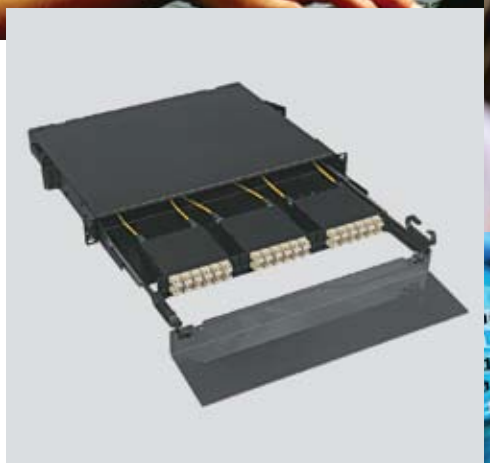

FURUKAWA
Intelligent Solutions to
Networks' Infrastructure

Contents

Institutional

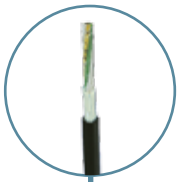
Pride in the history.
Commitment to the future.



1974
Cables Energy Plant in Lorena

1977
Cables Telecommunication Plant in Curitiba

1982
Coax and Electronics Cables



1984
Optical Cables

1991
LAN Cables

1995
Complete Solution to voice, data and broadband

1997
Fiber Optics Production

1998
Program Furukawa Certified Professional

1999
E-commerce

Bringing progress and innovation for over a century.

The need to communicate is one of the main elements responsible for the development of technology.
This becomes even more evident nowadays with the advancement of digital medias; new solutions for data and voice traffic have become a priority to companies and to people. Metallic and fiber optics cables have shortened distances, taking innovation to all the points on the planet.

The Furukawa Group is proud to be part of this history. Founded in 1884 in Japan, and led by the Japanese Furukawa Electric Co. Ltd, it applies know-how and quality acquired over the years to the telecommunications, electronics, and automotive systems, energy, goals and services sectors.

Data belonging to the entire world travel over Furakawa's cables, defining a new threshold for the intelligent and safe use of technology. In 2001 the OFS (Optical Fiber Solution) - a company controlled by the Lucent Technologies Group - was acquired by the Furukawa Group, and it became the OFS, A Furukawa Company - one of the largest fiber optics manufacturing companies was born from this union. Today the company holds patents in monomode NZD (Non Zero Dispersion) fibers, monomode ZWP (Zero Water-Peak) fibers and optimized multimode OM3/OMMF fibers, renowned for exceeding technical norms and continuing to evolve. The Furukawa Group, investing in new technologies keeps growing, conquering new markets and outlining a path to the future, taking its cables and progress even farther.

2001
Cables xDSL and Broadband solution

2002
LAN Cables Export to USA

2003
LAN Cables Export to Europe

2004
Cabling Solution CAT.5e and CAT.6

Cables Lead Fee/LSZH and Export to Japan

2005
Certification UL and ETL

2006
Industrial and Data Center Solutions

2007
1° Project FTTH in Brazil

2008
High Density Optical Solutions

Opening of Argentina's Plant (FIA)

Leadership
Pioneering in the Brazilian market.

It is no exaggeration to say that the cable manufacturing history in Brazil began over 30 years ago, with the investment made by Furukawa Industrial S.A. Produtos Elétricos in the country. Part of the Furukawa Group represents prominence in the telecommunications sector. The company began its activities by manufacturing cables and today it detains the know-how and development that are high enough to offer complete solutions, adapted to the most diverse needs of Telecommunications Infrastructure and of IT - Information Technology. Furthermore, Furukawa holds the majority of the Optimized Fiber Optics patents, and it is a leader in innovating fibers and optical components used in the development of FTTH Solutions.

During all this time, the Furukawa cables followed and led the large advances in the IT area. Many of these advances started off from a structure that is known today as a Center of Excellence for Latin America in the manufacture of optical and metallic cables - the Industrial Unit of Curitiba. Besides being committed to the development of new products, there is a concern at the new plant to invest in research in an ethical and transparent fashion. This is how Furukawa is able to always offer quality products which respect the environment and which contribute toward its development.

Complete solutions to infrastructure of telecommunication and IT - Information Technology.

International Market

Furukawa's experience, quality and tradition to innovate do not recognize any frontiers.

Furukawa exports Brazilian technology from the Worldwide Center of Excellence in the Development of Solutions in Structure Cabling to the entire world. And, the company does not stop there. Growth perspectives for the future are encouraging, especially for the Brazilian and South American markets. Both are in high demand by advanced communications networks and by high-speed multimedia services, both inside of commercial environments as in residential ones. Conjoining to them a victorious strategy of strengthening distributor and integrating channels as well as service and client service levels which grow ever bigger, Furukawa is getting consolidated as a reference icon at the region, which goes beyond the technological quality and which privileges service - in Brazil and throughout the world.

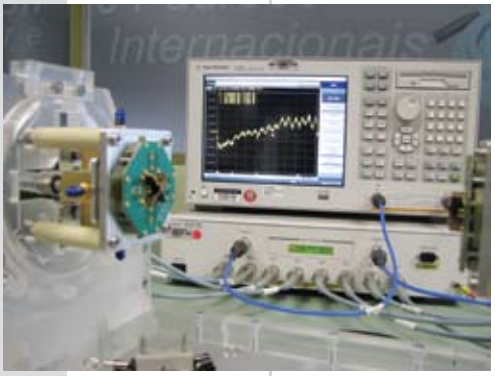
Some figures show bellow substantiate Furukawa's strength and credibility:

- In Brazil, for 2008 Furukawa has envisaged a growth of 10% in revenues, having recorded R$ 368 million in 2007, and keeping up the participation rate of the revenues with exports of 20%.
- In 2007, the company registered a volume of R$ 73 million with sales to the outside market, of which 40% derived from sales of Solutions in Cabling, a segment which is already led by Furukawa in Chile, Paraguay and Uruguay. The other 60% of the exports volumes were produced by the demand for optical and metallic solutions to Telecom.
- An investment of R$ 15 million over the next few years to streamline the Brazilian plant, which is already installed in the city of Curitiba, Paraná.
- US$ 3 destined for the implementation of an industrial unit in the Province of Buenos Aires, Argentina - a market where Furukawa grew 27% in 2007.

Research and Development
Technology in constant evolution.

Component Level Laboratory

The only one in Brazil, this laboratory allows the performance of testing and the analysis of products pursuant to international standards. Among the advantages of being able to count on this structure, one could mention a greater agility in developing products and efficiency to improve the process of adjusting cables and equipment.



Testing Field

In this environment, are produced the actual conditions for the installation of cables and appliances with important information regarding its characteristics, applicability and behavior. All of the above make it possible to anticipate and to correct possible restrictions imposed by technologies, insuring their efficacy and compliance with local and international norms before the product is launched in the market.

Extended Guarantee
A quality assured much longer.

Projects for new networks must take into account the support to already existing technologies as well as to those that are yet going to emerge. This is why it is important to prioritize investments in infrastructure, selecting solutions that have a longer life cycle. Furukawa was the first company in Brazil to offer an Extended Guarantee ranging from 15 to 25 years. This is a program that assures the reliability and the quality of the material that have been employed, as well as for the installation services for its authorized channels.

Service Network

Service network positioned strategically.

Ever since its founding over 30 years ago, Furukawa's presence expanded to all continents, presenting solutions for the infrastructure of telecommunications and IT networks in an innovating fashion. In order to attend to this demand, the company maintains regional offices both in Brazil and in Argentina, as well as a Channel Network strategically positioned in the different countries in Latin America and Europe. In Brazil alone, there are 28 authorized distributors and 187 accredited installers. Furukawa also makes a direct contact channel with the company available to its clients in Brazil - Client Help Desk, which may be reached through number **0800 41 2100**. Out of Brazil, the direct contact channel can be thought the website: **www.furukawa.com.br**

1 Authorized Distributor

1 Authorized Distributor

1 Authorized Distributor
1 Accredit Installer

1 Authorized Distributor

1 Authorized Distributor

1 Authorized Distributor

1 Authorized Distributor
1 Accredit Installer

2 Authorized Distributors

1 Authorized Distributor
5 Accredit Installers

1 Authorized Distributor
9 Accredit Installers

Regional Office
Industrial Plant
9 Authorized Distributors
32 Accredit Installers

1 Authorized Distributor
5 Accredit Installers

1 Authorized Distributor
4 Accredit Installers

Mundial Excellent Center to support Latin America
Industrial Scale Capacity (Material Procurement)
28 Authorized Distributors
187 Accredit Installers
Support of Regional Managers and Engineers
14 Trainings Center
CSC - Customer Service Center: 0800 41 2100

Training
Experience at the service of qualification.

In this current market, training is fundamental for the formation and qualification of professionals. This is why Furukawa is developing programs and special courses applying all of its experience in voice, data and image solutions. The Professionals Certification Program, for instance, qualifies professionals to design and to install structured cabling networks pursuant to the most demanding norms of the Brazilian and International standards. Other sundry courses are also available in practically the entire national territory, which are given through the Authorized Training Centers and in the all countries that Furukawa is presents.

FCP - Fundamental Program
Professional Training Program in structured cabling with modules ranging from basic fundamentals down to the last technologies and perspectives in communications systems. It envisages the criteria pertaining to the TIA/EIA, ISO and ABNT norms.

FCP - Master Program
It represents a professional evolution and the continuity of the Fundamental FCP, using techniques and methodologies to elaborate products and the physical administration of networks (internal and external infrastructures). It envisages the criteria contained in the ANSI/ TIA/EIA, ISO and ABNT norms.

Optical fibers and their applications
This section envisages concepts, transmission modes, applications, optical fiber joints and commensurations, training professionals in theory and practice for a full understanding about optical fibers.

Data Cabling System
Introduction to the structured network cabling area, presenting fundamental concepts or directing professionals from similar areas possessing the necessary formation and the technical skills to make installations using structured cabling systems. It's available in the international market.

Quality and Conquests

All national and international certificates won by Furukawa are the result of the company's commitment with one philosophy: in order to obtain a final product of renowned excellence, it is necessary to give attention to quality through all the stages of the process: from the moment raw materials were obtained, going through handling and production. At Furukawa, quality is a fundamental factor. This commitment is also substantiated by the important certificates won for products and for the environment, granted by UL- Underwriters Laboratories, ETL and Brazilian National Agency of Telecommunication.

UL LISTED

UL VERIFIED

ETL VERIFIED

A1969 UL REGISTERED FIRM ISO 9001 FURUKAWA

9700 UL REGISTERED FIRM ISO 9002 FURUKAWA

INMETRO

BICSI MEMBER

TIA MEMBER

ANATEL

Active participation in the main organs and committees of the area. Recognition and conquests.

Champion of the 2006 and 2007 channels by the CRN magazine
Highlights in the Yearly Book of the 100 Largest IT & Telecom Vendors for 2006 and 2007
Banking Report Award 2007
Top Hospital Award 2007
Among the 100 Largest Companies in Paraná by the Amanhã magazine
Salomão Wajnberg Award regarding the Top Comm Award 2006
VII Modern Consumer Award in Services to Clients
Distinction of the Year by Plano Editorial
Among the 100 Largest Online Transaction Companies in 2006, according to the Info Exame magazine
Eminent Company in Hardware by the Informatica Hoje Yearly

Grandes & Líderes

CRN Campeões do Canal 2006

100 Maiores

Prêmio relatório bancário

Informática Hoje destaque do ano 2006

Prêmio TOP 2007

Telecom Destaque do Ano 2006

Web Tools
Wherever you are, Furukawa is with you.

The Furukawa portal offers services and relationship tools that facilitate your business quite a lot. In an easy and safe manner, you are able to access the most complete infrastructure content of networks, obtaining immediate benefits.

- **VISIO® Stencil**
  A tool that facilitates and speeds up the assembly of technical proposals.

- **Search**
  Gain time by finding instantly whatever you are looking for.

- **Product Catalog Downloading**
  Show your clients both the solution and up to date information about Furukawa products.

- **Dr. Tech/Support**
  Keep in syntony with the last trends and deepen your knowledge about Furukawa products using our Technical Information or Lectures.

- **Certificates**
  Downloads of certificates and materials, including those of the company (ISO) which substantiate why the choice for Furukawa, documenting and legitimizing the use of its products.

- **Weekly News**
  Weekly electronic newsletter forwarded by e-mail, containing varied themes: technology, services and success cases. The previous editions may also be visualized on the cycle.

- **Querying of authorized distributors and accredited installers**
  Only professionals that have been accredited by Furukawa deserve a 15 or a 25-year guarantee.

- **Consulting certified professionals**
  Find the most qualified professional for your needs.

- **Checking on courses and training centers**
  Know where and when take the Furukawa courses.

- **Success cases**
  Learn about the cases that may bring solutions that have to do with your reality.

- **Press**
  The most important features to help you develop the right strategies for your business, rendering it more competitive.

- **Access to an e-shop and to authorized distributors**
  Manage your purchases on line with total comfort.

- **SGN - Business Management System - for accredited installers**
  Count with the facility to enter works in the file and gain agility and competitiveness.

Social-Environmental Responsibility

Evolution of the products, of the people and the way to think.

The story of the Furukawa Group has been harnessed from the very beginning to a evolutionary and self-sustainable society. This means the adoption of environmental and social policies that are truly engaged with society. This is one process which at Furukawa had its start from the very development of its products, and which culminated in direct actions capable of bringing benefits to the local community and to Furukawa's collaborators.

For the environment

To open up the way to information through technology, protecting the environment is one of the philosophies on which Furukawa's work has been predicated. The proof of this is the ISO 14001:2004 Certification for Environmental Management, issued by UL - Underwriters Laboratories do Brazil to the Curitiba Industrial Unit, in Paraná. It reinforces the commitment adopted by the company before the planet, with the development of responsible actions and products that are correct from the ecology point of view. Good examples of this are the internal recycling of residues and Lead Free cables made of heavy metals, the LSZH cables (Low Smoke Zero Halogen) which use halogen free components, which contributes toward the low emission of toxic gases and smoke and which directly influence the preservation of the environment.

The RoHS Directive

The European RoHS Directive restricts the use of certain deleterious substances, it foments the reuse of equipment and it determined a proper management with the objective to improve the efficacy of environmental protection, to reduce the amount of industrial residues and the danger offered by the components. In spite of the inexistence of a restrictive legislation like the RoHS Directive in Latin America, Furukawa already implemented this model in 2007 as a standard for that entire line of structured cabling products. Furukawa uses a seal in its packages to confirm and to characterize this commitment with the environment. Look for it and also contribute toward a more sustainable planet.

The Green IT Program

The Green IT Program, which has been in operation ever since August, 2007, allows the revitalization of the structured cabling network through the replacement of cables and connectivity accessories the technology whereof is obsolete by last generation solutions. The material replaced at the installations is treated and recycles, being changed in raw materials for other industries and for other applications, protecting the environment.

ECOLINK
Protecting the Future of the Earth

Ecolink

In an effort to fight the different effects of global warming up, the development of products those are ecologically correct as become an urgent matter. In the Furukawa Group, the term "environment-friendly products" is used, meaning products that are friendly to the environment, which comprise all the states of the Product's Life Cycle - from the removal from nature of raw materials, to the progress of production and distribution, its use by clients and the final disposal of the product.

Social responsibility

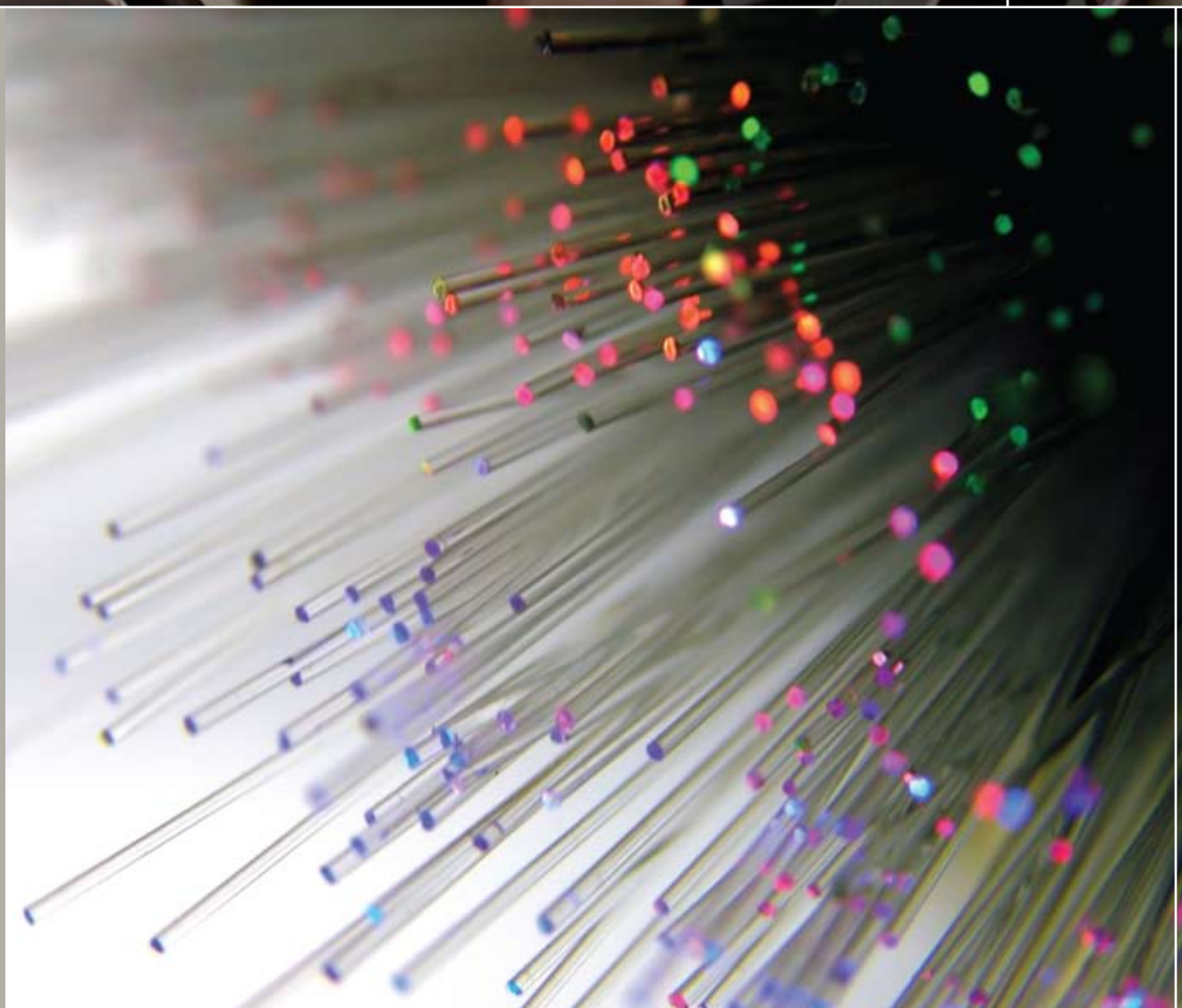
Furukawa's commitment is not only directed toward the evolution of technology. Projects capable of contributing toward the evolution of people, which have the objective to turn Brazil into a better country, also receive a special attention from the Company. Through interaction with the local community, the incentive to voluntary actions of the collaborators and social campaigns - such as the giving of blood, clothing and bone marrow - Furukawa restates its commitment with progress, showing that evolution and the future go through our cables, but they do not go beyond them.

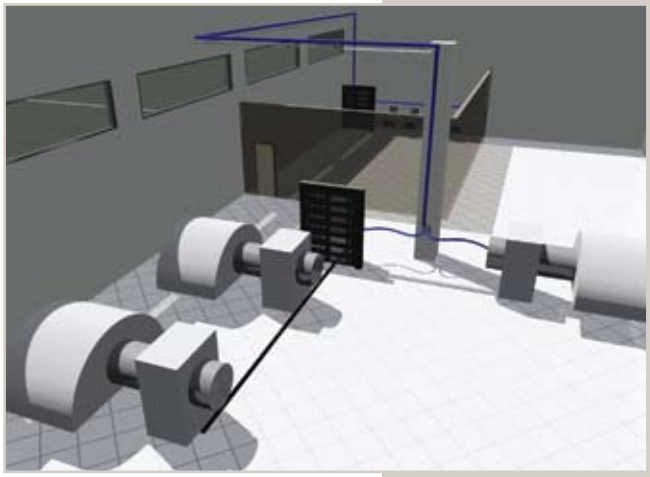
Learn about some of Furukawa's programs and attitudes:

- **The program "Forming Children for the Future" develops the potential of children and the civil rights at several communities through eight weekly hours of school tutoring and extracurricular activities.**
- **The project Digital Inclusion into the Community has already delivered several computers to the needy community that neighbors the Curitiba unit, in Paraná.**
- **Scholarships to different types of public associated to Furukawa and to the community in which Furukawa has been inserted.**
- **Underage Trainee Program.**
- **Through the "Let's Run Program", collaborators get incentives and training to participate of races and marathons.**
- **Sponsorship to Athletes.**
- **Physical exercises at Work.**

Solutions

A network infrastructure for each environment.





Optical Technology

With the quick and explosive technological advance which happened with telecommunications, and the need for greater transmission rates resulting in the availability of multimedia services such as video on Internet, teleconferencing and so many others, optical fibers and cables have stood out as the best means to execute data and voice transmission. These cables which today make use of different types of fibers, allow the transmission of high speed systems, such as SDH/SONET and ATM, including several wave lengths using the WDM and CWDM technologies.

Each application has specific needs and characteristics according to the type of fiber selected, and it offers different performances in long distance systems. That is, in order to choose the most adequate model, it is necessary to learn about every line available at Furukawa.

The ever-growing demand for bandwidths has also boosted the need for 10Gb/sec connections for local networks. Since it is practically impossible to reach such results using metallic cables at distances of over 100m., the solution found was to use optical cabling. Considering the Ethernet standard protocol, the fiber type which supports longer distances and higher rates of transmission has been the laser optimized multimode fiber. Its installation in local networks follows the same standard requirements as those used in commercial buildings, Data Centers or homes. Within the optical technology segment, Furukawa has been offering several options as to new, high technology, fiber generations, used in cables and cords which have the objective to overcome the required performance.

Singlemode Optical Fibers (SM)

Conventional, G.652.B, Types: Proven application performance for data networks offering long distance accesses. They offer excellent performance and a low attenuation coefficient in the O (1260 to 1360nm), C (1530 to 1565nm) and also L (1565 to 1625nm) frequency ranges. They are produced in Brazil by SPF - Produtora de Fibras Ópticas S.A., headquartered in Sorocaba / SP.

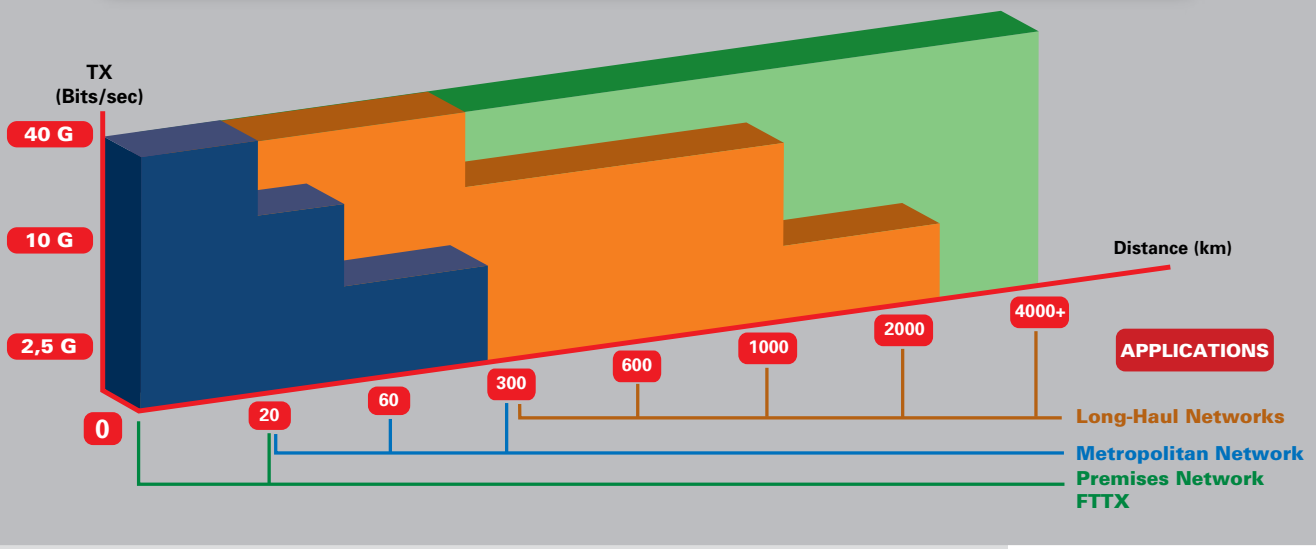
"Low Water Peak" (G.652.D) Types: An optimized application for metropolitan and access networks, allowing the future expansion of the network for new users using the up to 16 channel CWDM, which results in an increase in the transmission capacity of 50% as compared to the conventional singlemode fibers. They show a low attenuation coefficient at the peak of water absorption (1383+-3nm), assuring the additional use of E (1360 to 1460nm) frequency ranges, as well as through the remaining transmission frequency ranges (1270 to 1610nm). They are produced in Japan and in the US with the trade name of "AllWave".

"Bending Loss Insensitive" (G.657.A) Type: The new generation of fiber optics presents low loss values per curvature all along its entire transmission spectrum, ranging from 1260 to 1625nm. The superior performance of this new fiber allows an evolution in diameters of up to 20mm, generating maximum losses of 0.5dB, at 1625 nm and of 0.2dB at 1550 nm. This characteristic performance is ideal for applications such as FTTH (Fiber to the Home) access networks, local networks or any other application where the occurrence of the unforeseeable or circumstantial unfoldings are usual for small curvature radii. They are produced in the US under the trade name of "AllWave FLEX".

