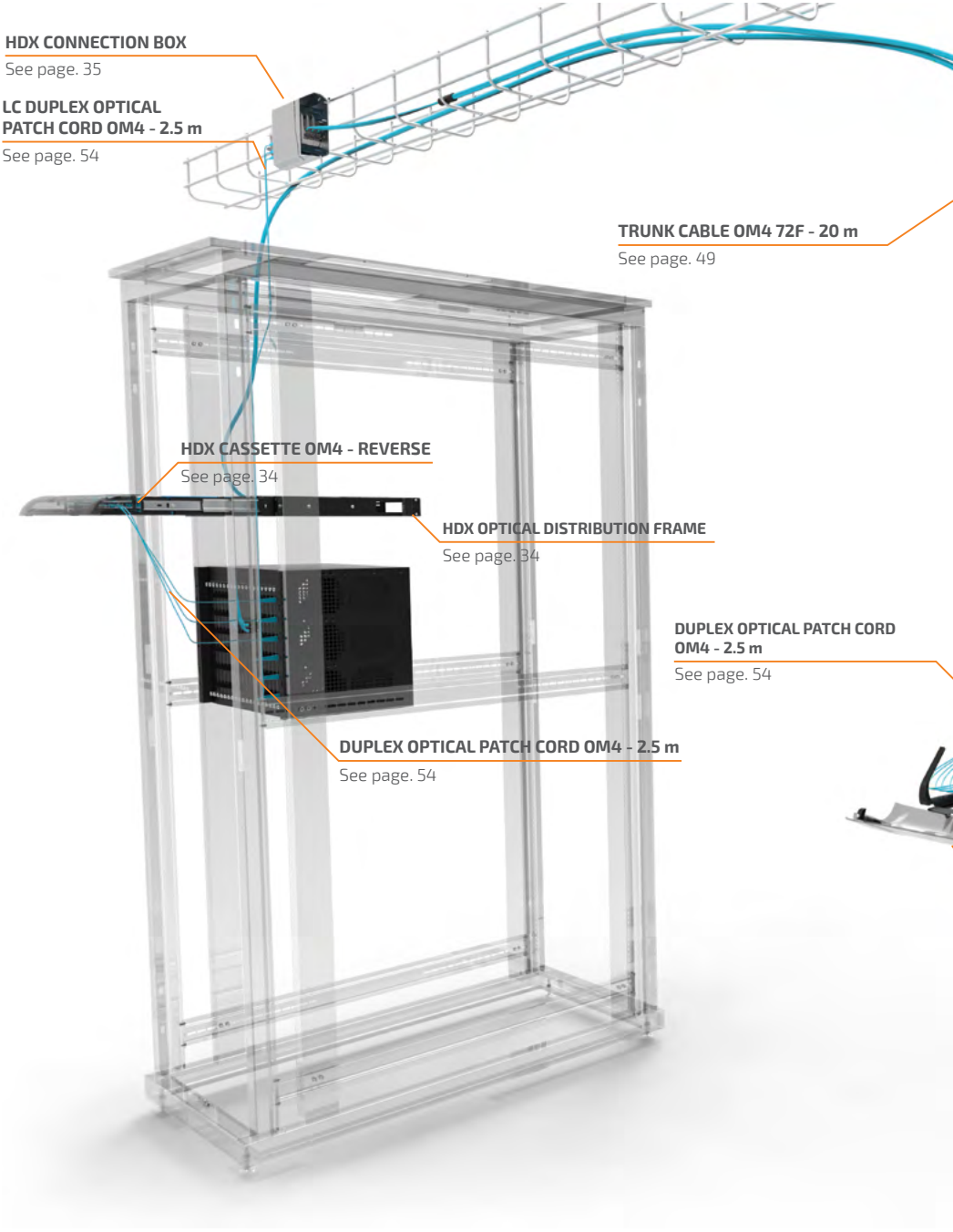
TeraLan



HDX System
LGX System
Optical Distribution Frames
Splice Trays
Optical Adapters and Connectors
Cleaning Tools
Pre-terminated Optical Cables
Optical Cords and Pigtails
Equipment and PON LAN Accessories



HDX System


HDX CONNECTION BOX
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LC DUPLEX OPTICAL
PATCH CORD OM4 - 2.5 m
See page. 54
TRUNK CABLE OM4 72F - 20 m
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HDX CASSETTE OM4 - REVERSE
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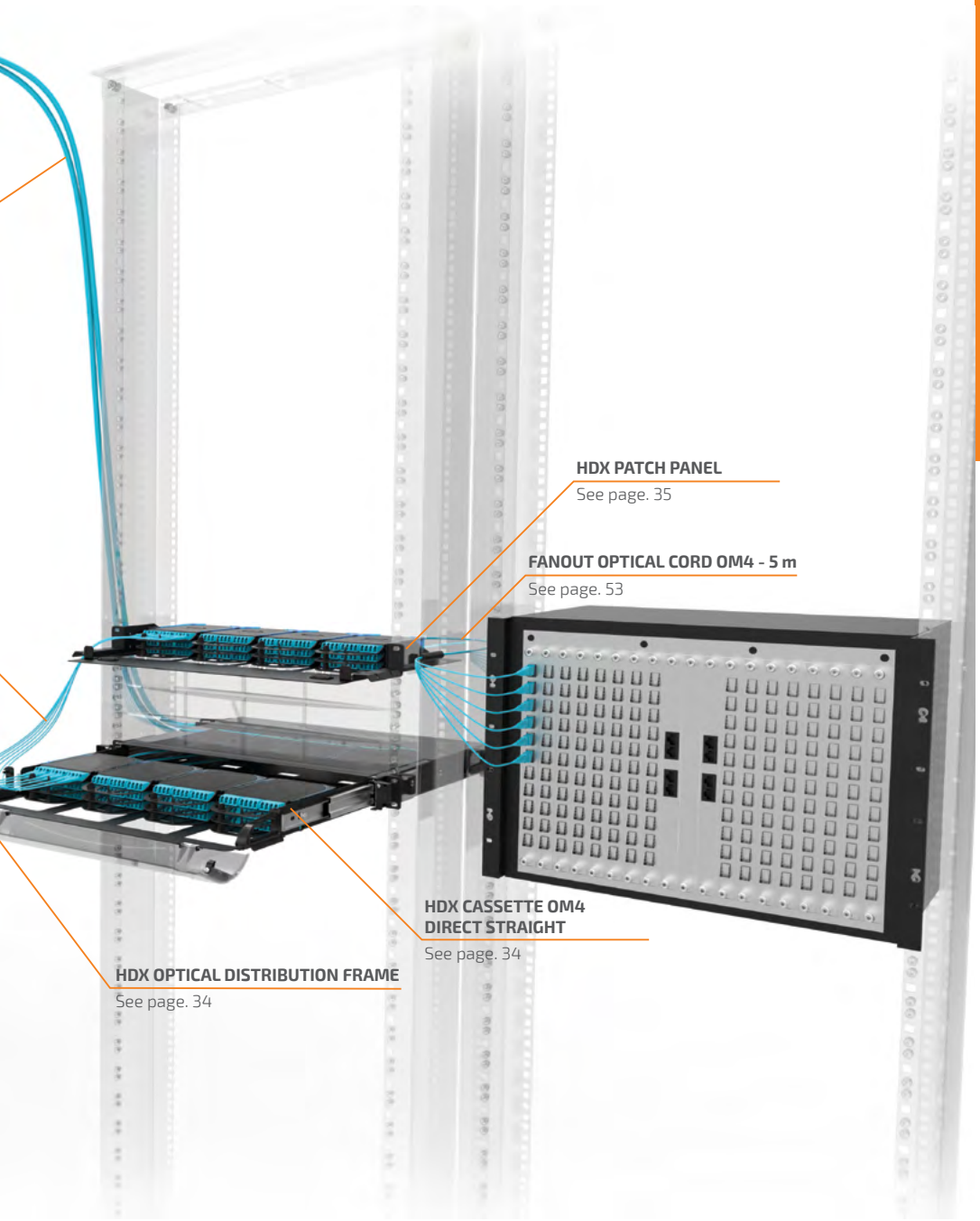
HDX OPTICAL DISTRIBUTION FRAME
See page. 34
DUPLEX OPTICAL PATCH CORD
OM4 - 2.5 m
See page. 54
DUPLEX OPTICAL PATCH CORD OM4 - 2.5 m
See page. 54


HDX PATCH PANEL
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FANOUT OPTICAL CORD OM4 - 5 m
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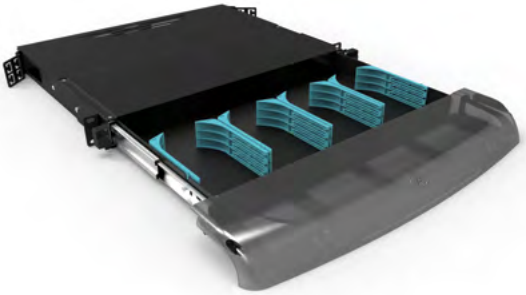
HDX CASSETTE OM4
DIRECT STRAIGHT
See page. 34
HDX OPTICAL DISTRIBUTION FRAME
See page. 34

HDX OPTICAL DISTRIBUTION FRAME 1 U BASIC MODULE

ODF for high density systems that utilize HDX cassettes and pre-terminated systems.



Constructive Characteristics

Width 482 mm x **Height** 44.45 mm x **Depth** 497 mm **Color** Black

Material type	Steel and Polycarbonate

Fiber count	**Connector type**	**Cable type**
144 Fibers	Front side LC / Rear side MPO	Pre-terminated
Size	**Cassetes amount**	**Compatibility**
1 U / 19”	12 cassettes	Cassette HDX

Ordering Description

HDX Optical Distribution Frame 1 U - Basic Module

HDX CASSETTE

Module with MPO 12 fibers optical adapter, female, in rear side and LC optical adapters in front side.

Constructive Characteristics

Width 99 mm x **Height** 12.5 mm x **Depth** 187.3 mm **Color** Black / White

Fiber count	**Connector type**	**Cable type**
12 Fibers	Front side LC / Rear side MPO	Pre-terminated

Rear side connector	**Polishing type**	**Model**	**Cassette color**
MPO	UPC	Straight	Black
		Reverse	White
	APC	Straight	Black
		Reverse	White

Performance

Fiber type	**Maximum Inserction Loss**
SM	0.80 dB
OM4	

Ordering Description

ODF HDX Cassette 12F OM4 LC-UPC/MPO-UPC(F) - Type B - Reverse	OM4
ODF HDX Cassette 12F OM4 LC-UPC/MPO-UPC(F) - Type B - Straight	
ODF HDX Cassette 12F SM LC-UPC/MPO-APC(F) - Type B - Reverse	SM
ODF HDX Cassette 12F SM LC-UPC/MPO-APC(F) - Type B - Straight	

HDX MODULAR PATCH PANEL

Patch Panel for high density systems that utilizes HDX cassettes and pre-terminated systems.

Constructive Characteristics

Width 482 mm x **Height** 44.45 mm x **Depth** 344.5 mm **Color** Black

Material type	Steel

Fiber count	**Connector type**	**Cable type**
144 Fibers	Front side LC / Rear side MPO	Pre-terminated

Size	**Compatibility**	**Amount**
1 U / 19"	Cassette HDX	12 Cassettes

Ordering Description

HDX Modular Patch Panel

HDX CONNECTION BOX

Indicated for high density systems that utilizes HDX cassettes and pre-terminated systems.

Constructive Characteristics

Width 131 mm x **Height** 54 mm x **Depth** 174 mm **Color** Silver

Material type	Stainless steel

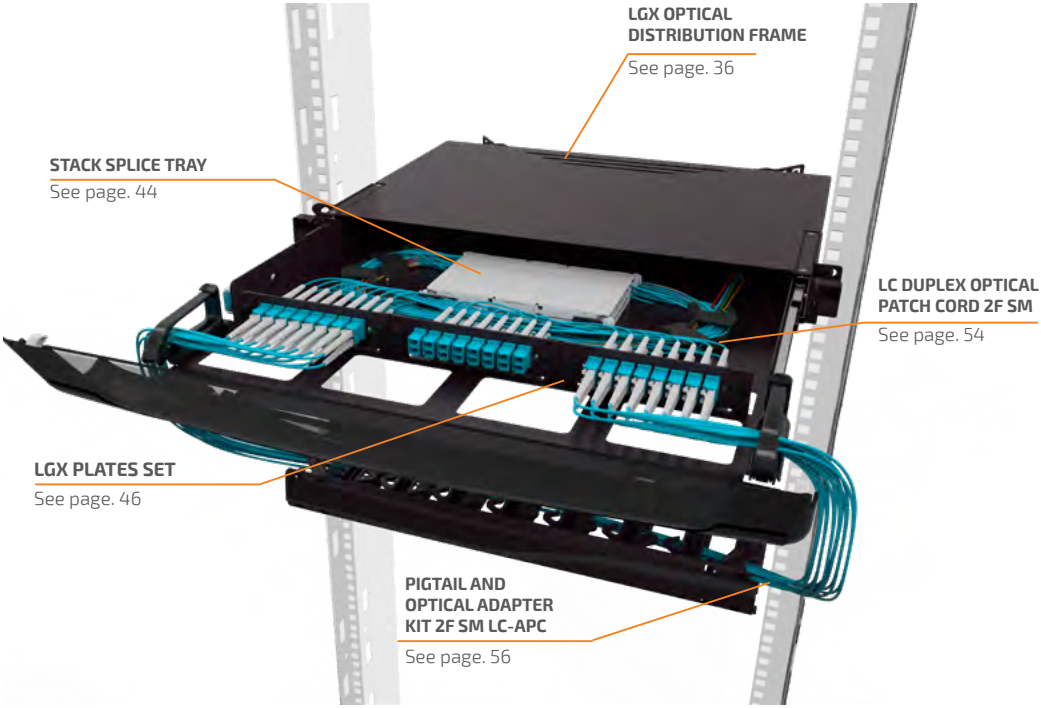
Fiber count	**Connector type**	**Cable type**
36 Fibers	Front side LC / Rear side MPO	Pre-terminated

Size	**Compatibility**	**Amount**
-	Cassettes HDX	3 Cassettes

Ordering Description

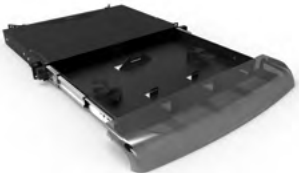
HDX Connection Box - 3 Slots

LGX Optical Distribution Frame Configuration



LGX OPTICAL DISTRIBUTION FRAME 1 U

ODF suitable for utilization with splice trays or pre-terminated system with LGX panels or cassettes.



Constructive Characteristics

Width 482 mm x **Height** 44.45 mm x **Depth** 465 mm	**Color** Black
Material type	Steel and polycarbonate

Fiber count	Connector type	Cable type
72 Fibers	Front side LC / Rear side MPO	Pre-terminated
48 Fibers	LC-Duplex	Pre-terminated / Optical splice
36 Fibers	SC	

Size	Modules amount	Compatibility
1 U / 19"	3	LGX Cassettes or LGX Optical Adapter Panel

Ordering Description

LGX Optical Distribution Frame 1 U – Basic Module

LGX MODULAR PATCH PANEL

Modular Patch Panel for pre-terminated systems that utilize LGX cassettes.

Constructive Characteristics

Width 482 mm x **Height** 44.45 mm x **Depth** 169 mm	**Color** Black
Material type	Carbon Steel

Fiber count	Connector type	Cable type
72 Fibers	Front side LC / Rear side MPO	Pre-terminated
48 Fibers	LC-Duplex	
36 Fibers	SC	
24 Fibers	ST, FC	
18 Positions	RJ-45	-

Size	Modules amount	Compatibility
1 U / 19"	3	LGX Cassettes or LGX Optical Adapter Panel

Ordering Description

LGX Modular Patch Panel

LGX CASSETTE

Pre-terminated modules, compatible with LGX standard.

Constructive Characteristics

Width 129.6 mm x **Height** 29.2 mm x **Depth** 101.5 mm	**Color** Black
Material type	Carbon Steel

Fiber Quantity	Connector type	Cable type
12/24 Fibers	Front side LC / Rear side MPO	Pre-terminated

Connector	Fiber type	Polishing
LC	OM3/OM4	UPC
	SM	
MPO	OM3/OM4	
	SM	APC
SC	SM	APC

Performance

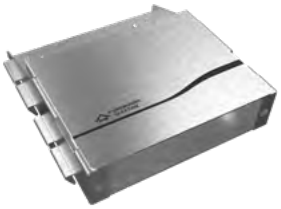
Fiber type	Typical IL	Maximum IL
OM3/OM4	0.40 dB	0.80 dB
SM G-652D	0.35 dB	

Ordering Description

ODF LGX Cassette 12F OM3 LC-UPC/MPO-UPC(F) - Type B - Straight/Reverse
ODF LGX Cassette 24F OM3 LC-UPC/MPO-UPC(F) - Type B - Straight/Reverse
ODF LGX Cassette 12F OM4 LC-UPC/MPO-UPC(F) - Type B - Straight/Reverse
ODF LGX Cassette 24F OM4 LC-UPC/MPO-UPC(F) - Type B - Straight/Reverse
ODF LGX Cassette 12F G.652D LC-UPC/MPO-APC(F) - Type B - Straight/Reverse
ODF LGX Cassette 24F G.652D LC-UPC/MPO-APC(F) - Type B - Straight/Reverse

LGX CONNECTION BOX

Indicated for pre-terminated systems that utilizes LGX cassettes, (LGX Cassettes or LGX Plates are not included).



Constructive Characteristics

Color	Silver
Material type	Stainless Steel

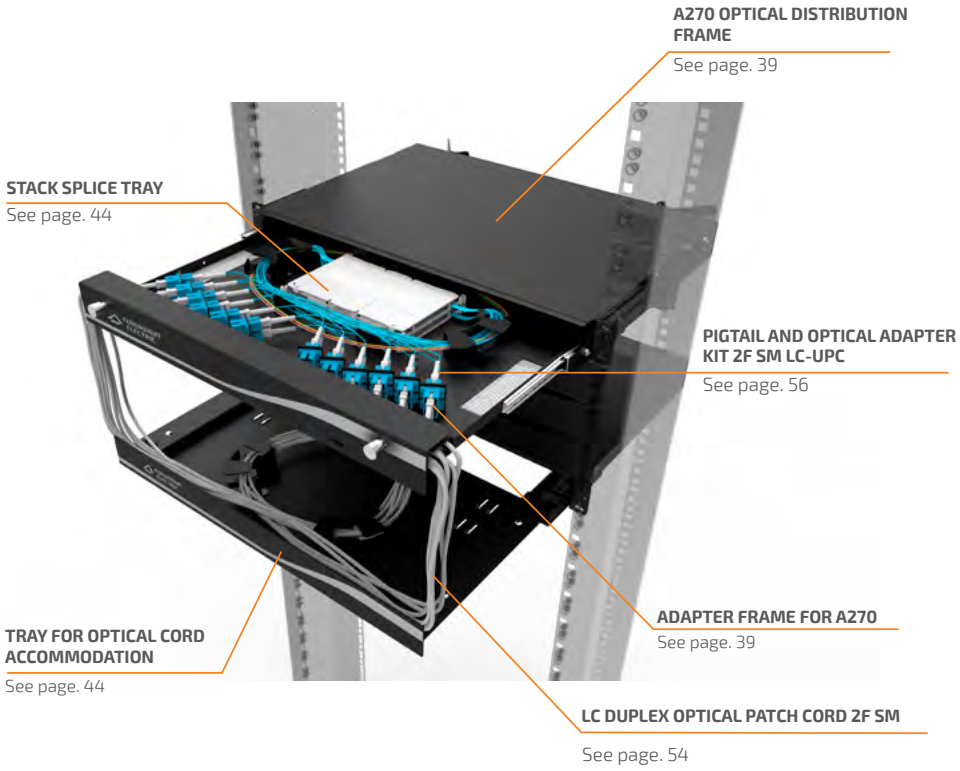
Port Capacity		Height	Width	Depth
01	LGX Panels or Cassettes	35.5 mm	132 mm	181.7 mm
02		63.2 mm		
04		121 mm		

Ordering Description

LGX Connection Box - 2 Slots
LGX Connection Box - 4 Slots

Optical Distribution Frames

A270 Optical Distribution Frame Configuration



A270 OPTICAL DISTRIBUTION FRAME – BASIC MODULE

ODF for utilization in pre-terminated or splices systems. Indicated for termination of loose tube cables.

Constructive Characteristics

Width 482 mm x **Height** 44.45 mm (1 U) x **Depth** 338 mm **Color** Black		
Material type	Steel	
Fibers	**Connector**	**Type**
Up to 48 Fibers	LC-Duplex	Optical splice
Up to 24 Fibers	SC	Optical splice
Compatibility	Adapter Frame for A270 kit	
Amount	4 Kits of 3 pieces	

Ordering Description

A270 Optical Distribution Frame – Basic Module

ADAPTER FRAME FOR A270 ODF KIT

Frame for supporting optical adapters for installation in A270 ODF.

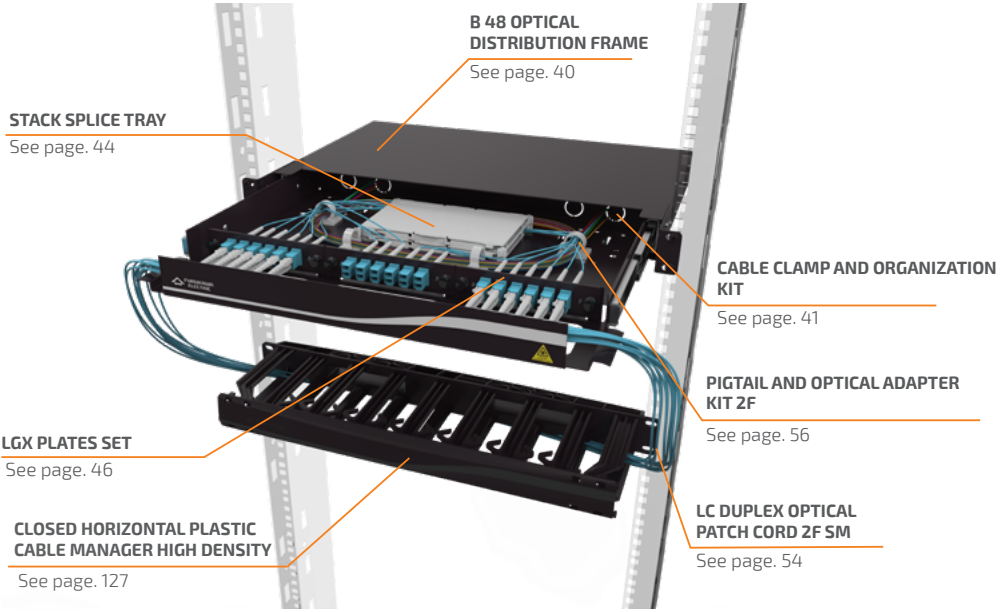
Constructive Characteristics

Width 23 mm x **Height** 30.5 mm x **Depth** 15 mm **Color** Black		
Material type	Steel	
Painting type	Epoxy powder coating highly resistant to scratches	
Position	**Connector**	**Type**
02 ports	LC-Duplex	04 Fibers per support
02 ports	SC	02 Fibers per support

Ordering Description

Adapter Panel for Optical Adapters to A270 ODF LC/SC (Kit 3 pieces)
Adapter Panel for Optical Adapters to A270 ODF ST (Kit 3 pieces)

B48 Optical Distribution Frame Configuration



B48 OPTICAL DISTRIBUTION FRAME 1 U - BASIC MODULE

ODF for utilization in pre-terminated or splicing system. Indicated for termination of tight buffer cables.

Constructive Characteristics

Width 484 mm x **Height** 44.45 mm (1 U) x **Depth** 338 mm **Color** Black		
Material type	Steel	
Fibers	**Connector**	**Type**
Up to 72 Fibers	LC-Duplex	Pre-terminated
Up to 48 Fibers	LC-Duplex	Pre-terminated / Optical splice
Up to 36 Fibers	SC	
Up to 24 Fibers	FC and ST	

Compatibility	**Amount**
LGX Optical Adapter Panel	3 Panels
LGX Cassette	3 Cassettes

Ordering Description

B 48 Optical Distribution Frame 1 U - Basic Module

CABLE CLAMP AND ORGANIZATION KIT FOR B 48 ODF

Accessories kit for cables organization and anchoring for B 48 ODF.

Constructive Characteristics

Splice, field termination or pre-terminated	Anchor support with wingnut
	PG 13.5 Cable Clamp
	Support for anchoring tension element
	Self-adhesive plastic clips

Ordering Description

Cable Clamp and Organization Kit for Fiber Optic Rack Mount B 48 ODF

B 144 OPTICAL DISTRIBUTION FRAME – BASIC MODULE

ODF for high amount of fibers for splicing or pre-terminated systems.

Constructive Characteristics

Width 496 mm x **Height** 177.8 mm (4 U) x **Depth** 465 mm **Color** Black

Material type	Steel	
Fibers	**Connector**	**Type**
Up to 144 fibers (36F per U)	LC-Duplex or SC	Pre-terminated or Optical splice

Ordering Description

B 144 - Optical Distribution Frame for Rack - Basic Module (Drawer)

DIO BX 24F - BASIC MODULE

ODF BX24 is an optical distributor for rack, with capacity of up to 24 splices in 1 U. Its function is to store and manage cables, including pre-connectorized as well as optical cords. It has removable relays for easier instalation and maintenace.

Constructive Characteristics

Width 484 mm x **Height** 1 U x **Depth** 280 mm **Color** Black			
Number of positions	Up to 24 fibers	LC and SC	Fusion
	Up to 48 fibers	LC-Duplex	Pre Connectorized
Product body material	ABS+PC		
Connector type	SC		
Polishing Type	APC or UPC (under consult)		
Cable Type	Loose Type or Tight		

Ordering Description

ODF BX 24 24F SM SC-APC - Telcordia
ODF BX 24 12F SM LC-UPC - Telcordia
ODF BX 24 24F SM LC-UPC - Telcordia
ODF BX 24 12F SM SC-APC - Telcordia
ODF BX24 LC/SC Module

OPTICAL DISTRIBUTION FRAME FOR DIN RAIL

ODF for DIN rail, for splicing type termination.

Constructive Characteristics

Width 41 mm x **Height** 90 mm x **Depth** 116.4 mm		**Color** White
Material type	Plastic	
Fibers	**Connector**	**Type**
Up to 6 Fibers	LC-Duplex	Optical splice

Ordering Description

ODF for DIN Rail 6P - White
Base for DIN Rail - ODF (5 pieces)

SlimBox™ 12 EXTERNAL ADAPTER MODULE

ODF for utilization in splicing or pre-terminated system. Installation in flat surfaces or DIN rail.

Constructive Characteristics

Width 130 mm x **Height** 155 mm x **Depth** 53 mm		**Color** Light Gray
Material type	High resistance plastic	
Position	**Connector**	**Type**
Up to 24 Fibers	LC-Duplex	Pre-terminated
Up to 12 Fibers	LC-Duplex, SC, FC or ST	Pre-terminated and Optical splice

Ordering Description

Slimbox 12-Fiber External Adapter Module (BW 12 - Basic Module)
Base for DIN Rail - ODF (5 Pieces)

SlimBox™ 12-FIBER INNER ADAPTER MODULE

It is used as an internal optical distribution box in typical building networks (MDU). Due to its hybrid aspect, it can be used either as a transition box at the building entrance, or as a floor box. It has 2 setups: with 12 pigtails and with 1x8 splitter. Capacity for up to 12 SC-APC adapters.

Constructive Characteristics

Dimensions	**Height**	220 mm	
	Width	130 mm	
	Depth	70 mm	
Capacity	SC-APC Adapters	12	
	Fusion Splices	12	
	PLC Cplitters	1x8	1
		1x4	2

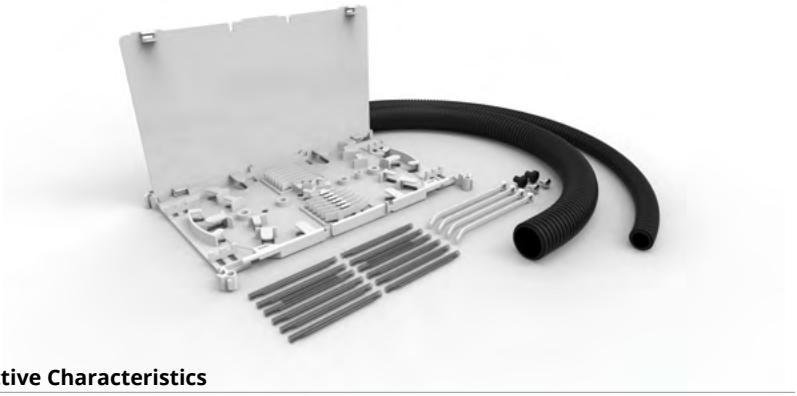
Ordering Description

SlimBox™ 12-Fiber Inner Adapter Module (CEIP 12 - Basic Module)
SlimBox™ 12-Fiber Inner Adapter Module (CEIP 12 - with 12 Pigtails)
SlimBox™ 12-Fiber Inner Adapter Module (CEIP 12 - with 1 Splitter 1X8)

Splice Trays

STACK SPLICE TRAY KIT

Accessories kit for splicing systems composed by cassettes and sleeves. Compatibility with TeraLan ODFs.



Constructive Characteristics

Width 155 mm x **Height** 9.2 mm x **Depth** 93 mm **Color** White	
Material type	ABS/PC (UL 94 V-0)
Capacity	12 sleeves 40 mm per tray
	Available in kits for 12, 24, 36 and 48 splices

Ordering Description

Stack Splice Tray Kit 12F for Fiber Optic Rack Mount
Stack Splice Tray Kit 24F for Fiber Optic Rack Mount
Stack Splice Tray Kit 36F for Fiber Optic Rack Mount
Stack Splice Tray Kit 48F for Fiber Optic Rack Mount

TRAY FOR OPTICAL CORDS ACCOMMODATION

Tray for administration and organization of excess optical cords.

Constructive Characteristics

Width 482 mm x **Height** 44.45 mm (1 U) x **Depth** 255 mm **Color** Black	
Painting type	Epoxy powder coating highly resistant to scratches
Capacity	30 m of 2 mm duplex optical cord

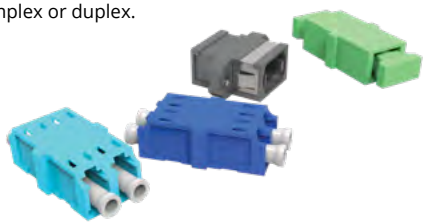
Ordering Description

Tray for Optical Cords Accommodation 1 U Short

Optical Adapters and Connectors

OPTICAL ADAPTER KIT

Optical adapter kit simplex or duplex.



Constructive Characteristics

Fiber count	02 fibers (1 piece for duplex adapters or 2 for simplex adapters)		
	06 fibers (3 pieces for duplex adapters or 6 for simplex adapters)		
	12 fibers (1 piece, only for MPO adapters)		
	72 fibers (6 pieces, only for MPO adapters)		
Adapter	**Fiber type**	**Polishing type**	**Color**
SC	SM	PC	Blue
		APC	Green
	MM	PC	Beige
LC-Duplex	SM	PC	Blue
		APC	Green
	MM	PC	Beige
MPO	SM / MM	PC e APC	Black (type A)
			Gray (type B)

Ordering Description

PC - SC /PC - LC- Duplex	02F	Multimode (MM)
		Single-Mode (SM)
	06F	Multimode (MM)
		Single-Mode (SM)
APC - SC/ APC - SC	02F	Single-Mode (SM)
APC - SC	06F	
	08F (side shutter/front shutter)	

	MPO
Type A	Multimode (MM)
Type B	Single-Mode (SM)

LGX PLATES SET

Kit with 3 LGX panels, suitable for utilization with SC or LC, FC or ST and MPO connectors or closing panel.

Constructive Characteristics

Width 129.6 mm x **Height** 29.2 mm	**Color** Black	
Material type	Steel or Plastic	
Painting type	Plate on steel	Epoxy powder coating highly resistant to scratches

Connector	**MPO**	**LC or SC**
Number of ports	06	06, 08 or 12

Ordering Description

06 ports	MPO	Metallic
	LC/SC	Plastic
	MPO	
08 ports	LC/SC	
	Angular LC/SC	Metallic
12 ports	LC/SC	
		Plastic
LGX Blank Panel Kit (3 pieces)		Plastic

OPTICAL ADAPTER SET

Kit with optical coupler encapsulated with RJ-45 housing.

Constructive Characteristics

Positions amount	LC-Duplex	02 ports
	SC	01 port
Polishing type	UPC	

Adapter	Fiber type	Color of RJ-45 housing	Color of optical adapter
LC-Duplex	SM	White	Blue
	MM		Beige
SC	SM	Beige, White, Gray and Black	Blue
	MM		Beige

Ordering Description

LC-PC	MM	White
LC-PC	SM	
SC-SPC		Beige
		White
		Gray

FIELD ASSEMBLY EZ!CONNECTOR APC 900 µM

The Field Assembly Optical Connector D0.9 was developed for 0.9 mm diameter single-mode fibers quick and easy connection. Available in SC type and APC polished connector. Easy to install - no need for special tools and can be done in the field.

Constructive Characteristics

Dimensions	**Height**	7.3 mm
	Width	9 mm
	Depth	55.6 mm
Operating temperature	-25 °C up to 75 °C	
Storage temperature	-25 °C up to 75 °C	
Supports axial load	3 N	

Connector type	Polishing type	Insertion Loss	Return loss
SC	APC	≤0,3 dB (typical) / ≤0,5 dB (maximum)	≥ 50 dB

Ordering Description

Kit with 10 optical field connectors SM SC-APC EZ!Connetor for 0.9 mm tight buffered fiber

Cleaning Tools

MPO/MTP CLEANING TOOL

Enhance optical connections through cleaning of impurities placed on connectors and adapters.

Constructive Characteristics

Cleaning tool compatible with male and female MPO connectors and adapters	Ergonomic shape
	Allow more than 600 times
	Compatible with PC and APC connectors
	Designed for cleaning MPO/MTP connectors

Ordering Description

MPO Cleaning Tool

LC CLEANING TOOL

Enhance optical connections through cleaning of impurities placed on connectors and adapters.

Constructive Characteristics

Cleaning tool for 1.25 mm connectors and LC, SFP or GBIC adapters	Ergonomic shape
	Allow more than 500 times
	Compatible with PC and APC connectors
	Designed for cleaning 1.25 mm connectors

Ordering Description

LC Cleaning Tool

SC/ST/FC/E2000 CLEANING TOOL

Enhance optical connections through cleaning of impurities placed on connectors and adapters.

Constructive Characteristics

Cleaning tool for 2.5 mm connectors and SC, ST, FC, SFP or GBIC adapters	Ergonomic shape
	Allow more than 500 times
	Compatible with PC and APC connectors
	Designed for cleaning 2.5 mm connectors

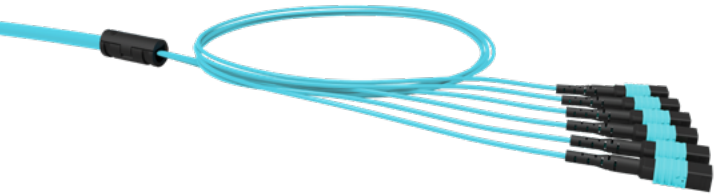
Ordering Description

SC/ST/FC/E2000 Cleaning Tool

Pre-Terminated Optical Cables

MPO TRUNK CABLE

Optical cable pre-terminated with MPO connectors in both ends, supplied with pulling accessory.



Constructive Characteristics

Length	Cable type	Fiber count	Flammability class
From 10 up to 150 m	Unique tube	12 Fibers	LSZH
	Totally dry	24, 36 or 72 Fibers	
Connector	**Fiber type**	**Polishing type**	**Cable color**
MPO (male or female)	SM	APC	Yellow
	MM	UPC	Aqua

Performance

Fiber type	Insertion loss	Return loss
Single-Mode G.652D and G.657.A	0.25 dB (typical)	≥ 40 dB
	0.50 dB (maximum)	
Multimode OM3 and OM4	0.15 dB (typical)	≥ 20 dB
	0.50 dB (maximum)	

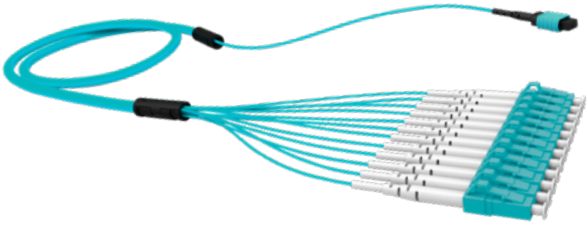
Ordering Description

Trunk Cable Pre-Terminated 12F OM3 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - UT - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 12F OM4 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - UT - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 12F BLI-A/B G.657.A MPO12-APC(M)/MPO12-APC(M) 0.8D3/0.8D3 50.0 m - UT - LSZH - Yellow - Type B
Trunk Cable Pre-Terminated 24F OM3 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 24F OM4 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 36F OM3 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 36F OM4 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 72F OM3 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 72F OM4 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 72F SM MPO12-APC(M)/MPO12-APC(M) 0.8D3/0.8D3 30.0 m - TS - LSZH - Yellow - Type B

Other lenght under consult.

FANOUT TRUNK CABLE

Optical cable pre-terminated with MPO connector in one end and with LC connectors in opposite end.



Constructive Characteristics

Length	Cable type	Fiber count	Flammability class
From 10 up to 100 m	Tight buffer	12 Fibers	LSZH
	Totally dry	24. 36 or 72 Fibers	
Connector	**Fiber type**	**Polishing type**	**Cable color**
MPO (male or female)	SM	APC	Yellow
	MM	UPC	Aqua
LC	SM	UPC	Yellow
	MM		Aqua

Performance

Connector	Fiber type	Insertion loss	Return loss
MPO / MTP	Single-Mode G.652D and G.657A (9/125 µm)	0.25 dB (typical)	≥ 40 dB
		0.50 dB (maximum)	
	Multimode OM3 and OM4 (50/125 µm)	0.15 dB (typical)	≥ 20 dB
		0.50 dB (maximum)	
LC	Single-Mode G.652D and G.657.A (9/125 µm)	0.15 dB (typical)	≥ 50 dB
		0.30 dB (maximum)	
	Multimode OM3 and OM4 (50/125 µm)	0.15 dB (typical)	≥ 30 dB
		0.30 dB (maximum)	

Ordering Description

Trunk Cable Pre-Terminated 12F OM3 LC-UPC/MPO12-UPC(M) 0.8D2.0/1.0D3.0 15.0 m - UT - LSZH - Aqua
Trunk Cable Pre-Terminated 12F BLI-A/B G-657A LC-UPC/MPO-APC(M) 1.0D2/0.8D3 15.0 m - UT - LSZH - Yellow
Trunk Cable Pre-Terminated Fanout 72F OM4 LC-UPC/MPO12-UPC(F) 0.8D2/1.0D3 20.0 m - TS – LSZH - Aqua

Availability under consult.

SINGLE FIBER TRUNK CABLE

Optical cable pre-terminated with LC or SC connectors in both ends.

Constructive Characteristics

Length	Cable type	Fiber count
From 10 up to 150 m	Unique tube	12 Fibers
	Totally dry	24, 36 or 72 Fibers

Connector	Fiber type	Polishing type	Cable color
LC or SC	SM	UPC	Yellow
	MM		Aqua

Performance

Fiber type	Insertion loss	Return loss
Single-Mode G.652D and G.657A (9/125 µm)	0.30 dB (maximum)	≥ 50 dB
Multimode OM3 and OM4 (50.0/125 µm)	0.30 dB (maximum)	≥ 30 dB

Ordering Description

Trunk Cable Pre-Terminated 72F OM4 MPO12-UPC(M)/MPO12-UPC(M) 0.8D3/0.8D3 20.0M TS - LSZH - Aqua - Type B
Trunk Cable Pre-Terminated 12F BLI A/B G-657A LC-UPC/LC-UPC 1.0D2/1.0D2 75.0M - UT - LSZH - Aqua (A - B)
Trunk Cable Pre-Terminated 12F OM4 LC-UPC/LC-UPC 1.0D2/1.0D2 15.0M - UT - LSZH - Aqua (A - B)

Availability under consult.

MPO OPTICAL CORD

Optical cord with MPO connectors in both ends.

Constructive Characteristics

Length	From 5 up to 20 m
Cable type	3 mm Multifiber optical cord
Flammability class	LSZH
Fiber count	12 Fibers

Connector	Fiber type	Polishing type	Cable color
MPO (male or female)	SM	APC	Yellow
	MM	UPC	Aqua

Performance

Fiber type	Insertion Loss	Return Loss
Single-Mode G.652D (9/125 µm)	0.50 dB (maximum)	≥ 40 dB
Single-Mode OM4 (50/125 µm)	0.50 dB (maximum)	≥ 20 dB

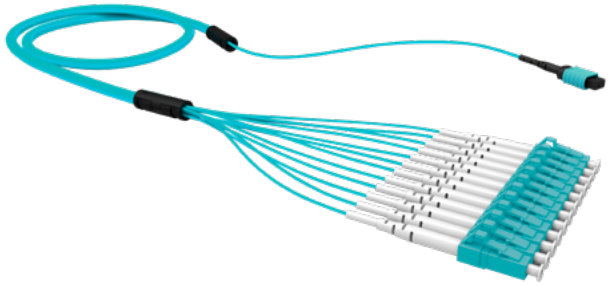
Ordering Description

Optical Patch Cord 12F SM G-652D MPO12-APC(F)/MPO12-APC(F) 10.0D3 - MTF - LSZH - Yellow - Type B
Optical Patch Cord 12F OM4 MPO12-UPC(F)/MPO12-UPC(F) 5.0D3 - MTF - LSZH - Aqua - Type B

Availability under consult.

MPO FANOUT CORD

Optical cord with 12 fibers and 3 mm pre-terminated with MPO connector in one end and LC connectors in opposite end.



Constructive Characteristics

Length	From 5 up to 20 m
Cable type	3 mm Multifiber optical cord
Flammability class	LSZH
Fiber count	12 Fibers

Connector	Fiber type	Polishing type	Color cable
MPO (male or female)	SM	APC	Yellow
	MM	UPC	Aqua
LC	SM	UPC	Yellow
	MM		Aqua

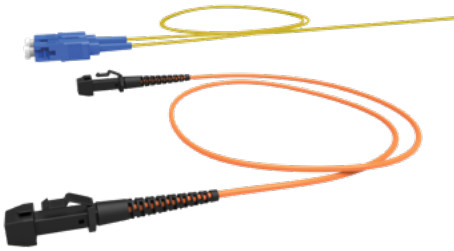
Performance

Connector	Fiber type	Insertion loss	Return loss
MPO / MTP	Single-Mode G.652D (9/125 µm)	0.25 dB (typical)	≥ 40 dB
		0.50 dB (maximum)	
	Multimode OM4 (50/125 µm)	0.15 dB (typical)	≥ 20 dB
		0.50 dB (maximum)	
LC	Single-Mode G.652D (9/125 µm)	0.15 dB (typical)	≥ 50 dB
		0.30 dB (maximum)	
	Multimode OM4 (50/125 µm)	0.15 dB (typical)	≥ 30 dB
		0.30 dB (maximum)	
Number of cycles	> 500 insertions		

Ordering Description

Optical Patch Cord Fanout 12F OM4 LC-UPC/MPO-UPC(M) 0.7D2/5.0D3 - MTF - LSZH - Aqua
Optical Patch Cord Fanout 12F OM4 LC-UPC/MPO-UPC(M) 0.7D2/20.0D3 - MTF - LSZH - Aqua
Optical Patch Cord Fanout 12F SM G-652D LC-UPC/MPO-APC(M) 0.7D2/5.0D3 - MTF - LSZH - Yellow
Optical Patch Cord Fanout 12F SM G-652D LC-UPC/MPO-APC(M) 0.7D2/10.0D3 - MTF - LSZH - Yellow

OPTICAL PATCH CORDS



Constructive Characteristics

Length	From 0.5 m up to 50 m
Nominal diameter	2 and 3 mm
Flammability class	OFN (standard supply) and LSZH
Fiber count	01 or 02 Fibers

Configuration

Optical cord	Simplex or Duplex optical cord with connectors in both ends.
Optical pigtail	Simplex or Duplex optical element with connector in one end.
Connected optical pigtail	Pigtail and optical adapter kit.

Connector		Fiber type	Polishing type	Color
LC	• Type SFF "push-pull" • Plastic body • Ceramic ferrule (zirconia)	SM	APC	Green
			PC, SPC and UPC	Blue
		MM	PC, SPC and UPC	Beige
SC	• Type "push-pull" • Plastic body • Ceramic ferrule (zirconia)	SM	APC	Green
			PC, SPC and UPC	Blue
		MM	PC, SPC and UPC	Beige

Performance

Insertion Loss and Return Loss	Performance parameters are in conformance with IEC 61754 standard. All losses can be optimized according to connector and polishing type on request.
Number of cycles	> 500 insertions (per connector)

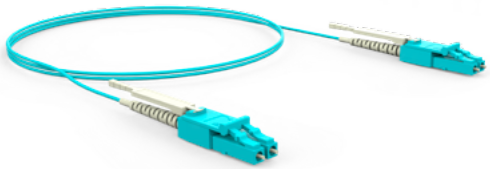
Cable type	Fiber type	Color
COA-DP ou COA-MF / optical element	Single-Mode, G.652D, G.657A and G.657B	Yellow
	Multimode OM1 and OM2	Orange
	Multimode OM3 and OM4	Aqua

Ordering Description

Duplex Optical Patch Cord 62.5 LC-SPC/LC-SPC 2.5 m - OFN - Orange (A – B)
Duplex Optical Patch Cord 62.5 ST-SPC/ST-SPC 2.5 m - OFN - Orange
Duplex Optical Patch Cord 50.0 SC-SPC/ST-SPC 3.0 m - OFN - Orange
Duplex Optical Patch Cord 50.0 LC-SPC/LC-SPC 2.5 m - OFN - Orange (A – B)
Duplex Optical Patch Cord 50.0 SC-SPC/ST-SPC 2.5 m - OFN - Orange
Duplex Optical Patch Cord 50.0 ST-SPC/ST-SPC 3.0 m - OFN - Orange
Duplex Optical Patch Cord 50.0 SC-SPC/SC-SPC 1.5 m - OFN - Orange
Duplex Optical Patch Cord 50.0 LC-SPC/LC-SPC 1.5 m - OFN - Orange (A – B)
Duplex Optical Patch Cord 50.0 LC-SPC/SC-SPC 3.0 m - OFN - Orange
Duplex Optical Patch Cord OM3 LC-UPC/LC-UPC 1.5 m - OFN - Aqua (A – B)
Duplex Optical Patch Cord OM3 LC-UPC/LC-UPC 1.5 m - OFN - Aqua
Duplex Optical Patch Cord OM4 LC-UPC/LC-UPC 5.0 m - OFN - Aqua (A – B)
Duplex Optical Patch Cord OM4 LC-UPC/LC-UPC 2.5 m - OFN - Aqua (A – B)
Duplex Optical Patch Cord SM G-652D LC-UPC/LC-UPC 5.0 m - OFN - Yellow (A – B)
Duplex Optical Patch Cord SM G-652D LC-UPC/LC-UPC 2.5 m - OFN - Yellow (A – B)
Duplex Optical Patch Cord SM G-652D SC-APC/SC-APC 1.5 m - Yellow
Duplex Optical Patch Cord SM G-652D SC-UPC/SC-UPC 1.5 m - OFN - Yellow
Duplex Optical Patch Cord SM G-652D SC-UPC/SC-UPC 2.5 m - OFN - Yellow

Availability under consult.

LOW LOSS OPTICAL PATCH CORD



Constructive Characteristics

Fiber Count	02 fibers
Fiber Type	SM (BLI) or OM4
Length	From 0.5 m up to 50 m
Conector Type	LC Uniboot
Flamability Class	LSZH

Performance

Fiber Type	Insertion Loss	Return Loss
OM4	0.2 dB	≥45 dB
BLI	0.2 dB	≥20 dB

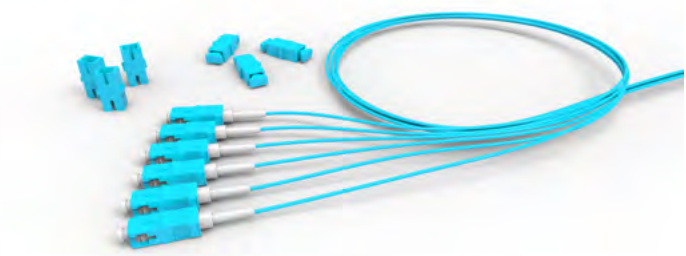
Ordering Description

Duplex Optical Patch Cord Low-Loss OM4 LC-UPC/LC-UPC UNIBOOT - 5.0 m - LSZH - Aqua (A - B)
Duplex Optical Patch Cord Low-Loss OM4 LC-UPC/LC-UPC UNIBOOT - 10 m - LSZH - Aqua (A - B)
Duplex Optical Patch Cord Low-Loss OM4 LC-UPC/LC-UPC UNIBOOT - 15.0 m - LSZH - Aqua (A - B)
Duplex Optical Patch Cord Low-Loss BLI A/B G-657A LC-UPC/LC-UPC UNIBOOT 5.0 m - LSZH - Blue (A - B)
Duplex Optical Patch Cord BLI A/B G-657A LC-UPC/LC-UPC UNIBOOT - 15.0 m - LSZH - Blue (A - B)

Availability under consult.