SINGLEMODE FIBERS USED IN A GIGABIT APPLICATIONS

RECOMMEND GUIDELINES FOR THE USE OF THE BEST FIBER PER APPLICATION

ITU-T	TRADE NAME	FREQUENCY RANGE	WAVE LENGTH (NM)	AMPLIFIER
G.652.B	Conventional	O,C and L	(1260 to 1360) nm / (1530 to 1625) nm	EDFA
G.652.D	Low Water Pick	O, E,S,C and L	(1260 to 1625) nm	EDFA
G.657.A	AllWave FLEX	O, E,S,C and L	(1260 to 1625) nm	EDFA
G.655	TrueWave RS	O, E,S,C and L	(1260 to 1625) nm	EDFA/RAMAN
G.656	TrueWave REACH	O, E,S,C and L	(1260 to 1625) nm	EDFA/RAMAN



Singlemode, Non Zero-Dispersion Optical Fibers (NZD)

NZD Conventional (G.655) Types: These are optimized singlemode fibers operating in the 1525 to 1625 ranges (C and L frequencies) in DWDM systems, since they present a reduced chromatic and uniform dispersion along this operation range. They have been specifically designed for amplification systems that use the EDFA ("Erbium-Doped Fiber Amplifier") technology, being recommended for long distance ("backbone") networks, and for transmission to metropolitan access networks. They are produced in Denmark under the trade name of "True Wave RS").

NZD "Wideband" (G.656) Types: They are NZD singlemode fibers which have been optimized to operated in the 1525 to 1625 ranges (C and L frequencies) used in the DWDM systems, since they present a reduced and uniform dispersion all through this operation range. They are recommended for long distance networks ("backbones"), and they have been specifically designed for amplification systems that use the RAMAN technology, which offer lower noise levels, greater amplifiable frequency ranges and a cost reduction for the amplification system as compared with the EDFA technology. They are produced in Denmark under the trade name of "TrueWave REACH".

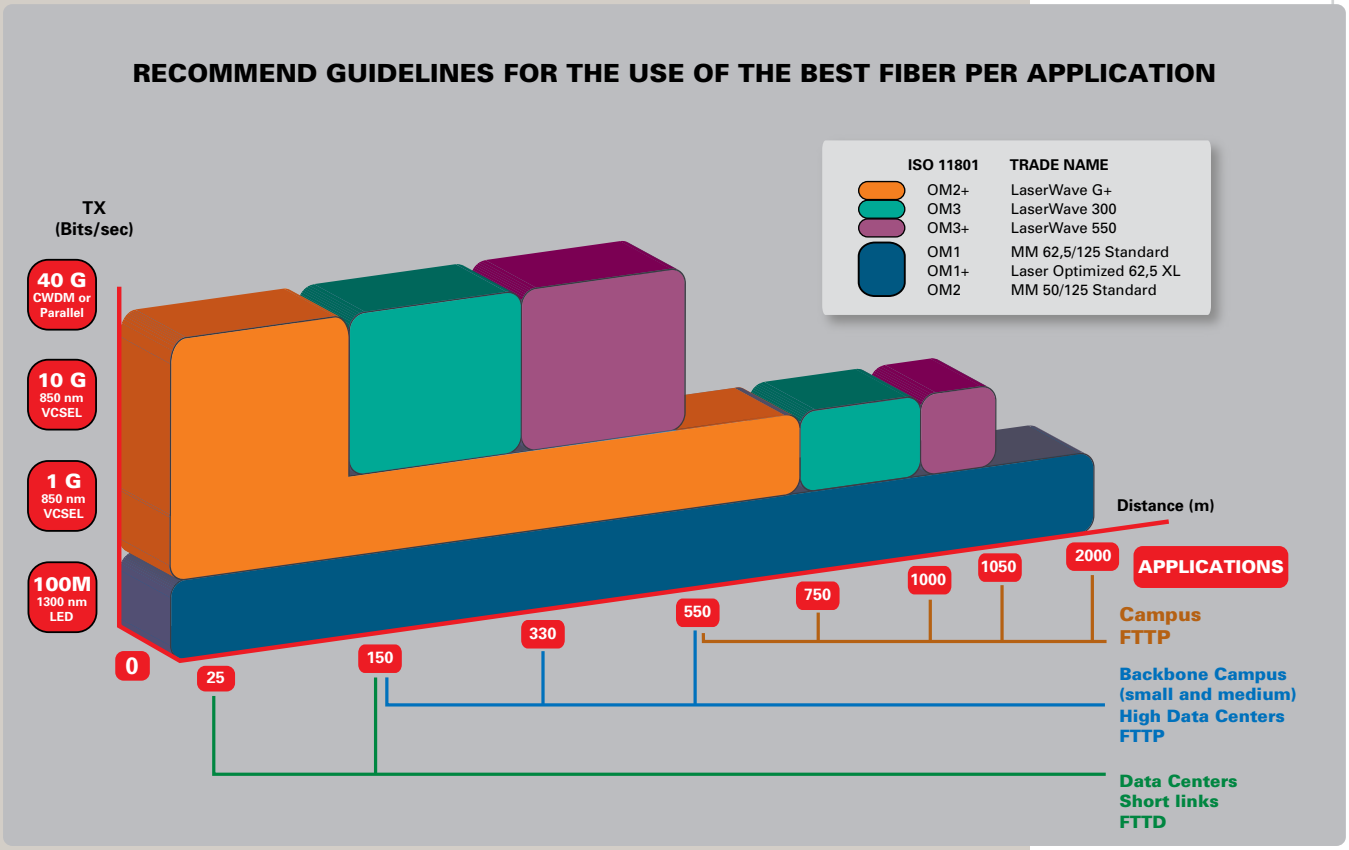
Multimode Optical Fibers (MM)

MM62.5 Conventional (OM1) Types: They are multimode, gradual rate fibers with a nucleus diameters of 62.5 µm, recommended for all applications in local and access networks, operating at the 850 and/or 1350nm frequencies, with transmission rates that can go up to 10Mb/séc, at maximum distances of 2,000 meters. They are produced in the US at OS' plant.

MM50 Conventional (OM2) Types: They are multimode, gradual rate fibers with nucleus diameters of 50µm, recommended for all local network and access applications, operating at frequencies ranging from 850 to 1300 nm, offering transmission rates ranging from 100Mb/sec to 1Gb/sec. Their lower nucleus diameter and numeric aperture allow better compatibility with Laser type sources, such as the VCSEL types ("Vertical Cavity Surface Emitting Laser"), thus allowing transmission rates of up to 1Gb/sec at 850 nm, for up to 550 meters. They are produced in the US at OFS' plant.

MM62.5 Optimized, 1Gigabit (OM1+) Types: They are multimode, gradual rate fibers with nucleus diameters of 62.5 µm, recommended for all applications in local and access networks, having they operation optimized at 850 and/or 1300nm frequencies for transmission rates of 1Gb/sec, and being capable of reaching up to 500 meters in 850nm. They are produced in the US under the trade name of "LaserOptimized 62.5XL".

MULTIMODE FIBERS USED IN A GIGABIT APPLICATIONS



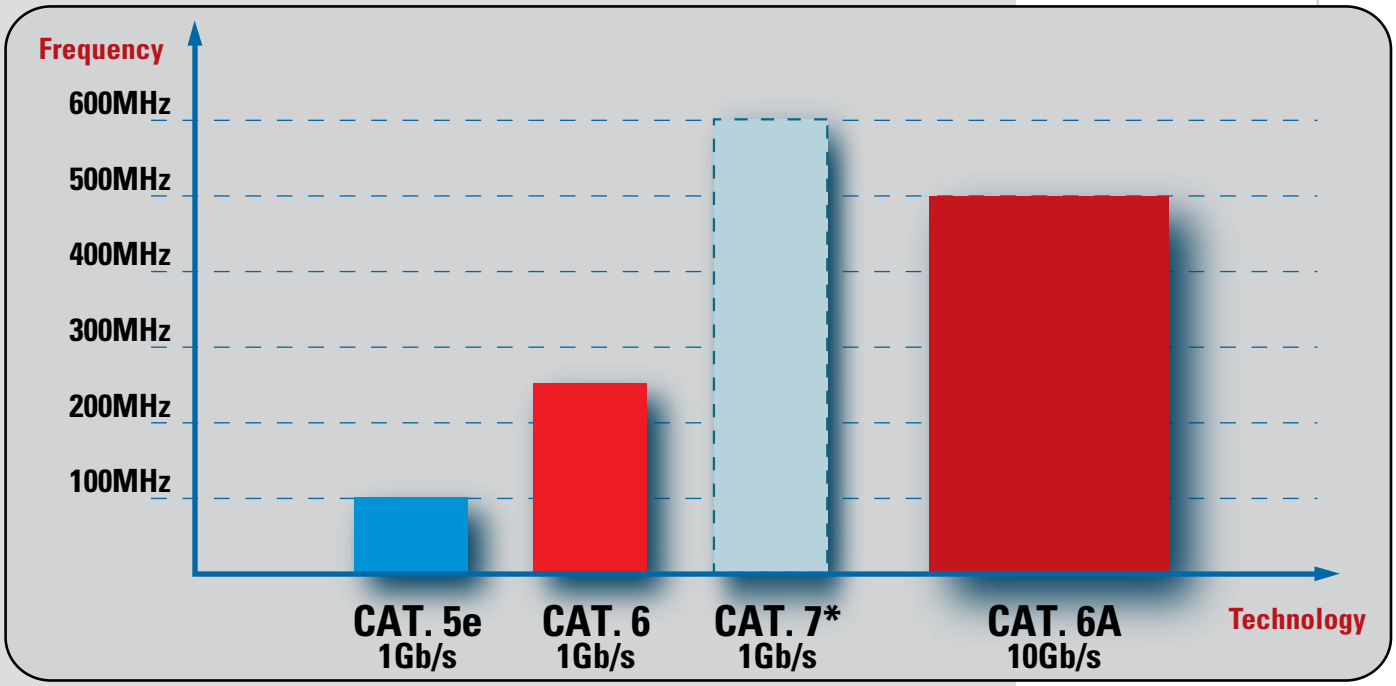
MM50 Types, Optimized for 1 Gigabit (OM2+): These are gradual rate multimode fibers with a nucleus diameter of 50 µm, recommended for all local networks and access applications, with optimized operations in the 850 and/or 1300 nm frequencies for transmission rates of 1Gb/sec., capable of traveling 600 meters in 850 nm and up to 2000 meters in 1300 nm. The larger transmission capability is assured during the manufacturing process, with a rigid quality control regarding the DMD ("Differential Mode Delay"), parameter, allowing direct coupling with Laser type sources without the need to use optical cords of the "Mode Conditioning" types. They are produced in the US under the trade name of "LaserOptimized 50XL".

MM50 Types, Optimized for 10 Gigabit (OM3 / OM3+): These are gradual rate multimode fibers, with nucleus diameters of 50µm, recommended for all local network and access applications, capable of reaching up to 320 meters (OM3 fiber) and 550 meters (OM3+ fiber). These new optical fibers result in the lower overall cost of the system, allowing the use of 850nm VCSEL ("Vertical Cavity Surface Emitting Lasers") transmitters, both for 10Gbits/sec and 1 Gb/sec. The optical interlacing using OM3/OM3+ fibers offers a much lower cost that the usual solution which uses conventional singlemode fibers and 1310nm laser sources. They are produced in the US under the trade names of "LaserWave 300" and "LaserWave 550".

Metallic Pair Technology

In telecommunications, metallic cables need to be reformulated to keep up with all the new services. As regards Wide Band long distance networks, for instance, Furukawa has developed solutions for the DSL systems (ADSL, ADSL2, ADSL2+, HDSL, etc. The metallic CTP xDSL cables are the ones that are best suitable for the final users, according to their required demand.

For local networks, several standards, such as the EIA/TIA and the ISO/IEC have the objective to provide a flexible and reliable cabling system, which is capable of being used by the most varied equipment and manufacturers. Besides, the standardization of the products facilitates the remanning of work stations, the replacement of components and the expansion of already existing networks. These standards also divide the cabling system into categories according to their performance. If one considers the Ethernet standard as of CAT.5e, all of them allow data to be transmitted at speed of up to 1Gb/s. Until a new, definitive standardization came up in 2008, it was impossible to reach a connection of 10Gb/sec in 100 meters using metallic cables. These are CAT.6A products, the only category capable of covering this transmission rate at this distance.



* Note: The CAT.7 technology is used mainly in Europe.

Shielded or Non-Shield Cabling?

The most usual solution nowadays in environments with low concentration of equipment is the non shielded one (U/UTP). This happens because the transmission rates and frequencies used in 6 or 5e categories are relatively low, to the point where outside interferences on the network are not prejudicial to its performance. When the cabling works at a frequency of 500MHz, even active equipment that are present in the telecommunications rooms may cause failings. To minimize this type of problem Furukawa has been offering shielded cabling systems.

In a 10 Gigabit transmission, the performance of a shielded F/UTP solution is optimized. In this type of transmission, even the lesser interferences, which are the main causes of error points and bit losses are eliminated.

It should also be noted that, according to domestic and local standards in effect, the appropriate handling of shielding not only improves performance but also the safety of the entire network as well, since they offer a shielding continuity, both in the direction of the equipment-user as in the user-equipment direction. Currently, as regards U/UTP projects, no concern has been detected as regards grounding, even when it has been envisaged in the standard. This measure assures that the voltages that get introduced into the cabling by any disturbances in the electric feeding lines or any other disturbances do not cause any interference on the signals being transmitted.

In a 10 Gigabit transmission, the performance of a shielded (F/UTP) solution is optimized.

Safety in the Case of Fires

The cabling of local networks does not give rise to fires, and the risk of short-circuits on the network is practically inexistent. However, as it happens with other cables, it may contribute toward the propagation of the flames and of smoke. Due to this reason, it follows different international safety standards.

The line of thinking adopted by the Americans specifies materials that have the characteristic to minimize the effect of flame propagation. That is, the internal material used in the building must act as prevention, so that in case of a fire, the flames get limited and they do not propagate. In this case, the cables are capped by PVC and in other halogenated materials, considering the degree of flammability as an important point.

Focused on the protection of people who inhabit or who work in confined environments, the European line of thinking recommends that the cables be protected with non-halogenated compound linings, which, in the presence of fire, have low density levels and low smoke toxicity. Commercially speaking, these cables are called LSZH (Low Smoke Zero Halogen). It becomes possible for atoxic smoke to be generated by the cable because it does not have halogens in its composition which, in contact with fire, react producing elements that are harmful to humans. These cables are available at two resistance levels to flames: LSZH-1 and LSZH.

LSZH-1: These cables comply with the IEC 60332-1 and NBR 14705 Standards characteristics. Cables with this graduation possess the flame retarding requirements that are equivalent to the CMX, which have been defined by the ANSI/EIA/TIA 568-B.1 standards. They may be installed in places having low cable concentrations inside of protected conduits, and at areas with a large affluence of people.

LSZH: These cables comply with the IEC 60332-3 and NBR 14705 standards characteristics. Cables possessing this type of grading have the necessary flame retarding effects, equivalent to the CM requirements defined by the ANSI/EIA/TIA 568-B.1 Standard. They may be installed in horizontal and vertical paths and spaces, or else, in areas where there is a large affluence of people.

The US line of thinking specifies PVC encapsulated cables, considering the degree of flammability as being an important point.

The European line of thinking recommends cables encapsulated in non-halogenated compounds (LSZH) which when exposed to fire present low toxicity levels of the smoke.

Optical Cables	Metallic Cables	Aplication
OFNP (COP)	CMP	*Plenum* Ducts of conditioned air / confined environments
OFNR (COR)	CMR	*Riser* Shafts or facilities that exceed more than one floor
OFNG (COG)	CM	*Generic Aplication* Horizontal cabling
-	CMX	Applications in pipes where there is no concentration of cables or forced air flow and where the region of exposure does not exceed 3m long (NEC 800)

Note: References: NBR 14705 and NEC NFPA 70

Management of Physical Layer Networks

All the companies have already experienced unplanned downtimes. On top of human errors, the lack of updating of the network documentation, and the lack of knowledge as to the number of switch ports in use or which are idle are some of the causes for this. To manage all the data and voice points existing at the corporate plant, especially at a Data Center, and to control each point individually, starting with the user connection and ending with the port of the active equipment is fundamental to be able to attain a high level of control. In order to achieve this, the management of the IIM (Intelligent Infrastructure Management) network is used. Due to its agility and safety, the new projects inside of these ambiences already envisage this resource as a mandatory element.

The benefits obtained from a complete Furukawa physical management system:

- Integration with AutoCAD, loading of floor pans into the management software.
- Integration with management software such as HP's Open View, CA's Unicenter and IBM's Tivoli Net View.
- Support to structured metallic cabling systems (CAT.6 / CAT.6A), as well as to optical systems.
- Generation of electronic service orders.
- Automatic documentation updating (electronic As-Built).
- Automatic detection of all TCP/IP devices on the network.
- Interaction with network assets using the SNMP protocol.
- Support to PABX and to Voice-over-IP (VoIP).
- Support to all market switches.
- Management software with WEB graphic interfaces allowing remote management.
- Availability of client software for palmtops, thus insuring greater mobility.
- Interaction with the network manager via e-mail, SMS, and warning messages.
- Patch Panel and manageable DIOs (Internal Optical Distributors) with indicative LEDs per door.
- Adapter cable rupture and intelligent optical cord detection.
- Automatic insertion/disconnection detection of adapter cables and of intelligent optical cords.
- Additional modules/devices used to visually identify structured cabling racks.

Solutions

A personalized project since relationship.

The fact that a complete product line has been made available, being manufactured pursuant to all domestic and international standards, allows Furukawa to work with much more than just cables and components - it offers personalized solutions for each type of project. According to your needs, our engineers plan the quantity of products that are best recommended for each type of usage.

It is also necessary that the products that have been specified in your project are easily obtainable in the open market. This is why Furukawa also offers a wide power feeding network (distributors and accredited installers) which have been strategically positioned throughout Latin America.

Whatever the dimension of the project, Furukawa has the ideal solution to resolve your problem.

1. ITMAX Data Center

Safety and reliability in the your most important business.

With a lot more emphasis that in other projects, the technical requirements for the infrastructure of a Data Center are critical and they serve as basis for all the other layers associated to it. This happens as result of the complexity of the structure, since it houses all the Company's Information Systems which have been stored on Servers. As result, it is essential that all the failures are eliminated from a Data Center project, and that the redundancy and reliability of the company's information is increased. This result may be obtained through an integration between all the products, always aiming toward a final solution.

It is essential that all failure points are eliminated inside of a Data Center and that redundancy and reliability are increased.

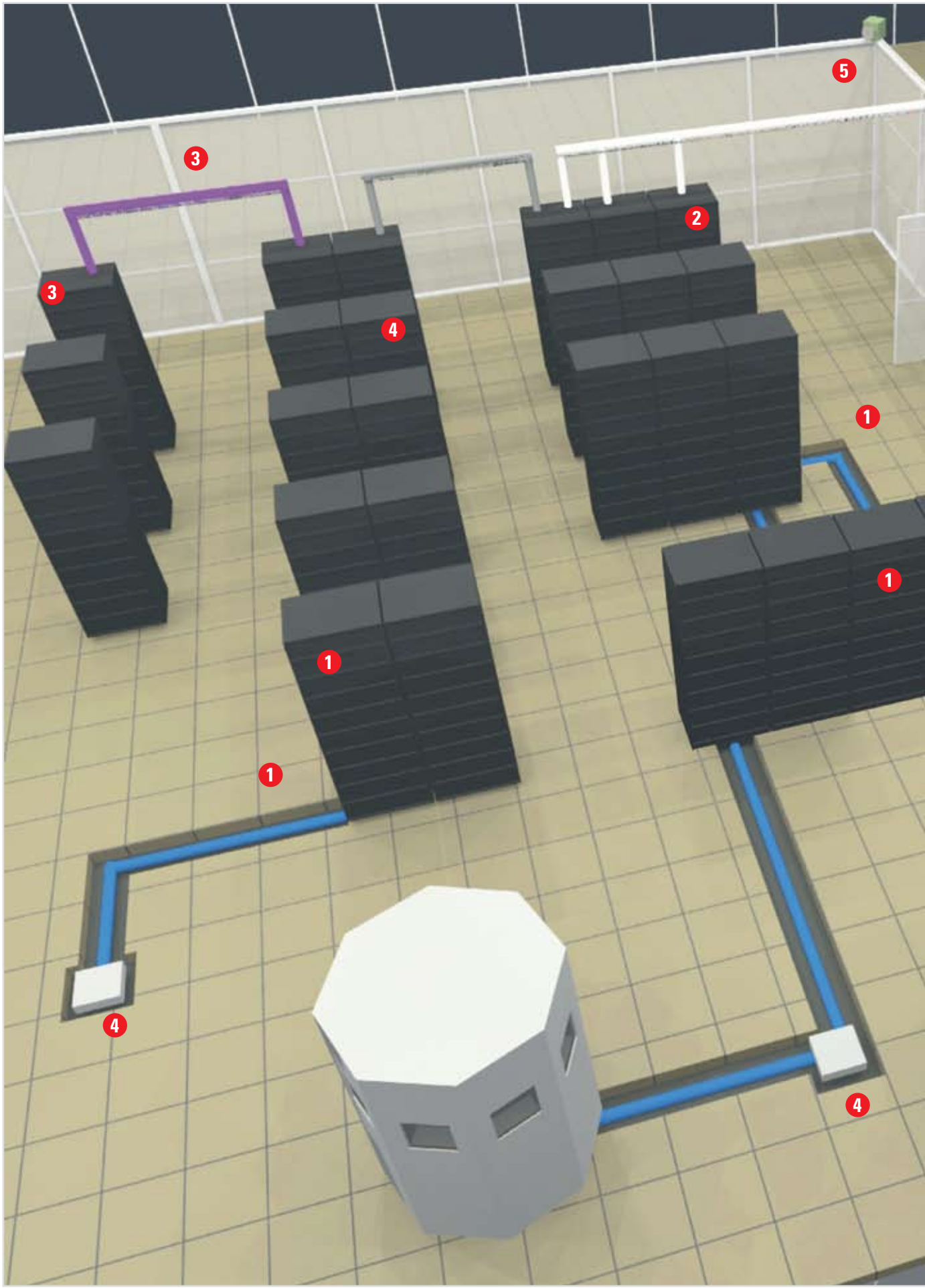
Data Center projects must take into account the following systems: architecture, electrical, air conditioning, telecommunications, management, maintenance and safety. Within the Telecommunications System one must take into account the electrical systems, grounding, structured cabling, the passing through of cables, the racks and cabinets, active network equipment, network management, structured cabling hierarchy, availability and safety levels.

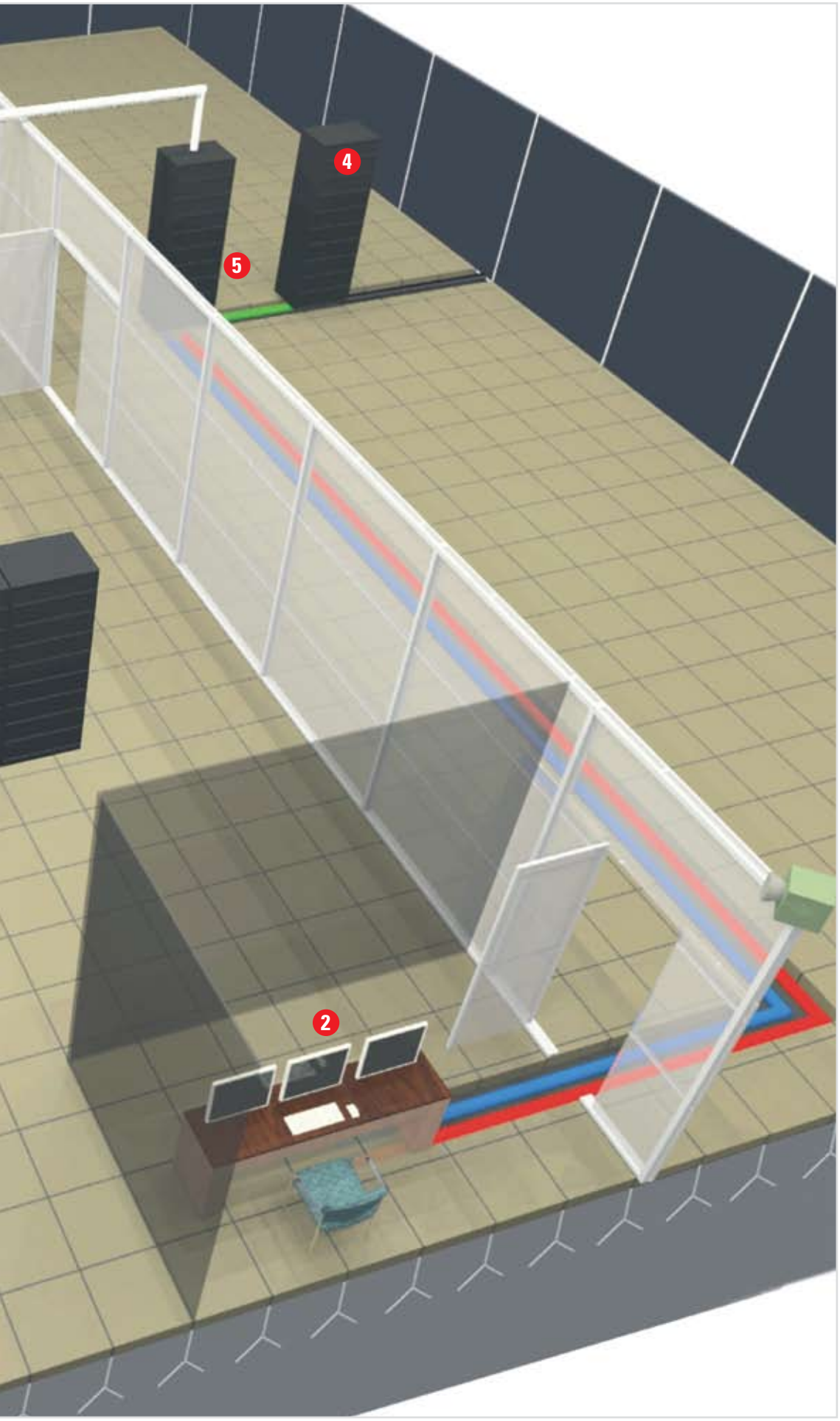
Such complexity requires reliable solutions.