PIGTAIL AND OPTICAL ADAPTER KIT

Pigtail and Optical Adapter supplied in kit.



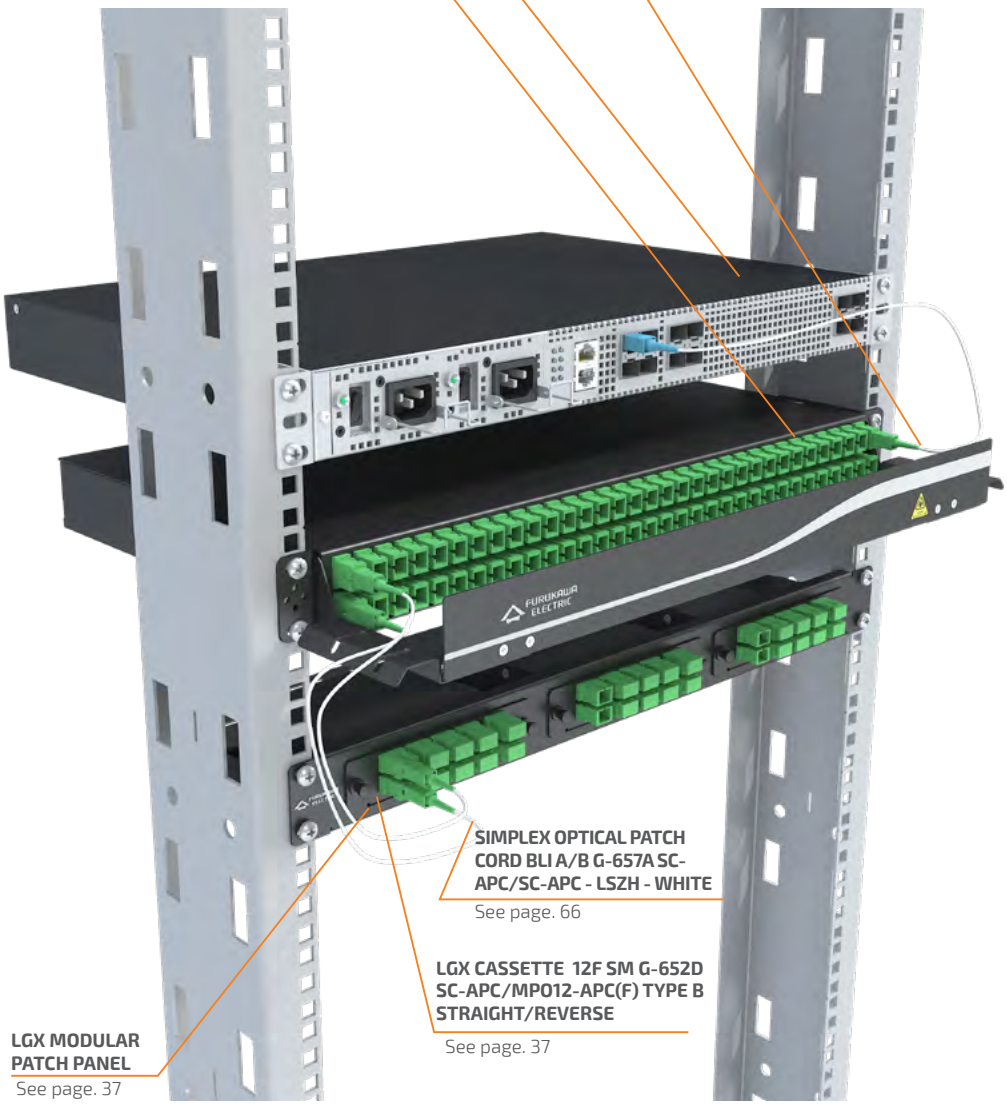
Constructive Characteristics

Nominal diameter	0.9 mm
Length	1.5 m
Amount of simplex pigtails	02 or 06 Fibers

Ordering Description

SC-SPC/LC-SPC	06 Fibers	OM1
		OM2
SC-UPC/LC-UPC		OM3
		OM4 (only UPC-LC)
		SM
SC-SPC/LC-SPC	02 Fibers	OM1
		OM2
SC-UPC/LC-UPC		OM3
		OM4
SC-APC/LC-APC	06 Fibers	SM
	02 Fibers	

Availability under consult.



GPON STANDALONE OPTICAL CONCENTRATOR LW3008C
See page. 62

"SPLITTER 19" 2 X 1X32 G.657A SC-APC/SC-APC
See page. 65

SIMPLEX OPTICAL PATCH CORD BLI A/B G-657A - LSZH - WHITE
See page. 66

SIMPLEX OPTICAL PATCH CORD BLI A/B G-657A SC-APC/SC-APC - LSZH - WHITE
See page. 66

LGX CASSETTE 12F SM G-652D SC-APC/MPO12-APC(F) TYPE B STRAIGHT/REVERSE
See page. 37

LGX MODULAR PATCH PANEL
See page. 37

SLIMBOX 12-FIBER DISTRIBUTION MODULE

See page. 43

OPTICAL ROSETTE 2P 4X2

See page. 69

SIMPLEX OPTICAL PATCH CORD BLI A/B G-657A - LSZH - WHITE

See page. 66

SIMPLEX OPTICAL PIGTAIL BLI A/B G-657A LSZH - WHITE - D3

See page. 66

SLIMBOX 12-FIBER INTERNAL ADAPTER MODULE

See page. 43

SIMPLEX OPTICAL PATCH CORD BLI A/B G-657A - LSZH - WHITE

See page. 66

GPON OPTICAL MODEM LW110-44B

See page. 64

LGX ODF CASSETTE 12F SM G-652D SC-APC/ MPO12-APC(F) TYPE B STRAIGHT/REVERSE

See page. 37

LGX CONNECTION BOX

See page. 38

SIMPLEX OPTICAL PATCH CORD BLI A/B G-657A - LSZH - WHITE

See page. 37

OPTICAL CONCENTRATOR CHASSIS GPON LD3032

The OLT (Optical Line Terminal) LD3032 is an equipment used in FTTx networks (Fiber-To-The X) as subscriber hub.

Constructive Characteristics

Power Supply	2 DC sources with redundancy	
Operating temperature	-40° C ~ 80 °C	
Dimension	**Height**	88 mm
	Width	443 mm
	Depth	290 mm

Technical Characteristics

Interfaces	2 slots for service modules	Total of 32 ports	
		16 GPON interfaces per module	
	2 slots for control and management module	4 uplink 10GE ports	
		1 MGMT port (RJ-45)	
		1 alarm port (RJ-45)	
		1 console port (RJ-45)	
		1 microSD port	
GPON	Standard GPON ITU-T G.984	**Layer 2**	64K MAC addresses
	128 ONTs per PON interface (Up to 4096 per chassis)		Support to 4K VLANs, 802.1q
	2.5 Gbps downstream and 1.25 Gbps upstream		Spanning Tree (STP, RSTP, MSTP)
	20 km reach (60 km maximum logical reach)		Link aggregation
Layer 3	Static routing IPv4 e IPv6	**Security**	SSH v1/v2
	Dynamic routing IPv4 e IPv6		802.1x with RADIUS e TACACS+
	RIP v1/v2, OSPF v2, BGP v4		
	VRRP		Storm control
QoS	Dynamic bandwidth allocation		Access control list for L2, L3 and L4
	8 queues per port		
	Traffic scheduling (SP, WRR, DRR)		

Ordering Description

Optical Concentrator CHASSIS GPON LD3032
Power Supply DC for Optical Concentrator Chassis GPON 7U
Blank Panel - Power Supply DC for Optical Concentrator Chassis GPON 7U
Power Supply - 48VDC Netsure 211 C23 with 2X 1000 W Rectifier Units and SCU+ Supervision Unit
Management and Switch Module for FK-OLT-G2500
Blank Panel - Management and Switch Module for Optical Concentrator Chassis GPON 7U
Uplink Module with 2 10 GE Ports + 4 GE SFP Ports for Optical Concentrator Chassis GPON 7U
Blank Panel - Uplink Module for Optical Concentrator Chassis GPON 7U
Service Module with 4 SFP GPON Ports for Optical Concentrator Chassis GPON 7U
Service Module with 4 Redundant SFP GPON Ports for Optical Concentrator Chassis GPON 7U
Blank Panel - Service Module for Optical Concentrator Chassis GPON 7U
Transceiver SFP GPON OLT Class B+ for Optical Concentrator
Transceiver SFP GE SX 850 nm (550 m) for Optical Concentrator
Transceiver SFP GE LX10 1310 nm (10 km) for Optical Concentrator
Transceiver SFP GE LX20 1310 nm (20 km) for Optical Concentrator
Transceiver SFP GE LX40 1310 nm (40 km) for Optical Concentrator
Transceiver XFP 10 GE SR 850 nm (300 m) for Optical Concentrator
Transceiver XFP 10 GE LR 1310 nm (10 km) for Optical Concentrator
Transceiver XFP 10 GE ER 1550 nm (40 km) for Optical Concentrator

SERVICE MODULE SFP GPON 16 PORTS FOR CHASSIS

SWITCH AND MANAGEMENT MODULE FOR CHASSIS GPON LD3032

BLANK PANEL - SERVICE MODULE FOR CHASSIS GPON LD3032

Constructive Characteristics

Power Supply	2 DC sources with redundancy	
Operation Temperature	-40ºC to 80ºC	
Dimensões	**Height**	88 mm
	Width	443 mm
	Depth	290 mm

Technical Characteristics

Interfaces	2 slots for service modules	Total of 32 ports	
		16 GPON Interfaces per module	
	2 slots for control and management module	4 uplink 10GE ports	
		1 MGMT port (RJ-45)	
		1 alarm port (RJ-45)	
		1 console port (RJ-45)	
		1 micro SD port	
GPON	Standard GPON ITU-T G.984	**Layer 2**	64K MACs addresses
	128 ONTs per PON interface (Up to 4096 per chassis		Support to 4K VLANs, 802.1q
	2.5 Gbps downstream and 1.25 Gbps upstream		Spanning Tree (STP, RSTP, MSTP)
	20 km reach (60 km maximum logical reach)		Link aggregation
Layer 3	Static routing IPv4 e IPv6	**Security**	SSH v1/v2
	Dynamic routing IPv4 e IPv6		802.1x with RADIUS e TACACS+
	RIP v1/v2, OSPF v2, BGP v4		Storm control
	VRRP		Access control list for L2, L3 and L4
QoS	Dynamic bandwidth allocation		
	8 queues per port		
	Traffic scheduling (SP, WRR, DRR)		

Ordering Description

Service Module Sfp Gpon 16 Ports for Chassis
Switch and Management Module for Chassis Gpon LD3032
Blank Panel - Service Module for Chassis Gpon LD3032 / LD3096

POWER SUPPLY DC FOR CHASSIS GPON LD3032

BLANK PANEL - SWITCH AND MANAGEMENT MODULE FOR CHASSIS GPON LD3032

Constructive Characteristics

Power Supply	2 DC sources with redundancy	
Operation Temperature	-40°C to 80°C	
Dimensões	**Height**	88 mm
	Width	443 mm
	Depth	290 mm

Technical Characteristics

Interfaces	2 slots for service modules	Total of 32 ports	
		16 GPON Interfaces per module	
	2 slots for control and management module	4 uplink 10GE ports	
		1 MGMT port (RJ-45)	
		1 alarm port (RJ-45)	
		1 Console port (RJ-45)	
		1 micro SD port	
GPON	Standard GPON ITU-T G.984	**Layer 2**	64K MACs addresses
	128 ONTs per PON interface (Up to 4096 per chassis		Support to 4K VLANs, 802.1q
	2.5 Gbps downstream and 1.25 Gbps upstream		Spanning Tree (STP, RSTP, MSTP)
	20 km reach (60 km maximum logical reach)		Link aggregation
Layer 3	Static routing IPv4 e IPv6	**Security**	SSH v1/v2
	Dynamic routing IPv4 e IPv6		802.1x with RADIUS e TACACS+
	RIP v1/v2, OSPF v2, BGP v4		Storm control
	VRRP		Access control list for L2, L3 and L4
QoS	Dynamic bandwidth allocation		
	8 queues per port		
	Traffic scheduling (SP, WRR, DRR)		

Ordering Description

Power Supply DC for Optical Concentrator Chassis GPON 7U

GPON OLT STANDALONE OPTICAL CONCENTRATOR LW3008C

The OLT (Optical Line Terminal) is an equipment used in Passive Optical Local Area Networks (PON LAN), as an optical switch with GPON ports. The OLT LW3008C is compatible with the GPON standard (ITU-T G.984.1).

Constructive Characteristics

Power Supply	AC full range (100-240V, 50/60hZ) or DC 48/60V Redundant	
Modules	Hot swappable	
Power Consumption	55W	
Operating Temperature	-20°C to 60°C	
Dimensões	**Height**	440 mm
	Width	300 mm
	Depth	44 mm

Technical Characteristics

Interfaces	8 GPON ports compatible with ITU-T G.984 (SFP)	**GPON**	Standart GPON ITU-T G984.4
			128 ONTs per PON interface (Up to 1024 per chassis)
	4 ports of uplink 10 GE (SFP+)		2.5 Gbps downstream and 1.25 Gbps upstream
	4 ports of uplink 1 GE (RJ-45)		20 km reach (60 km maximum logical reach)
	2 Slots to fonts AC/DC (Redundancy)	**Layer 3**	Static routing
			Routing Information Protocol (RIP) v1,v2 and RIPng
			Open Shortest Path First (OSPF) v2, v3
	120 Gbps switching capacity		Border Gateway Protocol (BGP) v4
			Virtual Router Redundancy Protocol (VRRP)
Layer 2	16K MAC addresses		IPv4 and IPv6 rounting
			IPv4 and IPv6 (Dual Stack)
	Support to VLANs	**Security**	SSH
	Spanning Tree (PVRSTP, MSTP, STP/PVSTP+)		802.1x
	Link aggregation		Storm control
			DoS Protection
			Support for CoS with priority WRED, WRR e DSCP/802.1p
QoS	Traffic scheduling (SP, WRR e DRR)		
	8 queues per port		

Ordering Description

GPON OLT Standalone Optical Concentrator LW3008C
Power Supply AC for GPON Standalone Optical Concentrator LD3008/ LW3008C/ LD3016
Power Supply DC for GPON Standalone Optical Concentrator LD3008/ LW3008C/ LD3016

GPON LD420-10R

The LD420-10R is an ONT (Optical Network Terminal) compliant with the ITU-T G.984 standard. The equipment supports rates up to 2.5 Gbps for downstream and 1.25 Gbps for upstream.ONT supports full Triple Play services, including voice, video and data, with built-in WiFi antenna.

Constructive Characteristics

Power Supply	AC / DC adapter 100-240V, 50 / 60Hz (included)	
Operating Temperature	-5 ~ 45 ° C	
Dimensions	**Height**	38 mm
	Width	87 mm
	Depth	108 mm

Technical Characteristics

Interfaces	1 x 10/100/1000 Base-T Giga Ethernet Port (RJ-45);	**Management**	Supports OMCI, Web GUI, CLI
			Supports firmware upgrade with remote server
	1 x PON port with SC-APC connector.		It has 2 images of software
			Supports restoring factory settings
GPON	Standard GPON ITU-T G.984x	**Transmission wavelength**	1310 nm
	2.5 Gbps downstream and 1.25 Gbps upstream		
	20 km reach (60 km maximum logical reach)		
	Multiple T-CONTs and GEM Ports	**Reception wavelength**	1490 nm
Layer 2	Data frame filter based on port, SA / DA		
	Supports 1500 byte MTU, compliant with IEEE 802.3as		
	Forwarding between GEMPORT and TCONT		
	Supports dual tagging, compliant with IEEE 802.1ad		
Layer 3	WAN connection	**Transmission optical power**	0.5 dBm~+5 dBm
	PPPoE and DHCP mode to obtain from IP address		
	URL, MAC, IP filters, DNS, UPnP	**Reception optical power**	-8 dBm~-27 dBm
	Log and Network Diagnostics		

Ordering Description

Optical Modem GPON LD420-10R
Power Supply for Optical Modem NEMA Standard

OPTICAL MODEM GPON LD110-44B

The ONT LD110-44B is ideal for PON LAN application on enterprise environment.

Construtive Characteristics

Width 244 mm x **Height** 41 mm x **Depth** 161mm **Color** Black	
Power supply	AC input 90~250 VAC, output 12 VDC, maximum current 1.5A; (Not included)
Operating temperature	0 ºC to 50 ºC

Technical Characteristics

Interfaces	1 optical interface GPON SC-APC
	4 copper interfaces Gigabit Ethernet RJ-45
	2 interfaces POTs RJ-11
	2 USB type A door
GPON	Standard GPON ITU-T G.984
	2.5 Gbps downstream and 1.25 Gbps upstream
	20 km reach (60 km maximum logical reach)
	Multiple T-CONTs and GEM Ports
Layer 2	Up to 1.024 MAC addresses
	Support to spanning tree protocol
	Marking/Remarking 802.1p
Layer 3	PPPoE Client
	NAT and NAPT
	Server DHCP
QoS	Bandwidth adjustable from OLT
	8 priority lines per port
Management	Management and provisioning through OLT
	Auto discovery
	Provisioning via RADIUS
	Remote firmware actualization
Multicast	IGMP snooping

Ordering Description

GPON Optical Modem LD110-44B

OPTICAL MODEM GPON FK-ONT-G400B/POE S2

The ONT GPON FK-ONT-G400B/PoE is a termination equipment with PoE power supply and is compatible with ITU-T G.984 standard.

Constrative Characteristics

Width 209 mm x **Height** 40 mm x **Depth** 130 mm **Color** Black	
Power supply	48 VDC
Operation temperature	0 °C to 40 °C

Technical Characteristics

Interfaces	1 optical interface GPON SC-APC	**QoS**	Bandwidth adjustable through OLT
	4 copper interfaces Gigabit Ethernet RJ-45		8 priority lines per port
	1 interface UPS 8-pins	**Management**	Management and provisioning through OLT
GPON	Standard GPON ITU-T G.984		Auto discovery
	2.5 Gbps downstream and 1.25 Gbps upstream		Remote firmware actualization
	20 km reach	**Multicast**	IGMP snooping
	Multiple T-CONTs and GEM ports		Limiter of rate broadcast/multicast
Layer 2	Up to 512 MAC addresses	**PoE characteristics**	Compatible with IEEE 802.3af-2003 and 802.3at-draft 3.1
	Up to 32 VLAN groups		PD (powered device) devices standard retention
	Marking/Remarking 802.1p		Maximum power per ONT for PoE ports = 80 Watts

OrderingDescription

Optical Modem GPON FK-ONT-G400B/PoE S2
Power Supply Adapter Standard CE S-ISP for FK-ONT-G400B/PoE S2

Splitters

MODULAR OPTICAL SPLITTER 19"

Designed for plug-and-play applications, completely pre-terminated splitter that can be installed in 19" racks.

Constrative Characteristics

Width 494 mm (19") x **Height** 43.5 mm x **Depth** 341.3 mm **Color** Black	
Manufacturing technology	PLC
Connector type	SC-APC
Entrance	1 or 2 (for redundancy)

Performance

Splitter type	1x32	1x64	2x32
Maximum insertion loss (dB)	17.1	20.5	17.7
Uniformity (dB)	1.5	1.7	2.1
Maximum polarization dependent loss (PDL) (dB)	0.4	0.5	0.4
Optical bandwidth	1260~1650 nm		
Directivity	> 55 dB		
Return Loss	> 55 dB		
Maximum return loss per connection	> 60 dB		
Optical attenuation per connection (dB)	0.15 (typical) and 0.3 (maximum)		

Ordering Description

19" Frame with Splitter 1 X 1X32 G.657A SC-APC/SC-APC
19" Frame with Splitter 2 X 1X32 G.657A SC-APC/SC-APC
19" Frame with Splitter 1 X 2X32 G.657A SC-APC/SC-APC
19" Frame with Splitter 1 X 1X64 G.657A SC-APC/SC-APC

Optical Cords and Pigtails

SIMPLEX OPTICAL PATCH CORD SINGLE-MODE

Optical patch cord utilized for connection of termination point to ONT.

Construtive Characteristics

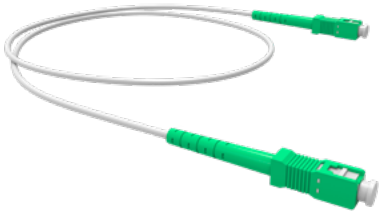
Nominal diameter	2 mm and 3 mm
Length	From 1.5 to 20 m

Ordering Description

Simplex Optical Patch Cord BLI A/B G-657A SC-APC/SC-APC 2.5 m - LSZH - White - D3
Simplex Optical Patch Cord BLI A/B G-657A SC-APC/SC-UPC 2.5 m - LSZH - White - D3
Simplex Optical Patch Cord SM G-652D SC-APC/SC-APC 2.5 m - OFN - Yellow - D3
Simplex Optical Patch Cord SM G-652D SC-APC/SC-UPC 10.0 m - OFN - Yellow - D3
Simplex Optical Pigtail BLI A/B G-657A SC-APC 20.0 m - LSZH - White - D3

SIMPLEX OPTICAL PATCH CORD 3.8

Pre-terminated optical cable for horizontal cabling.



Construtive Characteristics

Nominal diameter	3.8 mm
Fiber type	Bending Loss Insensitive
Connector type	SC-APC

Ordering Description

Trunk Cable Pre-Terminated 01F BLI A/B G-657B SC-APC/SC-APC D3.8 35.0 m - Tight - White - LSZH
Trunk Cable Pre-Terminated 01F BLI A/B G-657B SC-APC/SC-APC D3.8 45.0 m - Tight - White - LSZH
Trunk Cable Pre-Terminated 01F BLI A/B G-657B SC-APC/SC-APC D3.8 55.0 m - Tight - White - LSZH
Trunk Cable Pre-Terminated 01F BLI A/B G-657B SC-APC/SC-APC D3.8 65.0 m - Tight - White - LSZH

EZ!CONNECTOR FOR FLAT CABLES

Connector for field assembly, not requiring splicing, polishing or epoxy machine.

Constructive Characteristics

Dimensions	**Height**	8 mm
	Width	9.2 mm
	Length	51.5 mm (for flat compact cables)
Operation temperature	-40 °C up to 75 °C	
Storage temperature	-40 °C up to 75 °C	
Traction load (compact cable)	10 N (<0.2 dB change)	

Connector type	Polishing type	Insertion Loss	Return loss
SC	APC	≤0,3 dB (typical.) / ≤0,5 dB (maximum)	≥ 50 dB

Ordering Description

Kit of 50 Field Optical Connectors SM SC-APC EZ!Connector for Flat Cables 1.6 x 2 mm and 3 x 2 mm

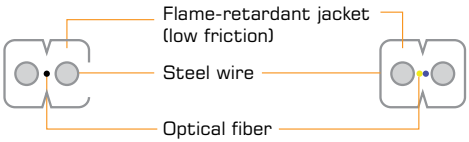
LOW FRICTION INDOOR CABLE

Description	Compact dimension optical cable with cover made of low friction material. Especially developed for indoor installations in FTTH and MDU networks. The traction elements made of steel wires enables the cable to be pushed through the ducts, avoiding the use of a wire guide during installation.
Application	Installation environment: Indoor.
	Operation environment: Vertical or horizontal installation in ducts.

Constructive Characteristics

Fiber types	Single-mode (9/125)	G.657 (BLI)
Traction element and sustaining	2 galvanized steel wires with 0.5 mm rated diameter	
Flammability class	LSZH	
Color	White	

Number of optical fibers	Rated outer diameter (mm)	Rated net mass (kg/km)	Maximum load during installation (N)	Minimum curvature radius (mm)	
				During installation	After installation
01	1.6 x 2	7	200	30	15
02	2 X 3	11	200	30	15



Performance

In accordance with ET 2365.

Packaging

Reelex® Box	Standard length 1000 m for 1-fiber, 500 m for 2-fiber
In RIB Box	Standard length 1000 m or 500 m

Termination Point

OPTICAL ROSETTE 2P 4X2

Utilized as termination point of optical network for indoor environments.

Construtive Characteristics

Width 79.8 mm x **Height** 114.9 mm x **Depth** 22.5 mm **Color** White	
Connector type	SC
Polishing type	APC or PC (UPC or SPC)
Ports capacity	2 placeholder for splices or mechanical splices
	2 port capacity for SC simplex or LC duplex adapters
Product body material	Plastic ABS

Ordering Description

Optical Rosette 2P 4X2 - White

SlimBox™ FLEX INDOOR ROSETTE

The Slimbox™ Flex Indoor Rosette is versatile to be used both as Optical termination point (PTO) and Floorbox. Conencting to equipment via a cord or able to expand and connect from 1 to 8 customers.

Constructive Characteristics

Dimensions	**Height**	96 mm
	Width	82 mm
	Depth	22 mm
Color	White	
Connector type	SC	
Polishing type	APC or PC (UPC or SPC)	
Ports capacity	1 placeholder for splices or mechanical splices	
	1 port capacity for SC simplex or LC duplex adapters	
Product body material	High-impact thermoplastic.	

Ordering Description

SlimBox ™ Flex Indoor Rosette 1P Overlay W/ 1 ADAP SC-APC - White

INLINE ROSETTE

The Optical Inline Rosette presents as main characteristics the ability to perform compact optical cables termination through field connectorization as well as cable anchorage with versatile retention system, which enables compatibility with drop cables. Adjusted to fit your indoor environment.

Constructive Characteristics

Dimensions	**Height**	18.8 mm
	Width	24.5 mm
	Depth	94.1 mm
Color	White	
Protection Index	IP 30	
Product body material	Thermoplastic	
Maximum cable Input diameter	3 mm	
Included accessories	SC-APC optical adapters	
Operational Temperature	-25ºC to 75ºC	

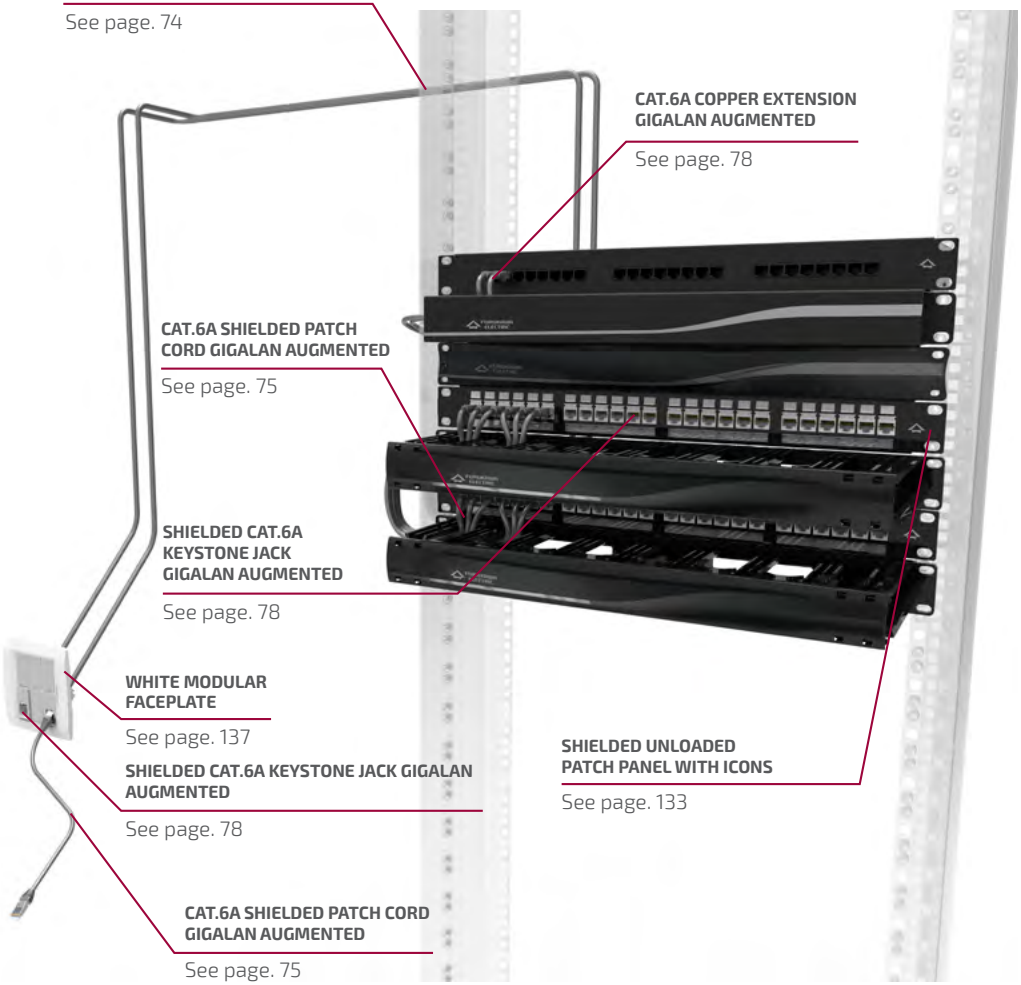
Ordering Description

Slimbox™ Inline Indoor Rosette 1P

GigaLan Augmented

FTP Channel
UTP Channel

FTP Channel


CAT.6A DATA CABLE F/UTP LSZH
See page. 74
CAT.6A COPPER EXTENSION GIGALAN AUGMENTED
See page. 78
CAT.6A SHIELDED PATCH CORD GIGALAN AUGMENTED
See page. 75
SHIELDED CAT.6A KEYSTONE JACK GIGALAN AUGMENTED
See page. 78
WHITE MODULAR FACEPLATE
See page. 137
SHIELDED CAT.6A KEYSTONE JACK GIGALAN AUGMENTED
See page. 78
CAT.6A SHIELDED PATCH CORD GIGALAN AUGMENTED
See page. 75
SHIELDED UNLOADED PATCH PANEL WITH ICONS
See page. 133

GIGALAN AUGMENTED GREEN CAT.6A F/UTP LSZH

4 pairs twisted cable, using solid bare copper, 23AWG, insulated with a special compound. External jacket using LSZH in accordance with IEC60332-3.

Availabitlity under request

Constructive Characteristics

Shielding	Metalized polyester tape
Color	Gray or Green. Other colors under consult.
Nominal diameter	7.5 mm
Cable weight	58 kg/km
Flammability class	LSZH: Comply with IEC 60332 Part 3-25: "Test for vertical flame spread of vertically mounted bunched wires or cables
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	-20 °C up to 75 °C
Operation temperature	-20 °C up to 60 °C

Performance

Maximum unbalance resistance	4 %
Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Maximum unbalance capacitance pair x ground	3.3 pF/m
Characteristic impedance	100 ± 15 % Ω
Maximum propagation delay	545 ns/100 m @ 10 MHz
Maximum delay skew	45 ns/100 m
Electric voltage between conductors test	2500 VDC/3 s
Electric voltage between conductors and shielding test	500 VDC/3 s
NVP	68 %
Insulation resistance	10000 MΩ.km

Package

Plywood reel	
Standard cable run	305 m/1000 m

Ordering Description

Data Cable Gigalan Augmented Green CAT.6A F/UTP 23AWGX4P LSZH CZ
Data Cable Gigalan Augmented Green CAT.6A F/UTP 23AWGX4P LSZH VD

Freq.	Attenuation (dB)		NEXT (dB)		PSNEXT (dB)		ACRF (dB)		PSACRF (dB)		RL (dB)		PSANEXT (dB)		PSAACRF (dB)	
(MHz)	Max.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical
1	2.1	1.6	74.3	104.6	72.3	91.4	67.8	100.8	64.8	93.8	20.0	35.4	67.0	90.0	67.0	88.0
4	3.8	3.2	65.3	93.8	63.3	80.2	55.8	95.6	52.8	88.4	23.0	37.2	67.0	90.8	66.2	87.3
8	5.3	4.8	60.8	91.3	58.8	78.0	49.7	89.4	46.7	81.8	24.5	42.3	67.0	92.8	60.1	87.0
10	5.9	5.3	59.3	95.6	57.3	73.8	47.8	87.4	44.8	77.7	25.0	36.9	67.0	92.4	58.2	87.1
16	7.5	6.7	56.2	79.9	54.2	72.6	43.7	80.8	40.7	71.3	25.0	40.5	67.0	91.9	54.1	84.7
20	8.4	7.7	54.8	82.1	52.8	71.8	41.8	77.9	38.8	69.6	25.0	39.9	67.0	85.3	52.2	79.3
25	9.4	8.7	53.3	85.9	51.3	72.8	39.8	76.6	36.8	67.4	24.3	38.2	67.0	86.5	50.2	77.8
31.3	10.5	9.6	51.9	75.3	49.9	69.4	37.9	74.6	34.9	65.8	23.6	39.5	67.0	86.2	48.3	76.9
62.5	15.0	13.8	47.4	68.6	45.4	60.8	31.9	64.0	28.8	58.4	21.5	31.3	65.6	85.6	42.3	72.3
100	19.1	17.6	44.3	66.5	42.3	61.0	27.8	60.3	24.8	53.7	20.1	31.2	62.5	86.6	38.2	68.9
200	27.6	25.2	39.8	63.3	37.8	56.2	21.8	57.5	18.8	50.8	18.0	30.2	58.0	83.6	32.2	60.5
250	31.1	28.4	38.3	59.5	36.3	53.8	19.8	50.5	16.8	44.8	17.3	26.2	56.5	83.9	30.2	56.9
300	34.3	31.1	37.1	59.2	35.1	51.9	18.3	49.8	15.3	44.2	16.8	29.5	55.3	81.8	28.7	52.8
400	40.1	36.3	35.3	57.6	33.3	49.6	15.8	49.7	12.8	42.3	15.9	26.5	53.5	79.7	26.2	46.8
500	45.3	40.7	33.8	54.4	31.8	48.6	13.8	43.2	10.8	35.4	15.2	21.8	52.0	76.7	24.2	38.6

Availability under consult.

SHIELDED DATA CABLE GIGALAN AUGMENTED CAT.6A F/UTP 23AWG X 4P

Cable for connections between patch panels in technical rooms and connectors at work area.

Constructive Characteristics

Shielding	Metalized polyester tape
Color	PVC ROHS: Gray or red
	LSZH: Green or gray
Nominal diameter	7.5 mm
Cable weight	58 kg/km
Flammability class	CM - UL 1581 - Vertical tray Section 1160 (UL1685)
	CMR - UL 1666 (Riser)
	LSZH - IEC 60332-3
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	-20 °C up to 70 °C
Operation temperature	-20 °C up to 60 °C

Performance

Maximum unbalance resistance	4 %
Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Maximum unbalance capacitance pair x ground	3.3 pF/m
Characteristic impedance	100 ± 15 % Ω
Maximum propagation delay	545 ns/100 m @ 10 MHz
Maximum delay skew	45 ns/100 m
NVP	68 %
Insulation resistance	10000 MΩ.km

Package

Wood reel	
Standard cable run	305 m

Ordering Description

F/UTP	LSZH
	CMR

Freq.	Attenuation (dB)		NEXT (dB)		PSNEXT (dB)		ACRF (dB)		PSACRF (dB)		RL (dB)		PSANEXT (dB)		PSAACRF (dB)	
(MHz)	Max.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical
1	2.1	1.6	74.3	104.6	72.3	91.4	67.8	100.8	64.8	93.8	20.0	35.4	67.0	90.0	67.0	88.0
4	3.8	3.2	65.3	93.8	63.3	80.2	55.8	95.6	52.8	88.4	23.0	37.2	67.0	90.8	66.2	87.3
8	5.3	4.8	60.8	91.3	58.8	78.0	49.7	89.4	46.7	81.8	24.5	42.3	67.0	92.8	60.1	87.0
10	5.9	5.3	59.3	95.6	57.3	73.8	47.8	87.4	44.8	77.7	25.0	36.9	67.0	92.4	58.2	87.1
16	7.5	6.7	56.2	79.9	54.2	72.6	43.7	80.8	40.7	71.3	25.0	40.5	67.0	91.9	54.1	84.7
20	8.4	7.7	54.8	82.1	52.8	71.8	41.8	77.9	38.8	69.6	25.0	39.9	67.0	85.3	52.2	79.3
25	9.4	8.7	53.3	85.9	51.3	72.8	39.8	76.6	36.8	67.4	24.3	38.2	67.0	86.5	50.2	77.8
31.3	10.5	9.6	51.9	75.3	49.9	69.4	37.9	74.6	34.9	65.8	23.6	39.5	67.0	86.2	48.3	76.9
62.5	15.0	13.8	47.4	68.6	45.4	60.8	31.9	64.0	28.8	58.4	21.5	31.3	65.6	85.6	42.3	72.3
100	19.1	17.6	44.3	66.5	42.3	61.0	27.8	60.3	24.8	53.7	20.1	31.2	62.5	86.6	38.2	68.9
200	27.6	25.2	39.8	63.3	37.8	56.2	21.8	57.5	18.8	50.8	18.0	30.2	58.0	83.6	32.2	60.5
250	31.1	28.4	38.3	59.5	36.3	53.8	19.8	50.5	16.8	44.8	17.3	26.2	56.5	83.9	30.2	56.9
300	34.3	31.1	37.1	59.2	35.1	51.9	18.3	49.8	15.3	44.2	16.8	29.5	55.3	81.8	28.7	52.8
400	40.1	36.3	35.3	57.6	33.3	49.6	15.8	49.7	12.8	42.3	15.9	26.5	53.5	79.7	26.2	46.8
500	45.3	40.7	33.8	54.4	31.8	48.6	13.8	43.2	10.8	35.4	15.2	21.8	52.0	76.7	24.2	38.6

Availability under consult.

F/UTP CAT.6A SHIELDED PATCH CORD GIGALAN AUGMENTED

Accessory for connections in telecommunication rooms (cross-connect) and work areas.

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6 mm
Weight	0.034 kg/m
Color	Blue, gray or red
Connector type	RJ-45 shielded
Cable type	CAT.6A F/UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of nominal diameter 0.16 mm
Flammability class	CM (standard supply), CMR, LSZH (CM)
Cable shielding	F/UTP (Overall twisted pairs foiled with aluminum polyester tape)
Number of pairs	4 pairs, 26AWG
Electric contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94 V-0
Assembly type	T568A/B or crossover

Performance

Conductor maximum DC electric resistance at 20°C	140 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100±15% Ω
Electric voltage between conductors and shielding test	1250 VDC/3 s
NVP	66 %
Maximum propagation delay	45 ns/100 m

Ordering Description

1.5 m	Gray	T568-A/B	CM
2.5 m			
3 m			
4 m			
5 m			
1.5 m			LSZH
2.5 m			
3 m			

Availability under consult.

F/UTP CAT.6A GREEN COPPER PATCH CORD GIGALAN AUGMENTED

Accessory for connections in telecommunication rooms and work areas with green polyethylene made from sugarcane.

Constructive Characteristics

Length	From 0.5 up to 20 m
Nominal diameter	6.3 mm
Color	LSZH: Gray, Blue, Red and Yellow
Connector type	Rj-45
Cable type	F/UTP
Conductor type	Electrolytic copper, flexible, bare, formed by 7 filaments of nominal diameter of 0.20mm
Flammability class	LSZH
Number of pairs	4 pairs, 26AWG
Electric contact material	8-way phosphor bronze with 100in (2.54 m) of nikel and 50in (1.27 m) of gold
Product body material	Product with LSZH jacket based on ethanol extracted from sugar cane
Assembly type	T568A, T568B or crossover

Performance

Conductor maximum DC electric resistance at 20°C	140 oms/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100±15% Ω
Electric voltage between conductors and shielding	Between conductors: 2500 VDC/3s
	Between each conductor and shield: 2500 VDC/2s
NVP	68 %
Maximum propagation delay	545 ns/100 m

Ordering Description

F/UTP CAT.6A Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 0.5 m - Gray (Shielded)
F/UTP CAT.6A Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 1.5 m - Gray (Shielded)
F/UTP CAT.6A Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 3.0 m - Gray (Shielded)
F/UTP CAT.6A Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 5.0 m - Gray (Shielded)

28AWG U/FTP CAT.6A GIGALAN AUGMENTED PATCH CORD

Accessory for connections in telecommunication rooms (cross-connect) and work areas.

Constructive Characteristics

Length	From 1.0 to 7.5 m
Nominal diameter	3.9 mm
Weight	0.034 kg/m
Color	Blue, gray or red
Connector type	RJ-45 shielded
Cable type	CAT.6A F/UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of nominal diameter 0.2 mm
Flammability class	LSZH
Cable shielding	F/UTP (Overall twisted pairs foiled with aluminum polyester tape)
Number of pairs	4 pairs, 28AWG
Electric contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94 V-0
Assembly type	T568A or T568B

Performance

Conductor maximum DC electric resistance at 20°C	140 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100±15% Ω
Electric voltage between conductors and shielding test	1250 VDC/3 s
NVP	66 %
Maximum propagation delay	45 ns/100 m

Ordering Description

U/FTP CAT.6A 28AWG Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 1.0 m - Red
U/FTP CAT.6A 28AWG Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 5.0 m - Red
U/FTP CAT.6A 28AWG Copper Patch Cord Gigalan Augmented - LSZH - T568A/B - 1.0 m - Blue
U/FTP CAT.6A 28AWG Copper Patch Cord Gigalan Augmented AU - LSZH - T568A/B - 5.0 m - Blue

Availability under consult.

F/UTP CAT.6A SHIELDED COPPER EXTENSION GIGALAN AUGMENTED

Accessory for performing connection in telecommunication rooms and for service distribution in horizontal cabling (connection point).

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6.4 mm
Color	Gray and red
Connector type	RJ-45 (ET)
Cable type	CAT. 6A F/UTP
Conductor type	Solid cooper conductor with 24AWG diameter
Flammability class	CM, LSZH
Number of pairs	4 pairs, 24AWG

Ordering Description

2.5 m	Gray	CM
5 m		
10 m		
5 m		LSZH
10 m		

SHIELDED CAT.6A KEYSTONE JACK GIGALAN AUGMENTED

Accessory for performing connection in telecommunication rooms and work areas.

Constructive Characteristics

Color	Silver
Connector type	RJ-45
Electric contact material	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Conductor diameter	22 to 26AWG
Assembly type	T568A and T568B
Cable angle	0° and/or 180°

Performance

Retention force between jack and plug	Minimum 133 N
Number of cycles	≥750 RJ-45 and ≥200 RJ-11
	≥200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
DC resistance	2.5 Ω
Applied electrical voltage test	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

Ordering Description

Shielded CAT.6A Keystone Jack T568A/B GigaLan Augmented

F/UTP CAT.6A SHIELDED PRE-TERMINATED CABLE GIGALAN AUGMENTED

Accessory for fast interconnection between EDA and HDA in Data Centers.

Constructive Characteristics

Color	Gray
Connector type	Shielded keystone jack
Cable type	Data cable GigaLan Augmented CAT.6A 23AWG x4P F/UTP CZ LSZH
Positions amount	6
Included accessories	Connector dust cover

Package

Carton box	Up to 25 m (2 pieces per package)
Reel + Carton box	More than 25 m (1 piece per package)
Minimum and multiple lot	1 box

Ordering Description

Pre-Terminated Cable 6X CAT.6A F/UTP CZ LSZH T568A 5.0 m ES 1.0 m Female - 1.0 m Female

Availability under consult.

DATA CABLE GIGALAN AUGMENTED CAT.6A SF/UTP 23AWG X 4P

Data cable for performing connections between patch panels and connectors at work areas.

Constructive Characteristics

Shielding SF/UTP	Overall twisted pairs with aluminum polyester foiled and tinned copper braid screen
Color	PVC ROHS: Gray or blue
	LSZH: Green or gray
Nominal diameter	8 mm
Cable weight	64 kg/km
Flammability class	CM: standard UL 1581-Vertical tray Section 1160 (UL-1685)
	CMR: standard UL 1666 (Riser)
	LSZH (CM)
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to +75 °C
Operation temperature	From -20 °C to +60 °C

Performance

Maximum unbalance resistance	4 %
Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Maximum unbalance capacitance pair x ground	3.3 pF/m
Characteristic impedance	100 ± 15 % Ω
Maximum propagation delay	545 ns/100 m @ 10 MHz
Maximum delay skew	45 ns/100 m
Electric voltage between conductors test	2500 VDC/3 s
Electric voltage between conductors and shielding test	500 VDC/3 s
NVP	68 %
Isolation resistance	10000 MΩ.km

Package

Wood reel	
Standard cable run	1000 m / 305 m

Certifications

ETL Verified	101132445
UL Listed	E160837

Ordering Description

Data Cable GigaLan Augmented CAT. 6A SF/UTP 23AWGX4P LSZH Gray (305 m)
Data Cable GigaLan Augmented CAT. 6A SF/UTP 23AWGX4P CM Gray (305 m)
Data Cable GigaLan Augmented CAT. 6A SF/UTP 23AWGX4P CMR Gray (305 m)

Availability under consult.

S/FTP CAT.6A DOUBLE SHIELDED PATCH CORD GIGALAN AUGMENTED

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6.8 mm
Weight	0.034 kg/m
Color	Gray
Connector type	RJ-45 CAT.6A shielded
Cable type	CAT.6A S/FTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of nominal diameter 0.2 mm
Flammability class	LSZH
Cable shielding	S/FTP (twisted pair foiled with aluminum polyester tape and overall pairs with tinned copper braid screen)
Number of pairs	4 pairs, 26AWG
Electric contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94 V-0
Assembly type	T568A, T568B or crossover

Performance

Conductor maximum DC electric resistance at 20°C	145 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100±15% Ω
NVP	65 %
Maximum propagation delay	25 ns/100 m

Ordering Description

1.5 m	Gray	LSZH
2.5 m		
5.0 m		

DATA CABLE GIGALAN AUGMENTED CAT.7A S/FTP 23AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Constructive Characteristics

Shielding S/FTP	Twisted pair foiled with aluminum polyester tape and overall pairs with tinned copper braid screen
Color	LSZH: Gray
	Additional colors on request
Nominal diameter	7.9 mm
Cable weight	61 kg/km
Flammability class	LSZH: Should comply with IEC 60332 Part 3-25: "Test for vertical flame spread of LSZH vertically mounted bunched wires or cables"
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to +75 °C
Operation temperature	From -20 °C to +60 °C

Performance

Maximum unbalance resistance	2 %
Conductor maximum DC electric resistance at 20°C	73.2 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Maximum unbalance capacitance pair x ground	1.6pF/m
Characteristic impedance	100 ± 15 % Ω
Maximum propagation delay	545 ns/100 m @ 10 MHz
Maximum delay skew	25ns/100m
Electric voltage between conductors test	2500 VDC/3 s
NVP	65 %
Insulation resistance	5000 MΩ.km

Package

Wood reel	
Standard cable run	305 m

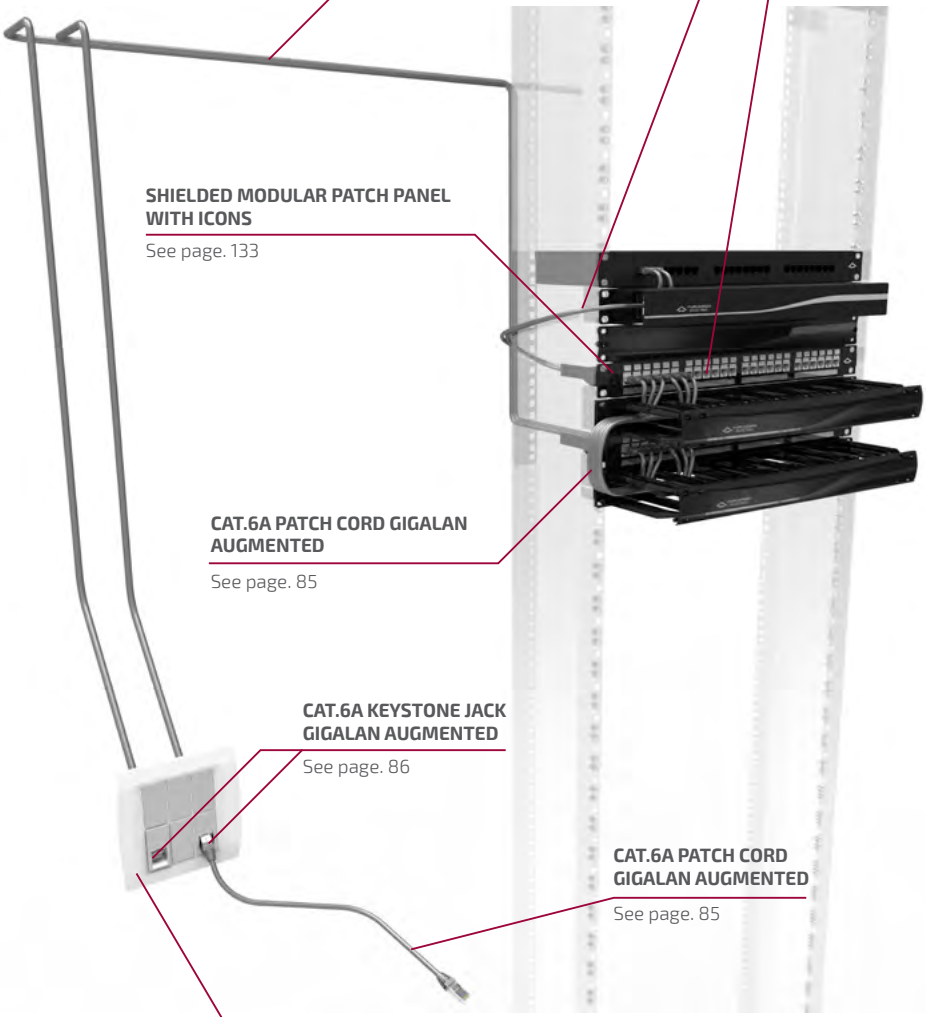
Ordering Description

Data Cable GigaLan Augmented CAT.7A S/FTP 23AWGX4P LSZH Gray 305 m

Freq., MHz	Att., max dB	NEXT, min dB worst pair	PS NEXT, min dB worst pair	ELFEXT, min dB worst pair	PS ELFEXT, min dB worst pair	Prop Delay, max dB	RL, min dB	Charact. Impedance Upper limit, Ohms	Charact. Impedance Lower limit, Ohms	Coupling Att., min dB
4	3.7	78.0	75.0	78.0	75.0	552.0	23.0	115.2	86.8	-
8	5.2	78.0	75.0	77.2	74.2	546.7	24.5	112.6	88.8	-
10	5.8	78.0	75.0	75.3	72.3	545.4	25.0	111.9	89.4	-
16	7.3	78.0	75.0	71.2	68.2	543.0	25.0	111.9	89.4	-
20	8.2	78.0	75.0	69.3	66.3	542.0	25.0	111.9	89.4	-
25	9.2	78.0	75.0	67.3	64.3	541.2	24.3	112.9	88.5	-
31.25	10.3	78.0	75.0	65.4	62.4	540.4	23.6	114.1	87.7	85.0
62.5	14.6	78.0	75.0	59.4	56.4	538.6	21.5	118.3	84.5	85.0
100	18.5	75.4	72.4	55.3	52.3	537.6	20.1	121.9	82.0	85.0
150	22.8	72.8	69.8	51.8	48.8	536.9	18.9	125.7	79.6	81.5
200	26.5	70.9	67.9	49.3	46.3	536.5	18.0	128.8	77.6	79.0
250	29.7	69.4	66.4	47.3	44.3	536.3	17.3	131.5	76.0	77.0
300	32.7	68.2	65.2	45.8	42.8	536.1	16.8	131.6	76.0	75.5
500	42.8	64.9	61.9	41.3	38.3	535.6	15.2	131.6	76.0	71.0
600	47.1	63.7	60.7	39.7	36.7	535.5	17.3	131.6	76.0	69.4
800	54.9	61.9	58.9	37.2	34.2	535.3	16.1	137.4	72.8	66.9
1000	61.9	60.4	57.4	35.3	32.3	535.1	15.1	142.8	70.0	65.0

Availability under consult.