The Furukawa technologies when applied to a Data Center may be accomplished through the use of optical fibers or of metallic pairs. The standard requires Category 6 or higher for metallic cables. This allows new applications requiring high transmission rates to be supported later. The use of Category 5 cables is not recommended because they represent a limited transmission rate technology. As regards the use of optical cables, on the other hand, they may be either multimode or singlemode. As regards the use of multimode fibers, the ANSI/TIA 942 Standard requires the use of singlemode, laser optimized optical fibers of the MM 50µm OM3 type (ISO/IEC 11.801) since this type of fiber has the attenuation and performance characteristics that are superior to those of conventional fibers, supporting enlacing of up to 550 meters, with transmission rates of 10Gb. As regards applications larger than 10Gb, and much longer distances, it is recommended that multimode fibers are used.

Standard ANSI/TIA 942 indicates the use of category 6 cables or higher and multimode optical fibers which have been laser optimized.

Application in Data Center





1 TeraLan High Density

- DIO HDMOD - BASIC MODULE
- HDMPO CASSETTE
- HDMPO FANOUT CORD
- HDMPO PRE-CONNECTED OPTICAL CABLE

2 PatchView

- MASTER EXPANDER
- SCANNER
- PATCHVIEW MANAGEMENT SOFTWARE
- OPTIONAL MODULES FOR THE SOFTWARE
- CAT.6A SHIELDED MANAGEABLE PATCH PANEL
- INTELLIGENT PATCH CORD CAT.6A S/FTP
- MANAGEABLE DIO
- INTELLIGENT OPTICAL ROUND CORD
- RACK CONTROL INDICATOR

3 GigaLan Augmented

- GIGALAN AUGMENTED CAT.6A F/UTP 23AWG X 4P ELECTRONIC CABLE
- GIGALAN AUGMENTED METALLIC PATCH CORD CAT.6A
- GIGALAN AUGMENTED SHIELDED KEYSTONE JACK CAT.6A

4 FISACESSO High Density

- IN-FLOOR ZONE CABLING BOX - ZDA
- HIGH DENSITY MODULAR PATCH PANEL
- HIGH-DENSITY CLOSED VERTICAL CABLE MANAGERS - OPTICAL
- HIGH-DENSITY BETWEEN-RACKS CABLE MANAGER

5 Optical Cables

- INDOOR OPTICAL CABLE
- OPTICAL CABLE FIBER-LAN INDOOR/OUTDOOR

The most important thing is to select a cabling type which is capable of supporting new technologies and future services and which not just caters to the current demand of the network.

- One should choose a product that offers the best benefits over the long term, since the physical construction of a Data Center happens only once;

- One must consider a type of product, which is appropriate for the existing or planned infrastructures, and which does not result in an expressive increase in costs in case some duct or electrochute changes are required;

- One should study beforehand the performance of the products, determining whether they have the necessary certifications from independent laboratories, and that they are compatible with the other accessories and equipment on the network;

- One must pay attention to the degree of flammability and the emission of toxic gases by the cables in order to insure the safety of both people and equipment;

- One must determine whether the technology applied to the cables is also extended to active equipment and to their transmission modes;

- One must be sure that the technology selected has been envisaged in the standard, in order to be well informed in case changes are made in the performance parameters.

Whatever is the application being used in your Data Center, Furukawa offers several options allowing you to only be concerned with your business itself.

Check the advantages of relying of Furukawa's quality as regards the ITMAX solution for your Data Center:

• **High Availability:** Furukawa products have been designed to cater to the different network topologies. The designers, therefore, may assemble redundant and flexible topologies, which reduce any potential failure points and which minimize downtime risks. Our communications channels have been tested through third party laboratories.

• **Modularity:** Growth is a constant fact for IT managers. As result, Furukawa makes scalar solutions available, which allow one to expand connections in a gradual fashion, optimizing and making flexible one's investments. It becomes possible to expand optical networks without the need of high density optical mergers, reducing the time of installation and the possibility of failures during communications. An effective control of the network points used allows one to determine the most adequate moment to expand the network using intelligent cabling systems that have been envisaged in the solution.

• **Performance:** The constant development of new services over hardware platforms requires appropriate physical spaces which would insure a Zero Bit Error. This is the scenario under which Furukawa's CAT.6, CAT.6A 10G OM3 Optical Links are made available. These solutions insure full compliance to the current and future needs of your applications.

• **Management:** They allow you to easily detect the location of the points, making the management of the infrastructure more agile and safe, because control begins with a proper organization. Furukawa solutions envisage identification systems and even High Density modules, thus insuring space optimization without the loss of management agility.

• **Safety:** Pro-active management quickly detects failure points. The Furukawa systems envisage a manageable architecture which allows the management of physical points on the network, and their mapping on a software platform so that the IT Manger can be sure of what is happening and why. Alarms integrated to the patch panel platform and optical distributors are also available.

• **High Density:** Solutions are applied that optimize each of the valorized square meters of a Data Center. This is a critical factor for its medium and long term success, since expansions and modifications happen frequently and infrastructure systems (racks, guides, power plugs) already offer an intelligent use of the area, and which do not compromise the performance of optical and electrical cables represent a good option for IT Managers.

• **Operational Efficiency:** The designing of various civil, electrical, air conditioning and cabling sub-systems in an integrated manner, which take into account the impact that each one of them may have over the others, is a key factor regarding operational efficiency. Efficiency as regards ease of execution of service orders pertaining to expansion or maintenance, since the cabling infrastructure (open racks) and accessories have been well selected and designed for energetic efficiency, that is, as regards the savings generated by an efficient air conditioning system which takes the utmost advantage of the civil project of the cabling infrastructure (open racks, adequate cabling accessories, layouts - hot and cold corridors, etc).

Understand how a Data Center is structured

• **Entrance Room (ER):** The entrance room is an interconnection area between the structured cabling of the Data Center and the cabling arriving from telecommunications operations.

• **Main Distribution Area (MDA):** It includes the main cross-connect, which is the main distribution point of the structured cabling of a Data Center. This is a critical area, where the major operations of the Data Center are executed.

• **Horizontal Distribution Area (HDA):** This is an area used to interconnect with the equipment areas. It includes the horizontal cross-connect (HC) as well as intermediate equipment.

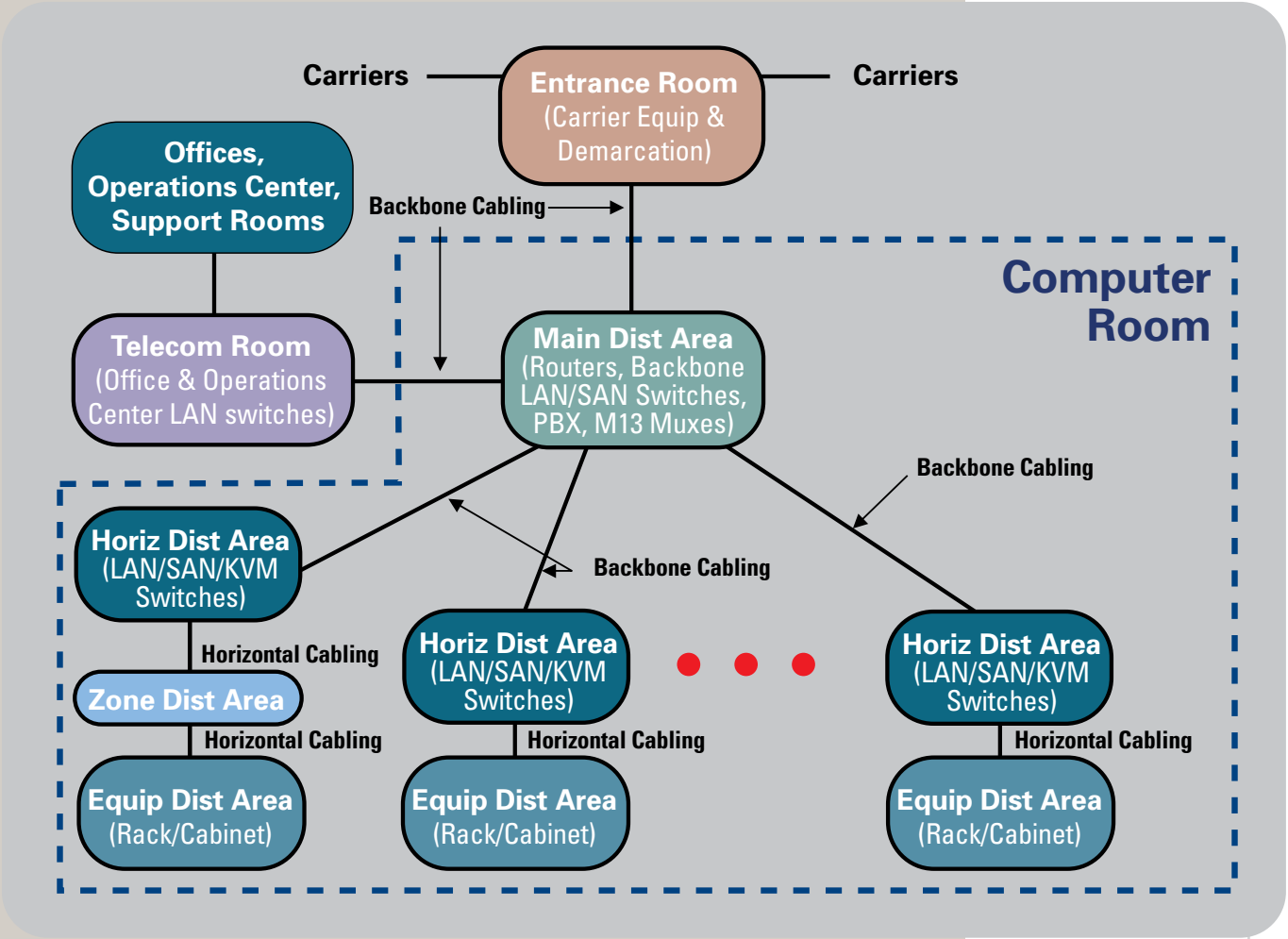
• **Zone Distribution Area (ZDA):** It is an optional interconnection point for the horizontal cabling. Having been positioned between the HAD and the EDA, it allows a quick and frequent connection, usually positioned below the floor. It aggregates flexibility to the Data Center.

• **Equipment Distribution Area (EDA):** A space intended for terminal equipment (Servers, Storage) and the data or voice communication equipment (central switches).

Rules to Classify a Data Center

Pursuant to the ANSI/TIA 942 standard, there is a series of rules that apply to classify a Data Center. Called TIERS, the classification takes into account 4 independent levels for the following systems: architecture, telecommunications, electrical and mechanical. These levels are associated to the availability of the Data Center, and they may have different levels at each of the aforementioned areas. The lower level is always considered for a general classification.

TIER I	**Unique route for the ventilation and power systems Without redundancy The floor is not elevated It is susceptible to the interruption of planned or unplanned activities 28.8 annual downtime hours**
TIER II	**Unique route for the ventilation and power systems Redundant components Raised floor Less susceptible to interruptions as compared to Tier 1 22.0 annual downtime hours**
TIER III	**Multiple routes for the ventilation and power systems (only one is active) Redundant components It allows any changes to the layout and maintenance without interrupting the operational activities 1.6 annual downtime hours**
TIER IV	**A distributed power and ventilation system Redundant components All the hardware must have a redundant power source A maximum of one non planned failing or event with an impact on the loss of non critical data 1.6 annual downtime hours**



The useful life cycle of a Data Center begins during the design stage:

When a Data Center is designed, several possible scenarios for the operation must be exploited, considering the useful life cycle of the Data Center. In order to obtain an excellent result, it is essential that some recommendations are followed:

- It is necessary to determine the total capacity for all the equipment.
- Future growth must be envisaged.
- Scalable solutions need to be found.
- There is need to design a structured cabling system which would offer adequate performance for your current and future needs.
- A MDA and HDA redundant cabling must be used for critical systems.
- Redundant paths between the ER - MDA and between the MDA - HAD must be used, employing either fibers of copper.
- One must always have a total (if possible) back up of the critical equipment on top of the spare modules (mandatory).
- Systems must be so designed that they allow the full management of the infrastructure.
- As function of the high total investment in the electrical, air conditioning, safety and telecommunications infrastructures, one must consider cabling solutions that would allow the optimization of the occupation of physical spaces and better electrical efficiency.

2. Commercial Building

All systems must have been integrated with one single cabling.

Up until recently, Commercial Buildings have been envisaging the installation of separate voice and data systems. Today, the installation of a cabling infrastructure complying with all the needs of information traffic is becoming ever more frequent. The solution of a Commercial Building is based on this convergence, and it brings countless advantages.

Among those advantages we must include the possibility of a integrated installation of the different building automation systems - fire alarms, safety and access systems (including Close Circuit TV), HVAC (Heating, Ventilation and Air Conditioning), a power management system, lighting control, curtain and window control systems, video based communications and access control systems.

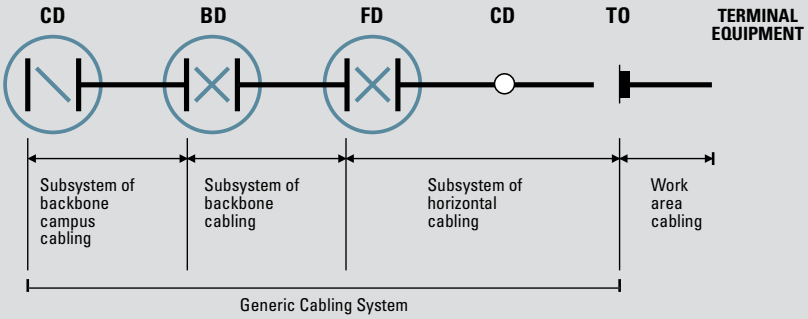
Taking into account both domestic and international laws, such as the EIA/TIA 568B and its addenda, it is possible to establish the electrical and mechanical requirements for the components that make up the entire infrastructure. In order for the implementation of cabling systems in a building to be successful, it is necessary that the integration of the systems and the definition of all the routes is accomplished as early as possible. The sooner the planning gets done, the greater will be the flexibility and the useful life cycle of the system.

You can count on Furukawa's solutions for Commercial Buildings. These solutions take into account the integration of all building integration systems, reducing building and maintenance costs. Through personalized projects, and a complete line of products, a simple undertaking becomes an intelligent building, ready to generate may other resources.

- **Flexibility regarding layout changes and the possibility to include new automation systems upon demand.**
- **Intercommunication between the different systems, generating additional functionalities.**
- **Ethernet protocol based systems, which allow management at a distance.**
- **Grater facility to install, since the quantity of connector types is reduced.**

Application in commercial building

When time comes to choose the best technology to be installed, it becomes necessary to evaluate the services that are being offered currently as well as any future expansion, choosing correctly between an optical or metallic cabling and their derivations.



The functional elements pertaining to generic cabling are:

a) Campus distribuitor (CD);
b) Campus backbone;
c) Building distributor (BD);
d) Building backbone;
e) Floor distributor (FD);
f) Horizontal cabling;
g) Consolidation point (CP);
h) Consolidation point cable (CP Cable);
i) Multiuser telecommunications outlets (MUTO);
j) Telecommunications outlets (TO).

1 Optical Cables

- OPTICAL CABLE FIBER-LAN INDOOR/OUTDOOR

2 TeraLan Business

- DIO B48 – BASIC MODULE
- DIO A270 – BASIC MODULE
- PATCH CORD, EXTENSION AND CONNECTED OPTICAL EXTENSION

Optical Cables

- INDOOR OPTICAL CABLE
- OPTICAL CABLE FIBER-LAN INDOOR/OUTDOOR

FISAFLEX

- 110IDC BACKBOARD (100 AND 200 PAIRS)
- 110IDC PATCH CORD U/UTP FISAFLEX CAT.6

3 GigaLan

- FAST-LAN CAT.6 F/UTP 23AWG X 4P ELECTRONIC CABLE
- METALLIC PATCH CORD F/UTP GIGALAN CAT.6
- SHIELDED KEYSTONE JACK GIGALAN CAT.6

FISAFLEX

- 110IDC TELECOMMUNICATION POINT

4 FISACESSO

- OPEN RACK 19"
- OPEN VERTICAL CABLE MANAGER
- HORIZONTAL CABLE MANAGER
- MODULAR FACEPLATE
- SURFACE MOUNT BOX (OUTLET)

5 Optical Cables

- Channelized Underground or Air Lashed Networks
- Self-Supported Air Networks

3. Industrial

Protection and resistance for floor connections at the plant.

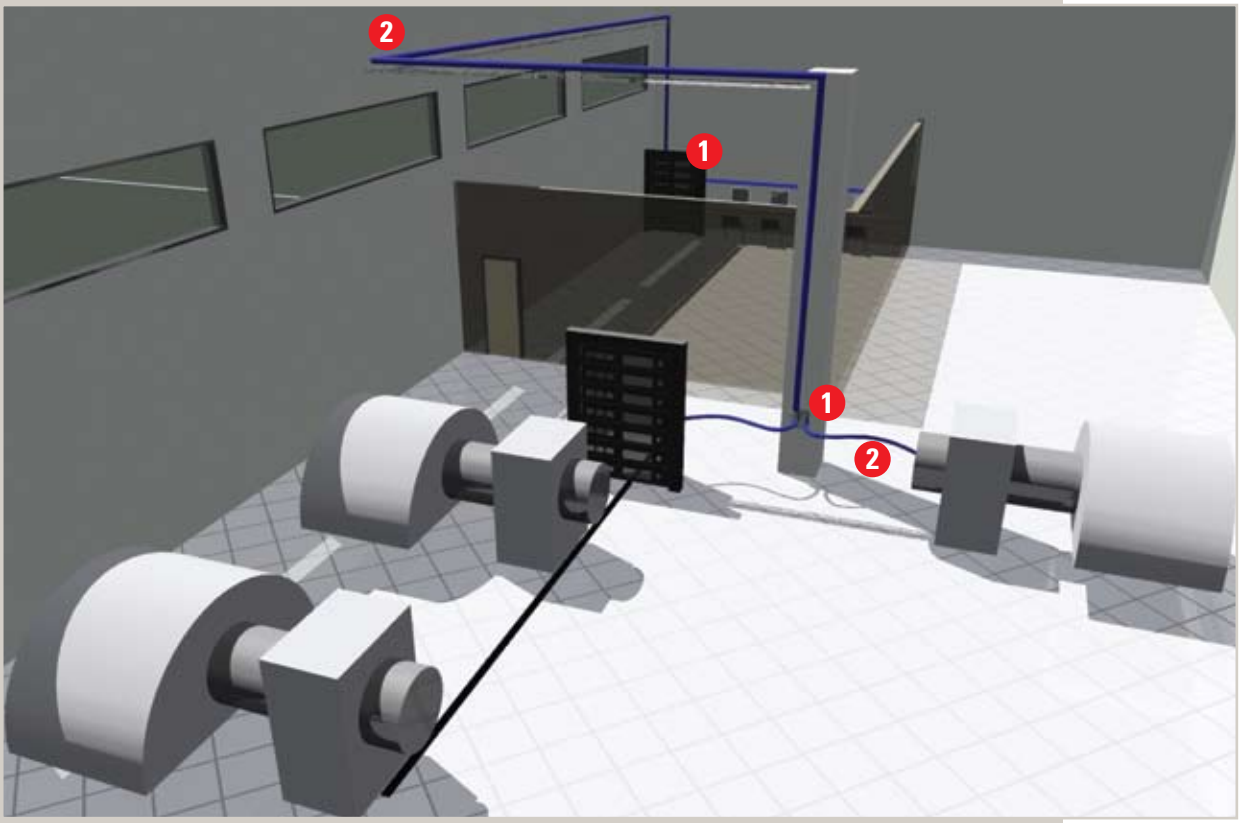
The industrial areas of a company are very often disregarded at the time of the implementation of structured cabling and of the infrastructure, since so far no standard has been laid down to be followed. Furthermore, the machines placed at the industrial plant may each have a different communications protocol which hinders the standardization of the network. This scenario has been changing, though. The Ethernet protocol is beginning to be more frequently used by these machines and by other sectors such as automation. Organizations such as the EIA/TIA have also been lately studying the needs of these specific environments, and they are already working on a structured cabling standard to be used in industrial plants. Even though the EIA/TIA 1005 standard has not yet been fully completed, it will align the needs of the environment with the existing cabling parameters also using the concepts of other, already published standards.

One of the problems encountered for the execution of a cabling at these areas is the distance of a channel, irrespectively of it being metallic or optical. In a business building, for instance, the maximum allowed distance is of 100 meters. Very often this parameter is not sufficient for industrial sheds.

Moreover, whoever works with networks knows that all ambiences are negatively affected by dust. At certain places, where the concentration of dust is critical, the connection at the network point may be damaged, or in some cases, there may occur a total loss of the signal. The problem gets even worse in case of humidity, since it is invisible at a first moment and it may cause a lot of damage.

In industrial environments, structured cable suffers even more. It was to grant greater protection and security to the critical points that Furukawa created the Industrial solution - a dimensioning of the planned project to allow the installation of network points under the most adverse conditions.

Application in factory floor



The industrial solution uses products with a Protection Index of IP 67 that offers full protection against dust, strong water jets, and temporary immersion, providing strong protection to the connection existing between the horizontal cabling and the Ethernet equipment on the floor of the plant.

The products that make-up the metallic channel have been made available for the GigaLan and MutliLan lines, and the complementary infrastructure accessories are available for the Fisacesso line.

Industrial use products have been indicated for ambiences that:

- **Expose cabling to solid residues.**
- **Are subject to constant humidity.**
- **Undergo significant temperature variations.**
- **Suffer the use of chemical products during their cleaning.**
- **Possess a large concentration of equipment.**
- **Expose the cabling to some kind of abrasion.**

It is important to remind that all the characteristics presented will be only guaranteed with the simultaneous use of all the accessories Ethernet for industrial use.

1 FISACESSO

- IP67 INDUSTRIAL SURFACE BOX
- IP67 INDUSTRIAL FACEPLATE

2 MultiLan

- MULTILAN INDUSTRIAL CAT.5e F/UTP 24AWG X 4P ELECTRONIC CABLE
- PATCH CORD INDUSTRIAL F/UTP MULTILAN CAT.5e
- SHIELDED INDUSTRIAL KEYSTONE JACK MULTILAN CAT.5e

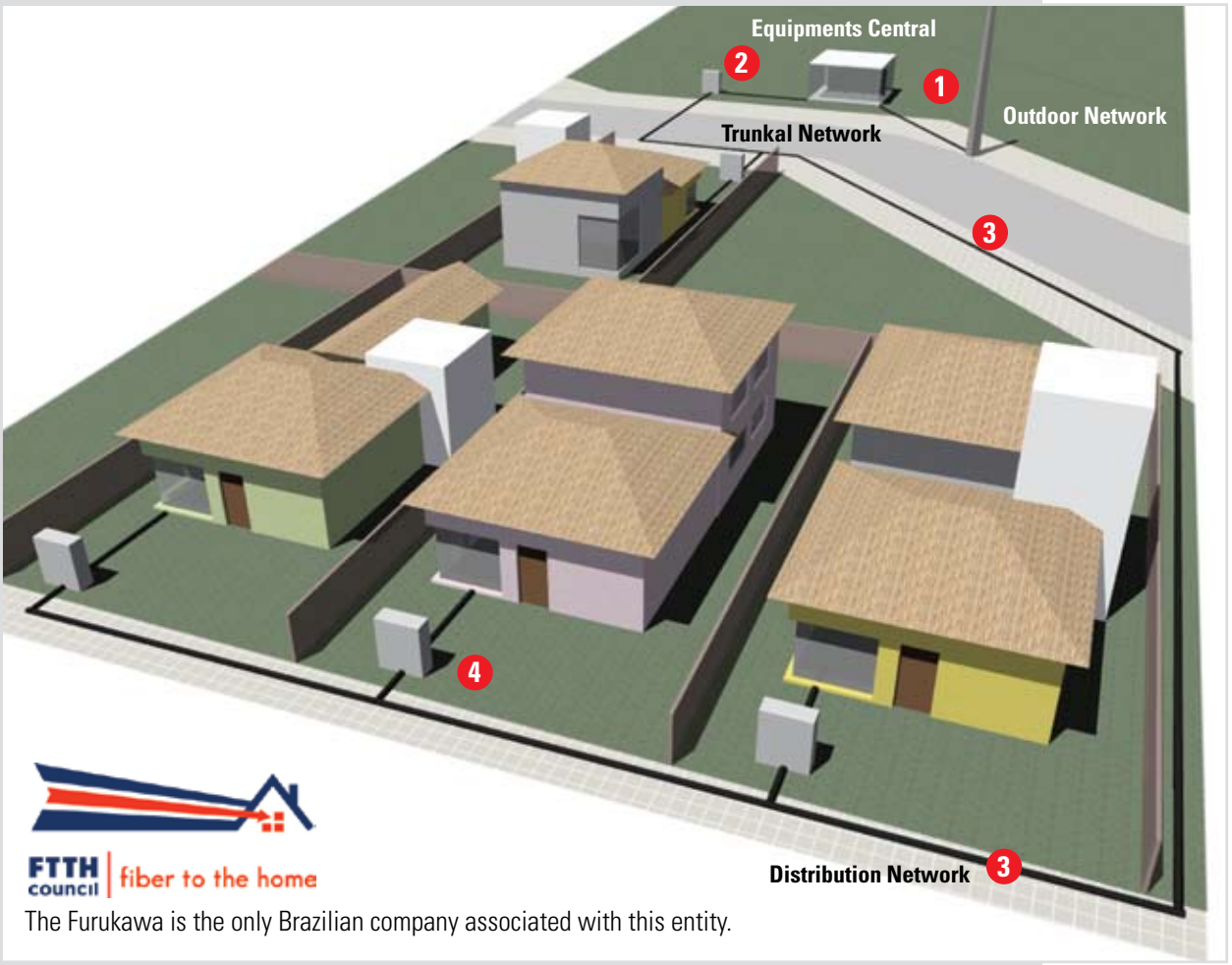
4. FTTx
High performance access network architectures.