UTP Channel



CAT.6A COPPER EXTENSION GIGALAN AUGMENTED
See page. 86

CAT.6A KEYSTONE JACK GIGALAN AUGMENTED
See page. 86

DATA CABLE CAT.6A U/UTP LSZH
See page. 84

SHIELDED MODULAR PATCH PANEL WITH ICONS
See page. 133

CAT.6A PATCH CORD GIGALAN AUGMENTED
See page. 85

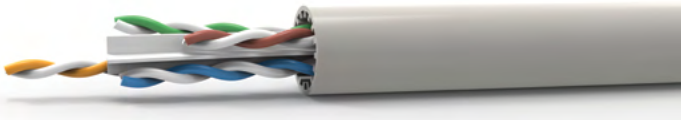
CAT.6A KEYSTONE JACK GIGALAN AUGMENTED
See page. 86

CAT.6A PATCH CORD GIGALAN AUGMENTED
See page. 85

WHITE MODULAR FACEPLATE
See page. 137

DATA CABLE GIGALAN AUGMENTED CAT.6A U/UTP 23AWG X 4P

Cable for connection between patch panel in technical rooms and connectors at work area.



Constructive Characteristics

Shielding	Not shielded
Color	PVC RoHS: Gray
	LSZH: Gray or Green
Nominal diameter	8.6 mm
Cable weight	61 kg/km
Flammability class	CM - UL 1581 - Vertical tray section 1160 (UL 1685)
	CMR - UL 1666 (Riser)
	LSZH-1 - IEC 60332-1
	LSZH - IEC 60332-3
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 75 °C
Operation temperature	From -20 °C to 60 °C

Performance

Maximum unbalance resistance	4 %
Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Maximum unbalance capacitance pair x ground	3.3 pF/m
Characteristic impedance	100 ± 15 % Ω
Maximum propagation delay	545 ns/100 m @ 10 MHz
Maximum delay skew	45 ns/100 m
NVP	68 %
Insulation resistance	10000 MΩ.km

Package

Wood reel	
Standard cable run	305 m

Ordering Description

U/UTP	LSZH	Green
	CM	Gray

Freq.	Attenuation (dB)		NEXT (dB)		PSNEXT (dB)		ACRF (dB)		PSACRF (dB)		RL (dB)		PSANEXT (dB)		PSAACRF (dB)	
(MHz)	Max.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical	Min.	Typical
1	2.1	1.7	74.3	102.9	72.3	89.7	67.8	95.9	64.8	85.1	20.0	34.2	67.0	89.1	67.0	86.9
4	3.8	3.2	65.3	90.5	63.3	80.4	55.8	69.0	52.8	73.8	23.0	34.2	67.0	89.9	66.2	79.4
8	5.3	4.7	60.8	86.0	58.8	77.8	49.7	60.2	46.7	67.1	24.5	33.8	67.0	87.1	60.1	72.8
10	5.9	5.4	59.3	81.6	57.3	73.8	47.8	57.3	44.8	65.1	25.0	32.5	67.0	86.7	58.2	70.2
16	7.5	6.6	56.2	79.0	54.2	71.5	43.7	51.5	40.7	61.3	25.0	38.7	67.0	84.3	54.1	66.5
20	8.4	7.5	54.8	75.6	52.8	68.2	41.8	48.2	38.8	59.3	25.0	35.9	67.0	81.8	52.2	64.5
25	9.4	8.5	53.3	80.2	51.3	69.0	39.8	44.6	36.8	56.3	24.3	35.5	67.0	79.7	50.2	62.6
31.25	10.5	9.4	51.9	77.7	49.9	68.0	37.9	42.8	34.9	54.0	23.6	37.8	67.0	79.8	48.3	61.0
62.5	15.0	13.6	47.4	71.4	45.4	64.8	31.9	38.9	28.8	47.0	21.5	35.2	65.6	76.2	42.3	54.5
100	19.1	17.3	44.3	65.8	42.3	59.8	27.8	37.8	24.8	45.6	20.1	34.3	62.5	71.2	38.2	50.0
200	27.6	25.1	39.8	62.6	37.8	50.6	21.8	34.3	18.8	38.3	18.0	29.9	58.0	65.7	32.2	40.9
250	31.1	28.4	38.3	62.8	36.3	49.1	19.8	32.7	16.8	39.9	17.3	27.8	56.5	63.6	30.2	38.3
300	34.3	31.3	37.1	57.5	35.1	48.2	18.3	30.5	15.3	37.3	16.8	28.7	55.3	62.4	28.7	34.8
400	40.1	36.6	35.3	58.0	33.3	48.5	15.8	36.0	12.8	35.6	15.9	24.7	53.5	60.8	26.2	30.6
500	45.3	41.4	33.8	53.0	31.8	40.8	13.8	28.5	10.8	28.3	15.2	23.6	52.0	59.5	24.2	26.6

Availability under consult.

UTP CAT.6A COPPER PATCH CORD GIGALAN AUGMENTED

Accessory for connections in telecommunication rooms and work areas.

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6 mm
Plug type	RJ-45 CAT.6A
Color	Gray
Connector type	RJ-45
Cable type	CAT.6.A UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of nominal diameter 0.2 mm
Flammability class	LSZH
Number of pairs	4 pairs, 26AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94 V-0
Assembly type	T568A, T568B or crossover

Performance

Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100±15 % Ω
Electric voltage between conductors and shielding	2500 VDC/3 s
NVP	68 %
Maximum propagation delay	45 ns/100 m

Ordering Description

1.5 m
2.5 m
5.0 m

UTP CAT.6A COPPER EXTENSION GIGALAN AUGMENTED

Accessory for performing connections in telecommunication rooms and for service distribution in horizontal cabling (connection point).

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6.3 mm
Color	Gray or Red
Connector type	RJ-45 (ET)
Conductor type	Electrolytic copper solid, bare, composed by 7 wires of nominal diameter 0.2 mm
Flammability class	CM, LSZH
Number of pairs	4 pairs, 26AWG

Ordering Description

2.5 m	Gray	CM
5 m		
10 m		
2.5 m		LSZH
5 m		
10 m		

Availability under consult.

CAT.6A KEYSTONE JACK GIGALAN AUGMENTED

Accessory for performing connections in telecommunication rooms and work areas.

Constructive Characteristics

Width 17 mm x **Height** 22.4 mm x **Depth** 37.4 mm **Color** Silver

Color	Blue, Beige, White, Black and Red
Material type	Transparent thermoplastic flame retardant UL 94 V-0
Electrical contact material	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Conductor diameter	22 to 26AWG
Assembly type	T568A and T568B

Performance

Retention force between jack and plug	Minimum 133 N
Number of cycles	≥1000 RJ-45 and ≥200 RJ-11
	≥200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
DC resistance	0.1 Ω
Dielectric voltage proof	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

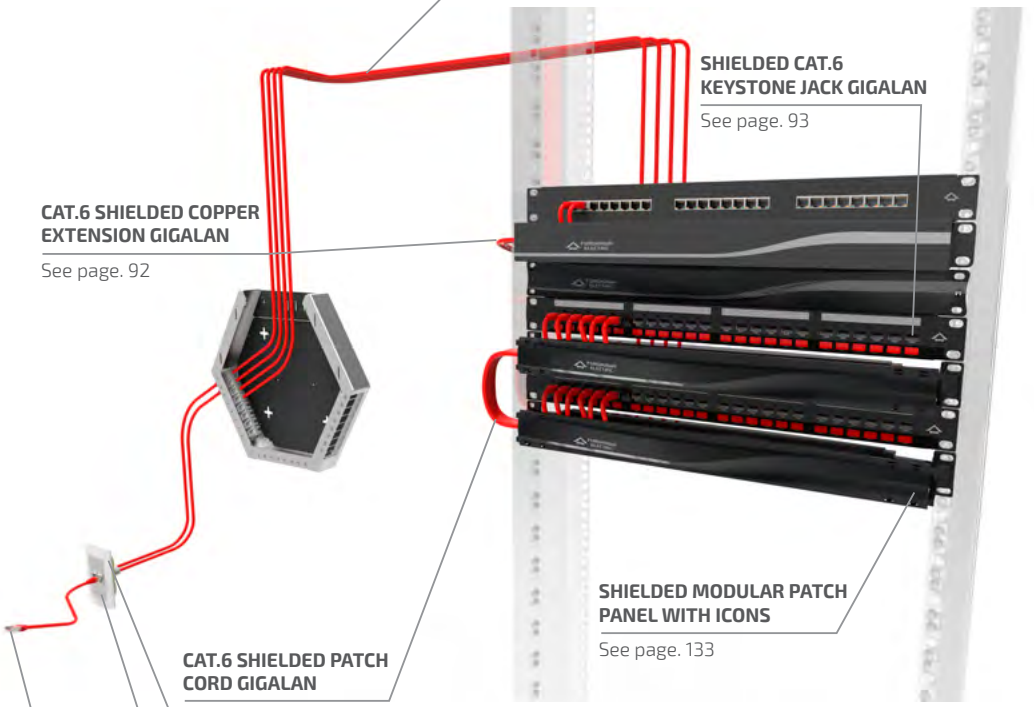
Ordering Description

Keystone Jack Gigalan CAT. 6 T568A/B 90/180 - White
Keystone Jack Gigalan CAT. 6 T568A/B 90/180 - Beige
Keystone Jack Gigalan CAT. 6 T568A/B 90/180 - Black
Keystone Jack Gigalan CAT. 6 T568A/B 90/180 - Blue
Keystone Jack Gigalan CAT. 6 T568A/B 90/180 - Red

GigaLan

FTP Channel
UTP Channel

FTP Channel



CAT.6 CABLE F/UTP CM
See page. 89

SHIELDED CAT.6 KEYSTONE JACK GIGALAN
See page. 93

CAT.6 SHIELDED COPPER EXTENSION GIGALAN
See page. 92

SHIELDED MODULAR PATCH PANEL WITH ICONS
See page. 133

CAT.6 SHIELDED PATCH CORD GIGALAN
See page. 91

WHITE MODULAR FACEPLATE
See page. 137

CAT.6 SHIELDED PATCH CORD GIGALAN
See page. 91

SHIELDED CAT.6 KEYSTONE JACK GIGALAN
See page. 93

SHIELDED DATA CABLE GIGALAN CAT.6 F/UTP 23AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Constructive Characteristics

Shielding	Metalized polyester tape
Color	PVC RoHS: Gray or red
	LSZH: Green
Nominal diameter	7.5 mm
Weight	51 kg/km
Flammability class	CM - UL 1581 - Vertical tray section 1160 (UL1685)
	CMR - UL1666 (Riser)
	LSZH-1 - IEC-60332-1
	LSZH - IEC-60332-3
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.6 data cables (pg. 103)

Package

Wood reel	
Standard cable run	1000 m

Ordering Description

F/UTP	CM	Red
	LSZH	Green

Availability under consult.

SHIELDED DATA CABLE INDOOR/OUTDOOR GIGALAN CAT.6 F/UTP 23AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Application

Outdoor installation environment	Outdoor installation in ducts or aerial lashed

Constructive Characteristics

Insulation	High density polyethylene with nominal diameter of 1 mm
Color	Black
Cable type	Double sheath
Nominal diameter	9.5 mm
Weight	84 kg/km
Flammability class	CM: UL 1581 - Vertical tray section 1160 (UL 1685)
Waterblocking tape	Yes
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70°C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.6 data cables (pg. 103)

Package

Wood reel	
Standard cable run	1000 m

Ordering Description

F/UTP Indoor/Outdoor	CM, UL "CMX Outdoor"

Observation

Despite outdoor cables are properly designed for installation in outdoor environment, it's essential to provide electrical protection against lightning, overvoltage and transients compatible with cable category being utilized.

Availability under consult.

F/UTP CAT.6 SHIELDED COPPER PATCH CORD GIGALAN

Accessory for performing connections in telecommunication rooms (cross-connect) and for service distribution at work area.

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6 mm
Weight	0.034 kg/m
Color	Gray
Connector type	RJ-45 shielded
Cable type	CAT.6 F/UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of 0.2 mm diameter
Flammability class	CM, CMR, LSZH (CM)
Number of pairs	4 pairs, 26AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94V-0
Assembly type	T568A, T568B or cross-over

Performance

Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100 ± 15% Ω
Electric voltage between conductors and shielding test	2500 VDC/3s
NVP	68 %
Delay Skew	45 ns/100 m

Ordering Description

1.5 m	Gray	T568-A/B	CM
2.5 m			
3 m			
4 m			
5 m			

Availability under consult.

F/UTP CAT.6 SHIELDED COPPER EXTENSION GIGALAN

Accessory for performing connections in telecommunication rooms and for service distribution on horizontal cabling (connection point).

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	6.3 mm
Weight	0.034 kg/m
Color	Gray
Connector type	RJ-45 shielded
Cable type	CAT.6 F/UTP
Conductor type	Solid Cooper Conductor with 24AWG diameter
Flammability class	CM
Number of pairs	4 pairs, 24AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Transparent thermoplastic flame retardant UL 94V-0
Assembly type	T568A, T568B or cross-over

Performance

Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100 ± 15% Ω
Electric voltage between conductors and shielding test	2500 VDC/3s
NVP	68 %
Delay skew	45 ns/100 m

Ordering Description

2.5 m	Gray	T568-A/B	CM
5 m			
10 m			

Availability under consult.

SHIELDED CAT.6 KEYSTONE JACK GIGALAN

Accessory for performing connections in telecommunication rooms and work areas.

Constructive Characteristics

Width 17.5 mm x **Height** 24 mm x **Depth** 35.5 mm **Color** Silver	
Connector type	RJ-45 shielded
Electrical contact material	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Conductor diameter	22 to 26AWG
Assembly type	T568A and T568B

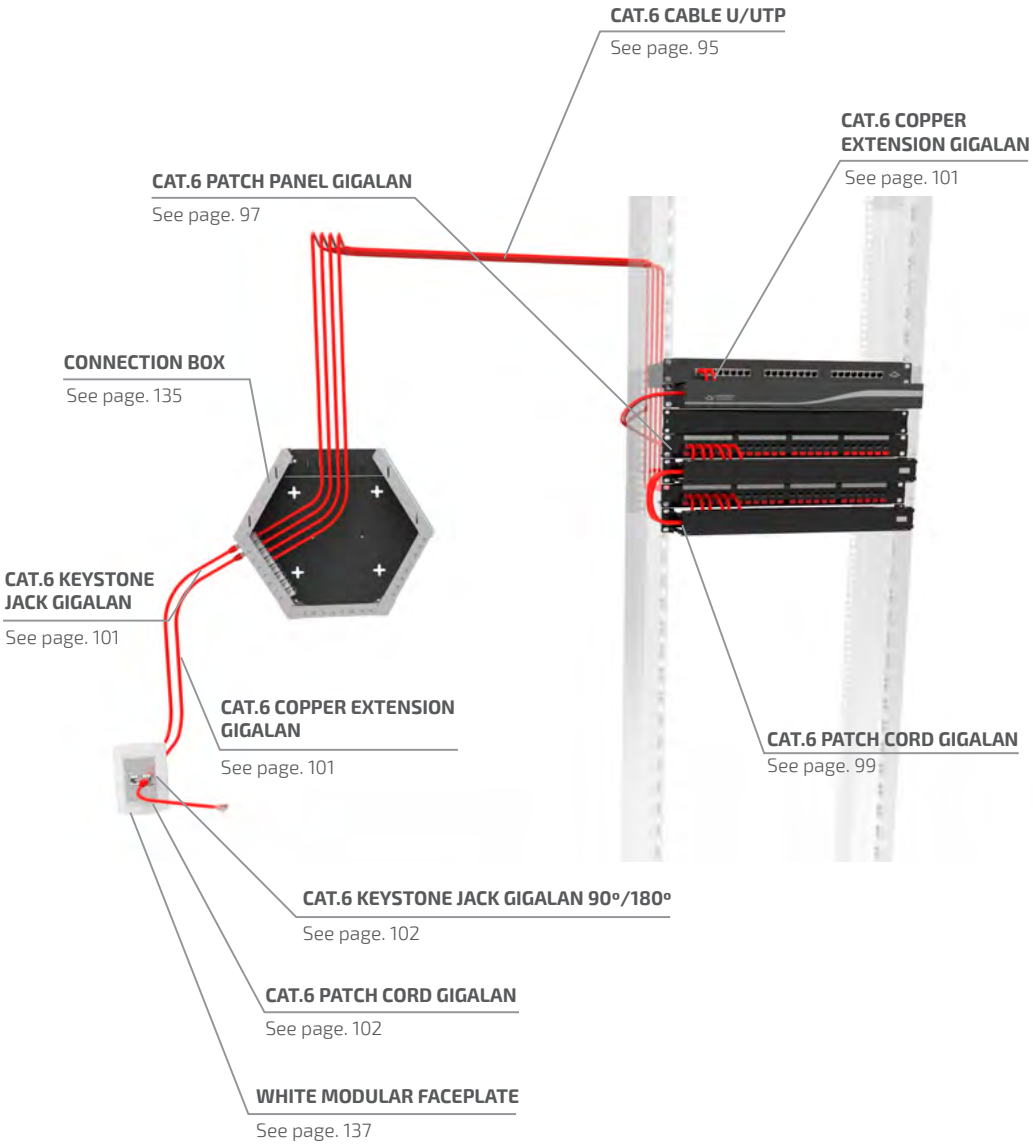
Performance

Retention force between jack and plug	Minimum 133 N
Number of cycles	≥1000 RJ-45 and ≥200 RJ-11
	≥200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
DC resistance	0.1 Ω
Dielectric voltage proof	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

Ordering Description

Shielded CAT.6 Keystone Jack T568A/B

UTP Channel


CAT.6 CABLE U/UTP
See page. 95
CAT.6 COPPER EXTENSION GIGALAN
See page. 101
CAT.6 PATCH PANEL GIGALAN
See page. 97
CONNECTION BOX
See page. 135
CAT.6 KEYSTONE JACK GIGALAN
See page. 101
CAT.6 COPPER EXTENSION GIGALAN
See page. 101
CAT.6 PATCH CORD GIGALAN
See page. 99
CAT.6 KEYSTONE JACK GIGALAN 90º/180º
See page. 102
CAT.6 PATCH CORD GIGALAN
See page. 102
WHITE MODULAR FACEPLATE
See page. 137

DATA CABLE GIGALAN GREEN CAT.6 U/UTP 23AWG X 4P

The cable has a compound LSZH that uses sugar cane in its composition, also knew as green polyethylene, stracted based in ethanol.

Application

Outdoor installation environment, Lashed aerial in outdoor installations.

Constructive Characteristics

Insulation	Green polyethylene
Jacket	LSZH
Color	Green, Gray and Blue
Nominal diameter	6.0 mm
Weight	42 kg/km
Flammability class	LSZH - IEC 60332-3-25 (Category D)
Waterblocking tape	No
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 75 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.6 data cables (pg. 103)

Package

Type	Fast-box
Standard cable run	305 m

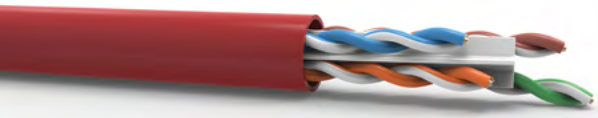
Ordering Description

Data Cable GigaLan U/UTP 23AWGX4P CAT.6 LSZH-1 Green (EXP)
Data Cable GigaLan U/UTP 23AWGX4P CAT.6 LSZH-1 Blue (EXP)

Availability under consult.

DATA CABLE GIGALAN CAT.6 U/UTP 23AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.



Constructive Characteristics

Color	PVC RoHS: Gray or Red
	LSZH: Green
Nominal diameter	6 mm
Weight	42 kg/km
Flammability class	CM: UL 1581-Vertical tray section 1160 (UL1685)
	CMR: UL 1666 (Riser)
	LSZH–1 - IEC-60332-1
	LSZH - IEC-60332-3
Number of pairs	4 pairs, 23AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.6 data cables (pg. 103)

Package

Fast-box	
Standard cable run	305 m

Ordering Description

U/UTP	CMR	Gray
	CM	Red
	LSZH	Green

Availability under consult.

24 PORTS CAT.6 PATCH PANEL GIGALAN

Accessory utilized in telecommunication rooms for service distribution in horizontal systems.