The civil construction market has been increasingly investing into high standard residential condominiums - more than any place else in the world. These undertakings offer differentiated services such as integrated security, home automation and the availability of an adequate infrastructure which supports advanced technologies such as the FTTH.

Furukawa is a pioneer in the supply of components and in the providing of training services for FTTH Triple Pay networks (Data, Voice and Video) for residential condominiums in Brazil. In the segment of Telecommunications Operators (Local and Long Distance Telephony, CATV, ISPs, etc) the portfolio of cables and special fibers and components (optical splitters, and WDMs has been increasing, as well as that of accessories for the application of the FTTx networks themselves.

The combination between last generation equipment allied to a totally passive optical network will allow any client - commercial or residential - to receive the services at initial speeds of 40 Mb/sec. As or even more important than this jump in speed is the fact that a well implemented optical network is truly “Future-Proof”.

Application in horizontal condominium



The Furukawa is the only Brazilian company associated with this entity.

FTTH - Fiber-to-the-Home

This solution may be defined as a optical transmission network architecture where the distribution network goes inside of the subscriber's residence, and where an exclusive optical fiber is used for this access. Generally speaking, between the distribution network and the internal subscriber's network, a mini-Duo or an optical blocking are used to accomplish the transition of the signal inside the residence. After this transition, the signal is made available through an extension or through an optical cord directly to the subscriber's receiver.

1 Optical Cables

- Channelized Underground or Air Lashed Networks
- Self-Supported Air Networks

2 Optical Cables

- OPTICAL CABLE DROP FIG.8 FTTH

Access Advantage System

- SPLITTERS
- ORBITAL CABINET
- TRIBOX CABINET

TeraLan Business

- DIO B48 – BASIC MODULE
- DIO A270 – BASIC MODULE
- PATCH CORD, EXTENSION AND CONNECTED OPTICAL EXTENSION

3 Optical Cables

- OPTICAL CABLE OPTIC-LAN INDOOR/OUTDOOR

4 Optical Cables

- OPTICAL CABLE FIBER-LAN INDOOR/OUTDOOR

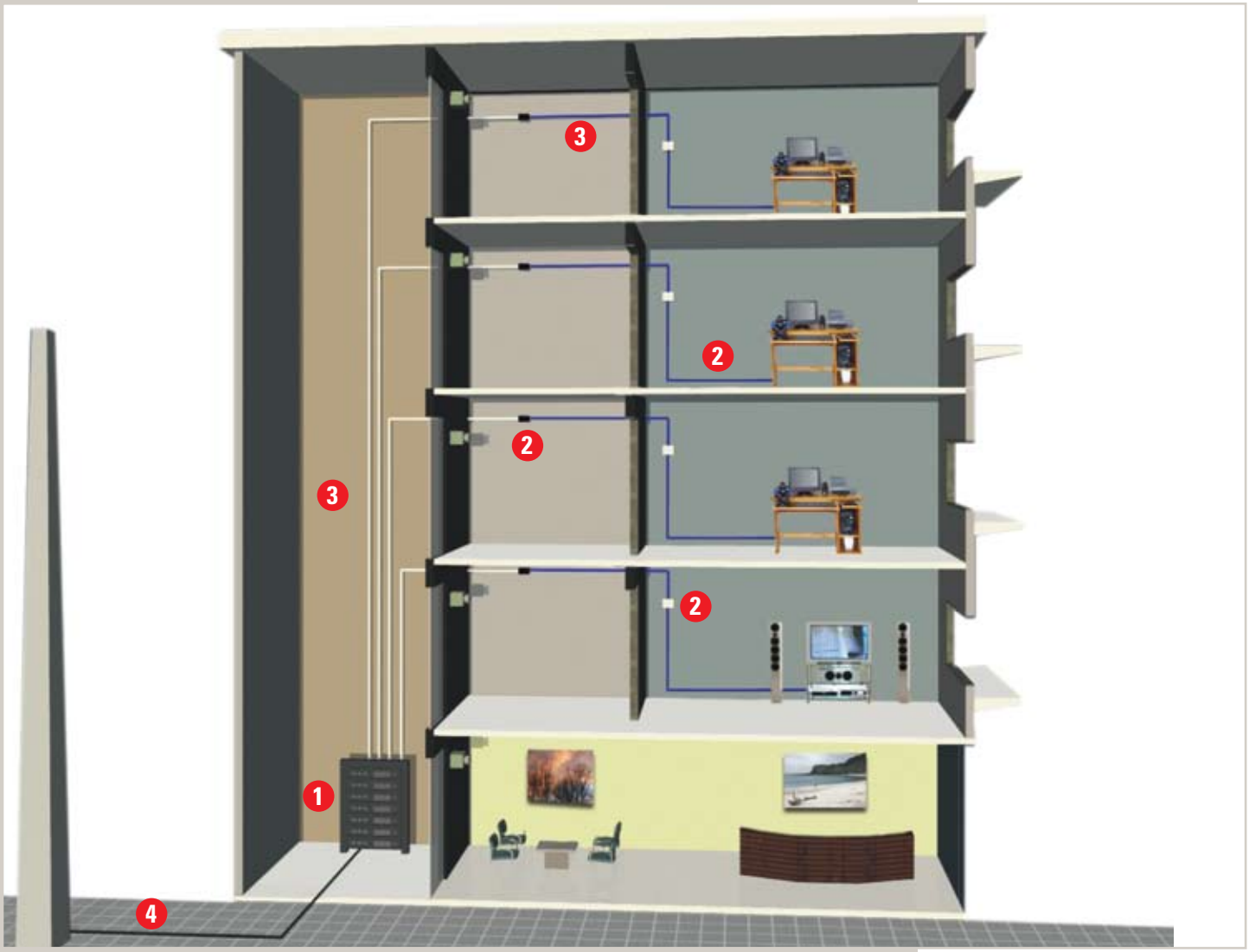
TeraLan Business

- OPTICAL TERMINATION POINT (PTO)
- PATCH CORD, EXTENSION AND CONNECTED OPTICAL EXTENSION

FISACESSO

- MULTIMEDIA SURFACE MOUNT BOX

Application in vertical condominium



FTTA - Fiber-to-the-Apartment

This solution may be defined as an optical transmission network architecture where the distribution network enters into the commercial or residential building, arriving at the equipment room. As of this room, the optical signal may undergo a division through the use of optical splitters, being individually forwarded to each apartment or office. Other internal division architectures may be implemented, although each unit will always be served by a unique and exclusive optical fiber. That is, in this solution, the internal access terminal point to users is led inside of the apartment or building.

FTTB - Fiber-to-the-Building

This solution may be defined as a optical transmission network architecture where the distribution network ends at the entrance to a residential or commercial building. As of this terminal point, the internal access to users is generally accomplished through a metallic, structured cabling network.

1 Access Advantage System

- SPLITTERS
- ORBITAL CABINET
- TRIBOX CABINET

2 TeraLan Business

- DIO A115 - BASIC MODULE
- DIO B48 – BASIC MODULE
- PATCH CORD, EXTENSION AND CONNECTED OPTICAL EXTENSION
- OPTICAL TERMINATION POINT (PTO)
- FISA OPTIC BLOCK (FOB)

3 Optical Cables

- OPTICAL CABLE FIBER-LAN INDOOR/ OUTDOOR

4 Optical Cables

- Channelized Underground or Air Lashed Networks
- Self-Supported Air Networks

Understand how a distribution network is formed:

Equipment Central/Central Office

The place where all optical transmission equipment have been installed (OLTs) together with the General Optical Distributor (DGO) which are responsible for interfacing between the transmission equipment and the trunk optical transmission cables.

Optical Trunkal/Feeder Network

It is basically made-up of optical cables which take the signal from the central to the distribution centers. These optical cables may be applied in underground ducts or aerially installed spine like inside of cordages or else, being self-sustained. In order to apply the PON, the fibers must be of the singlemode type.

Fiber Distribution Points

So as to optimize the usage of optical fibers, PON networks are generally presented in the Distributed-Star topology. In this configuration, the distribution points divide the optical signal into more distant areas from the central, reducing the number of optical fibers needed to take care of these accesses. Small optical distribution lockers are installed at that venue, associated to optical splitters. At this distribution point, which is associated to this area, the division, the distribution and the management of the optical signal are performed. Alternatively, these lockers may be replaced by patching boxes, associated to optical splitters to be specifically used in the patching boxes.

Optical Distribution Network

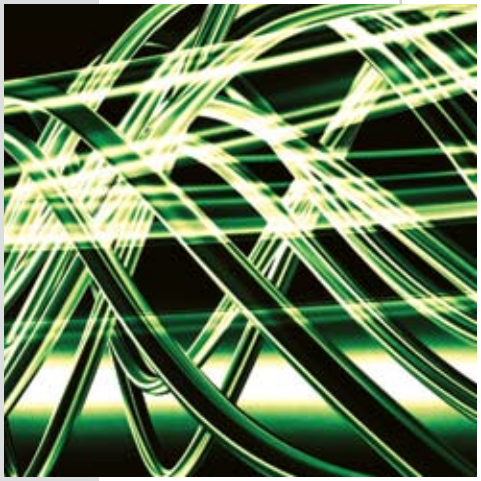
The Optical Distribution Network is formed by optical cables which take the signals from the distribution centers to the specific service areas. These cables are generally of a self-sustained type with dry nuclei, to facilitate installation. Patch boxes are used associated to these cables to derive the fibers in order to obtain a better signal distribution. Patch boxes may also be called NAP/Network Access Points, and they are dully allocated for the distribution of the signal, performing the transmission of the optical network feeder to the terminal network called a drop network.

Optical Drop Network

It is made-up of self-sustained, low fiber formation optical cables.
As of the terminal patch box (NAP), it takes the optical signal to the subscriber per se. These signals may end in small DIOs (Internal Optical Distributors - regarding the transition from cable to optical cord) or in small optical blockings (FOB - regarding the transmission from cable to optical extension) inside of the home/building. Due to large space restrictions and the use of already existing ducts, optical fibers are normally used which possess special characteristics, to prevent the loss of signals as result of steep curves (Bend Insensitive optical fiber - G.657.A/B).

Indoor Network

As of the optical blocking (FOBO) or internal optical distributor (DIO), optical extensions or optical cords are used to perform the transition of the optical signal contained in the fiber to the subscriber's internal receiver. Due to the same reasons regarding space restrictions, and the use of ducts already existing inside of the subscriber's home, optical extensions and optical cords are made of a special optical fiber of the Bend Insensitive type - G.657.A/B.



5. Telecommunications

Technology and quality for outdoor networks.

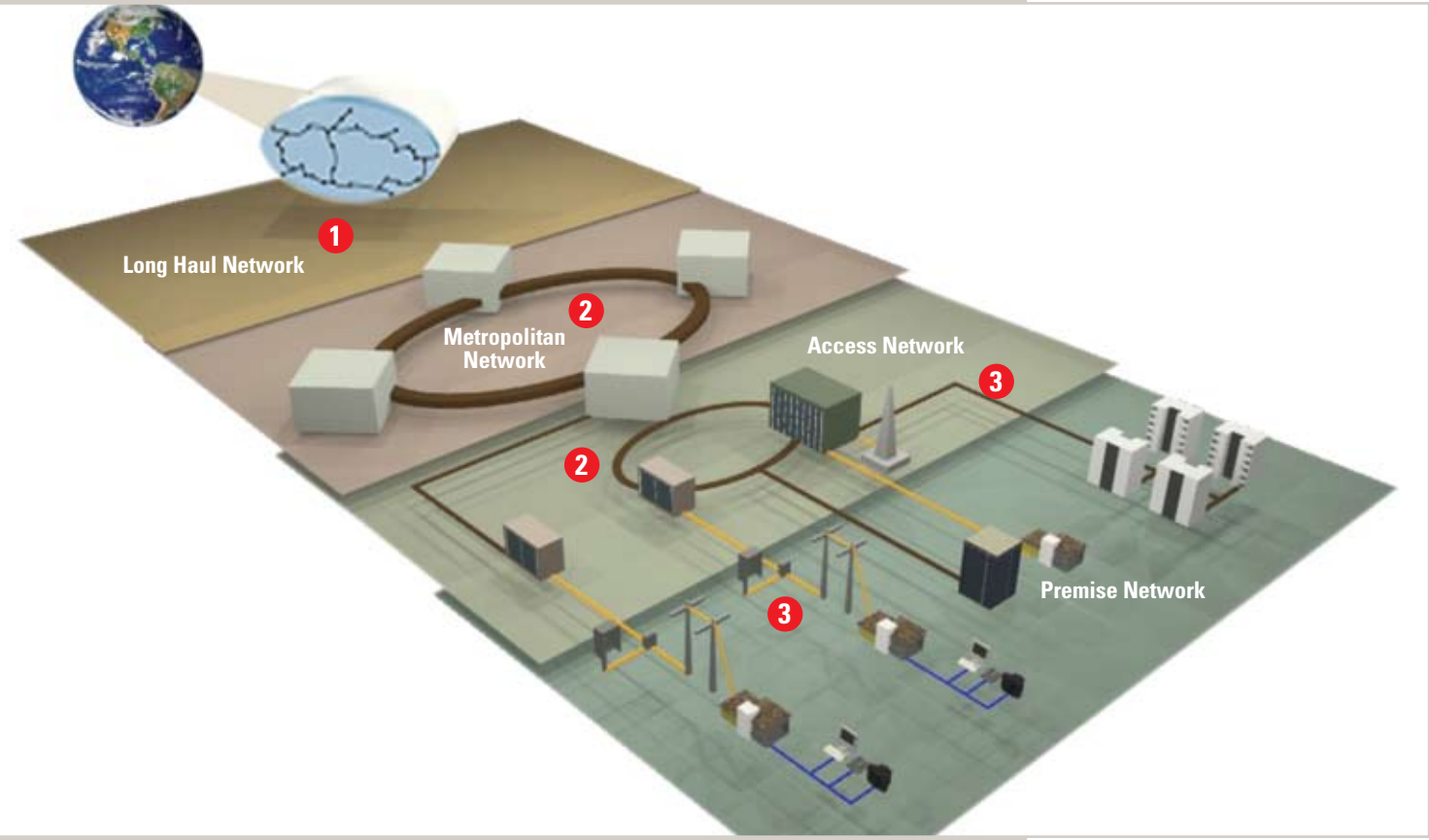
A telecommunications network may be made-up of several sub-networks, depending of the type of service which is being provided to the user, such a fixed telephony, cellular telephony and data communications from short to long distance. With the introduction of new technologies, the networks are being meliorated to support the transmission of information: both as regards network equipment as the means of transmission and the operation systems for management purposes. Furukawa has been accompanying with this development by offering products and adequate technology for the installation of outdoor networks.

Outdoor optical network

Going along with the trend of structured cabling, and even complying with the increasingly common and intense convergence between the markets and the use of optical networks has been crucial for the supplying of integrated services to user and for the optimization of the investment by the operators. Basically, external optical networks are split up into long distance networks, which may reach hundreds of thousands of kilometers, metropolitan networks which comprise several city blocks and which may range to even comprise entire cities, the access networks that are the closest to the final uses, and which derive from the extremities of the metropolitan networks and premises, and ending with short distance networks which are predominant in internal environments.

When a premise network reaches its transmission capacity, as well as expanding its own premise network, then it becomes necessary to invest in access networks, in metropolitan networks and in long distance accesses in succession. When this type of investment is made, a need arises to consider the future and the new services that will come with it, stressing some basic points regarding the choice of which category and which product should be used for the implementation of this new network.

Application for optical networks



Some important points must be considered in order to assure the perfect and continued operation of a new network:

- **Planning:** The information pertaining to planning help to determine the growth of the network as function of the demand for services.
- **Provisioning:** Detailing of the project regarding the parts that make-up the network, that is, the infrastructure.
- **Installation:** Implantation and test of the several component parts.
- **Administration:** Compatibility regarding the supervision and the management of telecommunications service networks.
- **Maintenance:** Facility regarding repair services to keep the system functioning uninterruptedly.

1 Optical Cables

- Directly Buried Underground Networks
  - DIRECT BURIED DIELECTRIC OPTICAL CABLE WITH DUCT
- Channelized Underground or Air Lashed Networks
  - DIELECTRIC OPTICAL CABLE FOR DUCTS
  - JELLY FILLED CORE
  - DIELECTRIC OPTICAL CABLE FOR DUCTS WITH RODENT PROTECTION - PFV

2 Optical Cables

- Directly Buried Underground Networks
  - DIRECT BURIED DIELECTRIC OPTICAL CABLE WITH DUCT
- Channelized Underground or Air Lashed Networks
  - DIELECTRIC OPTICAL CABLE FOR DUCTS - JELLY FILLED CORE
- Self-Supported Air Networks
  - ALL DIELECTRIC SELF-SUPPORTED OPTICAL CABLE - DRY CORE
  - ARMORED FIGURE 8 SELF-SUPPORTED OPTICAL CABLE WITH RODENT PROTECTION
  - DIELECTRIC SELF-SUPPORTED OPTICAL CABLE AS120-RA

3 Optical Cables

- Premise Network
  - OPTICAL CABLE FIBER-LAN-AR
  - OPTICAL CABLE DROP FIG.8 FTTH
  - OPTICAL CABLE FIS-OPTIC-AS

Outdoor Metallic Network

Generally speaking, external metallic networks are divided into the Trunkal, the Primary and the Secondary Networks. The first one (Trunkal) is made-up of cables that take the signals around the centrals where the transmission equipment are stored and which mostly apply to underground duct networks. The Primary Network is made-up of cables that take signals from one central to the point of distribution, and these cables may be applied in underground ducts, they may be installed aerially, spined into cordage or they may be self-sustained, while the Secondary Network is made-up of cables that take the signals from the distribution to the specific service points. These cables are generally of the self-sustained type, with dry nuclei to facilitate their installation.

As in the optical networks, it becomes essential to choose the best product, able to offer a guarantee of a perfect and continued network operation.

Application for metallic networks

1 Metallic Phone Cables

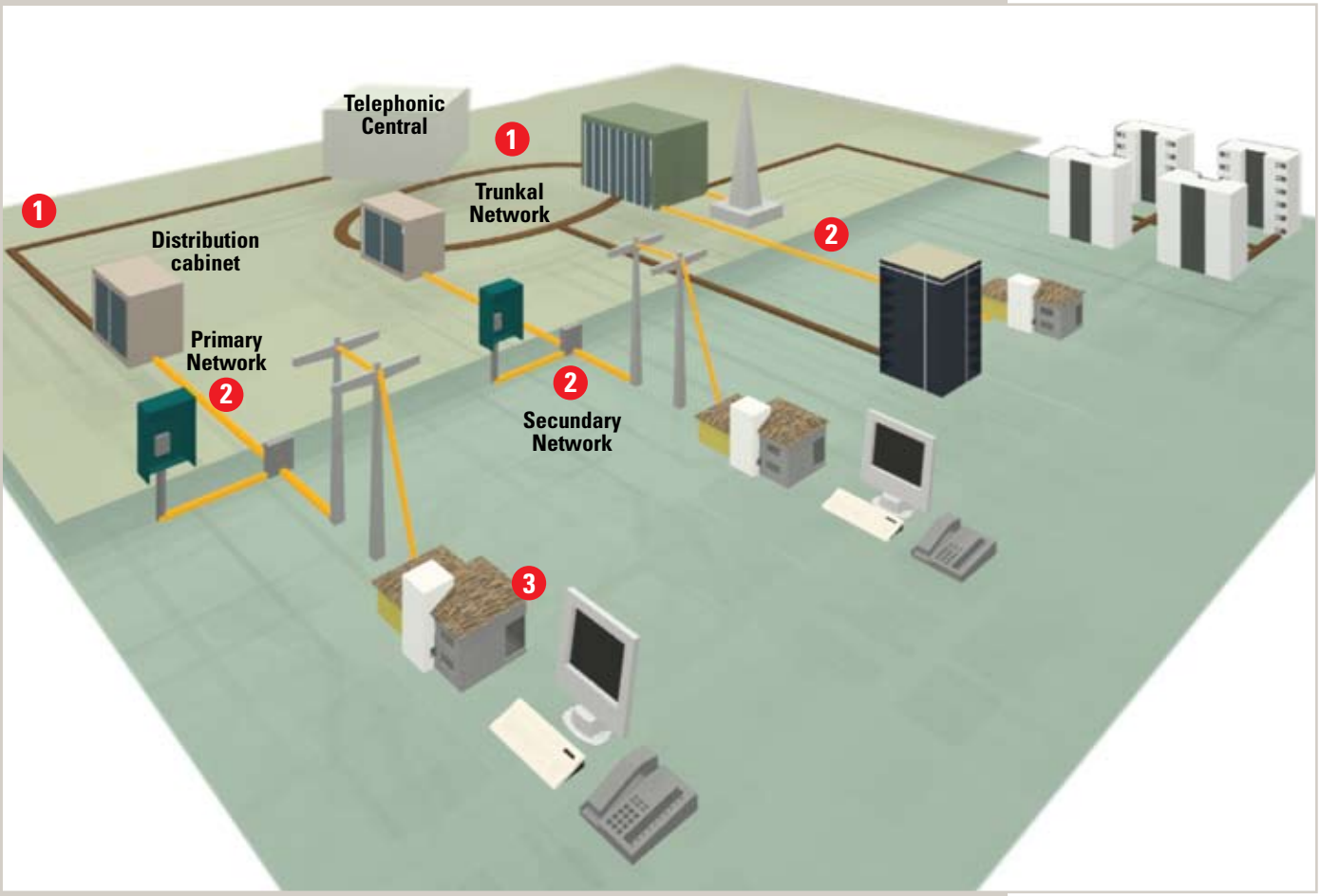
- Underground Networks or Air Lashed Networks
  - FILLED FOAM SKIN LAP xDSL 40MHz BROADBAND CABLE

2 Metallic Phone Cables

- Self-Supported Air Networks
  - FIGURE 8 AIR CORE LAP CABLE

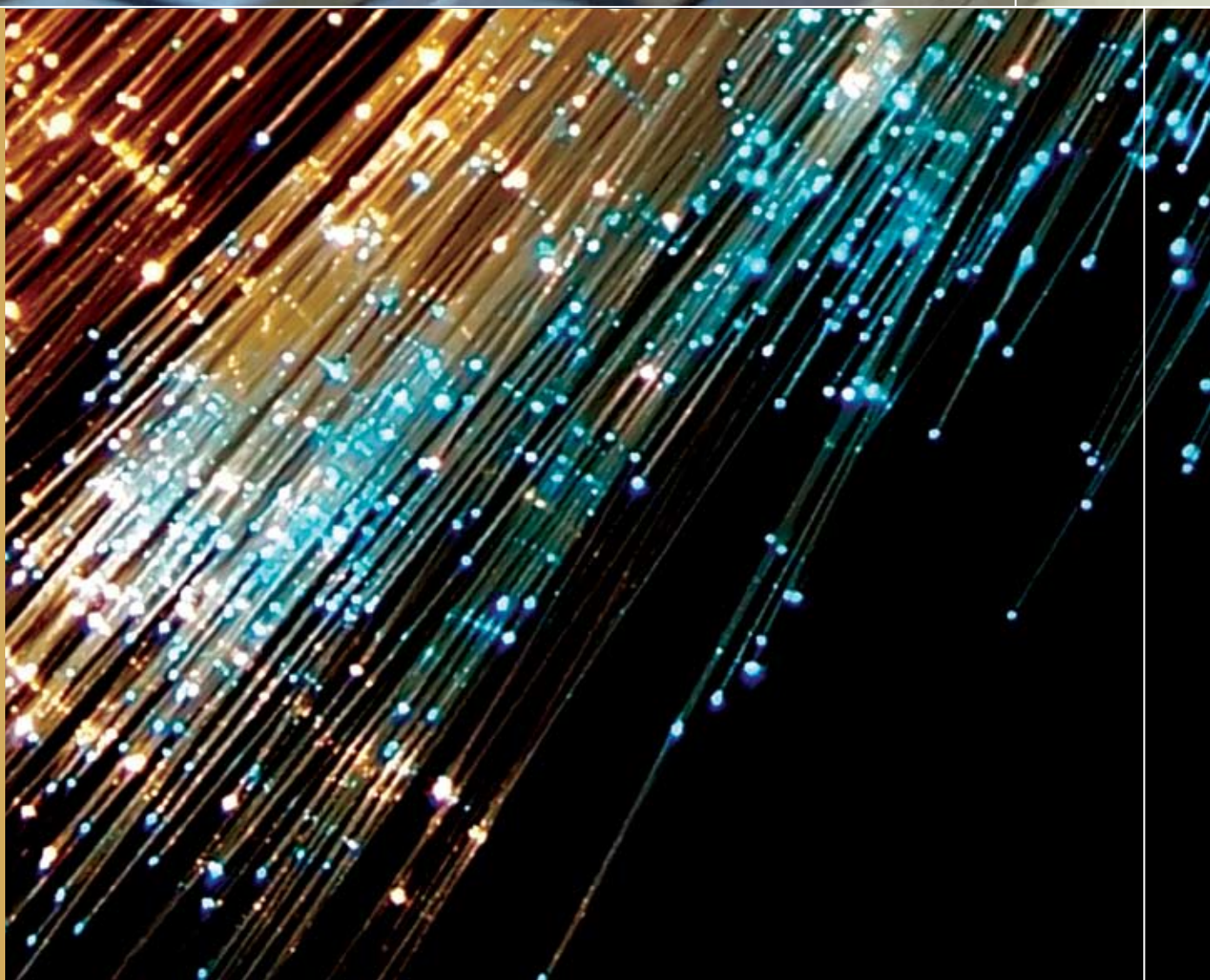
3 Metallic Phone Cables

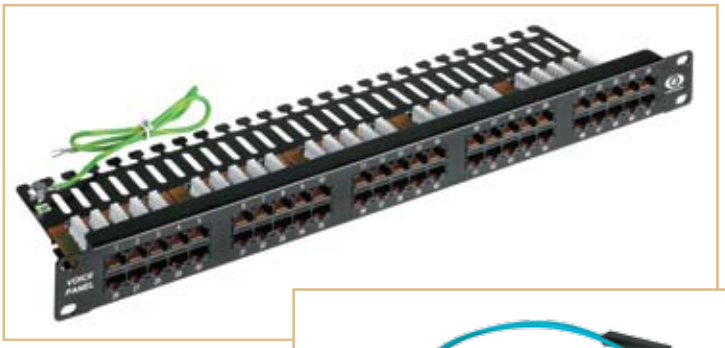
- Indoor Network
  - FAST-CIT xDSL 40MHz INTERNAL BROADBAND CABLE

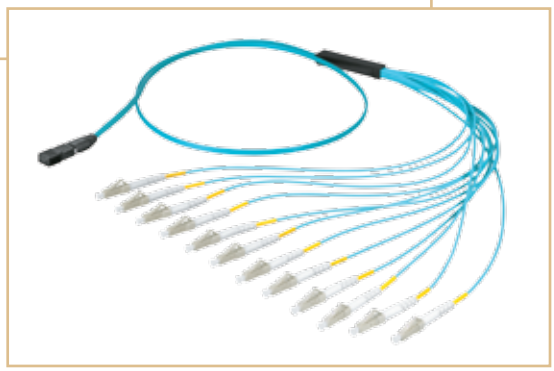


Products

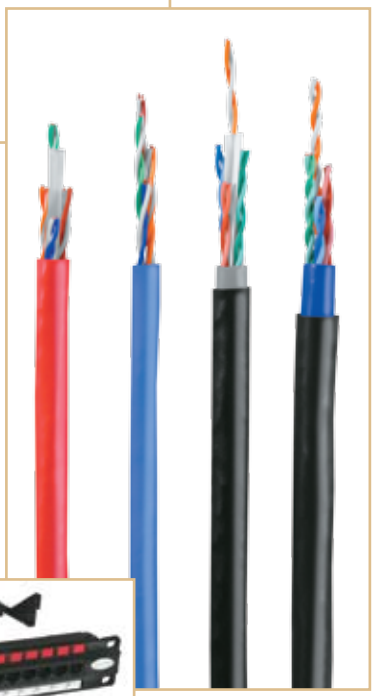
Experience in data transmission.

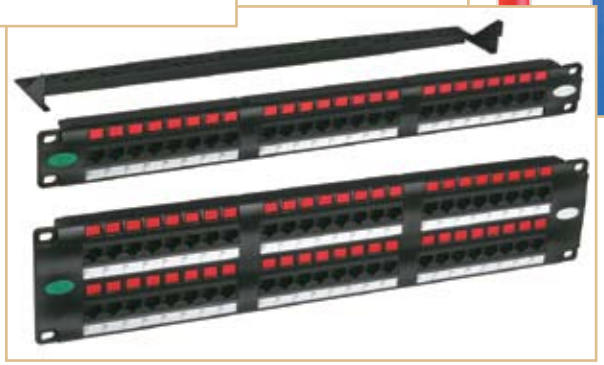







CAT 6A





Products that Follow the Rhythm of the Future.

The fast growth of the data network and the technological advancement verified in telecommunications in the last few years have brought, with them, the need for evolution of the physical mean through which all this information run. New means of data exchange have **created an increasing demand for bandwidth and high transmission rates.**

In order to fulfill the needs of an increasingly digital future, Furukawa invests in high-speed **applications and the utilization of optic fibers**, be it in the horizontal or backbone cabling. All this investment has resulted in a **family of products divided according to the most different needs, ready to fulfill the different types of situations**, however with a characteristic in common: the concern with quality and the never ending purpose of always surpass the norms, by going beyond the standards.

TeraLan®
Optical Line

Transmission rates at the speed of light.

TeraLan is the family of Furukawa's optic products planned to transmit at great data rates, to offer an end-to-end solution able to fulfill a high occupation of optic fibers. Besides offering ease of management, installation and operation, the TeraLan products exceed the requirements of the main national and international standards and norms, such as ABNT, TIA/EIA and ISO/IEC.

The family of TeraLan products is composed of a complete line of cables, cords and optic accessories, with singlemode and multimode, conventional or special optic fibers optimized for applications that require high transmission rates. By always thriving to offer solutions that fulfill the many types of demands, TeraLan also has the HD line (High Density), developed for application in Data Center environments that need a great concentration of optic points.

TeraLan High Density
Products especially developed for the Data Center environment, that use the concepts of safety, modularity and flexibility, providing ease of management, installation and operation of the optic network. The highlight of this line is the HDMPO, a high-density, plug-and-play and fully modular and pre-configured system, that allows for easy installation and better performance of connections.

Products that are part of the TeraLan High Density line:


Internal Optic Distributor DIO HDMOD


HDMPO Cassette


HDMPO Fanout Cord


Internal Optic Distributor - DIO HD144

developed DATA ITMAX CENTER especially

TeraLan Business
A line developed for any type of environment and business. Its easy installation and high reliability provide offices, hospitals, schools, for example, the best performance for the current applications and demands, but which are already programmed for future expansion.

Products that are part of the TeraLan Business line:


Internal Optic Distributor - DIO A270


Internal Optic Distributor - DIO B48


Internal Optic Distributor - DIO A115


Optical Patch Cords and Extensions

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

10 Gb in 100 meters, without interferences.

Not a long time ago, it was very difficult to achieve a 10-Gb transmission in 100-meter channels using metallic technology. To reach that point, some requirements have been established in the norm for structured cabling. For that reason, the products that comprise a CAT.6A channel have own project characteristics that minimize any interference that may be damaging to data traffic, especially in the Data Center. By always focusing quality, Furukawa has been the first solution manufacturer to hold a ETL Verified certification for the CAT.6A Channel.

Check the advantages:

- It supports new applications with high band consumption, such as servers virtualization and utilization of thin clients.
- Performance above the references established by the EIA/TIA 568 B.2-10 international norms.
- Options of supply in U/UTP and F/UTP.
- Safety margin over the already normalized specifications.

Products that are part of the GigaLan Augmented line:

CAT.6A Patch Cord

CAT.6A F/UTP Keystone Jack

CAT.6A F/UTP Electronic Cable

CAT.6A Modular Patch Panel

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Safety and guarantee in many different environments.

The products that comprise the GigaLan family offer high performance in structured systems for voice, data and image traffic, which require guarantee of support to future expansions. Developed for primary and secondary cabling between distribution panels or connectors in desktops, GigaLan follows all the requirements of the ANSI/TIA/EIA-568-B.2-1 Category 6 norm, exceeding the limits established in the norms for CAT.6/Class E.

Among the advantages of the GigaLan family are the guaranteed performances for channels with up to 6 connections, in channels of up to 100 meters long, and support to IEEE 802.3, 1000 BASE T, 1000 BASE TX, EIA/TIA-854, ANSI-EIA/TIA-862, ATM, video, building automation systems, 10G-BASE-T (TSB-155) and previous LAN protocols.

GigaLan offers a varied line of products, ready to fulfill to the most different needs and types of environment:

- Internal environments.
- Aggressive environments, with the IP67 line.
- Environments with electromagnetic interferences, with shielded products (F/UTP).

Products that are part of the GigaLan line:


CAT.6 F/UTP
Patch Cord


CAT.6 F/UTP
Fast-Lan Cable


CAT.6 F/UTP
Keystone Jack


Patch Panel
CAT.6 U/UTP

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

The simplest connection between you and the world.

When the subject is residential cabling or small-size networks, the ideal solution is the MultiLan line of products. With CAT.5e metallic products, it is the most recommended option for installations that require a fast-Ethernet transmission (100 Mbps) or the maximum in terms of Gigabit Ethernet (1000 Mbps), fulfilling the current demands of services and applications.

Get to know the advantages:

- It exceeds the limits established in the norms for CAT.5e/Class D.
- Performance guaranteed for channels with up to 4 connections, in channels of up to 100 meters long.
- It supports IEEE 802.3, 1000 BASE T, 1000 BASE TX, EIA/TIA-854, ANSI-EIA/TIA-862, ATM, video, building automation systems, all previous LAN protocols.

Products that are part of the MultiLan line:


CAT.5e F/UTP
Patch Cord


CAT.5e F/UTP
MultiLan Cable


CAT.5e F/UTP
Keystone Jack


CAT.5e U/UTP
Patch Panel

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Data and voice in the same space.

With products of category 3, 5e and 6, the Fisaflex line offers products whose application can be directed for voice or data, with the same performance guaranteed in the norms for structured cabling, using the 110IDC connection systems. The utilization of 110IDC Connection Blocks allows, among other advantages, a greater concentration of extensions in a single space, and the utilization of the same existing infrastructure and installation on a rack or wall.

Products that are part of the Fisaflex line:


Voice Panel


110IDC Connection Panel


110IDC CAT.6 Patch Cord


110IDC CAT.5e Patch Cord

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Customized accessories for an easy and safe installation.

A network is never complete without that the products that comprise it are installed and affixed to an adequate infrastructure. The Fisacesso products guarantee that cables, sockets and patch cords are correctly installed, according to the recommendations found in cabling norms, always keeping the best network infrastructure performance.

Fisacesso High Density:
The installation environments have different needs. A Data Center, for example, considers the optimization of the physical space and a better use of energy resources. The products of this line have been developed following these concepts and for this environment.

Products that are part of the Fisacesso High Density line:


ZDA Consolidation Point


Inter-Rack Cable Guides


48P 1U Patch Panel


High-Density Optic Cable Guides

Fisacesso:
Ideal to complement and organize the installation of cabling, it offers differentiated products to service buildings, industries and homes.

Products that are part of the Fisacesso line:


19" Open Rack


Shielded Discharged Patch Panel


Industrial Apparent Box


Modular Flat Mirror

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Monitoring the network in real time.

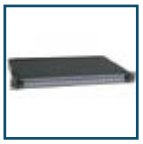
The family of PatchView products is a robust and highly reliable option for the management of metallic and optic structured cabling networks. Its system provides full control, in real time, over the metallic and optic connectivity, reducing the downtime and, consequently, operational costs.All this control and reliability become indispensable in Data Centers' environments.

Many advantages in management:

- It allows for integration with the AutoCAD, loading lower plants in the management software.
- It allows for integration with management software such as HP OpenView, CA Unicenter and IBM Tivoli NetView.
- It supports the metallic (CAT.6/CAT.6A) and optic structured cabling systems.
- Agility in layout changes.
- Automatic update of documentation (electronic As-Built).
- Automatic detection of all TCP/IP devices in the network.
- It supports all the switches available in the market.
- Availability of client software for palmtops, ensuring greater mobility.
- Interaction with the network manager via e-mail, SMS and alert messages.
- Patch Panel and Manageable OID (Optic Internal Distributors) with indicator LEDs per port.
- Detection of rupture of patch cords and intelligent optic cords.
- Automatic detection of insertion/disconnection of patch cords and intelligent optic cords.
- Additional Modules/Devices for visual identification of structured cabling racks.

Products that are part of the PatchView line:


CAT.6A Manageable Patch Panel


48P LC Manageable OID


Master


Scanner

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Access Advantage System

Products that connect your network into the future.

Telecom Operators, access providers and high-class condo builders have been increasingly offering an advanced network that fulfills the needs of entertainment, services and information at very high speeds, with practically unlimited band capacity to their final users. All that is only possible through fully optical networks, the FTTx networks. Furukawa offers the Access Advantage System line, composed of exclusive products and equipments which, once integrated to the remaining family of Furukawa products, complement and make viable these networks and their business.

Products that are part of the Access Advantage System line:

Orbital Closet

Tribox Closet

Optic Splitte

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Optical Cables

Entertainment, services and information at high speeds.

Communication is an inseparable part of people's perception of quality of life: entertainment, services and information are increasingly demanded, at any time, everywhere, so that people enjoy life better. The fast technological advancement verified in the telecommunications sector and the need of greater transmission rates that allow many different services, such as multimedia, internet, teleconference and others, turn fibers and optic cables into the best mean of transmission. These cables, which use singlemode or multimode fibers, allow for the transmission of high-speed systems such as SDH/SONET, ATM, among others, or many different wavelengths, such as WDM or DWDM.

Indoor Networks

Optic cables made of materials adequate for use in internal environments, with flame retarding characteristics.

Products that are part of the line of Optic Cables (Indoor Network):

Fiber-Lan

CFOI

COA Cord

Premise Network (indoor/outdoor)

Family of optic cables designed with adequate characteristics for optic systems termination, making the connection between the external metropolitan optic ring and the optic equipment located inside edifications. There is no need of transition patches from the external environment to the internal one. These cables have characteristics that simultaneously fulfill both the requirements demanded by the external environment, and resistance to weathering (sun, rain, humidity penetration), and requirements demanded by the internal environment, such as flame retarding.

Products that are part of the line of Premises Optic Cables (Termination Network):


Fiber-Lan AR


FIS-OPTIC DG


OPTIC-LAN


DROP FIG.8 FTTH

Channelized Underground or Air Lashed Networks

Family of optic cables indicated preferably for underground installation inside duct or sub-duct lines, and in air lashed installations. These cables are applied to intersection networks, subscribers' networks and special networks, the cables having a capacity superior to 72 optic fibers preferable applied to subscribers' networks.

Products that are part of the line of Optic Cables (Channelized Underground Network):


OPTIC-LAN AR


CFOA-XX-DD-G/S


CFOA-XX-DPE-W


CFOA-XX-DDR-W

Self-Supported Air Networks

Network composed of optic cables provided with sustentation elements that allow for installation directly on posts and towers of the distribution or transmission line of the electric network. This family of cables offers from very light cables, to connect the final client in urban areas, to extremely robust cables, to install optic backbones in Transmission Lines in areas subject to highly severe environmental conditions such as snow and winds.

Products that are part of the line of Optic Cables (Self-Supported Air Network):


CFOA-X-ASY-G/S


CFOA-X-AS120-RA


CFOA-X-FIG.8-W


CFOA-X-LV-ASY-S

Directly Buried Underground Networks

Line of optic cables designed to be installed as directly buried, without the need of a piping infrastructure. These cables are constructively more robust, to support the mechanical compression efforts inherent to the directly buried installation process. They are indicated for optic backbones installations in regions of difficult to access or in places lacking a duct infrastructure, or also in situations where the use of the technique of using "plow" (an adapted plow for simultaneous installation) provides an excellent cost-benefit relation for the solution.

Products that are part of the line of Optic Cables (Directly Buried Underground Network):


CFOA-X-ARE-W


CFOA-X-DE-W


CFOA-X-DER-W (PFV)


CFOA-X-DER-W (PFU)

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Metallic Phone Cables

Full compatibility with the network components, today.

The profitability of the Broadband business is associated to factors such as network quality, distance from the subscriber to the central, isolation of parallel cables, among others, and mainly the frequency band used in metallic cables. The metallic cables have been designed in order to be fully compatible with the components of already existing networks, allowing it to comply with the current systems technologies and future expansions.

Indoor Networks

Multipart telephone cables made of copper conductors isolated in thermoplastic elements, made of materials adequate for use in internal environments, with characteristics of flame retarding.

Underground Networks or Air Lashed Networks

Multipart telephone cables made of copper conductors isolated in thermoplastic elements, protected against external weathering, indicated preferably to underground installations inside duct or sub-duct lines, and in air installations, lashed into the messenger. Recommended for the infrastructure of outdoor networks, such as networks of trunk cables, primary networks and secondary networks.

Self-Supported Air Networks

Multipart telephone cables made of copper conductors isolated in thermoplastic elements, protected against external weathering, provided with elements of sustentation that allow the installation directly on posts of the electric network distribution line. They are recommended for the infrastructure of outdoor networks in secondary networks.

Products that are part of the line of Metallic Phone Cables:

CTP-APL xDSL

CTP-APL-G

CTS-APL-G

FAST-CIT xDSL

Get to know better the specifications of each component in the following pages or in the website www.furukawa.com.br

Specifications

Transmission rates at the speed of light.

TeraLan® Optical Line

High Density

DIO HDMOD - BASIC MODULE

Only illustrative images

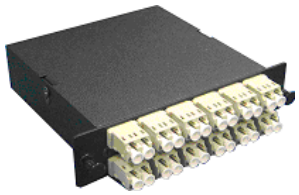
Configuration and related products		
HDMPO System	HDMPO cassette	
	HDMPO fanout cord	
	HDMPO optical cord	
	HDMPO pre-connected optical cable	
Field connecting or pre-connecting	Optical adapters plate kit	
	Optical adapters kit	
	Optical cord	
	Pre-connected optical cable	
Fusion splice	Splice tray kit	
	Optic adapters plate kit	
	Connected optic extension	
	Optical cord	

Construction characteristics		
Height	44,45mm (1U)	
Width	440mm	
Depth	338,8mm	
Color	Black (epoxy)	
Quantity of positions	3 Standard modules LGX (1)	
Quantity of fibers	With HDMPO cassette	up to 72 fibers
	With LC adapters panel	up to 48 fibers

Codification	
35260072	DIO HDMOD 1U - BASIC MODULE

(1) LGX (light guide cross-connect) is a registered trademark of Furukawa Electric North America Inc.
The related products are acquired separately.

HDMPO CASSETTE



Construction characteristics		
Height	29,2mm	
Width	129,6mm	
Depth	101,50mm	
Complies with LGX standard		
Color	Black (epoxy)	
Rear connector options	MPO 12 fibers	
Frontal connector options	LC-duplex	
	SC-simplex	
Polishing	PC (multimode)	
	APC (singlemode)	
Fiber options	Multimode OM3 (50,0/125µm)	
	Singlemode G.652D (9/125µm)	
Quantity of fibers	LC-duplex	24 fibers
	SC-simplex	12 fibers

Performance			
Typical insertion loss		SM	0,65dB
		MM OM3	0,60dB
Maximum insertion loss		SM	1,00dB
		MM OM3	1,00dB
Quantity of cycles	> 500 insertions		

Certifications			
Anatel		LC-APC	0583-08-0256
		LC-PC	1344-06-0256
		SC-APC	0483-02-0256
		SC-PC	1365-06-0256

Codification	
35260149	HDMPO CASSETTE 12F LC-SPC MM(50) OM3
35260150	HDMPO CASSETTE 24F LC-SPC MM(50) OM3

Other configuration is under consulting.

HDMPO FANOUT CORD

Construction characteristics			
Standard length		5, 10, 15 and 20 meters	
Color		Standard (Bellcore)	
Connector option - side 1		MPO 12 fibers (male)	
Connector option - side 2		LC-simplex	
		SC-simplex	
Polishing		PC (multimode)	
		APC (singlemode)	
Fiber options		Multimode OM3 (50/125µm)	
		Singlemode G652.D (9/125µm)	
Type of cable		Hybrid - "ribbon fiber flat" in the extremity of the MPO connector and "tight buffer" for the remaining connectors	
Flammability class		OFNP (plenum) - ribbon fiber flat cord	
		OFN - monofiber cord	
Quantity of fibers		12 fibers	
Performance			
		MPO	LC or SC
Insertion loss	Singlemode	≤0,50 dB (typical)	≤0,30 dB (typical)
		≤0,70 dB (maximum)	≤0,50 dB (maximum)
	Multimode	≤0,30 dB (typical)	
		≤0,50 dB (maximum)	
Return loss	Singlemode	≥40 dB	
	Multimode	≥30 dB	
Quantity of cycles		> 500 Insertions	> 1000 Insertions
Certifications			
Anatel		LC-APC	0583-08-0256
		LC-PC	1344-06-0256
		SC-APC	0483-02-0256
		SC-PC	1365-06-0256

Codification	
35200277	HDMPO FANOUT OPTIC CORD 12F MM(50) OM3 10 GIGABIT MPO/LC-SPC 10M
35200278	HDMPO FANOUT OPTIC CORD 12F MM(50) OM3 10 GIGABIT MPO/LC-SPC 5M

Other configuration is under consulting.

HDMPO OPTICAL CORD

Construction characteristics		
Standard length		5, 10, 15 and 20 meters
Color		Standard (Bellcore)
Connector option - side 1		MPO 12 fibers (female)
Connector option - side 2		MPO 12 fibers (female)
Polishing		PC (multimode)
		APC (singlemode)
Fiber options		Multimode OM3 (50/125µm)
		Singlemode G652.D (9/125µm)
Type of cable		Optic cord "ribbon fiber flat"
Flammability class		OFNP (plenum)
Quantity of fibers		12 Fibers
Insertion loss	Singlemode	≤0,50dB (typical)
		≤0,70dB (maximum)
	Multimode	≤0,30dB (typical)
		≤0,50dB (maximum)
Return loss	Singlemode	≥40dB
	Multimode	≥30dB
Quantity of cycles		> 500 insertions

Codification	
35200280	HDMPO OPTICAL CORD 12F MM(50) OM3 10 GIGABIT MPO-MPO (OFNP) 10.0M
35200279	HDMPO OPTICAL CORD 12F MM(50)OM3 10 GIGABIT MPO-MPO (OFNP) 5.0M

Other configuration is under consulting.

Only illustrative images

HDMPO PRE-CONNECTED OPTICAL CABLE

Only illustrative images

Construction characteristics		
Standard length		25, 50, 75 and 100 meters
Color		Standard (Bellcore)
Connector option - side 1		MPO 12 fibers (female)
Connector option - side 2		MPO 12 fibers (female)
Polishing		PC (multimode)
		APC (singlemode)
Fiber options		Multimode OM3 (50/125µm)
		Singlemode G652.D (9/125µm)
Type of cable		"Ribbon fiber flat" type for 48 and 72 fibers and type "tight buffer" for 12 and 36 fibers
Flammability class		OFNP (plenum)
Quantity of fibers		12 to 72 fibers
Insertion loss	Singlemode	≤0,50dB (typical)
		≤0,70dB (maximum)
	Multimode	≤0,30dB (typical)
		≤0,50dB (maximum)
Return loss	Singlemode	≥40dB
	Multimode	≥30dB
Quantity of cycles		> 500 insertions

Codification	
33900021	HDMPO PRE-CONNECTED CABLE 12F MM(50) OM3 10 GIGABIT MPO/MPO 50M -TIGHT - OFNP
33900023	HDMPO PRE-CONNECTED CABLE 48F MM(50) OM3 10 GIGABIT MPO/MPO 50M - RIBBON - OFNP
33900025	HDMPO PRE-CONNECTED CABLE 72F MM(50) OM3 10 GIGABIT MPO/MPO 50M - RIBBON - OFNP

Other configuration is under consulting.

DIO HD144 - BASIC MODULE

Standard configuration		
Fusion splice		4 Sliding trays, with accommodation of optic patch
		1 Panel for 36 LC/SC/MT-RJ/E2000 adapters per tray
		Front lid made of acrylic
		144 Splice protectors
		8 Ordinals to accommodate 18 patches per fusion each
		Accessories for identification and installation
		4 Bolts e 4 cage nuts

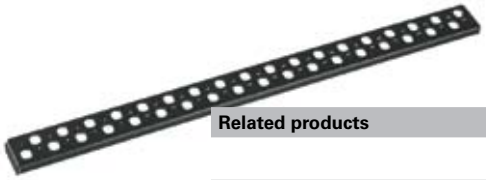
Related products		
Fusion splice		Connected optic extension
		Optical cord
Field connecting or pre-connecting		Optical adapters kit
		Optical cord
		Pre-connected optic cable

Construction characteristics	
Height	177mm (4U)
Width	532mm
Depth	436mm
Color	Black (epoxy)
Quantity of positions	36 Positions per adapters panel
Quantity of fibers	Up to 144 fibers

Codification	
35260060	DIO HD144 - BASIC MODULE

For use with ST or FC optic connectors please acquire the panel separately for ST/FC optic adapters.
The related products are acquired separately.

PANEL FOR ST/FC ADAPTERS



Construction characteristics	
Height	29mm
Width	413mm
Color	Black (epoxy)
Connector options	ST
	FC
Quantity of positions	36 positions

Related products	
Fusion patch	Connected optical extension
Field connecting or pre-connecting	Optical adapters kit

Codification	
35260061	PANEL FOR ST/FC ADAPTERS (DIO HD144) - 36 POSITIONS

OPTICAL ADAPTER PLATE KIT LGX

Construction characteristics		
	Height	29,2mm
	Width	129,6mm
	Color	Black (epoxy)
	Optical adapter options	ST
		FC
		LC-duplex
		MT-RJ
		SC
		AND-2000
	Quantity of positions	8 Positions ST/FC
		8 Positions SC/FC/MT-RJ/E2000
		12 Positions SC/LC-duplex
	Field connecting or pre-connecting	Optical adapters kit

Codification	
35260073	KIT 3X LGX PLATES 08 POSITIONS LC/SC
35260074	KIT 3X LGX PLATES 12 POSITIONS LC/SC
35260075	KIT 3X LGX PLATES 08 POSITIONS ST/FC

OPTICAL ADAPTER KIT

Configuration		
	Field connecting or pre-connecting	6 Simplex adapters
		3 Duplex adapters

Construction characteristics			
	Connector options	Duplex	Simplex
		LC	SC
		MT-RJ	ST
			FC
	Fiber option	SM	
		MM	
	Polishing	PC / SPC	
		UPC	
		APC (only for singlemode fiber)	

Compatibility	
	Optic adapter plate kit

Codification	
35260091	OPTICAL ADAPTERS KIT 6X MM LC-PC
35260092	OPTICAL ADAPTERS KIT 6X MM SC-PC
35260095	OPTICAL ADAPTERS KIT 6X SM LC-PC
35260096	OPTICAL ADAPTERS KIT 6X SM SC-APC
35260097	OPTICAL ADAPTERS KIT 6X SM SC-PC

Other configuration is under consulting.