Constructive Characteristics

Width 482.6 mm (19") x **Height** 44.4 mm (1 U) **Color** Black

Connector type	RJ-45	
Ports amount	24 ports	
Product body material	Steel and high impact thermoplastic UL94V-0	
Electrical contact material	RJ-45	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
	110IDC	Phosphor bronze 100 µin (2.54 µm) of nickel and tin
Conductor diameter	22 to 26AWG	

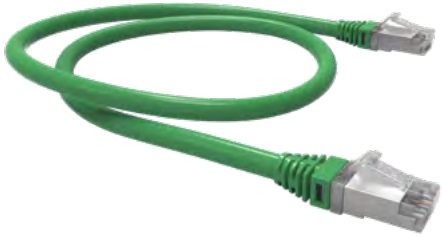
Performance

Retention force between jack and plug	Minimum 133 N
Number of cycles	≥ 750 RJ-45 and ≥ 200 RJ-11
	≥ 200 in IDC block
Isolation resistance	500 MΩ
Contact resistance	20 mΩ
DC resistance	0.1 Ω
Applied electrical voltage test	1000 V (RMS, 60 Hz, 1min)
Contact force	800 g

Ordering Description

24 Ports CAT. 6 Patch Panel GigaLan

PATCH CORD CAT.6 U/UTP GREEN



Constructive Characteristics

Length	From 0.5 up to 20 m
Nominal diameter	6 mm
Weight	0.034 kg/m
Color	LSZH: Blue, Red, Gray, Green
Connector type	Rj-45
Cable type	U/UTP
Conductor type	Electrolytic copper, flexible, bare, formed by 7 filaments of nominal diameter of 0.20mm
Flammability class	LSZH
Number of pairs	4 pairs, 24AWG
Electrical contact material	8-way phosphor bronze with 100in (2.54 m) of nikel and 50in (1.27 m) of gold
Product body material	Product with LSZH jacket based on ethanol extracted from sugar cane
Assembly type	T568A, T568B or crossover

Performance

Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100±15%Ω
Electric voltage between conductors and shielding test	Between conductors: 2500 VDC/3s
NVP	66%
Delay Skew	45ns/100 m

Ordering Description

U/UTP CAT.6 Copper Patch Cord GigaLan Green - LSZH - T568A/B – 0.50M - Green
U/UTP CAT.6 Copper Patch Cord GigaLan Green - LSZH - T568A/B - 1.0M - Green
U/UTP CAT.6 Copper Patch Cord GigaLan Green - LSZH - T568A/B - 3.0M - Green
U/UTP CAT.6 Copper Patch Cord GigaLan Green - LSZH - T568A/B - 5.0M - Green

U/UTP CAT.6 COPPER PATCH CORD GIGALAN

Accessory for performing connections in telecommunication rooms (cross-connect) and for service distribution at work area.

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	5.5 mm
Weight	0.034 kg/m
Color	Yellow, Blue, White, Red, Gray, Green and Black
Connector type	RJ-45
Cable type	CAT.6 U/UTP
Conductor type	Electrolytic copper, flexible, bare, comprised by 7 wires of 0.2 mm diameter
Flammability class	CM (standard), CMR and LSZH
Number of pairs	4 pairs, 24AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Transparent thermoplastic flame retardant UL 94V-0
Assembly type	T568A, T568B or crossover

Performance

Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100 ± 15% Ω
Electric voltage between conductors and shielding test	2500 VDC/3 s

Ordering Description

1.5 m	Red	CM
2 m		
2.5 m		
3 m		
4 m		
5 m		
1.5 m	Green	LSZH
2.5 m		
5 m		

Availability under consult.

28AWG U/UTP GIGALAN CAT.6 PATCH CORD

Accessory for performing connections in telecommunication rooms (cross-connect) and for service distribution at work area.

Constructive Characteristics

Length	From 0.5 to 7.5 m
Nominal diameter	3.9 mm
Weight	0.034 kg/m
Color	Gray, Blue, Red or White
Connector type	RJ-45
Cable type	CAT.6 U/UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires
Flammability class	LSZH
Number of pairs	4 pairs, 28AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94V-0
Assembly type	T568A, T568B or crossover

Performance

Conductor maximum DC electric resistance at 20°C	93.8 Ω/km
Maximum mutual capacitance 1kHz	56 pF/m
Characteristic impedance	100 ± 15% Ω
Electric voltage between conductors and shielding test	2500 VDC/3s
NVP	66 %
Delay Skew	45 ns/100 m

Ordering Description

U/UTP CAT.6 28AWG Copper Patch Cord GigaLanI	LSZH	T568A/B	1.0 m	White
U/UTP CAT.6 28AWG Copper Patch Cord GigaLan	LSZH	T568A/B	5.0 m	White
U/UTP CAT.6 28AWG Copper Patch Cord GigaLan	LSZH	T568A/B	1.0 m	Blue
U/UTP CAT.6 28AWG Copper Patch Cord GigaLan	LSZH	T568A/B	5.0 m	Blue
U/UTP CAT.6 28AWG Copper Patch Cord GigaLan	LSZH	T568A/B	2.0 m	Red
U/UTP CAT.6 28AWG Copper Patch Cord GigaLan	LSZH	T568A/B	5.0 m	Gray

Availability under consult.

U/UTP CAT.6 COPPER EXTENSION GIGALAN

Accessory for performing connections in telecommunication rooms and for service distribution on horizontal cabling (connection point).

Constructive Characteristics

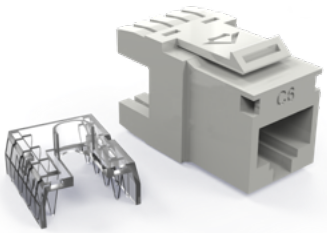
Length	From 0.5 to 20 m
Nominal diameter	6 mm
Color	Red and Gray
Connector type	RJ-45
Cable type	CAT. 6 U/UTP
Conductor type	Solid electrolytic copper
Flammability class	CM (standard)
Number of pairs	4 pairs, 23AWG

Ordering Description

2.5 m	Red
5 m	
10 m	

CAT.6 KEYSTONE JACK GIGALAN 90º/180º

Accessory for performing connections in telecommunication rooms and work areas.



Constructive Characteristics

Color	Blue, White, Beige, Black and Red
Connector type	RJ-45
Product body material	Flame retardant thermoplastic UL 94V-0
Electrical contact material	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Conductor diameter	22 to 26AWG
Assembly type	T568A and T568B
Cable Angle	90º or 180º

Performance

Retention force between jack and plug	Minimum 133N
Number of cycles	≥750 RJ-45 and ≥200 RJ-11
	≥200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
DC resistance	0.1 Ω
Dielectric voltage proof	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

Ordering Description

Keystone Jack GigaLan CAT. 6 T568A/B 90/180 - White
Keystone Jack GigaLan CAT. 6 T568A/B 90/180 - Beige
Keystone Jack GigaLan CAT. 6 T568A/B 90/180 - Black
Keystone Jack GigaLan CAT. 6 T568A/B 90/180 - Blue
Keystone Jack GigaLan CAT. 6 T568A/B 90/180 - Red

PERFORMANCE TABLE FOR CAT.6 DATA CABLES

Performance

Maximum unbalance resistance	5 %	
Conductor maximum DC electric resistance at 20°C	93.8 Ω/km	
Maximum mutual capacitance 1kHz	56 pF/m	
Maximum unbalance capacitance pair x ground	3.3 pF/m	
Characteristic impedance	100±15% Ω	
Maximum propagation delay	545 ns/100 m @ 10 MHz	
Maximum delay skew	45 ns/100 m	
NVP	68 %	
Insulation resistance	10000 M Ω.km	
Type	**F/UTP**	**U/UTP**
Electric voltage between conductors test	1000 VDC/3s	2500 VDC/3 s
Electric voltage between conductors and shielding test	500 VDC/3s	-

Freq.	**Attenuation dB**	**NEXT dB**	**PSNEXT dB**	**ACRF dB**	**PSACRF dB**	**RL dB**
(MHz)	**TIA Max.**	**TIA Min.**	**TIA Min.**	**TIA Min.**	**TIA Min.**	**TIA Min.**
1	2.0	74.3	72.3	67.8	64.8	20.0
4	3.8	65.3	63.3	55.8	52.8	23.0
8	5.3	60.8	58.8	49.7	46.7	24.5
10	6.0	59.3	57.3	47.8	44.8	25.0
16	7.6	56.2	54.2	43.7	40.7	25.0
20	8.5	54.8	52.8	41.8	38.8	25.0
25	9.5	53.3	51.3	39.8	36.8	24.3
31.25	10.7	51.9	49.9	37.9	34.9	23.6
62.5	15.4	47.4	45.4	31.9	25.9	21.5
100	19.8	44.3	42.3	27.8	24.8	20.1
200	29.0	39.8	37.8	21.8	18.8	18.0
250	32.8	38.3	36.3	19.8	16.8	17.3

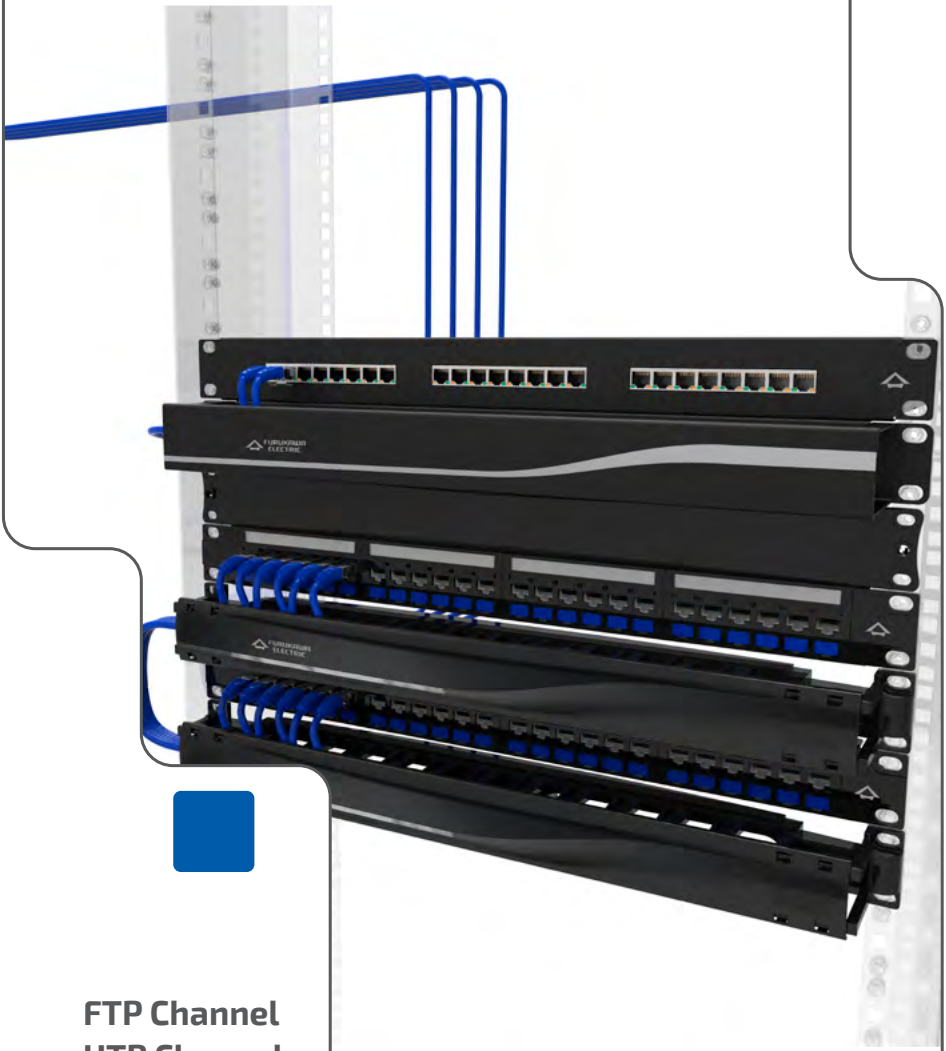
Note:

Temperature 20°C +/- 3°C

Considered length 100 m.

Higher frequencies than specified on TIA and ISO standards are for information only.

MultiLan



FTP Channel
UTP Channel

FTP Channel

CAT.5e DATA CABLE F/UTP

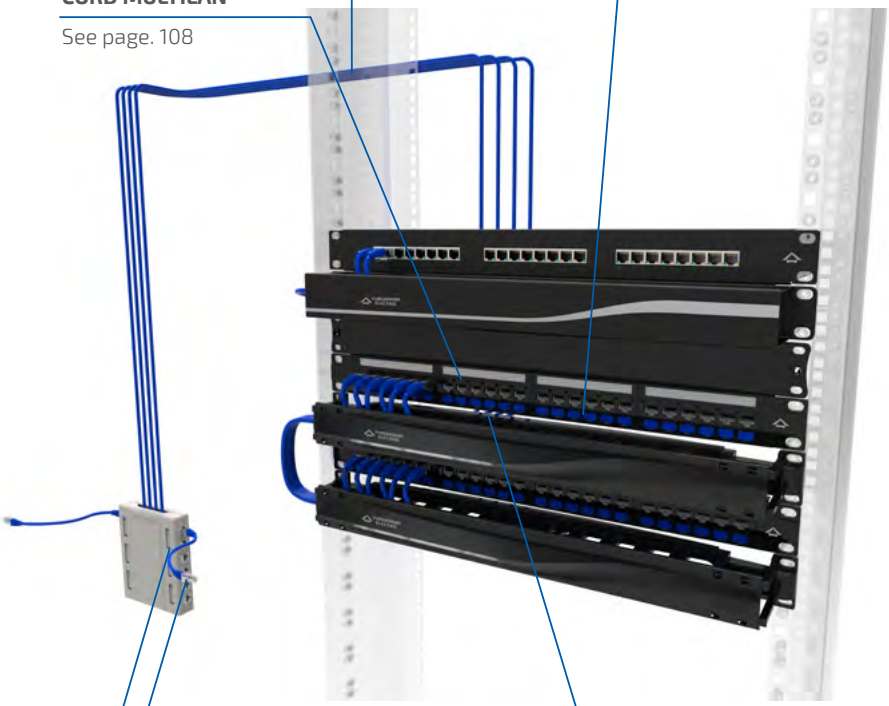
See page. 106

SHIELDED CAT.5e KEYSTONE JACK MULTILAN

See page. 108

CAT.5e SHIELDED PATCH CORD MULTILAN

See page. 108



SHIELDED KEYSTONE JACK CAT.5e

See page. 108

SHIELDED MODULAR PATCH PANEL 24P

See page. 133

CAT.5e SHIELDED COPPER PATCH CORD MULTILAN

See page. 108

DATA CABLE MULTILAN SHIELDED CAT.5e F/UTP 24AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Constructive Characteristics

Shielding	Metalized polyester tape
Color	PVC ROHS: Gray or Blue
	LSZH: Gray
Nominal diameter	6.4 mm
Weight	40 kg/km
Flammability class	CM: UL 1581 - Vertical tray section 1160 (UL 1685)
	CMR: standard UL 1666 (Riser)
	LSZH-1 - IEC-60332-1
	LSZH - IEC-60332-3
Number of pairs	4 pairs, 24AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.5e data cables (pg. 116).

Package

Wood reel	
Standard cable run	1500 m

Ordering Description

F/UTP	CM	Blue

Availability under consult.

DATA CABLE MULTILAN SHIELDED INDOOR/OUTDOOR CAT.5e F/UTP 24AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Application

Outdoor installation environment	Lashed aerial (UV resistant)
	In ducts (for model with waterblocking tape)

Constructive Characteristics

Insulation	High density polyethylene
Color	Black
Number of pairs	4 pairs, 24AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Jacket type	Nominal diameter (mm)	Weight (kg/km)	Flammability class	Waterblocking tape
Single	6.2	52	CMX	No
Double	8.6	84.0	CM	Yes

Performance

See more at performance table for CAT.5e data cables (pg. 116).

Package

Wood reel	
Standard cable run	1500 m

Ordering Description

F/UTP Indoor / Outdoor	UL “CMX Outdoor”
	CM, UL “CMX Outdoor”

Observation

Despite outdoor cables are properly designed for installation in outdoor environment, it’s essential to provide electrical protection against lightning, overvoltage and transients compatible with cable category being utilized.

F/UTP CAT.5e SHIELDED COPPER PATCH CORD MULTILAN

Accessory for performing connections in telecommunication rooms (cross-connect) and for service distribution at work area.

Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	5.3 mm
Weight	0.035 kg/m
Color	Gray
Connector type	RJ-45 shielded
Cable type	F/UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of 0.16 mm diameter
Flammability class	CM, CMR
Number of pairs	4 pairs, 26AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Transparent thermoplastic flame retardant UL 94V-0
Wiring	T568A, T568-B or crossover

Performance

See more at performance table for CAT.5e data cables (pg. 116).

Ordering Description

F/UTP	1.5 m	Gray	CM
	2.5 m		
	3 m		
	5 m		
	15 m		

Availability under consult.

SHIELDED CAT.5e KEYSTONE JACK MULTILAN

Accessory for performing connections in telecommunication rooms and work areas.

Constructive Characteristics

Color	Silver
Connector type	RJ-45 shielded
Electrical contact material	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Conductor diameter	22 to 26AWG
Assembly type	T568A and T568

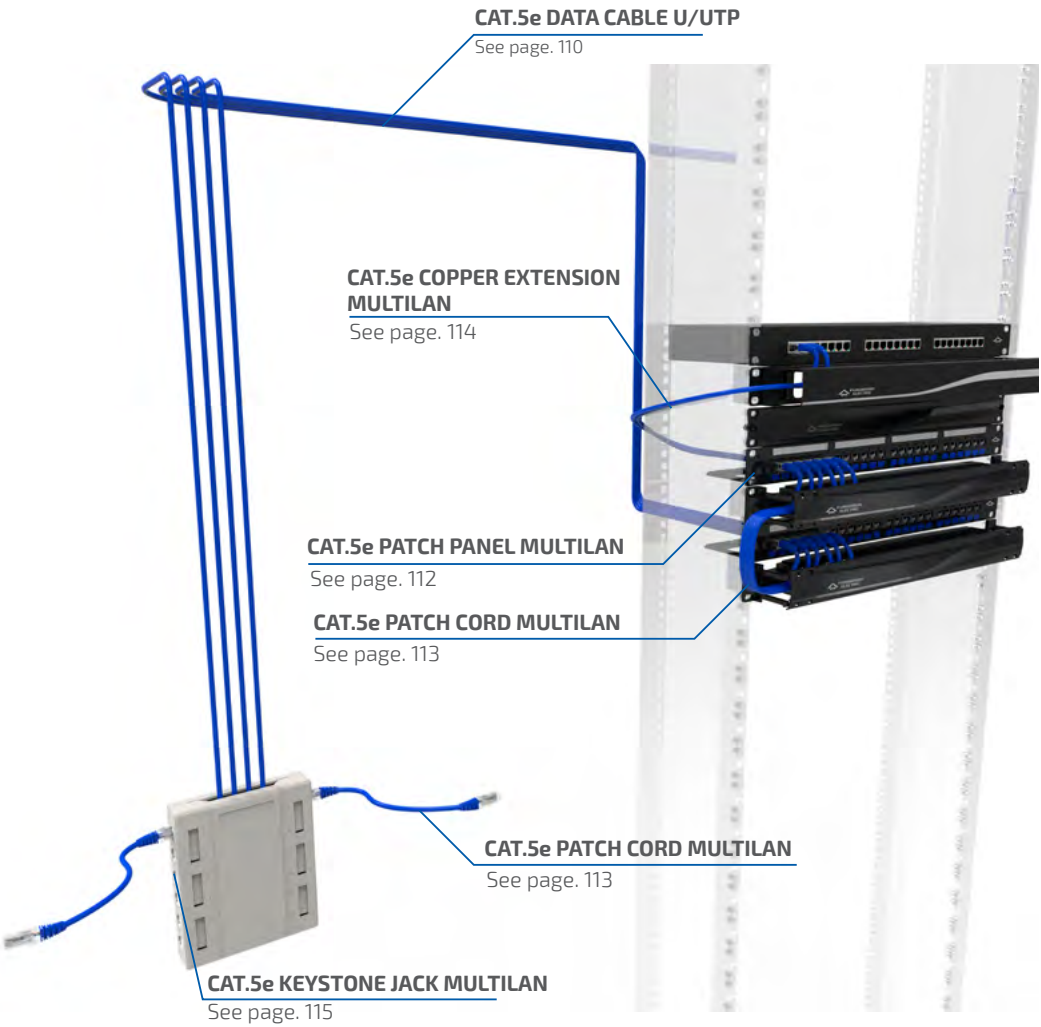
Performance

Retention force between jack and plug	Minimum 133 N
Number of cycles	≥1000 RJ-45 and ≥200 RJ-11
	≥200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
Maximum DC resistance	0.2 Ω
Dielectric voltage proof	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

Ordering Description

Shielded CAT.5e Keystone Jack T568A/B MultiLan

UTP Channel


CAT.5e DATA CABLE U/UTP
See page. 110
CAT.5e COPPER EXTENSION MULTILAN
See page. 114
CAT.5e PATCH PANEL MULTILAN
See page. 112
CAT.5e PATCH CORD MULTILAN
See page. 113
CAT.5e PATCH CORD MULTILAN
See page. 113
CAT.5e KEYSTONE JACK MULTILAN
See page. 115

DATA CABLE MULTILAN CAT.5e U/UTP 24AWG X 4P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Constructive Characteristics

Color	PVC RoHS: Blue or Gray
	LSZH: Green or Blue
Nominal diameter	5.0 mm
Weight	26 kg/km
Flammability class	CM - UL 1581 - Vertical tray section 1160 (UL 1685)
	CMR: UL 1666 standard (Riser)
	LSZH-1 - IEC-60332-1
	LSZH - IEC-60332-3
Number of pairs	4 pairs, 24AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.5e data cables (pg. 116).

Package

Fast-Box	
Standard cable run	305 m

Ordering Description

U/UTP	CM	Gray
		Blue
	CMR	Blue
	LSZH	Green

Availability under consult.

DATA CABLE MULTILAN CAT.5e U/UTP 24AWG X 25P

Data cable for performing connections between patch panels in technical rooms and connectors at work areas.

Constructive Characteristics

Color	Blue
Flammability class	CM: standard UL 1581 - Vertical tray section 1160
Nominal diameter	13.5 mm
Weight	200 kg/km
Internal sheath over 4P sub-unities	Yes
Number of pairs	25 pairs, 24AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.5e data cables (pg. 116).

Package

Wood reel	
Standard cable run	500 m

Ordering Description

U/UTP	CM	Blue

Availability under consult.

DATA CABLE MULTILAN CMX OUTDOOR CAT.5e U/UTP 24AWG X 4P

Despite outdoor cables are properly designed for installation in outdoor environment, it's essential to provide electrical protection against lightning, overvoltage and transients compatible with cable category being utilized.

Application

Outdoor installation environment	Lashed aerial in outdoor installations.

Constructive Characteristics

Insulation	High density polyethylene
Jacket	PVC CMX Outdoor (UL 444)
Color	Black
Nominal diameter	5.5 mm
Weight	35 kg/km
Flammability class	CMX (UL 1581 VW-1)
Waterblocking tape	No
Number of pairs	4 pairs, 24AWG
Installation temperature	From 0 °C to 50 °C
Storage temperature	From -20 °C to 70 °C
Operation temperature	From -20 °C to 60 °C

Performance

See more at performance table for CAT.5e data cables (pg. 116).

Package

Type	Wood reel	Fast-box
Standard cable run	1600 m	305 m

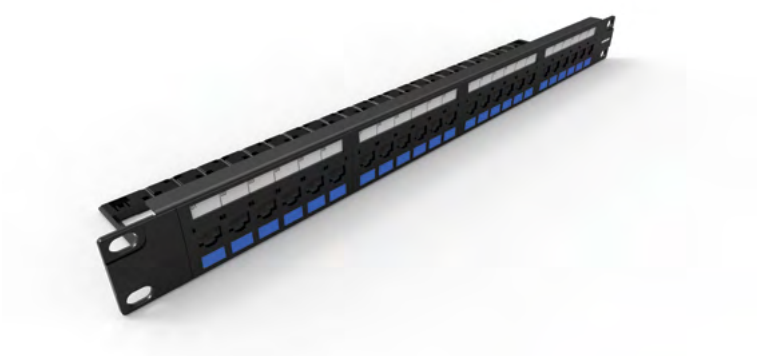
Ordering Description

UL "CMX Outdoor"

Availability under consult.

24 PORTS CAT.5e PATCH PANEL MULTILAN

Accessory utilized in telecommunication rooms for service distribution in horizontal systems.



Constructive Characteristics

Width 482.6 mm (19") x **Height** 44.45 mm 24P **Color** Black

Connector type	RJ-45	
Number of ports	24 ports	
Product body material	Steel and high impact thermoplastic UL94V-0	
Electrical contact material	RJ-45	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
	110 IDC	Phosphor bronze with 100 µin (2.54 µm) of nickel and tin
Conductor diameter	22 to 26AWG	

Performance

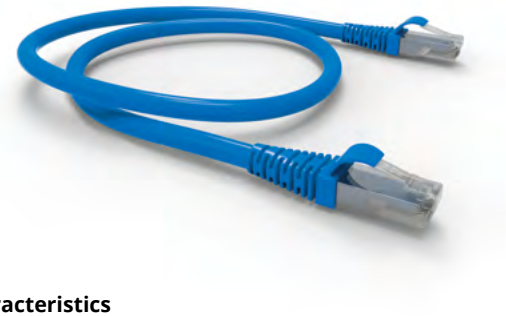
Retention force between jack and plug	Minimum 133 N
Number of cycles	≥ 750 RJ-45 and ≥ 200 RJ-11
	≥ 200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
DC resistance	0.1 Ω
Dielectric voltage proof	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

Ordering Description

24 Port CAT.5e MultiLan Patch Panel

U/UTP CAT.5e COPPER PATCH CORD MULTILAN

Accessory for performing connections in telecommunication rooms (cross-connect) and for service distribution at work area.



Constructive Characteristics

Length	From 0.5 to 20 m
Nominal diameter	5.2 mm
Weight	0.031 kg/m
Color	Yellow, Blue, White, Red, Gray, Green and Black
Connector type	RJ-45
Cable type	U/UTP
Conductor type	Electrolytic copper, flexible, bare, composed by 7 wires of 0.2 mm diameter
Flammability class	CM (standard), CMR
Number of pairs	4 pairs, 24AWG
Electrical contact material	8 pins in phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Product body material	Flame retardant transparent thermoplastic UL 94V-0
Assembly type	T568A, T568B or crossover

Performance

See more at performance table for CAT.5e data cables (pg. 116).

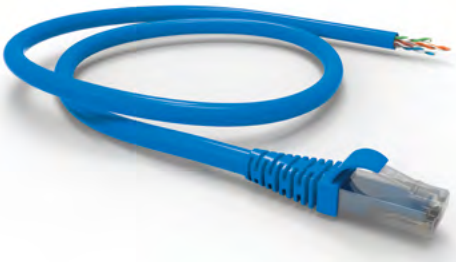
Ordering Description

1.5 m	Blue	CM
2.5 m		
3 m		
5 m		
10 m		
15 m		

Availability under consult.

U/UTP CAT.5e COPPER EXTENSION MULTILAN

Accessory for performing connections in telecommunication rooms and for service distribution on horizontal cabling (connection point).



Constructive Characteristics

Length	From 0.5 m to 20 m
Nominal diameter	5.2 mm
Color	Standard: Blue and Gray
Connector type	RJ-45
Cable type	U/UTP
Conductor type	Solid electrolytic copper
Flammability class	CM
Number of pairs	4 pairs, 24AWG

Ordering Description

2.5 m	Blue
5 m	
10 m	

Availability under consult.

CAT.5e KEYSTONE JACK MULTILAN

Accessory for performing connections in telecommunication rooms and work areas.

Constructive Characteristics

Connector type	RJ-45
Material type	Flame retardant thermoplastic UL 94V-0
Color	Black, Blue, Red, White, Beige
Electrical contact material	Phosphor bronze with 50 µin (1.27 µm) gold and 100 µin (2.54 µm) of nickel
Conductor diameter	22 to 26AWG
Assembly type	T568A and T568B
Cable angle	90° or 180°

Performance

Retention force between jack and plug	Minimum 133 N
Number of cycles	≥1000 RJ-45 and ≥200 RJ-11
	≥200 in IDC block
Insulation resistance	500 MΩ
Contact resistance	20 mΩ
Maximum DC resistance	0.1 Ω
Dielectric voltage proof	1000 V (RMS, 60 Hz, 1 min)
Contact force	0.98 N (100 g)

Ordering Description

Keystone Jack Multilan CAT.5e T568A/B 90/180 - White
Keystone Jack Multilan CAT.5e T568A/B 90/180 - Beige
Keystone Jack Multilan CAT.5e T568A/B 90/180 - Black
Keystone Jack Multilan CAT.5e T568A/B 90/180 - Blue
Keystone Jack Multilan CAT.5e T568A/B 90/180 - Red

PERFORMANCE TABLE FOR CAT.5e DATA CABLES

Performance

Maximum unbalance resistance	5 %	
Conductor maximum DC electric resistance at 20°C	93.8 Ω/km	
Maximum mutual capacitance 1kHz	56 pF/m	
Maximum unbalance capacitance pair x ground	3.3 pF/m	
Characteristic impedance	100 ± 15 % Ω	
Maximum propagation delay	545 ns/100 m @ 10 MHz	
Maximum delay skew	45 ns/100 m	
NVP	68 %	
Insulation resistance	10000 MΩ.km	
Type	**F/UTP**	**U/UTP**
Electric voltage between conductors test	2500 VDC/3 s	2500 VDC/3 s
Electric voltage between conductors and shielding test	500 VDC/3s	-

Freq. (MHz)	**Attenuation dB**		**NEXT dB**		**PSNEXT dB**		**ACRF dB**		**PSACRF dB**		**RL dB**	
	TIA/EIA Max.	**Typical**	**TIA/EIA Min.**	**Typical**	**TIA/EIA Min.**	**Typical**	**TIA/EIA Min.**	**Typical**	**TIA/EIA Min.**	**Typical**	**TIA/EIA Min.**	**Typical**
1	2.0	1.7	65.3	83.1	62.3	76.8	63.8	84.8	60.8	76.5	20.0	35.7
4	4.1	3.6	56.3	74.8	53.3	67.8	51.7	74.2	48.7	65.3	23.1	39.1
8	5.8	5.1	51.8	70.0	48.8	63.4	45.7	68.1	42.7	59.2	24.5	36.3
10	6.5	5.7	50.3	68.6	47.3	61.7	43.8	66.5	40.8	57.4	25.0	35.1
16	8.2	7.3	47.3	63.4	44.3	57.4	39.7	61.4	36.7	53.2	25.0	36.0
20	9.3	8.3	45.8	63.7	42.8	57.6	37.7	59.7	34.7	51.3	25.0	37.5
25	10.4	9.3	44.3	61.0	41.3	54.3	35.8	56.8	32.8	48.9	24.3	37.7
31.25	11.7	11.1	42.9	60.7	39.9	53.7	33.9	53.3	30.9	45.6	23.6	34.8
62.5	17.0	15.0	38.4	55.4	35.4	49.3	27.8	47.9	24.8	40.2	21.5	34.1
100	22.0	19.3	35.3	51.9	32.3	45.2	23.8	43.3	20.8	35.7	20.1	32.3
155	-	23.7	-	50.0	-	43.0	-	40.0	-	31.0	-	31.2
200	-	27.5	-	47.0	-	40.0	-	37.0	-	29.0	-	29.4
250	-	31.1	-	44.0	-	37.0	-	35.0	-	27.0	-	29.0
350	-	37.4	-	41.0	-	34.0	-	31.0	-	24.0	-	28.1

FISACESSO

Racks for Enterprise Environment

ITMAX Rack

Cable Managers: Complements

Connection Boxes

Outlets, Faceplates and Surface Mount Boxes

Supports and Adapters

Tools

Racks for Enterprise Environment

ENTERPRISE CABINET

19" cabinet, utilized in telecommunication rooms for enterprise environments.

Construtive Characteristics

Product body material	Carbon Steel
	Tempered glass (door)

Ordering Description

Description	Model	Height	Width	Depth
Enterprise Wall Cabinet 6 U X 600 mm X 450 mm	Wall	6U's	600 mm	450 mm
Enterprise Wall Cabinet 12 U X 600 mm X 600 mm	Wall	12U's	600 mm	600 mm
Enterprise Cabinet 22 U X 600 mm X 600 mm	Floor	22U's	600 mm	600 mm
Enterprise Cabinet 42 U X 600 mm X 600 mm	Floor	42U's	600 mm	600 mm
Enterprise Cabinet with Cable Manager 42 U X 800 mm X 800 mm	Floor with cable guide	42U's	800 mm	800 mm
Enterprise Cabinet with Cable Manager 42 U X 800 mm X 1000 mm	Floor with cable guide	42U's	800 mm	1000 mm

OPEN RACK 19"

Open rack 19", with two posts, designed for medium cable density environments.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel

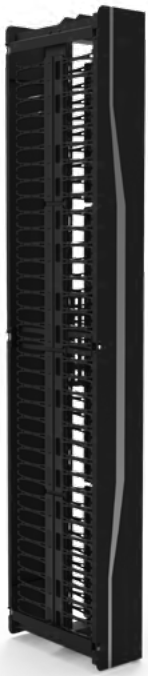
Size	Height	Width	Depth (base)
36 U	1775 mm	520 mm	315 mm
45 U	2175 mm		

Ordering Description

36 U
45 U

ENTERPRISE VERTICAL CLOSED GUIDE DOUBLE FACE

Enables accommodation, routing and storing of copper or optical cables and cords vertically.



Constructive Characteristics

Color	Black
Product body material	Carbon Steel

Size	Height	Width	Depth (base)
36 U	1772 mm	170 mm	392 mm
45 U	2172 mm		

Ordering Description

36 U
45 U

Server Cabinet

SERVER CABINET

Construtive Characteristics

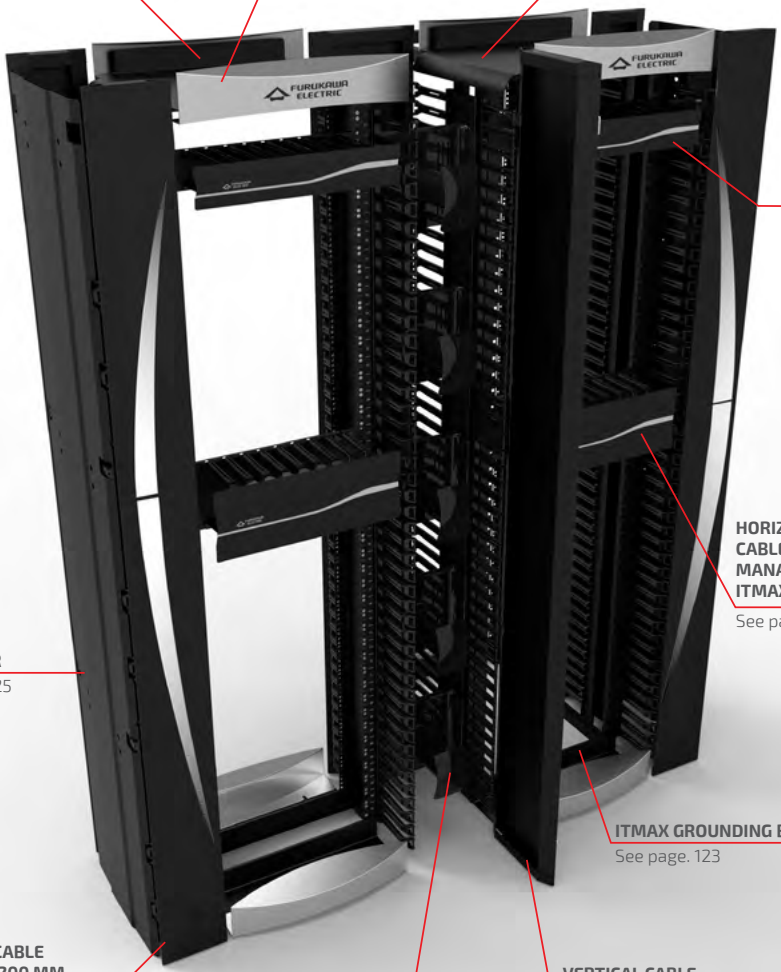
Width 600 mm x **Height** 42 U x **Depth** 1100 mm **Color** Black

Product body material	Carbon Steel

Ordering Description

ITMAX Server Cabinet 42 U X 600 mm X 1100 mm

ITMAX Rack



ITMAX UP AND BOTTOM RACK TRAY
See page. 123

OPEN RACK 4 P
See page. 122

OPEN RACK 2 P
See page. 122

HORIZONTAL CABLE MANAGER 2 U ITMAX
See page. 125

HORIZONTAL CABLE MANAGER 4 U ITMAX
See page. 125

SIDE COVER
See page. 125

ITMAX GROUNDING BAR
See page. 123

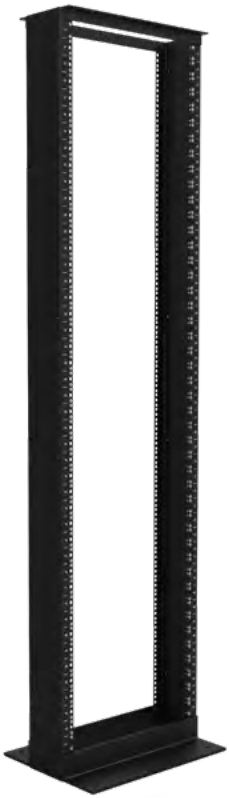
VERTICAL CABLE MANAGER 200 MM
See page. 124

VERTICAL CABLE MANAGER BETWEEN RACKS
See page. 124

ITMAX PLASTIC SPOOL
See page. 123

ITMAX OPEN RACK 2P 19" 45 U

19" open rack for installation of cabling or network equipment in Data Centers.



Construtive Characteristics

Width 526 mm x **Height** 2118 mm (45 U) x **Depth (base)** 404 mm
Color Black

Product body material	Carbon Steel / aluminum

Ordering Description

ITMAX Open Rack 2P 19" 45 U

ITMAX OPEN RACK 4P 19" 45 U

Four post 19" open rack, designed for applications with high density of cables.

Construtive Characteristics

Width 526 mm x **Height** 2118 mm (45 U) x **Depth (base)** 914 mm
Color Black

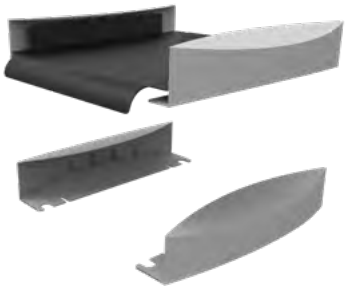
Product body material	Carbon Steel / aluminum

Ordering Description

ITMAX Open Rack 4P 19" 45 U

ITMAX UP AND BOTTOM RACK TRAY

Allow correct routing of copper or optical cables in up and bottom parts of ITMAX rack.



Construtive Characteristics

Width 630 mm x **Height** 115 mm	
Depth (base)	Up rack: 605 mm
	Bottom rack: 170 mm
Color	Black and Gray
Product body material	Carbon Steel and high impact thermoplastic

Ordering Description

ITMAX Up and Bottom Rack Tray

ITMAX PLASTIC SPOOL

Allow accommodation and storing of patch cords and optical cords in vertical cable managers of ITMAX rack, with appropriate bending radius.

Construtive Characteristics

Width 100 mm x **Height** 165 mm x **Depth (base)** 218 mm **Color** Black	
Product body material	High impact thermoplastic UL 94 V-0

Ordering Description

ITMAX Plastic Spool

ITMAX GROUNDING BAR

Enables correct grounding of equipment installed on ITMAX rack.

Construtive Characteristics

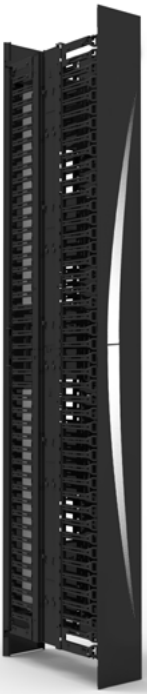
Width 17 mm x **Height** 2000 mm x **Depth (base)** 1.3 mm **Color** Silver	
Product body material	Electrolytic tin coated copper wire

Ordering Description

ITMAX Grounding Bar

ITMAX VERTICAL CABLE MANAGER 200 MM

Enables accommodation, routing and storing of copper or optical cables and cords vertically for high density ITMAX racks.



Construtive Characteristics

Width 200 mm x **Height** 2173 mm x **Depth (base)** 512 mm
Color Black

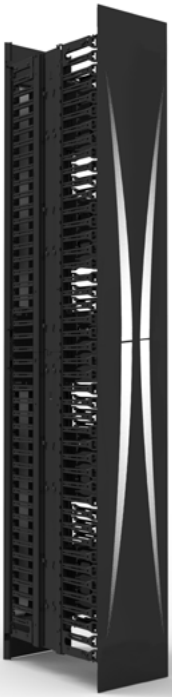
Product body material	Carbon Steel / aluminum

Ordering Description

ITMAX Vertical Cable Manager 200 mm - Single Door

ITMAX VERTICAL CABLE MANAGER BETWEEN RACKS 315 MM

Enables accommodation, routing and storing of copper or optical cables and cords vertically for high density ITMAX racks.



Construtive Characteristics

Width 315 mm x **Height** 2173 mm x **Depth (base)** 512 mm
Color Black

Product body material	Carbon Steel / aluminum

Ordering Description

ITMAX Vertical Cable Manager Between Racks 315 mm - Single Door

ITMAX HORIZONTAL CABLE MANAGER 2 U

Enables routing and accommodation of copper or optical cables and cords horizontally at 19″ racks.

Construtive Characteristics

Width 482.6 mm x **Height** 88.1 mm	
Depth	183 mm (total)
	161 mm (useful)
Color	Black
Product body material	Carbon Steel, aluminum and thermoplastic material

Ordering Description

ITMAX Horizontal Cable Manager 2 U

ITMAX HORIZONTAL CABLE MANAGER 4 U

Enables routing and accommodation of copper or optical cables and cords horizontally at 19″ racks.

Construtive Characteristics

Width 482.6 mm x **Height** 176.2 mm (4 U)	
Depth	183 mm (total)
	161 mm (useful)
Color	Black
Product body material	Carbon Steel and high impact thermoplastic

Ordering Description

ITMAX Horizontal Cable Manager 4 U

ITMAX SIDE COVER

Enables better finishing of ITMAX rack installations.

Construtive Characteristics

Width 452 mm x **Height** 2150 mm (mounted) x **Depth (base)** 27 mm **Color** Black	
Product body material	Aluminum

Ordering Description

ITMAX Side Cover for Vertical Manager - Single Door

Cable Managers

CLOSED HORIZONTAL CABLE GUIDE 1 U/2 U HIGH DENSITY

Enables routing and accommodation of copper or optical cables and cords horizontally at 19" racks.

Constructive Characteristics

Width 482.6 mm x **Height** 44.45 mm (1 U)

Type	**1 U**	**2 U**
Depth	75 mm (high density)	85 mm High Density
	69.5 mm (regular)	
Color	Black	
Product body material	Carbon Steel	

Ordering Description

Closed Horizontal Cable Guide 1 U High Density
Closed Horizontal Cable Guide 1 U
Closed Horizontal Cable Guide 2 U High Density

OPEN HORIZONTAL CABLE MANAGER 1 U HIGH DENSITY

Enables routing and accommodation of copper or optical cables and cords horizontally at 19" racks.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel

Size	**Height**	**Width**	**Depth (base)**
1 U	44.45 mm	482 mm	92 mm
2 U	88.9 mm		85 mm
½ U	22.22 mm		100 mm

Ordering Description

Open Horizontal Cable Manager 1 U
Open Horizontal Cable Manager 2 U
Open Horizontal Cable Manager ½ U

CLOSED HORIZONTAL PLASTIC CABLE MANAGER

Enables routing and accommodation of copper or optical cables and cords horizontally at 19" racks.

Constructive Characteristics

Color	Black
Product body material	Cover and organizers: High impact thermoplastic UL 94 V-0

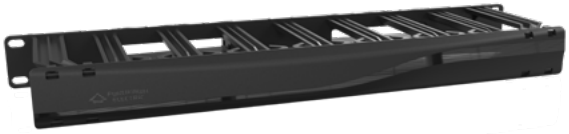
Size	Height	Width	Depth (base)
1 U	44.45 mm	482 mm	75 mm

Ordering Description

Closed Horizontal Cable Plastic Cable Manager 1 U

CLOSED HORIZONTAL PLASTIC CABLE MANAGER HIGH DENSITY

Enables routing and accommodation of copper or optical cables and cords horizontally at 19" racks.



Constructive Characteristics

Color	Black
Product body material	High impact ABS plastic

Size	Height	Width	Depth (base)
1 U	44.3 mm	482 mm	160 mm
2 U	88.9 mm		170 mm

Ordering Description

Closed Horizontal Cable Plastic Cable Manager 1 U - High Density
Closed Horizontal Plastic Cable Manager 2 U - High Density

REAR CABLE MANAGER

Enables accommodation of copper or optical cables.

Constructive Characteristics

Width 482 mm x **Height** 44.45 mm (1 U) x **Depth** 100 mm **Color** Black	
Product body material	Carbon Steel

Ordering Description

Rear Cable Manager

Complements

EXTENDED SHELF FOR RACK

Enables accommodation and organization of passive and active equipment at 19" racks.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel

Type	Height	Width	Depth (base)
Standard	44.45 mm (1 U)	482 mm	290 mm
Vented	88.9 mm (2 U)		
Extended			482 mm

Ordering Description

Extended	
Vented	
Standard	2 U
	1 U

CLAMP FOR VERTICAL ORGANIZATION

Enables accommodation of copper or optical cables vertically at the rack.

Constructive Characteristics

Width 44 mm x **Height** 43.7mm x **Depth** 86 mm **Color** Black	
Product body material	Carbon Steel

Ordering Description

Clamp for Vertical Organization

SLIDING TRAY

Product to be used in 19” racks, it has mobile rails for accommodation and organization of passive and active equipment.

Constructive Characteristics

Height 1 U **Color** Black	
Product body material	Carbon Steel
Model	Telescopic Rail

Ordering Description

Sliding Tray 400 mm
Sliding Tray 500 mm

FIXED TRAY 4 POINTS

Product to be used in 19” racks for accommodation and organization of passive and active equipment.

Constructive Characteristics

Height 1 U **Color** Black	
Product body material	Carbon Steel
Model	Fixed in 4 points

Ordering Description

Fixed Tray 400 mm
Fixed Tray 500 mm
Fixed Tray 600 mm
Fixed Tray 700 mm
Fixed Tray 800 mm
Fixed Tray 900 mm

ENTERPRISE TOP CABLE GUIDE

Enables routing of copper and optical cables in the upper part of the rack.

Constructive Characteristics

Width 554 mm x **Height** 74 mm x **Depth (base)** 150 mm **Color** Black	
Product body material	Carbon Steel

Ordering Description

Enterprise Top Cable Guide

ARTICULATE BRACKET 19"

Articulate bracket 19", wall-mount, and 5 U height.

Constructive Characteristics

Width 488 mm x **Height** 235 mm x **Depth** 298 mm **Color** Black	
Product body material	Carbon Steel

Ordering Description

Articulate Bracket 19"x 5 U

CABLE ANCHORING SUPPORT

Accommodation support for cables in racks and vertical guides.

Constructive Characteristics

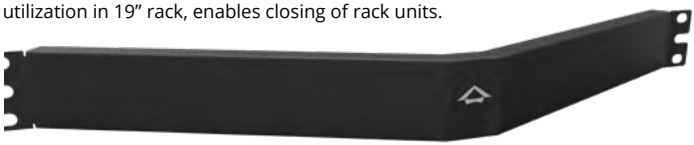
Width 25 mm x **Height** 88 mm x **Depth** 126 mm	
Product body material	Steel SAE 1020

Ordering Description

Accommodation Support for Cables (Anchor)

ANGLED BLANK PANEL 1 U

Product for utilization in 19" rack, enables closing of rack units.



Constructive Characteristics

Width 482 mm x **Height** 44.45 mm (1 U) x **Depth** 110 mm **Color** Black	
Product body material	Carbon Steel

Ordering Description

Angled Blank Panel 1 U

BLANK PANEL

Product for utilization in 19" rack, enables closing of rack units.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel

Height	Width	Depth
44.45 mm (1 U)	482 mm	12 mm
88.9 mm (2 U)		
177.8 mm (4 U)		
22.22 mm (½ U)		

Ordering Description

1 U
2 U
4 U
½ U

PLASTIC BLANK PANEL 1 U

Product for utilization in 19" rack, enables closing of rack units.

Constructive Characteristics

Width 482 mm x **Height** 44.45 mm (1 U) x **Depth** 28 mm **Color** Black	
Product body material	High impact ABS plastic

Ordering Description

Plastic Blank Panel 1 U (5 Pieces)

Unloaded Flat and Angled Patch Panels

SHIELDED ANGLED PATCH PANEL

Installed in 19" racks, enables organization of structured cabling through RJ-45 keystone jacks installation.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel / nickel steel

Size	Number of ports	Height	Width	Depth
1 U	24 ports	44.45 mm	482.6 mm	110 mm
2 U	48/72 ports	88.1 mm		

Ordering Description

24P Shielded Angled 1 U
48P Shielded Angled 2 U
72P Shielded Angled 2 U

ANGLED PATCH PANEL

Installed in 19" racks, enables organization of structured cabling through RJ-45 keystone jacks installation.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel

Size	Number of ports	Height	Width	Depth
1 U	24 ports	44.45 mm	482.6 mm	110 mm
2 U	48 ports	88.1 mm		

Ordering Description

24P Angled Patch Panel 1 U
48P Angled Patch Panel 2 U

SHIELDED ANGLED PATCH PANEL ½ U

Installed in 19" racks, enables organization of structured cabling through RJ-45 keystone jacks installation.