CONNECTED OPTICAL EXTENSION FOR HD144 AND B48

Construction characteristics			
	Nominal diameter	0,9 ± 0,15mm	
	Length	1,5m	
	Quantity	Simplex optical extension	6
		Optical adapter	6

Codification	
35260132	CONNECTED OPTICAL EXTENSION 6X MM (50.0) OM3 10 GIGABIT LC-SPC - D0.9
35260131	CONNECTED OPTICAL EXTENSION 6X MM (50.0) OM3 10 GIGABIT SC-SPC - D0.9
35260135	CONNECTED OPTICAL EXTENSION 6X MM (50.0) LC-SPC - D0.9
35260133	CONNECTED OPTICAL EXTENSION 6X MM (50.0) SC-SPC - D0.9
35260081	CONNECTED OPTICAL EXTENSION 6X MM (62.5) LC-SPC - D0.9
35260136	CONNECTED OPTICAL EXTENSION 6X MM (62.5) SC-SPC - D0.9
35260084	CONNECTED OPTICAL EXTENSION 6X SM LC-SPC - D0.9
35260087	CONNECTED OPTICAL EXTENSION 6X SM SC-SPC - D0.9
35260085	CONNECTED OPTICAL EXTENSION 6X SM SC-APC D0.9

Other configuration is under consulting.

Only illustrative images

OPTIC GENERAL DISTRIBUTOR - DGO HIGH CAPACITY

Application

It is used as splice and optical connections framing in structured cabling networks, in telecommunications rooms or data centers or in broad band telecommunication networks in FTTx systems

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Configuration

	Fully modular configuration that considers the integration of modules: Termination module LGX OFS
	Splice module LGX OFS

TERMINATION MODULE LGX OFS

Related products

	Kit 3x plates for optic adapters
	Optic adapters kit 2x
	Optic adapters kit 6x
	Clamp for cables LGX OFS

Construction characteristic

Quantity of connections	72 Connections
Height	178mm
Width	432mm
Depth	292mm
Quantity of positions	Up to 12 LGX modules (HDMPO cassettes, plate for optic adapters or splitter modular)
Type of connector	LC, SC
Products body material	Chassis made of steel
Color	Black and White

Codification

35260153	Termination Module LGX OFS White LST1U-072/07
35260119	Termination Module LGX OFS Black LST1U-072/07

PATCH MODULE LGX OFS

Related products	
Splice tray LGX OFS LT1B-F/F	
Connected optic extension 2x - D0.9	
Connected optic extension 6x - D0.9	
Clamp for cables LGX OFS	
Construction characteristic	
Height	127mm
Width	432mm
Depth	292mm
Quantity of patches	72 Patches
Quantity of trays	6 Units
Type of cable	Loose, tight
Products body material	Chassis made of steel
Color	White
Codification	
35260025	Patch module LGX OFS LSS1U-072/05

PATCH TRAY LGX OFS

Construction characteristic	
Quantity of patches	12 Patches
Type of cable	Loose, tight
Products body material	High-impact, flame arresting plastic UL-94 V0
Color	White
Type of cable	Loose, tight
Codification	
35260099	SPLICE TRAY LGX OFS LT1B-F/F

CLAMP FOR CABLES LGX OFS

Construction characteristic	
Type of Cable	Loose, tight
Products body material	Steel
Color	White
Codification	
35260125	Clamp for cables w/grounding LGX OFS 12A1

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Transmission rates at the speed of light.

TeraLan® Optical Line

Business

PATCH CORD, EXTENSION AND CONNECTED OPTICAL EXTENSION

Standard configuration for connected optical extension for DIO			
		Monofiber optical extension	
		Duplex or simplex optical adapter (considered based on the type of connector used in the optical extension)	
		Support for optical adapters (applicable only in DIO A280 and A270)	
Standard configuration for optical cords			
		Monofiber optical cable (simplex) or zip-cord (duplex)	
		Optical connectors in both extremities	
Standard configuration for optical extensions			
		Monofiber optical cable (simplex) or zip-cord (duplex)	
		Optical connectors in one extremity only	
Construction characteristics			
	Color	Standard (Bellcore)	
	Connector options	LC	Connector of the type “push-pull”
			Plastic body
			Ceramic latch
		SC	Connector of the type “push-pull”
			Plastic body
			Ceramic latch
		MT-RJ	Connector duplex of the type “push-pull”
			Plastic body
			Plastic latch
			Male connector with guide pin
			Female connector without guide pin
		E2000 (for singlemode fiber)	Connector of the type “push-pull”
			Plastic body
			Ceramic terminal
		ST	Connector of the type guide pin (BNC)
			Metallic body
			Ceramic latch
		FC	Connector of the thread able type
			Metallic body
			Ceramic latch
	Polishing	PC or SPC	
		UPC	
		APC (only for singlemode fibers)	
	Fiber options	Singlemode (9/125)	G.652.B
			G.652.D
			G.657.A
		Singlemode NZD (9/125)	G.655
		Multimode (50/125)	OM3
			OM3+
			OM2
			OM2+
		Multimode (62.5/125)	OM1
			OM1+
	Flammability class	COG (standard supply)	
		COLOR	
		COG LSZH	
	Insertion loss	The performance values are in conformity with the ABNT NBR 14433 Norm. Losses may be optimized as per type of connector and polishing being requested	
	Return loss		
	Quantity of cycles	> 1000 insertions	
Certifications			
	Anatel (for Brazilian market)	LC-APC	0583-08-0256
		LC-PC	1344-06-0256
		SC-APC	0483-02-0256
		SC-PC	1365-06-0256
		FC-APC	0485-02-0256
		FC-PC	1366-06-0256
		ST-PC	0484-02-0256
		MT-RJ	1364-06-0256
		E2000-APC	0482-02-0256

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CONNECTED OPTICAL EXTENSION FOR A280

Construction characteristics			
	Nominal diameter	2,0mm (standard supply)	
	Length	1,5m	
	Quantity	Monofiber optical extension	6 or 8
		Optical adapter	6 or 8

Codification	
35260022	CONNECTED OPTICAL EXTENSION 6X MM (50.0) OM3 10 GIGABIT LC-SPC (FOR DIO A280)
35260203	CONNECTED OPTICAL EXTENSION 6X MM (62.5) FC-SPC (FOR DIO A 280)
35260030	CONNECTED OPTICAL EXTENSION 6X MM (62.5) MT-RJ (FOR DIO A280)
35260236	CONNECTED OPTICAL EXTENSION 6X MM (62.5) SC-SPC (FOR DIO A 280)
35260166	CONNECTED OPTICAL EXTENSION 6X MM (62.5) ST-SPC (FOR DIO A280)
35260211	CONNECTED OPTICAL EXTENSION 6X SM FC-SPC (FOR DIO A280)
35260244	CONNECTED OPTICAL EXTENSION 6X SM SC-SPC (FOR DIO A280)
35260176	CONNECTED OPTICAL EXTENSION 6X SM ST-SPC (FOR DIO A280)
35260259	CONNECTED OPTICAL EXTENSION 8X MM (62.5) SC-SPC (FOR DIO A280)
35260182	CONNECTED OPTICAL EXTENSION 8X MM (62.5) ST-SPC (FOR DIO A280)
35260284	CONNECTED OPTICAL EXTENSION 8X SM FC-SPC (FOR DIO A280)
35260267	CONNECTED OPTICAL EXTENSION 8X SM SC-SPC (FOR DIO A280)
35260196	CONNECTED OPTICAL EXTENSION 8X SM ST-SPC (FOR DIO A280)

Other configuration is under consulting.

CONNECTED OPTICAL EXTENSION FOR A270

Construction characteristics			
	Nominal diameter	2,0mm (standard supply)	
		0,9 ± 0,15mm	
	Length	1,5m	
	Quantity	Monofiber optical extension	2
		Optical adapter	2
		Support for optical adapters	1 of 2 positions

Codification	
35260016	CONNECTED OPTICAL EXTENSION 2X MM (50.0) OM3 10 GIGABIT LC-SPC (FOR DIO A270)
35260128	CONNECTED OPTICAL EXTENSION 2X MM (50.0) LC-SPC (FOR DIO A270)
35260127	CONNECTED OPTICAL EXTENSION 2X MM (62.5) LC-SPC (FOR DIO A270)
35260117	CONNECTED OPTICAL EXTENSION 2X SM LC-SPC (FOR DIO A270)
35260124	CONNECTED OPTICAL EXTENSION 2X MM (50.0) OM3 10 GIGABIT SC-SPC (FOR DIO A270)
35260109	CONNECTED OPTICAL EXTENSION 2X MM (50.0) SC-SPC (FOR DIO A270)
35260104	CONNECTED OPTICAL EXTENSION 2X MM (62.5) SC-SPC (FOR DIO A270)
35260112	CONNECTED OPTICAL EXTENSION 2X SM SC-SPC (FOR DIO A270)
35260105	CONNECTED OPTICAL EXTENSION 2X MM (62.5) MT-RJ (FOR DIO A270)
35260103	CONNECTED OPTICAL EXTENSION 2X MM (62.5) ST-SPC (FOR DIO A270)
35260106	CONNECTED OPTICAL EXTENSION 2X MM (62.5) FC-SPC (FOR DIO A270)
35260113	CONNECTED OPTICAL EXTENSION 2X SM FC-SPC (FOR DIO A270)

Other configuration is under consulting.

CONNECTED OPTICAL EXTENSION FOR A115/A145/A146

Construction Characteristics			
	Nominal diameter	2,0mm (standard supply)	
	Length	1,5m	
	Quantity	Monofiber optical extension	2
		Optical adapter	2

Codification	
35250209	CONNECTED OPTICAL EXTENSION 2X MM (50.0) LC-SPC (FOR DIO A115/A145/A146)
35250015	CONNECTED OPTICAL EXTENSION 2X MM (50.0) OM3 10 GIGABIT SC-SPC (FOR DIO A115/A145/A146)
35250008	CONNECTED OPTICAL EXTENSION 2X MM (50.0) SC-SPC (FOR DIO A115/A145/A146)
35250007	CONNECTED OPTICAL EXTENSION 2X MM (50.0) ST-SPC (FOR DIO A115/A145/A146)
35250208	CONNECTED OPTICAL EXTENSION 2X MM (62.5) LC-SPC (FOR DIO A115/A145/A146)
35250207	CONNECTED OPTICAL EXTENSION 2X MM (62.5) SC-SPC (FOR DIO A115/A145/A146)
35250147	CONNECTED OPTICAL EXTENSION 2X MM (62.5) ST-SPC (FOR DIO A115/A145/A146)
35250210	CONNECTED OPTICAL EXTENSION 2X SM LC-SPC (FOR DIO A115/A145/A146)
35250190	CONNECTED OPTICAL EXTENSION 2X SM SC-SPC (FOR DIO A115/A145/A146)
35250186	CONNECTED OPTICAL EXTENSION 2X SM ST-SPC (FOR DIO A115/A145/A146)

Other configuration is under consulting.

PATCH CORD AND OPTICAL EXTENSION

Construction characteristics		
Nominal diameter	2,0mm (standard supply)	
	3,0mm	
	0,9 ± 0,15mm	
Length	From 0,5m to 20,0m	

Packaging	
Cardboard box	
Quantity per box	10 Pieces
Minimum and multiple batches	1 Box

Codification
Alphanumeric code system for cords and optical extensions (see table - page 75)

Other configuration is under consulting.

DIO A280 - BASIC MODULE

Only illustrative images

Standard configuration		
	Fusion splice	3 Splice trays
		16 Splice protectors
		Front lid made of acrylic
		Accessories for identification and installation

Related products		
	Fusion splice	Blind plate for A280
		Connected optic extension
		Optical cord
	Field connecting or pre-connecting	Optical adapters kit
		Optical cord
		Pre-connected optical cable

Construction characteristics		
	Height	177mm (4U)
	Width	540mm
	Depth	286mm
	Color	Black (epoxy)
	Quantity of fibers	36 Fibers (using optical cables with a group of 6 or 12 fibers)
		48 Fibers (using optical cables with a group of 8 or 16 fibers)

Codification	
35260158	BASIC MODULE A280

The related products are acquired separately.

BLIND PLATE FOR A280

Construction characteristics		
	Height	28mm
	Width	186mm
	Color	Black (epoxy)

Codification	
35260277	BLIND PLATE A280

DIO A270 - BASIC MODULE

Configuration and related products		
	Fusion splice	Splice tray kit
		Connected optical extension
		Optical cord
	Field connecting or pre-connecting	Field termination kit
		Optical cord
		Pre-connected optical cable

Construction characteristics		
	Height	44mm (1U)
	Width	484mm
	Depth	338mm
	Color	Black (epoxy)
	Quantity of fibers	48 Fibers with connectors LC-duplex and MT-RJ
		24 Fibers with the remaining connectors

Codification	
35260036	BASIC MODULE - DIO A270

The related products are acquired separately.

Only illustrative images

FIELD TERMINATION KIT

Configuration			
	Field pre-connecting	1 Support for optical adapters (2 positions)	
		2 Optical adapters or 1 optic adapter (LC-duplex)	
Construction characteristics			
	Connector options	Kit 2 fibers	Kit 4 fibers
		LC-duplex	LC-duplex
		ST	
		SC	
	Fiber option	MM	
	Quantity of positions	2	

Codification	
35260041	KIT DIO A270 2X MM LC-PC (FOR FIELD TERMINATION)
35260121	KIT DIO A270 2X MM SC-PC (FOR FIELD TERMINATION)
35260120	KIT DIO A270 2X MM ST-PC (FOR FIELD TERMINATION)
35260009	KIT DIO A270 4X MM LC-PC (FOR FIELD TERMINATION)

DIO B48 - BASIC MODULE

Configuration and related products		
	Fusion splice	Splice tray kit
		Optical adapter plate kit (LGX)
		Anchoring kit
		Connected optical extension
		Optical cord
	Field connecting or pre-connecting	Optical adapter plate kit (LGX)
		Optical adapter kit
		Anchoring kit
		Optical cord
		Pre-connected optical cable
Construction characteristics		
	Height	44,45mm (1U)
	Width	484mm (with rims) (it has support for clamping in 19" or 23"
	Depth	335mm
	Color	Black (epoxy)
	Quantity of fibers	48 Fibers with LC-duplex and MT-RJ connectors
		36 Fibers with SC connectors
		24 Fibers with the remaining connectors

Codification	
35260063	DIO B48 - BASIC MODULE

The related products are acquired separately.

ANCHORING AND ACCOMMODATION KIT

Configuration		
	Fusion patch, field connecting or pre-connecting	2 Plastic guides to accommodate fibers
		1 Cable holder
		1 Cable press
		1 Traction element holder
Related products		
		Connected optical extension

Codification	
35260064	ANCHORING AND ACCOMMODATION KIT

The related products are acquired separately.

DIO A115 - BASIC MODULE

Only illustrative images

Standard configuration		
	Fusion splice	2 Splice trays
		24 Splice protectors
		Front lid made of steel with locking system
		Accessories for identification and installation

Related products		
	Fusion splice	Expansion kit
		Connected optical extension
		Optical cord

Construction characteristics		
	Height	320mm
	Width	420mm
	Depth	80mm
	Color	Black (epoxy)
	Quantity of fibers	36 Fibers with use of the expansion kit

Codification	
31003008	DIO BASIC MODULE TO WALL A115

The related products are acquired separately.

EXPANSION KIT

Configuration		
	Fusion patch	Metallic support for optical adapters
		Splice tray
		Splice protector

Related products		
	Fusion patch	Connected optical extension
		Optical cord

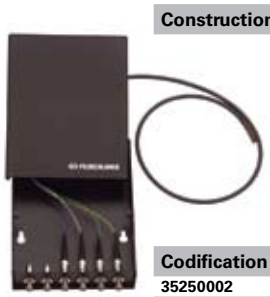
Construction Characteristics			
	Connector options	Kit SC	Kit ST
		SC	ST
		LC	
		MT-RJ	FC
		E2000	
	Quantity of positions	36 positions	

Codification	
31003523	EXPANSION KIT 36 FIBERS SC DIO A115
31000019	EXPANSION KIT 36 FIBERS ST DIO A115

The related products are acquired separately.

DIO A147 - BASIC MODULE

Configuration and related products		
	Field termination	Connection kit
		Optical cord



Construction characteristics			
	Height	180mm	
	Width	135mm	
	Depth	35mm	
	Color	Black (RAL 9005)	
	Quantity of fibers	Up to 6 fibers	
	Connector options	SC module	ST module
		SC	ST
		LC	
		MT-RJ	FC
		E2000	

Codification	
35250002	BASIC MODULE A147 SC FTTD
35250003	BASIC MODULE A147 ST FTTD

The related products are acquired separately.

EXPANSION KIT

Configuration		
	Field termination	2 Optical adapters
Related products		
	Field termination	DIO A147 - basic module
		Optical cord
Construction characteristics		
	Connector options	LC-duplex
		SC
		MT-RJ
		E2000
		ST
		FC
	Fiber options	Singlemode (9,0µm)
		Multimode (50.0µm and 62.5µm)
Codification		
35250095	KIT DIO A147 2X MM LC-PC	
35250004	KIT DIO A147 2X MM MT-RJ	
35250005	KIT DIO A147 2X MM SC-PC	
35250006	KIT DIO A147 2X MM ST-PC	
35250023	KIT DIO A147 2X SM SC-PC	
35250016	KIT DIO A147 2X SM ST-PC	

The related products are acquired separately.

DIO A146 - BASIC MODULE

Configuration			
	Fusion splice	1 Splice tray	
		7 Splice protectors	
		Accessories for installation	
Related products			
	Fusion splice	Connected optical extension	
		Optical cord	
Construction characteristics			
	Height	220mm	
	Width	135mm	
	Depth	35mm	
	Color	Black (RAL 9005)	
	Quantity of fibers	Up to 6 fibers	
	Connector options	SC module	ST module
		SC	ST
		LC	
		MT-RJ	FC
		E2000	
Codification			
35250138	BASIC MODULE A146 ST		
35250151	BASIC MODULE LC/SC A146		

The related products are acquired separately.

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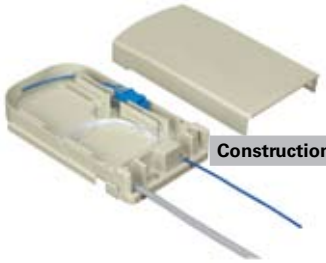
DIO A145 - BASIC MODULE

Configuration			
	Fusion splice	1 Splice tray 7 Splice protectors Accessories for installation	
Related products			
	Fusion splice	Connected optical extension Optical cord	
Construction characteristics			
	Height	180mm	
	Width	135mm	
	Depth	35mm	
	Color	Black (RAL 9005)	
	Quantity of fibers	Up to 6 fibers	
	Connector options	SC module	ST module
		SC	ST
		LC	
		MT-RJ	FC
		E2000	

Codification	
35250160	BASIC MODULE A145 ST
35250170	BASIC MODULE LC/SC A145

The related products are acquired separately.

OPTICAL TERMINATION POINT (PTO)



Configuration		
	Fusion splice	1 access for cable input with useful diameter of up to 10mm 1 access for optic extension output Accessories for installation
Construction characteristics		
	Height	150mm
	Width	82,5mm
	Depth	25,5mm
	Products body material	Plastic
	Color	White
	Quantity of fibers	2 fibers

Codification	
35250161	OPTICAL TERMINATION POINT - 2F

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FISA OPTIC BLOCK (FOB)

Configuration		
	Fusion splice	4 Accesses for cables or optical extensions with useful diameter of up to 13mm
		Accessories for installation
Construction characteristics		
	Height	95mm
	Width	174mm
	Depth	34mm
	Color	Black and beige (epoxy)
	Quantity of fibers	Up to 6 or 8 fibers

Codification	
31002857	FISA OPTIC-BLOCK 6F METALLIC
31001282	FISA OPTIC-BLOCK 6F PLASTIC
31000036	FISA OPTIC-BLOCK 8F METALLIC-BEIGE

SPLICE TRAY KIT

Configuration		
	Fusion splice	1 Splice tray
		12 or 24 splice protectors
		4 Plastic clamps
		7 or 14 numeric washers
		4 Clamping bolts
Construction characteristics		
	Height	18,70mm
	Width	180mm
	Depth	106mm
	Products body material	ABS/PC (UL 94 V-0)
	Color	Transparent
	Quantity of positions	24 Fibers

Codification	
35260102	SPLICE TRAY KIT 12F
35260306	SPLICE TRAY KIT 24F

OPTICAL ADAPTER GROUP

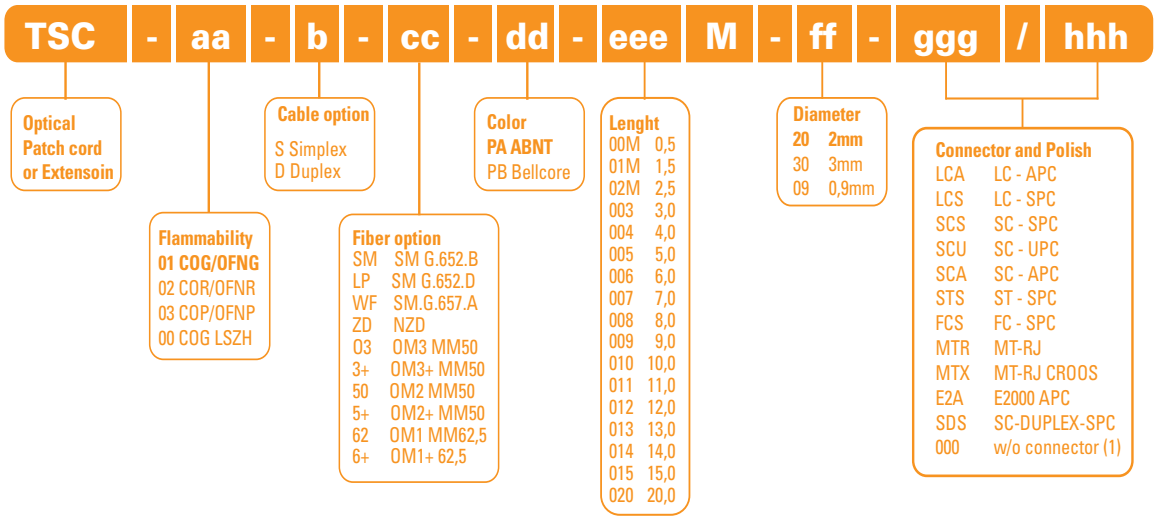
Related products	
	Discharged patch panel
	Plan and modular faceplate

Constructive characteristics			
	Adapter LC-duplex	Color	Beige (MM) and blue (SM)
		Number of positions	2 Positions (2 fibers)
	Adapter SC	Color	Beige, white, grey and black
		Number of positions	1 Position
	Adapter ST	Color	Beige and grey
		Number of positions	1 Position
	Body's product material	Thermoplastic resistant UL 94 V-0	
	Fiber option	Singlemode (SM)	
		Multimode (MM)	
Package			
	Paper box		
	Quantity per box	25 Pieces	
	Lot minimum	1 Box	

Codification	
35050278	ADAPTER GROUP LC DUPLEX MM
35050279	ADAPTER GROUP LC DUPLEX SM
35050368	ADAPTER GROUP SC - BEIGE (PACK 2 PCS)
35050367	ADAPTER GROUP SC - WHITE (PACK 2 PCS)
35050366	ADAPTER GROUP SC - GREY (PACK 2 PCS)
35050365	ADAPTER GROUP SC - BLACK (PACK 2 PCS)
35050341	ADAPTER GROUP ST - BEIGE (PACK 2 PCS)
35050339	ADAPTER GROUP ST - GREY (PACK 2 PCS)

The related products are acquired separately.

ALPHANUMERIC CODING SYSTEM FOR TERALAN CORDS AND OPTIC EXTENSIONS



(1) In the case of optic extension, the field "h" must be filled according to the "without connector" option.
(2) The highlighted items represent the standard supply of Furukawa.

Type of fiber	Abnt color standard	Bellcore color standard
SM	Blue	Yellow
OM3 MM (50)	Yellow	Acqua
MM (50)		Orange
MM (62,5)	Orange	

Example 1:

Optic cord, duplex, OM3+ fiber, ABNT color standard, 1.5 meter, extremity 1 with LC connector SPC polishing and extremity 2 with ST connector and SPC polishing:

TSC-01-D-3+-PA-01MM-20-LCS/STS

Example 2:

Optic extension, simplex, SM G.652.B fiber, ABNT color standard, 5.0 meters, E2000 connector and APC polishing:

TSC-01-S-SM-PA-005M-20-E2A/000

10 Gb in 100 meters, without interferences.

GigaLan® Augmented

GIGALAN AUGMENTED METALLIC PATCH CORD CAT.6A

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Related products		
	U/UTP channel	Modular patch panel Keystone jack CAT.6A Electronic cable U/UTP CAT.6A
	F/UTP channel	Shielded modular patch panel Shielded keystone jack CAT.6A Electronic cable F/UTP CAT.6A
Construction characteristics		
	Length	From 0,5 to 20,0m (standard supply: 1.5, 2.5 and 5.0m)
	Nominal diameter	6,3mm
	Weight	0,035kg/m
	Color	Standard: grey Non-standard: black, beige, red, green, white, blue, orange, yellow and brown (1)
	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	CM (standard supply) CM LSZH CMR
	Number of pairs	4 Pairs, 26AWG
	Electric contact material	RJ-45: phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,2µm) of gold
	Products body material	Transparent thermoplastic material UL 94V-0
	Assembly	T568-A (standard supply) T568-B
	Installation temperature	20°C
	Storage temperature	-40°C to +70°C
	Operational temperature	-10°C to +60°C
	Maximum DC electric resistance of the conductor at 20°C	93,8Ω/km
	Maximum mutual capacitance at 1 kHz	56pF/m
	Nominal characteristic impedance	100 ± 15Ω
	NVP	68%
Package		
	Cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Above 15,0m: 5 pieces
	Minimum lot	1 Box
Certifications		
	ETL 4 connections (F/UTP)	3132755CRT-003
	ETL 3 connections (U/UTP)	3132754CRT-003
Codification		
Alphanumeric coding system for metallic patch cord (see table - page 81)		

(1) Products that are non-standard must have a minimum order of 3.000 meters of cable.