Constructive Characteristics

Product body material	Carbon Steel

Size	Number of ports	Height	Width	Depth
½ U	24 ports	22.22 mm	482.6 mm	110 mm

Ordering Description

Shielded Angled Patch Panel 24P ½ U
Angled Blank Panel ½ U

ANGLED CLOSING LIDE

Installed on top of ½ U angled patch panels, allows organization, does not occupy useful space and protects from dust.

Constructive Characteristics

Product body material	Carbon Steel Finished in scratchproof high resistant black epoxy

Size	Height	Width	Thickness sheet
½ U	22.22 mm	482.6 mm	1 mm
1 U ou 2 U		482.6 mm	1 mm

Ordering Description

Angled Top Cover ½ U - (Used with Angled Patch Panel ½ U)
Angled Top Cover

SHIELDED MODULAR PATCH PANEL WITH ICONS

Installed in 19" racks, enables organization of structured cabling through RJ-45 keystone jack s installation.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel and high impact thermoplastic

Number of ports	Height	Width	Depth	Compatible connector type
24 ports	43.5mm	482.6 mm	97.55 mm	RJ-45 F/UTP 5e, 6 or 6A.

Ordering Description

UTP Shielded Modular Patch Panel 24 P

PATCH PANEL WITH ICONS

Installed in 19" racks, enables organization of structured cabling through RJ-45 keystone jacks installation.

Constructive Characteristics

Color	Black
Product body material	Carbon Steel and high impact thermoplastic

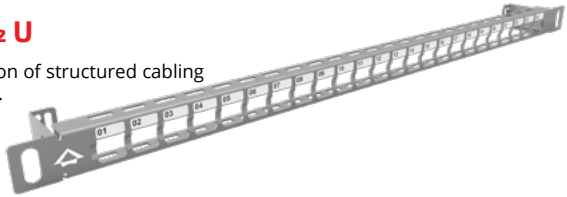
Number of ports	Height	Width	Depth	Compatible connector type
24 ports	43.7 mm	482.6 mm	78 mm (with rear guide)	RJ-45 U/UTP
				Optical adapters SC, LC, F and blind cover

Ordering Description

Modular Patch Panel 24 P with Identification Icons (Unloaded)

SHIELDED PATCH PANEL ½ U

Installed in 19" racks, enables organization of structured cabling through RJ-45 keystone jacks installation.



Constructive Characteristics

Product body material	Steel SAE 1020

Size	Number of ports	Height	Width	Depth
½ U	24 ports	22.2 mm	482.6 mm	31 mm

Ordering Description

Shielded Patch Panel 24 P ½ U (Unloaded)

IDENTIFICATION ICONS

Composed by colored plastic panels, that should be assembled in the front part of connectors patch panels, faceplates and outlets.

Ordering Description

50 pieces	Yellow
	Blue
	White
	Gray
	Orange
	Brown
	Green
	Red
	Violet

Connection Box

HIGH DENSITY CONNECTION BOX

Installed under technical floor, enables structured cabling connections organization through assembly of RJ-45 keystone jacks in patch panels or LGX cassettes/plates in scalable way.

Constructive Characteristics

Height	180 mm
Width	580 mm (without flaps)
Depth	
Number of ports	Maximum 288 ports according to TIA/EIA-942 standard
	336 optical fibers
Color	Light gray
Product body material	Aluminum: Box, lid, frame and cable entrance
	Carbon steel

Ordering Description

High Density Connection Box 6 U
High Density Connection Box 12 U

UNLOADED STACKABLE CONNECTION BOX 24 PORT CAPACITY

Installed under technical floor, enables structured cabling connections organization through assembly of RJ-45 keystone jacks or optical adapters in scalable way.

Constructive Characteristics

Width 355 mm x **Height** 45 mm x **Depth** 315 mm **Color** Black with silver	
Number of ports	24 port capacity – copper or optical
Product body material	Stainless Steel

Ordering Description

Unloaded Stackable Connection Box - 24 Slots

UNLOADED SHIELDED 12 POSITIONS CONNECTION BOX

Installed under technical floor, enables structured cabling connections organization through assembly of RJ-45 keystone jacks or optical adapters in scalable way.

Constructive Characteristics

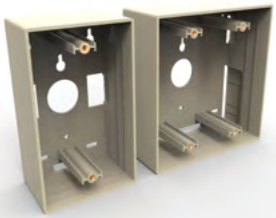
Width 126.5 mm x **Height** 58.5 mm x **Depth** 180 mm **Color** Silver	
Number of ports	12 copper or optical ports
Product body material	Stainless Steel

Ordering Description

Unloaded Shielded Connection Box - 12 Slots

SURFACE MOUNT BOX

Indicated for surface mounting where infrastructure for flush mounting is not available.



Constructive Characteristics

Color	White and Beige
Product body material	High impact ABS thermoplastic

Type	Height	Width	Depth
Single (4X2″)	114 mm	69 mm	48 mm
Double (4X4″)		116.2 mm	

Ordering Description

(4X4″)	Beige
(4X2″)	
(4X2″)	White
(4X4″)	

SHUTTERED SURFACE MOUNT BOX

Indicated for places where infrastructure for flush mounting or surface mounting, in walls, is available.

Constructive Characteristics

Color	Beige, White and Gray
Connector type	RJ-11, RJ-45, SC, LC, F or blind cover
Product body material	High impact ABS thermoplastic

Number of ports	Height	Width	Depth
01	44.45 mm	65 mm	19 mm
02	75.5 mm		

Ordering Description

1 Port	Beige
	White
	Gray
2 Ports	Beige
	White
	Gray
1 Shielded port	Beige
2 Shielded ports	

FLAT FACEPLATE

Indicated for places where infrastructure for flush mounting or surface mounting, in walls, is available.

Constructive Characteristics

Color	White
Product body material	Thermoplastic High Impact ABS, UL 94 V-0 flammability rated

Number of ports	Height	Width	Depth	Connector type
02 and 04 (4x2 ")	114.3 mm	69.8 mm	10 mm	RJ-11, RJ-45, SC, LC, F and blank insert
06 (4x4")	114.3 mm	114.3 mm		

Ordering Description

Flat Faceplate 2P - White (4x2)
Flat Faceplate 4P - White (4x2)
Flat Faceplate 6P - White (4x4)

MODULAR FACEPLATE

Indicated for places where infrastructure for flush mounting or surface mounting, in walls, is available.

Constructive Characteristics

Color	White
Product body material	Thermoplastic High Impact ABS, UL 94 V-0 flammability rated
Installation Environment	Indoor
RoHS	This product is in accordance with the RoHS European Directive
Dimensions	White Modular Faceplate – 4"X2" (Height 121mm, Width 78 mm)
	White Modular Faceplate – 4"X4" (Height 121mm, Width 126 mm)

Ordering Description

White Modular Faceplate - 4X2	03 modules
White Modular Faceplate - 4X4	06 modules

EUROPEAN STANDARD FACEPLATE

Constructive Characteristics

Color	White
Product body material	Thermoplastic High Impact ABS, UL 94 HB flammability rated
Compatibility	European standard wall boxes and surface mount boxes
	Compatible with all FCS line of modular keystone jacks CAT.5e, CAT.6 and CAT.6A
RoHS	This product is in accordance with the RoHS European Directive
Dimensions	Height 86 mm; Width 86 mm

Ordering Description

Faceplate 2 P - European Standard (86 X 86 mm) - White	02 Positions

EUROPEAN FACEPLATE ADAPTER

Indicated for Internal non agressive operational environment.

Constructive Characteristics

Color	White
Product body material	High Impact Thermoplastic UL 94 V-0
Compatibility	RJ-45 Keystone Jack of Category 5e and 6
RoHS	This product is in accordance with the RoHS European Directive
Dimensions	Height 45 mm; Width 22.5 mm

Ordering Description

European Faceplate Adapter 45X22.5 mm - White	01 Position

FACEPLATE MODULES

Modules compatible with modular faceplates for structured cabling termination.

Constructive Characteristics

Number of ports	1 or 2 ports
Product body material	Flame retardant thermoplastic UL 94 V-0
Connector type compatible	SC, ST, FJ, LC, coaxial, F and RCA
Color	White

Ordering Description

Vertical Adapter Module	1 Port	White
Horizontal Adapter Module		
Angled Adapter Module		
Adapter Module	2 Ports	
Blind Cover	-	
Label and Icon Module		

ADAPTER SET

Adapter set and accessories for termination of structured cabling.

Constructive Characteristics

F connector	**Color**	Beige
		White
	Number of ports	01 Port
Y adapter (RJ-45)	**Color**	White
	Number of ports	01 to 02 ports
	Assembly type	Voice
		Modular
		100base-T
Blind cover	**Color**	Beige
		White
		Black
	Number of ports	01 Port

Ordering Description

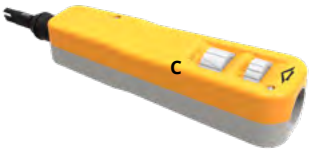
Optical Assembly Adapter F Beige (5 Pieces)	Beige
	White
Voice Divider	
Modular Divider	
Data Channel Divider	
Blind Cover (10 Pieces)	Beige
	White
	Black

Tools

Tools indicated to facilitate the connection of several finishing accessories.

Ordering Description
Fast Connect Tool for UTP Cable (Compatible with new UTP 90o/180o CAT.5e and UTP CAT.6)

Ordering Description
Premium Fast Crimping Tool
Module for Crimping Fast Premium



Ordering Description	
	A Modular Plug Hand Tool for UTP Cable
	B 110 IDC Connection Tool
	C 110 IDC Termination Tool
	Blade (110 IDC Type)

Ordering Description
Keystone Jack Termination Fixture

Optical Cables

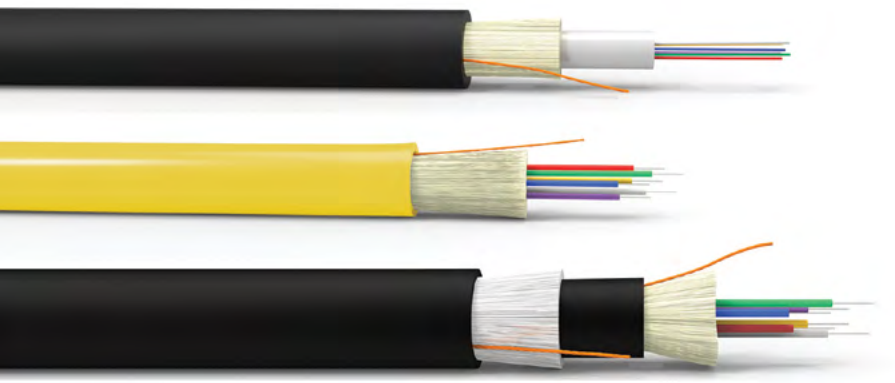
Entertainment, services and information at high speed.

The fast technological advancement of communications and the necessity of higher transmission rates that allow several services as multimedia, internet, teleconference and others made optical fibers and cables the best transmission media.

Furukawa optical cables are made with materials suitable for several uses, in indoor premises networks as well as termination networks (indoor/outdoor), in aerial or underground installations.

Optical Cables for Premises Networks

Termination network
Indoor network



OPTICAL CABLE FIBER-LAN INDOOR/OUTDOOR

Denomination	CFOT-EO
Description	Tight-buffered distribution cable, composed by optical fibers with secondary coating (900 µm), surrounded by dielectric strength members and covered by a flame retardant jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: in ducts or underground manhole susceptible to temporary inundation.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-Mode (9/125)	G.652.D and G.657 (BLI)
Fiber count	02 to 12	
Flammability rating	OFN/ or LSZH	

Fiber count	Nominal outer diameter (mm)	Nominal weight (kg/km)	Maximum load during installation (kgf)	Minimum bending radius (mm)	
				During installation	After installation
2	4.8	19	185	15 x cable diameter	10 x cable diameter
4	5.2	21			
6	5.6	24			
8	6	34			
12	6.5	40			

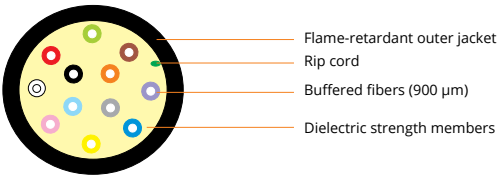
Performance

In accordance to ET 1183

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

*Applicable to cables with PVC jacket and up to 12 fibers.



FIBER-LAN INDOOR/OUTDOOR 12F

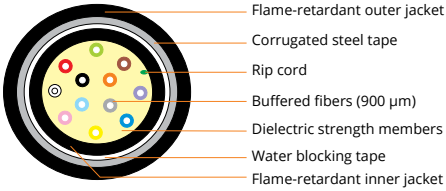
OPTICAL CABLE FIBER-LAN-AR

Denomination	CFOT-AREO
Description	Tight-buffered distribution cable, composed by optical fibers with secondary coating (900 µm), surrounded by dielectric strength members and involved by an inner jacket. A corrugated steel tape protects against rodents and over this is applied a flame retardant outer jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: in ducts or underground manhole susceptible to temporary inundation. Environment subject to rodents' action.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D
Fiber count	02 to 12	
Protection against rodents	Corrugated steel tape	
Flammability rating	OFN or LSZH	

Fiber count	**Nominal outer diameter (mm)**	**Nominal weight (kg/km)**	**Maximum load during installation (kgf)**	**Minimum bending radius (mm)**	
				During installation	**After installation**
2 to 6 fibers	11.5	175	185	15 x cable outer diameter	10 x cable outer diameter
8 to 12 fibers	12.5	185			



FIBER-LAN AR 12 FIBERS

Performance

In accordance to ET 1480

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

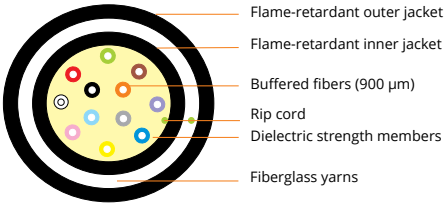
OPTICAL CABLE FIBER-LAN-AR (PFV)

Denomination	CFOT-EOR
Description	Tight-buffered distribution cable, totally dielectric, composed by optical fibers with secondary coating (900 µm), surrounded by dielectric strength members and involved by an inner jacket. A fiberglass layer protects against rodents and over this is applied a flame retardant outer jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: in ducts or underground manhole susceptible to temporary inundation. Environment subject to rodents' action.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D
Fiber count	02 to12	
Protection against rodents	Fiberglass yarns (PFV)	
Flammability rating	OFN or LSZH	

Fiber count	**Nominal outer diameter (mm)**	**Nominal weight (kg/km)**	**Maximum load during installation (kgf)**	**Minimum bending radius (mm)**	
				During installation	**After installation**
2 to 6 fibers	11.8	195	185	15 x cable diameter	10 x cable diameter
8 to 12 fibers	12.8	205			



FIBER-LAN AR (PFV) 12 FIBERS

Performance

In accordance to ET 2206

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

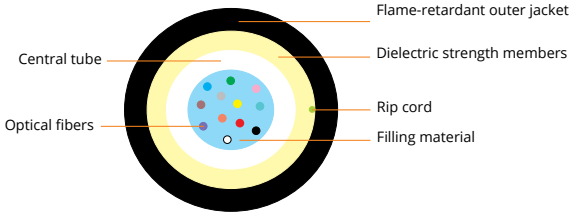
OPTICAL CABLE OPTIC-LAN

Denomination	CFOT-UT
Description	Loose tube cable design, composed by a single tube (central) surrounded by dielectric strength members and covered by a flame retardant outer jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: installed in ducts or underground manhole susceptible to temporary inundation.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D
Flammability rating	LSZH	

Nominal outer diameter (mm)	Nominal weight (kg/km)	Maximum load during installation (kgf)	Minimum bending radius (mm)	
			During installation	After installation
6.2	30	60	124	62



OPTIC-LAN 12 FIBERS

Performance

In accordance to ET 2289

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

OPTICAL CABLE OPTIC-LAN-AR (PFV)

Denomination	CFOT-UTR
Description	Loose tube cable design, composed by a single tube (central) surrounded by dielectric strength members and involved by an inner jacket. A fiberglass layer protects against rodents and over this is applied a flame retardant outer jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: installed in ducts or underground manhole susceptible to tempo-rary inundation. Environment subject to rodents' action.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D
Fiber count	02 to 12	
Protection against rodents	Fiberglass yarns (PFV)	
Flammability rating	OFN or LSZH	
Nominal outer diameter	12.8 mm	
Nominal weight	170 kg/km	

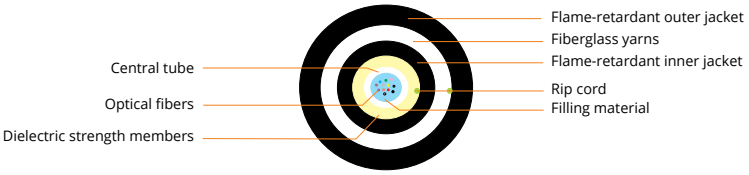
Maximum installation load (kgf)	**Minimum bending radius (mm)**	
	During installation	**After installation**
300	240	120

Performance

In accordance to ET 2168

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber



OPTIC-LAN AR (PFV) 12 FIBERS

OPTICAL CABLE CFOT-UB

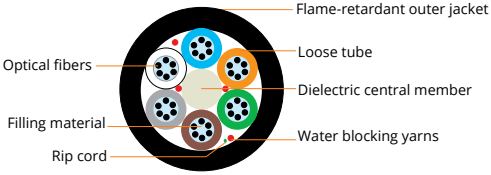
Denomination	CFOT-UB
Description	Breakout Loose tube cable design, available with dry core or totally gel-free in which fibers are organized into multi-tubes arranged around a dielectric central member and covered by a flame retardant outer jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: installed in ducts or aerial lashed in a steel messenger.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D
Fiber count	02 to 144	
Core type	Dry or totally gel-free	
Flammability rating	OFN or LSZH	

Cable type	**Fiber count**	**Fiber count per basic unit (loose tube)**	**Dry core**			**Totally Dry Core**		
			Nominal outer diameter (mm)	**Nominal weight (kg/km) PVC**	**Nominal weight (kg/km) LSZH**	**Nominal outer diameter (mm)**	**Nominal weight (kg/km) PVC**	**Nominal weight (kg/km) LSZH**
CFOT-UB	06 to 36	6	9.2	87	80	9.2	82	75
	48 to 60	12	10.2	103	93	10.2	98	88
	72		10.9	119	109	10.9	114	104
	96		12.4	150	139	12.4	142	131
	120		14.1	183	172	14.1	177	164
	144		16	223	212	16	214	205

Maximum load during installation (kgf)	**Minimum bending radius (mm)**	
	During installation	**After installation**
Up to 12F: 133	20 x cable diameter	10 x cable diameter
More than 12F: 267		



CFOT-UB 36 FIBERS

Performance

In accordance to ET 1252 (dry core) and ET 3095 (totally gel-free)

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

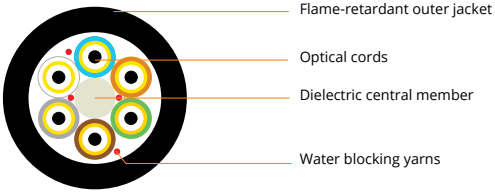
TERMINATION OPTICAL CABLE MULTI CORDAGE

Denomination	CFOT-MB
Description	Breakout cable composed by tight buffered optical cords arranged around a dielectric central member and covered by a flame retardant outer jacket with UV protection.
Application	Installation environment: indoor/outdoor.
	Operation environment: installed in ducts or underground manhole susceptible to temporary inundation.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	SIngle-mode (9/125)	G.652.D
Fiber count	02 a 12	
Flammability rating	OFN or LSZH	

Cable type	**Fiber count**	**Nominal cable dimensional (mm)**	**Nominal weight (kg/km) PVC**	**Nominal weight (kg/km) LSZH**	**Maximum load during installation (kgf)**	**Minimum bending radius (mm)**	
						During installation	**After installation**
CFOT-MF	02	10	94	87	133	20 x cable diameter	10 x cable diameter
	04	10	104	94			
	06	11.2	120	110			
	08	12.7	143	132			
	10	14.3	176	162			
	12	16.1	230	219			



CFOT-MF 6 FIBERS

Performance

In accordance to ET 1252

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

OPTICAL CABLE FIBER-LAN INDOOR

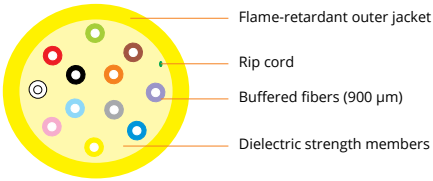
Denomination	CFOI-EO
Description	Tight-buffered cable composed by optical fibers with secondary coating (900 µm), surrounded by dielectric strength members and covered by a flame retardant outer jacket.
Application	Installation environment: indoor.
	Operation environment: intrabuilding backbone and horizontal application.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D and G.657 (BLI)
Fiber count	02 to 72	
Flammability rating	OFN, OFNR* and LSZH	

Fiber count	2	4	6	8	10	12	16	24	36	48	72
Nominal outer diameter (mm)	4.8	5.2	5.6	6	6.3	6.5	14.4	14.4	17.5	16.5	20.5
Nominal weight (kg/km)	19	21	24	34	38	40	192	192	231	254	372
Maximum load during installation (kgf)	Up to 12F: 66										
	More than 12F: 132										
Minimum bending radius (mm)	**During installation**				15 x cable diameter						
	After installation				10 x cable diameter						

*Applicable to cables with PVC jacket and up to 12 fibers.



FIBER-LAN INDOOR 12 FIBERS

Performance

In accordance to ET 2070

Package

Wood reel	
Cable length	2100, 900 or 500 m

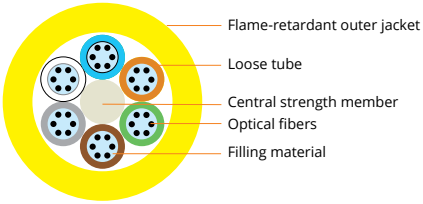
INDOOR OPTICAL CABLE CFOI - UB

Denomination	CFOI-UB
Description	Optical Loose tube cable, available with dry core and totally gel-free in which fibers are organized into multi-tubes and covered by a flame retardant outer jacket.
Application	Installation environment: indoor.
	Operation environment: intrabuilding backbone and horizontal application.

Construtive Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D
Fiber count	02 to 144	
Core type	Dry and totally gel-free	
Flammability rating	OFN or LSZH	

	Dry Core						**Totally Gel Free**					
Fiber count	06 to 36	48 to 60	72	96	120	144	06 to 36	48 to 60	72	96	120	144
Nominal outer diameter (mm)	9.2	10.2	10.9	12.4	14.1	16.0	9.2	10.2	10.9	12.4	14.1	16.0
Nominal weight (kg/km)	87	103	119	150	185	223	86	101.6	117.6	148.6	183.6	221.6
Maximum load during installation (kgf)	Up to 12F: 66											
	More than12F: 132											
Minimum bending radius (mm)	**During installation**						15 x cable diameter					
	After installation						10 x cable diameter					



CFOI-UB 36 FIBERS

Performance

In accordance to ET 1195 (dry core) and ET 3179 (totally gel-free)

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

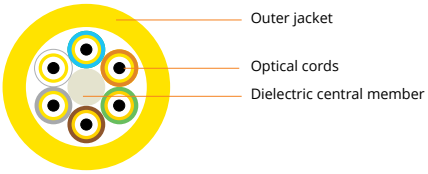
INDOOR OPTICAL CABLE MULTI CORDAGE

Denomination	CFOI-MF
Description	Breakout cable composed by tight-buffered optical cords arranged around a dielectric central member and covered by a flame retardant outer jacket.
Application	Installation environment: indoor.
	Operation environment: interconnect in premise application.

Constrative Characteristics

Fiber types	Multimode (50/125)	OM4, OM3 and OM2
	Single-mode (9/125)	G.652.D and G.652.D (BLI)
Fiber count	02 to 12	
Flammability class	OFN or LSZH	

Optical fiber count	02	04	06	08	10	12
Nominal cable dimensional (mm)	9.5	9.5	10.7	12.2	13.8	15.6
Nominal weight (kg/km)	86	89	117	151	194	247
Maximum load during installation (kgf)	Up to 12F: 66					
	More than 12F: 132					
Minimum bending radius (mm)	**During installation**			15 x cable diameter		
	After installation			10 x cable diameter		



CFOI-MF 06 FIBERS

Performance

In accordance with ET 1195

Package

Wood reel	
Cable length	2100 m for Multimode fiber and 2000 m for Single-Mode fiber

Notes

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