FURUKAWA

GIGALAN AUGMENTED SHIELDED KEYSTONE JACK CAT.6A

Only illustrative images

Related products		
	F/UTP channel	Shielded modular patch panel
		Patch cord CAT.6A
		Electronic cable F/UTP CAT.6A
Construction characteristics		
	Color	Silver
	Connector type	RJ-45
	Electric contact material	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 to 22AWG
	Assembly standard	T568 A/B
Performance		
	Retention force between jack and plug	Minimum 133N
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200 in the IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric voltage test	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	1 Box
	Quantity per box	20 Connectors
	Minimum lot	20 Boxes
Certifications		
	ETL 4 connections (F/UTP)	3132755CRT-003
	ETL 3 connections (U/UTP)	3132754CRT-003
Coding		
35080004	SHIELDED AUGMENTED KEYSTONE JACK CAT.6A	

GIGALAN AUGMENTED CAT.6A F/UTP 23AWG x 4P ELECTRONIC CABLE

Only illustrative images

Related products

F/UTP channel	Shielded patch panel
	F/UTP CAT.6A patch cord
	CAT.6A shielded keystone jack connector

Constructive characteristics

Shielding	Metal foil
Color	Blue, grey, yellow, beige, white, orange, brown, black, red and green
Nominal diameter	8,1mm
Cable weight	58kg/km
Flame standard	CM (1)
	CMR
	LSZH-1
	LSZH
Number of pair	4 Pairs, 23AWG
Installation temperature	0°C up to +40°C
Storage temperature	-40°C up to +70°C
Operation temperature	-10°C up to +60°C

Performance

Unbalance resistance	5%
Maximum DC resistance at 20°C	93,8Ω/km
Maximum mutual capacitance at 1kHz	56pF/m
Capacitive disequilibrium 1kHz - maximum	3,3pF/m
Characteristic impedance	100±15Ω
Propagation delay	545ns/100m
Delay skew	45ns/100m
Pair-pair tension test	250VDC/3s
NVP	68%
Isolation resistance	10000MΩ/km

Freq. (MHz)	IL (dB/100m)		NEXT (dB)		PSNEXT (dB)		ACRF (dB)		PSACRF (dB)		RL (dB)		PSANEXT (dB)		PSAACRF (dB)	
	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	35,4	67	90	67	88
4	3,8	3,2	65,3	93,8	63,3	80,2	55,8	95,6	52,8	88,4	23	37,2	67	90,8	66,2	87,3
8	5,3	4,8	60,8	91,3	58,8	78	49,7	89,4	46,7	81,8	24,5	42,3	67	92,8	60,1	87
10	5,9	5,3	59,3	95,6	57,3	73,8	47,8	87,4	44,8	77,7	25	36,9	67	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	40,5	67	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	39,9	67	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	86,5	50,2	77,8
31,25	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	86,2	48,3	76,9
62,5	15	13,8	47,4	68,6	45,4	60,8	31,9	64	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	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	30,2	58	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	76,7	24,2	38,6

Package

Wood reel	
Standard length	1000 meters (2)

Certifications

ETL listed	3130563CRT-002
ETL verified	3130563CRT-003
ETL 4 connections (F/UTP)	3132755CRT-003

Codification

23370001	ELECT. CABLE GIGALAN AUGMENTED CAT.6 F/UTP PR CMR

(1) RoHS Compliance supply for CM jacket.
(2) Other configuration is under consulting.

GIGALAN AUGMENTED KEYSTONE JACK CAT.6A

Only illustrative images

Related products		
	U/UTP channel	Modular patch panel
		Patch cord CAT.6A
		Electronic cable U/UTP CAT.6A
Construction characteristics		
	Color	Beige and white
	Connector type	RJ45
	Electric contact material	Phosphor bronze with 50μin (1,27μm) of gold and 100μin (2,54μm) of nickel
	Conductor diameter	26 to 22AWG
	Assembly standard	T568 A /B
Performance		
	Retention force between jack and plug	Minimum 133N
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200 in the IDC block
	Isolation resistance	500MΩ
	Contact resistance	20 mΩ
	DC resistance	0,1Ω
	Dielectric voltage test	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	1 Box
	Quantity per box	20 Connectors
	Minimum lot	20 Boxes
Certifications		
	ETL 3 connections (U/UTP)	3132754CRT-003
Codification		
35080002	KEYSTONE JACK CAT.6A T568A/B - BEIGE	
35080001	KEYSTONE JACK CAT.6A T568A/B - WHITE	

GIGALAN AUGMENTED CAT.6A U/UTP 23AWG x 4P ELECTRONIC CABLE

Only illustrative images

Related products

U/UTP channel	Modular patch panel
	CAT.6A patch cord
	CAT.6A keystone jack connector

Constructive characteristics

Color	Blue, grey, yellow, beige, white, orange, brown, black, red and green
Nominal diameter	8,6mm
Cable weight	58kg/km
Flame standard	CM (1)
Number of pair	CMR
	LSZH-1 (CM)
	LSZH (CMX)
	4 Pairs, 23AWG
Installation temperature	0°C up to +40°C
Storage temperature	-40°C up to +70°C
Operation temperature	-10°C up to +60°C

Performance

Unbalance resistance	5%
Maximum DC resistance at 20°C	93,8Ω/km
Maximum mutual capacitance at 1kHz	56pF/m
Capacitive disequilibrium 1kHz - maximum	3,3pF/m
Characteristic impedance	100±15Ω
Propagation delay	545ns/100m
Delay skew	45ns/100m
Pair-pair tension test	2500 VDC/3s
NVP	68%
Isolation resistance	10000MΩ/km

Freq. (MHz)	IL (dB/100m)		NEXT (dB)		PSNEXT (dB)		ACRF (dB)		PSACRF (dB)		RL (dB)		PSANEXT (dB)		PSAACRF (dB)	
	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	34,2	67	89,1	67	86,9
4	3,8	3,2	65,3	90,5	63,3	80,4	55,8	69	52,8	73,8	23	34,2	67	89,9	66,2	79,4
8	5,3	4,7	60,8	86	58,8	77,8	49,7	60,2	46,7	67,1	24,5	33,8	67	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	32,5	67	86,7	58,2	70,2
16	7,5	6,6	56,2	79	54,2	71,5	43,7	51,5	40,7	61,3	25	38,7	67	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	35,9	67	81,8	52,2	64,5
25	9,4	8,5	53,3	80,2	51,3	69	39,8	44,6	36,8	56,3	24,3	35,5	67	79,7	50,2	62,6
31,25	10,5	9,4	51,9	77,7	49,9	68	37,9	42,8	34,9	54	23,6	37,8	67	79,8	48,3	61
62,5	15	13,6	47,4	71,4	45,4	64,8	31,9	38,9	28,8	47	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
200	27,6	25,1	39,8	62,6	37,8	50,6	21,8	34,3	18,8	38,3	18	29,9	58	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	33,3	48,5	15,8	36	12,8	35,6	15,9	24,7	53,5	60,8	26,2	30,6
500	45,3	41,4	33,8	53	31,8	40,8	13,8	28,5	10,8	28,3	15,2	23,6	52	59,5	24,2	26,6

Package

Wood reel	
Standard length	1000 meters (2)

Certifications

ETL listed	3117691CRT-001
ETL verified	3112435CRT-002
ETL 3 connections	3132754CRT-003

Codification

23400075	ELECT. CABLE GIGALAN AUGMENTED CAT.6A CM CZ

(1) RoHS Compliance supply for CM jacket.
(2) Other configuration is under consulting.

MODULAR PATCH PANEL

Only illustrative images

Configuration		
	U/UTP channel	1 Modular patch panel 1 Rear cable guide Clamping accessories
Related products		
		Keystone jack CAT.6A
		Patch cord CAT.6A
		Electronic cable U/UTP CAT.6A
Construction characteristics		
	Height	44,45mm
	Width	482,6mm
	Depth	29,5mm
	Color	Black (epoxy)
	Connector options	RJ-45 RJ-11 SC LC LC-duplex Blind lid
	Quantity of positions	24 Positions
	Products body material	Steel/thermoplastic
Package		
	Cardboard box	1 Box
	Quantity per box	1 Piece
	Minimum lot	1 Box
Certifications		
	ETL 3 connections (U/UTP)	3132754CRT-001
Codification		
35080003	MODULAR CAT.6A PATCH PANEL	

ALPHANUMERIC CODING SYSTEM TO PATCH CORD GIGALAN AUGMENTED (CAT.6A)

ARC - aa - F - 6A - dd - eee M - ff - R45 / R45

- **ARC** — Patch Cord GigaLan Augmented
- **aa** — Flammability: 01 CM; 02 CMR; 00 LSZH-1
- **F** — Cable option: F F/UTP
- **6A** — Category: 6A Category 6A
- **dd** — Color: 01 Black; 02 Beige; 03 Red; 04 Green; 05 White; 06 Blue; 07 Orange; 08 Yellow; 09 Grey; 11 Brown
- **eee** — Length: 00M 0,5; 01M 1,5; 02M 2,5; 003 3,0; 004 4,0; 005 5,0; 006 6,0; 007 7,0; 008 8,0; 009 9,0; 010 10,0; 011 11,0; 012 12,0; 013 13,0; 014 14,0; 015 15,0; 020 20,0
- **ff** — Configuration: TA T568A; TB T568B; XX CROSS-OVER
- **R45 / R45** — Connector: R45 RJ45

(1) The highlighted items represent the standard supply of Furukawa.

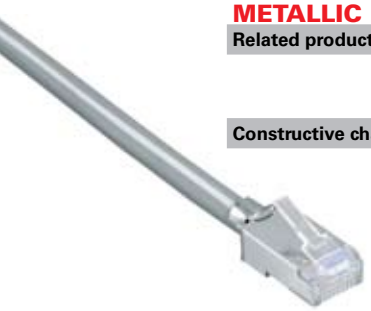
Example:

Patch cord category 6A, CM, red, 1.5 meter, T568A:

GRC-01-F-6A-03-01MM-TA-R45/R45

Safety and guarantee in many different environments.

GigaLan® Category 6



Only illustrative images

METALLIC PATCH CORD F/UTP GIGALAN CAT.6

Related products		
	Channel F/UTP	Shielded patch panel Shielded keystone jack CAT.6 Electronic cable F/UTP CAT.6
Constructive characteristic		
	Length	From 0,5 to 20 meters
	Nominal diameter	6,0mm
	Weight	0,034kg/m
	Color	Standard: grey No standard: white, blue, black, green, brown, beige, orange and yellow (1)
	Connector type	Shield RJ-45
	Cable type	F/UTP CAT.6
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments with nominal diameter of 0,16mm
	Flammability degree	CM (default supply) LSZH LSZH-1 CMR
	Quantity of pairs	4 Pairs, 26AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin(1,27µm) of gold
	Material of product body	Transparent thermoplastic material no fire transmission or fire propagation UL 94V-0
	Default assembly	T568-A (default supply) T568-B Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	Maximum CC resistance (per conductor) at 20°C.	140Ω/km
	Maximum operating capacitance at 1kHz	56pF/m
	Characteristic impedance from 1MHz to 250MHz	100±15 Ω
	Tension-proof between conductors and shielding	1250VDC/3s
	Nominal velocity of propagation	66%
Package		
	Cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Certification		
	UL Listed	E173971
	ETL 3 connections (F/UTP)	3102620CRT-03
	Anatel (for Brazilian market)	1271-07-0256, 1273-07-0256
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 93)		

(1) No default supply products must correspond to a minimum order equivalent to 3.000 meters of cable.

FURUKAWA

SHIELDED KEYSTONE JACK GIGALAN CAT.6

Only illustrative images

Related products		
	Channel F/UTP	Shielded patch panel
		Patch cord F/UTP CAT.6
		Electronic cable F/UTP CAT.6
		Faceplates e surface mounting boxes
Constructive characteristic		
	Color	Silver
	Connector type	RJ-45
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 a 22AWG
	Default assembly	T568 A /B
	Height	24mm
	Wide	17,5mm
	Depth	35,5mm
Performance		
	Retention proof between jack and plug	Minimum 133N
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	25 Connectors
	Minimum and multiple lot	1 Box
Certification		
	ETL 3 connections (F/UTP)	3102620CRT-03
	UL Listed and Verified	E173971
Codification		
35060027	CAT.6 SHIELDED KEYSTONE JACK T568A/B - ROHS	

FAST-LAN CAT.6 F/UTP 23AWG x 4P ELECTRONIC CABLE

Related products		
	F/UTP channel	Shielded patch panel
		F/UTP CAT.6 patch cord
		CAT.6 shielded keystone jack connector
Constructive characteristics		
	Shielding	Metal foil
	Color	Blue, grey, yellow, beige, white, orange, brown, black, red and green
	Nominal diameter	7.0mm
	Cable weight	51kg/km
	Flame standard	CM (1)
		CMR
		LSZH-1
		LSZH
	Number of pair	4 Pairs, 23AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +60°C
Performance		
	See the performance table to the CAT.5e cable at page 94	
Package		
	Wood reel	
	Standard length	1000 meters (2)
Certifications		
	UL	E160837
Codification		
23360001	ELECTR. CABLE FAST-LAN FTP 23AWGX4P CAT.6 CM VM	

(1) RoHS Compliance supply for CM jacket, other kinds of jackets under questioning.
(2) Other configuration is under consulting.

FAST-LAN INDOOR/OUTDOOR CAT.6 F/UTP 23AWG x 4P ELECTRONIC CABLE

Only illustrative images

Related products		
	Canal F/UTP	Shielded modular patch panel
		Keystone jack shielded CAT.6
Constructive characteristic		
	Shield	Foil tape
	Color	Black
	Nominal diameter	7,2mm
	Weight	54kg/km
	Flame standard	CMX
		CM (with water blocking tape)
	Number of pairs	4 Pairs, 23AWG
	Installation temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operation temperature	-10°C to +60°C
Performance		
	See the performance table to the CAT.6 cable at page 94	
Package		
	Wood reel 80/50	
	Standard length	1500 meters
Certification		
	UL Listed and Verified	E160837
	ETL Verified	J200211
	ETL 3 connections	3102620
	Anatel	2047-07-0256

Observations

The development of indoor/outdoor cables decreases the problems related to the environment where it will be installed, although it is very important to install electrical surge protectors in the system compatible with the cable category

Codification	
23360006	ELECTR. CABLE FAST-LAN FTP 23AWGX4P CAT.6 CM PR INDOOR/OUTDOOR

Other configuration is under consulting.

METALLIC PATCH CORD U/UTP GIGALAN CAT.6

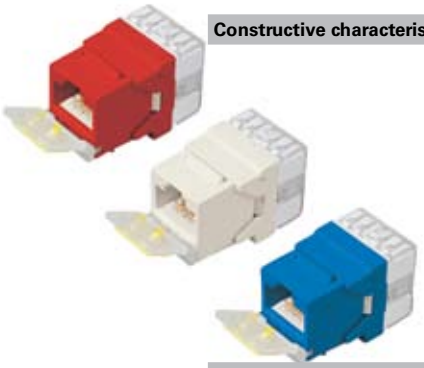
Only illustrative images

Related products		
	Channel U/UTP	Patch panel CAT.6
		Keystone jack CAT.6
		Electronic cable U/UTP CAT.6
Constructive characteristic		
	Length	From 0,5 to 20 metros
	Nominal diameter	6,0mm
	Weight	0,034kg/m
	Color	Standard: blue, white, red, gray, black and green
		No standard: yellow, brown, beige and orange (1)
	Connector type	RJ-45
	Cable type	U/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of nominal diameter of 0,20mm
	Flammability degree	CM (default supply)
		LSZH
		LSZH-1
		CMR
	Quantity of pairs	4 Pairs, 24AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin(1,2µm) of gold
	Material of product body	Transparent thermoplastic material no fire transmission and no fire propagation UL 94V-0
	Default assembly	T568-A (default supply)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	Maximum CC resistance (per conductor) at 20°C.	93,8Ω/km
	Maximum operating capacitance at 1kHz	56pF/m
	Characteristic impedance from 1MHz to 250MHz	100±15Ω
	Tension-proof between conductors and shielding	2500VDC/3s
	Nominal velocity of propagation	66%
Package		
	Individual plastic bag and cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Certification		
	Anatel (for Brazilian market)	1276-07-0256, 1278-07-0256
	UL Listed	E173971
	ETL Verified	3126372CRT-002c
	ETL 4 connections (U/UTP)	3073041CRT-003
	ETL 6 connections (U/UTP)	3118430CRT-003
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 93)		

(1) No default supply products must correspond to a minimum order equivalent to 3.000 meters of cable.

KEYSTONE JACK GIGALAN CAT.6

Only illustrative images



Related products		
	Channel U/UTP	Patch panel CAT.6
		Patch cord U/UTP CAT.6
		Electronic cable U/UTP CAT.6
		Faceplates and surface mounting boxes
Constructive characteristic		
	Color	Black, yellow, blue, red, violet, white, beige, grey, orange, green and brown
	Connector type	RJ-45
	Material of connector body	High impact thermoplastic no fire transmission and no fire propagation UL 94V-0
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 a 22AWG
	Default assembly	T568 A /B
Performance		
	Retention proof between jack and plug	Minimum 133N
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	25 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	ETL 4 connections (U/UTP)	3073041-003
	ETL 6 connections (U/UTP)	3118430CRT-003
	UL Listed and Verified	E173971

Codification	
35060011	CAT.6 KEYSTONE JACK T568A/B - WHITE - ROHS
35060012	CAT.6 KEYSTONE JACK T568A/B - BEIGE - ROHS
35060013	CAT.6 KEYSTONE JACK T568A/B - BLACK - ROHS
35060014	CAT.6 KEYSTONE JACK T568A/B - GREY - ROHS
35060015	CAT.6 KEYSTONE JACK T568A/B - BLUE - ROHS
35060016	CAT.6 KEYSTONE JACK T568A/B - YELLOW - ROHS
35060017	CAT.6 KEYSTONE JACK T568A/B - GREEN - ROHS
35060018	CAT.6 KEYSTONE JACK T568A/B - RED - ROHS
35060019	CAT.6 KEYSTONE JACK T568A/B - ORANGE - ROHS
35060020	CAT.6 KEYSTONE JACK T568A/B - BROWN - ROHS
35060021	CAT.6 KEYSTONE JACK T568A/B - VIOLET - ROHS

FAST-LAN CAT.6 U/UTP 23AWG x 4P ELECTRONIC CABLE

Only illustrative images

Related products		
	U/UTP channel	Patch panel CAT.6
		Patch cord U/UTP CAT.6
		Keystone jack CAT.6
Constructive characteristic		
	Color	Standard: gray No standard: blue, black, yellow, beige, white, orange, brown, red and green
	Nominal diameter	6.0mm
	Weight	42kg/km
	Flame retardant	CM (1)
		CMR
		LSZH-1
		LSZH
	Number of pairs	4 Pairs, 23AWG
	Installation temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operation temperature	-10°C to +60°C
Performance		
	See the performance table to the CAT.5e cable at page 94	
Package		
	Carton FAST-BOX	
	Standard length	305 meters
Certification		
	UL	E160837
	ETL Verified	J20021181
	ETL 4 connections	307304
	ETL 6 connections	3118430
	Anatel	1145-04-0256
Codification		
23400044	ELECTR. CABLE FAST-LAN 23AWGX4P CAT.6 CM VM ROHS	
23400045	ELECTR. CABLE FAST-LAN 23AWGX4P CAT.6 CM CZ ROHS	
23400021	ELECTR. CABLE FAST-LAN 24AWGX4P CAT.6 CMR CZ	

Other configuration is under consulting.
(1) RoHS compliance supply for CM jacket, other jackets under consulting.

PATCH PANEL GIGALAN CAT.6

Configuration			
	1 Patch panel		
	1 Rear cable management bracket		
	Identification icons		
	Fixation accessories		
Related products			
	Channel U/UTP	Keystone jack CAT.6	
		Patch cord CAT.6	
		Electronic cable U/UTP CAT.6	
Constructive characteristic			
	Height	44,45mm (24 ports)	87,4mm (48 ports)
	Wide	482,6mm	
	Color	Black	
	Connector type	RJ-45	
	Quantity of ports	24 Ports	
		48 Ports	
	Material of product body	Structure: steel Front panel: high impact thermoplastic no fire transmission and no fire propagation UL94V-0	
	Material of electric contact	RJ-45: phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphor bronze with 100µin (2,54µm) of nickel and tinned	
	Conductor diameter	26 a 22AWG	
Performance			
	Retention proof between jack and plug	Minimum 133N	
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200IDC block	
	Isolation resistance	500MΩ	
	Contact resistance	20mΩ	
	DC resistance	0,1Ω	
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)	
	Retention force	800g	
Package			
	Cardboard box		
	Quantity per box	15 Pieces (24 ports)	10 Pieces (48 ports)
	Minimum and multiple lot	1 Box	
Certifications			
	UL Listed and Verified	E173971	
	ETL 4 connections (U/UTP)	3073041-003	
	ETL 6 connections (U/UTP)	3118430CRT-003	
Codification			
35060024	PATCH PANEL CAT.6 T568A/B 24P - ROHS		
35060025	PATCH PANEL CAT.6 T568A/B 48P - ROHS		

FAST-LAN INDOOR/OUTDOOR CAT.6 U/UTP 23AWG x 4P ELECTRONIC CABLE

Only illustrative images

Related products		
	Canal U/UTP	Patch panel CAT.6
		Keystone jack CAT.6
Constructive characteristic		
	Color	Black
	Nominal diameter	6.1mm
	Weight	45kg/km
	Flame rate	CMX
		CM (with water blocking tape)
	Number of pairs	4 Pairs, 23AWG
	Installation temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operation temperature	-10°C to +60°C
Performance		
	See the performance table to the CAT.6 cable at page 94	
Package		
	Wood reel	
	Standard length	1500 meters
Certifications		
	UL Listed and Verified	E160837
	ETL Verified	99029130-004R
	ETL 4 connections	3073041-003
	ETL 6 connections	3118430CRT-003
	Anatel	2045-07-0256

Observation

The development of indoor/outdoor cables decreases the problems related to the environment where it will be installed, although it is very important to install electrical surge protectors in the system compatible with the cable category

Codification

Under consulting

SHIELD INDUSTRIAL PATCH CORD F/UTP GIGALAN CAT.6

Only illustrative images

Related products		
	Channel F/UTP	Shielded industrial keystone jack CAT.6
		Industrial electronic cable F/UTP CAT.6
Constructive characteristic		
	Length	From 1,5 to 5 meters
	Nominal diameter	7,6mm
	Weight	0,070kg/m
	Color	Black
	Connector type	RJ-45
		RJ-45 IP67
	Cable type	F/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of 0,16mm nominal diameter
	Material of first layer	PVC no fire propagation, no fire transmission
	Flammability degree	CMX
	Quantity of pairs	4 Pairs, 26AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0
		Protector boot IP67 in special thermoplastic material PBT (plybutylene terephalate)
	Default assembly	T568-A (default assembly)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	Maximum CC resistance (per conductor) at 20°C.	140Ω/km
	Maximum operating capacitance at 1kHz	56pF/m
	Characteristic impedance from 1MHz to 250MHz	100±15Ω
	Tension-proof between conductors and shielding	1250VDC/3s
	Nominal velocity of propagation	66%
	Propagation delay between pairs	45ns/100m
Package		
	Plastic bag and cardboard box	
	Quantity per box	From 1,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 5,0m: 15 pieces
	Minimum and multiple lot	1 Box
Certifications		
	UL listed	E173971
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 93)		

(1) It can be assembled with the two ends in RJ-45 IP67 or hybrid (RJ-45/RJ-45 IP67).

SHIELDED INDUSTRIAL KEYSTONE JACK GIGALAN CAT.6

Only illustrative images

Related products		
	Channel F/UTP	Industrial patch cord F/UTP CAT.6
		Industrial electronic cable F/UTP CAT.6
		Faceplate IP67
		IP67 Surface mounting box
Constructive characteristic		
	Color	Black
	Connector type	RJ-45
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0 IP67 boot protector: special thermoplastic material PBT (plybutylene terephalate)
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 to 22AWG
	Default assembly	T568 A/B
	Protection degree	67
Performance		
	Quantity of cycles	≥ 1000 RJ45
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Return loss	1 ≤ f ≤ 31,5 MHz: 30dB 31,5 ≤ f ≤ 100MHz: 20-20log(f/100)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	10 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
Codification		
35050209	SHIELDED INDUSTRIAL KEYSTONE JACK CAT.6T568A/B	

FAST-LAN INDUSTRIAL CAT.6 F/UTP 23AWG x 4P ELECTRONIC CABLE

Related products		
	F/UTP channel	F/UTP CAT.6 patch cord
		Industrial CAT.6 shielded keystone jack connector
		Industrial surface box
Constructive characteristics		
	Shielding	Metal foil
	Color	Black
	Nominal diameter	8,6mm
	Cable weight	74kg/km
	External jacket	TPU - used to add mechanical resistance
		PVC - used to increase chemical, dust and humidity protection compared to standard cables
	Flame standard	CMX (TPU)
		CM (PVC 105°C)
	Number of pair	4 Pairs, 23AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +105°C
Performance		
	See the performance table to the CAT.5e cable at page 94	
Package		
	Wood reel	
	Standard length	1000 meters (2)
Certifications		
	UL	E160837
Codification		
23360008	ELECTR. CABLE FAST-LAN FTP ETHERNET INDUSTRIAL 23AWGX4P CAT.6 (DC-PVC) PR	
23360002	ELECTR. CABLE FAST-LAN FTP ETHERNET INDUSTRIAL 23AWGX4P CAT.6 (TPU) PR	

Other configuration is under consulting.
(1) RoHS Compliance supply for CM jacket, other kinds of jackets under questioning.
(2) Other lengths or packages under questioning.

INDUSTRIAL PATCH CORD U/UTP GIGALAN CAT.6

Only illustrative images

Related products		
	Channel U/UTP	Industrial female connector CAT.6
		Industrial electronic cable U/UTP CAT.6
Constructive Characteristic		
	Length	From 1,5 to 5 meters
	Nominal diameter	7,6mm
	Weight	0,070kg/m
	Color	Black
	Connector type	RJ-45
		RJ-45 IP67
	Cable type	F/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of 0,16 mm nominal diameter
	Material of the first layer	PVC no fire propagation and no fire transmission
	Flammability degree	CMX
	Quantity of pairs	4 Pairs, 26AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin(1,27µm) of gold
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0
		Protector boot IP67 in special thermoplastic material PBT (plybutylene terephalate)
	Default assembly	T568-A (default assembly)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	Maximum CC resistance (per conductor) at 20°C	98Ω/km
	Maximum operating capacitance at 1 kHz	56pF/m
	Characteristic impedance from 1MHz to 250MHz	100±15Ω
	Tension-proof between conductors and shielding	2500VDC/3s
	Nominal velocity of propagation	66%
	Propagation delay between pairs	45ns/100m
Package		
	Transparent plastic bag and cardboard box	
	Quantity per box	From 1,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 5,0m: 15 pieces
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 93)		

(1) It can be assembled with the two ends in RJ-45 IP67 or hybrid (RJ-45/RJ-45 IP67)

INDUSTRIAL KEYSTONE JACK GIGALAN CAT.6

Related products		
	Channel U/UTP	Industrial patch cord U/UTP CAT.6
		Industrial electronic cable U/UTP CAT.6
		IP67 faceplate
		IP67 surface mounting box
Constructive Characteristic		
	Color	Black
	Connector type	RJ-45
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0 IP67 boot protector: special thermoplastic material PBT (plybutylene terephalate)
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	24 a 22AWG
	Default assembly	T568 A/B
	Protection degree	67
Performance		
	Quantity of cycles	≥ 1000RJ45
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Return loss	1 ≤ f ≤ 31,5 MHz: 30dB 31,5 ≤ f ≤ 100MHz: 20-20log(f/100)
	Retention force	800g
Package		
	Plastic bag and cardboard box	
	Quantity per box	10 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
Codification		
35050201	INDUSTRIAL KEYSTONE JACK CAT.6T568A/B	

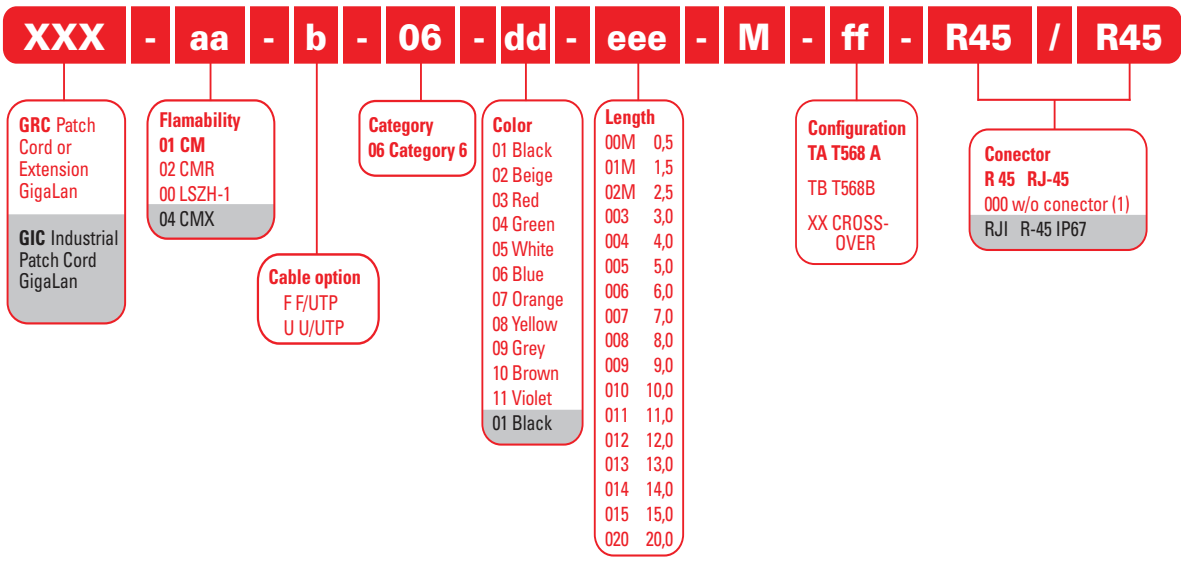
FAST-LAN INDUSTRIAL CAT.6 U/UTP 23AWG x 4P ELECTRONIC CABLE

Related products			
	U/UTP channel		Patch panel CAT.6
			Industrial keystone jack CAT.6
			Industrial box
Constructive characteristic			
	Color		Black
	Nominal diameter		8,6mm
	Weight		74kg/km
	External jacket material		TPU - used to add mechanical resistance
			PVC - used to increase chemical, dust and humidity protection compared to standard cables
	Flame rate		CMX (TPU)
			CM (DC-PVC)
	Number of pairs		4 pairs, 23AWG
	Installation temperature		0°C to +40°C
	Storage temperature		-40°C to +70°C
	Operation temperature		-10°C to +60°C
Performance			
	See the performance table to the CAT.6 cable at page 94		
Package			
	Wood reel		
	Standard length	1000 meters (1)	
Certifications			
	UL	E160837	
	ETL	J20021181	
	Anatel (for Brazilian market)	1146-04-0256	
Codification			
23400085	ELECTR. CABLE FAST-LAN ETHERNET INDUSTRIAL 23AWGX4P CAT.6 (DC-PVC) PR		

(1) Other configuration is under consulting.

Only illustrative images

ALPHANUMERIC CODING SYSTEM TO PATCH CORD AND EXTENSION GIGALAN



(1) In the case of extension, the field "h" must be filled according to the "without connector" option.
(2) The grey highlighted items are supplies exclusives and mandatory to Industrial Patch Cord option.
(3) The highlighted items represent the standard supply of Furukawa.

Example 1:

Patch Cord, category 6, shielded, LSZH-1, yellow, 3.0 meters, T568A

GRC-00-F-06-08-003M-TA-R45/R45

Example 2:

Industrial Patch Cord, category 6, shielded, 3.0 meters, T568A, hybrid:

GIC-04-F-06-01-003M-TA-RJI/R45

Example 3:

Solid Extension, category 6, shielded, LSZH-1, grey, 2.5 meters, T568B

GRC-00-F-06-09-02MM-TB-R45/000

CATEGORY 6 ELETRONIC CABLES PERFORMANCE TABLE

DC unbalanced resistance	5%	
Maximum DC resistance	93,8Ω/km	
Maximum mutual capacitance at 1kHz	56pF/m	
Maximum mutual capacitance pair to ground 1kHz	3,3pF/m	
Characteristic impedance	100±15%Ω	
Maximum propagation delay	545ns/100m @ 10MHz	
Maximum propagation delay skew	45ns/100m	
NVP	68%	
Insulation resistance	10000MΩ/km	
	F/UTP	U/UTP
Tension test pair/pair	1.000 VDC/3s	2.500 VDC/3s
Tension test pair/shield	500 VDC/3s	-

Freq. (MHz)	IL dB		NEXT dB		PSNEXT dB		ACR dB	
	TIA/EIA Max	Typical	TIA/EIA Min	Typical	TIA/EIA Min	Typical	TIA/EIA Min	Typical
1	2,0	1,5	74,3	94,0	72,3	88,3	72,3	88,5
4	3,8	3,2	65,3	86,2	63,3	80,0	61,5	77,1
8	5,3	4,6	60,8	81,9	58,8	75,2	55,4	70,0
10	6,0	5,2	59,3	80,9	57,3	74,1	53,3	68,8
16	7,6	6,7	56,2	76,7	54,2	70,9	48,7	64,0
20	8,5	7,5	54,8	74,5	52,8	69,1	46,3	60,9
25	9,5	8,5	53,3	73,6	51,3	67,7	43,8	59,5
31,25	10,7	9,5	51,9	71,5	49,9	65,4	41,2	57,6
62,5	15,4	13,8	47,4	70,2	45,4	62,7	32,0	48,9
100	19,8	17,8	44,3	66,9	42,3	61,4	24,5	43,9
200	29,0	26,1	39,8	62,4	37,8	56,5	10,8	29,2
250	32,8	29,3	38,3	60,1	36,3	53,2	5,5	23,4
300	-	32,5	-	57,5	-	51,6	-	18,9
350	-	35,3	-	55,8	-	49,5	-	12,5
400	-	38,0	-	53,0	-	47,6	-	7,0
500	-	42,8	-	52,0	-	48,5	-	5,0
550	-	45,0	-	50,0	-	47,5	-	2,0
600	-	47,0	-	48,0	-	46,1	-	-2,0

Freq. (MHz)	PSACR dB		ELFEXT dB		PSELFEXT dB		RL dB	
	TIA/EIA Min	Typical	TIA/EIA Min	Typical	TIA/EIA Min	Typical	TIA/EIA Min	Typical
1	70,3	86,9	67,8	89,8	64,8	82,5	20,0	35,0
4	59,5	76,8	55,8	78,3	52,8	70,3	23,0	35,7
8	53,4	70,7	49,7	71,8	46,7	64,6	24,5	38,7
10	51,3	69,0	47,8	69,5	44,8	62,4	25,0	37,6
16	46,7	64,3	43,7	65,5	40,7	58,6	25,0	41,9
20	44,3	61,7	41,8	64,2	38,8	57,0	25,0	38,4
25	41,8	59,3	39,8	62,2	36,8	55,0	24,3	39,1
31,25	39,2	55,9	37,9	59,9	34,9	52,6	23,6	38,5
62,5	30,0	49,1	31,9	53,3	25,9	45,6	21,5	35,9
100	22,5	43,6	27,8	49,2	24,8	40,6	20,1	31,9
200	8,8	30,3	21,8	42,2	18,8	33,8	18,0	28,4
250	3,5	25,0	19,8	39,7	16,8	31,7	17,3	26,5
300	-	19,6	-	36,8	-	29,3	-	25,2
350	-	13,9	-	32,7	-	26,0	-	23,9
400	-	9,8	-	29,8	-	24,4	-	23,9
500	-	5,4	-	25,3	-	19,5	-	24,9
550	-	3,3	-	23,3	-	17,6	-	25,7
600	-	0,0	-	19,6	-	13,7	-	24,0

The simplest connection between you and the world.

MultiLan Category 5e

METALLIC PATCH CORD F/UTP MULTILAN CAT.5e

Only illustrative images

Related products		
	Channel F/UTP	Shielded patch panel
		Shielded keystone jack CAT.5e
		Electronic cable F/UTP CAT.5e
Constructive characteristic		
	Length	From 0,5 to 20 meters
	Nominal diameter	5,3mm
	Weight	0,035kg/m
	Color	Standard: grey
		No standard: white, red, black, green, beige, orange and brown (1)
	Connector type	Shielded RJ-45
	Cable type	F/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments with nominal diameter of 0,16mm
	Flammability degree	CM (default supply)
		LSZH
		LSZH-1
		CMR
	Quantity of pairs	4 Pairs, 26AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	Transparent thermoplastic material no fire transmission or no fire propagation UL 94V-0
	Default assembly	T568-A (default supply)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	To see the performance table for CAT.5e - page 107	
Package		
	Cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Certifications		
	Anatel (for Brazilian market)	1272-07-0256, 1275-07-0256
	UL Listed	E173971
	ETL 3 connections (F/UTP)	3102621CRT-003
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 106)		

(1) No default supply products must correspond to a minimum order equivalent to 3.000 meters of cable.

FCS RoHS COMPLIANT

FURUKAWA

SHIELDED KEYSTONE JACK MULTILAN CAT.5e

Related products		
Channel F/UTP		Shielded patch panel
		Patch cord F/UTP CAT.5e
		Electronic cable F/UTP CAT.5e
		Faceplates and surface mounting boxes

Constructive characteristic		
	Color	Silver
	Connector type	RJ-45
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 a 22AWG
	Default assembly	T568 A/B
Performance		
	Retention proof between jack and plug	Mínimo133N
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200 IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	25 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	ETL 3 connections (F/UTP)	3102621CRT-003
	UL Listed and Verified	E173971
Codification		
35060026	SHIELDED KEYSTONE JACK CAT.5E T568A/B - ROHS	

MULTILAN CAT.5e F/UTP 24AWG x 4P ELECTRONIC CABLE

Related products		
F/UTP channel		Shielded patch panel
		F/UTP CAT.5e patch cord
		CAT.5e shielded keystone jack connector

Constructive characteristics		
	Shielding	Metal foil
	Color	Blue, grey, yellow, beige, white, orange, brown, black, red and green
	Nominal diameter	6,2mm
	Cable weight	40kg/km
	Flame standard	CM (1)
		CMR
		LSZH-1
		LSZH
	Number of pair	4 Pairs, 24AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +60°C
Performance		
	See the performance table to the CAT.5e cable at page 107	
Package		
	Wood reel	
	Standard length	1000 meters (2)
Certifications		
	Anatel	0037-08-0256
	UL	E160837
Codification		
23350008	ELECTR. CABLE MULTI-LAN FTP 24AWGX4P CAT.5E CM AZ	

(1) RoHS Compliance supply for CM jacket.
(2) Other configuration is under consulting.

Only illustrative images

MULTILAN INDOOR/OUTDOOR CAT.5e F/UTP 24AWG x 4P ELECTRONIC CABLE

Related products		
	F/UTP channel	Shielded patch panel
		CAT.6 shielded keystone jack connector
Application		
	Indoor or outdoor	Ducts (cables with water blocking tape)
		Aerial on cable trays or winding
Constructive characteristics		
	Shielding	Metal foil
	Color	Black
	Nominal diameter	5,4mm (with waterblocking tape)
	Cable weight	35kg/km (with waterblocking tape)
	Flame standard	CMX
		CM
	Number of pair	4 pairs, 24AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +60°C
Performance		
	See the performance table to the CAT.5e cable at page 107	
Package		
	Wood reel 65/30	
	Standard length	1000 meters
Certifications		
	UL	E160837
Observations		
	The development of indoor/outdoor cables decreases the problems related to the environment where it will be installed, although it is very important to install electrical surge protectors in the system compatible with the cable category	
Codification		
23350032	ELECTR. CABLE MULTI-LAN F/UTP 24AWGX4P CAT.5E CMX INDOOR/OUTDOOR PR	

RoHS Compliance supply for CM jacket. Other configuration is under consulting.

Only illustrative images

METALLIC PATCH CORD U/UTP MULTILAN CAT.5e

Only illustrative images

Related products		
	Channel U/UTP	Patch panel CAT.5e
		Keystone jack CAT.5e
		Electronic cable U/UTP CAT.5e
Constructive characteristic		
	Length	From 0,5 to 20 meters
	Nominal diameter	5,2mm
	Weight	0,035kg/m
	Color	Standard: blue, white, red, gray, black and green
		No standard: brown, yellow, beige and orange (1)
	Connector type	RJ-45
	Cable type	U/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of nominal diameter of 0,20mm
	Flammability degree	CM (default supply)
		LSZH
		LSZH-1
		CMR
	Quantity of pairs	4 Pairs, 24AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	Transparent thermoplastic material no fire transmission and no fire propagation UL 94V-0
	Default assembly	T568-A (default supply)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	To see the performance table for CAT.5e cables - page 107	
Package		
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Certifications		
	Anatel (for Brazilian market)	1277-07-0256, 1279-07-0256
	UL Listed	E173971
	ETL Verified	3126372CRT-001c
	ETL 4 connections (U/UTP)	3075278-003
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 106)		

(1) No default supply products must correspond to a minimum order equivalent to 3.000 meters of cable.

KEYSTONE JACK MULTILAN CAT.5e

Only illustrative images

Related products		
	Channel U/UTP	Patch panel CAT.5e
		Patch cord U/UTP CAT.5e
		Electronic cable U/UTP CAT.5e
		Faceplates and surface mounting boxes
Constructive characteristic		
	Color	Black, yellow, blue, red, white, beige, grey, orange, green and brown
	Connector type	RJ-45
	Material of connector body	High impact thermoplastic no fire transmission and no fire propagation UL 94V-0
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 to 22AWG
	Default assembly	T568 A /B
Performance		
	Retention proof between jack and plug	Minimum 133N
	Quantity of cycles	≥ 1000 RJ45 and ≥ 200 RJ11 ≥ 200 IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	25 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	ETL 4 connections (U/UTP)	3075278-003
	UL Listed and Verified	E173971

Codification	
35060001	KEYSTONE JACK CAT.5E T568A/B - WHITE - ROHS
35060002	KEYSTONE JACK CAT.5E T568A/B - BEIGE - ROHS
35060003	KEYSTONE JACK CAT.5E T568A/B - BLACK - ROHS
35060004	KEYSTONE JACK CAT.5E T568A/B - GREY - ROHS
35060005	KEYSTONE JACK CAT.5E T568A/B - BLUE - ROHS
35060006	KEYSTONE JACK CAT.5E T568A/B - YELLOW - ROHS
35060007	KEYSTONE JACK CAT.5E T568A/B - GREEN - ROHS
35060008	KEYSTONE JACK CAT.5E T568A/B - RED - ROHS
35060009	KEYSTONE JACK CAT.5E T568A/B - ORANGE - ROHS
35060010	KEYSTONE JACK CAT.5E T568A/B - BROWN - ROHS

MULTILAN CAT.5e U/UTP 24AWG x 4P ELECTRONIC CABLE

Only illustrative images

Related products		
	U/UTP channel	Patch panel CAT.5e
		U/UTP CAT.5e patch cord
		CAT.5e keystone jack connector
Constructive characteristics		
	Color	Blue, grey, yellow, beige, white, orange, brown, black, red, and green
	Nominal diameter	4,8mm
	Cable weight	26kg/km
	Flame standard	CM (1)
	Number of pair	CMR
		LSZH-1
		LSZH
		4 Pairs, 24AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +60°C
Performance		
	See the performance table to the CAT.5e cable - page 107	
Package		
	Cartoon box	
	Standard length	305 meters
Certifications		
	UL	E160837
	ETL Verified	99029130
	ETL 4 connections	3075278-003

Codification	
23200061	ELECT. CABLE MULTI-LAN 24AWGX4P CAT.5E CM CZ ROHS
23200080	ELECT. CABLE MULTI-LAN 24AWGX4P CAT.5E CM AZ ROHS
23200005	ELECT. CABLE MULTI-LAN 24AWGX4P CAT.5E CMR AZ

(1) RoHS Compliance supply for CM jacket.
Other configuration is under consulting.

PATCH PANEL MULTILAN CAT.5e

Only illustrative images

Configuration			
		1 Patch panel	
		1 Cable management bracket	
		Identification icons	
		Fixation accessories	
Related products			
	Channel U/UTP	Keystone jack CAT.5e	
		Patch Cord CAT.5e	
		Electronic cable U/UTP CAT.5e	
Constructive Characteristic			
	Heigth	43,7mm (24 Ports)	87,4mm (48 Ports)
	Depth	482,6mm	
	Color	Black	
	Connector type	RJ-45	
	Quantity of ports	24 Ports	
		48 Ports	
	Material of product body	Structure: steel Front panel: high impact thermoplastic no fire transmission and no fire propagation UL94V-0	
	Material of electric contact	RJ-45: phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphor bronze with 100µin (2,54µm) of nickel and tinned	
	Conductor diameter	26 to 22AWG	
Performance			
	Retention proof between jack and plug	Minimum 133N	
	Quantity of cycles	≥ 1000RJ45 and ≥ 200RJ11 ≥ 200IDC block	
	Isolation resistance	500MΩ	
	Contact resistance	20mΩ	
	DC resistance	0,1Ω	
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)	
	Retention force	800g	
Package			
	Cardboard box		
	Quantity per box	15 Pieces (24 ports)	10 Pieces (48 ports)
	Minimum and multiple lot	1 Box	
Certifications			
	UL Listed and Verified	E173971	
	ETL 4 connections (U/UTP)	3075278-003	
Codification			
35060022	PATCH PANEL CAT.5E T568A/B 24P - ROHS		
35060023	PATCH PANEL CAT.5E T568A/B 48P - ROHS		

MULTILAN CAT.5e U/UTP 24AWG x 25P ELECTRONIC CABLE

Related products			
	U/UTP channel	Patch panel CAT.5e	
		Voice panel	
		Connecting block	
Constructive characteristics			
	Color	Blue	
	Flame standard	CMR	CM (1)
	Nominal diameter	17,6mm	13,5mm
	Cable weight	296kg/km	200kg/km
	Internal jacket over the sub-unit	Yes	No
	Number of pair	25 Pairs, 24AWG	
	Installation temperature	0°C up to +40°C	
	Storage temperature	-40°C up to +70°C	
	Operation temperature	-10°C up to +60°C	
Performance			
	See the performance table to the CAT.5e cable - page 107		
Package			
	Wood reel 65/50		
	Standard length	500 meters (2)	
Certifications			
	UL	E160837	
Codification			
23200012	ELECTR. CABLE MULTI-LAN 24AWGX25P CAT.5E CM AZ		
23200044	ELECTR. CABLE MULTI-LAN 24AWGX25P(6X4P+1P) CAT.5E CMR AZ		

(1) RoHS Compliance supply for CM jacket.
(2) Other configuration is under consulting.

MULTILAN INDOOR/OUTDOOR CAT.5e U/UTP 24AWG x 4P ELECTRONIC CABLE

Related products		
	U/UTP channel	Patch panel CAT.5e
		CAT.5e keystone jack connector
Application		
	Indoor or outdoor	Ducts (cables with water blocking tape)
		Aerial on cable trays or winding
Constructive characteristics		
	Color	Black
	Nominal diameter	6,3mm (with water blocking tape)
	Cable weight	38kg/km (with water blocking tape)
	Flame standard	CMX
		CM (with water blocking tape)
	Number of pair	4 Pairs, 24AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +60°C
Performance		
	See the performance table to the CAT.5e cables - page 107	
Package		
	Wood reel 65/30	
	Standard length	1000 meters
Certifications		
	UL Listed y Verified	E160837

Observations

The development of indoor/outdoor cables decreases the problems related to the environment where it will be installed, although it is very important to install electrical surge protectors in the system compatible with the cable category

Codification

23200086	ELECT. CABLE MULTI-LAN U/UTP 24AWGX4P CAT.5E CMX INDOOR/OUTDOOR PR

RoHS Compliance supply for CM jacket. Other configuration is under consulting.

Only illustrative images

PATCH CORD INDUSTRIAL F/UTP MULTILAN CAT.5e

Only illustrative images

Related products		
	Channel F/UTP	Shielded industrial keystone jack CAT.5e
		Industrial electronic cable F/UTP CAT.5e
Constructive characteristic		
	Length	From 1,5 to 5 meters
	Nominal diameter	7,6mm
	Weight	0,070kg/m
	Color	Black
	Connector type	RJ-45
		IP67 RJ-45
	Cable type	F/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of 0,16 mm nominal diameter
	Material of first layer	PVC no fire propagation and no fire transmission
	Flammability degree	CMX
	Quantity of pairs	4 Pairs, 26AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0
		Protector boot IP67 in special thermoplastic material PBT (plybutylene terephalate)
	Default assembly	T568-A (default assembly)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	To see the performance table for CAT.5e cables - page 107	
Package		
	Quantity per box	From 1,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 5,0m: 15 pieces
	Minimum and multiple box	1 Box
Certifications		
	UL Listed	E173971
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 106)		

(1) It can be assembled with the two ends in RJ-45 IP67 or hybrid (RJ-45/RJ-45 IP67).

SHIELDED INDUSTRIAL KEYSTONE JACK MULTILAN CAT.5e

Related products		
	Channel F/UTP	Industrial patch cord F/UTP CAT.5e
		Industrial electronic cable F/UTP CAT.5e
		Faceplate IP67
		IP67 surface mounting box
Constructive characteristic		
	Color	Black
	Connector type	RJ-45
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0 IP67 boot protector: special thermoplastic material PBT (plybutylene terephalate)
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	24 to 22AWG
	Default assembly	T568 A/B
	Protection degree	67
Performance		
	Quantity of cycles	≥ 1000RJ45
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension prof.	1000V (RMS, 60Hz, 1min)
	Return loss	1 ≤ f ≤ 31,5MHz: 30dB 31,5 ≤ f ≤ 100MHz: 20-20log(f/100)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	10 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
Codification		
35050210	SHIELDED INDUSTRIAL KEYSTONE JACK CAT.5E T568A/B	

MULTILAN INDUSTRIAL CAT.5e F/UTP 24AWG x 4P ELECTRONIC CABLE

Related products		
	F/UTP channel	Industrial F/UTP CAT.5e patch cord
		Industrial CAT.5e shielded keystone jack connector
		Industrial surface box
Constructive characteristics		
	Shielding	Metal foil
	Color	Black
	Nominal diameter	7,5mm
	Cable weight	70kg/km
	External jacket	TPU - used to add mechanical resistance
		PVC - used to increase chemical, dust and humidity protection compared to standard cables
	Flame standard	CMX (TPU)
		CM (PVC 105ºC)
	Number of pair	4 Pairs, 24AWG
	Installation temperature	0ºC up to +40ºC
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +105°C
Performance		
	See the performance table to the CAT.5e cable - page 107	
Package		
	Wood reel	
	Standard length	1000 meters
Certifications		
	UL	E160837
Codification		
23350029	ELECT. CABLE MULTI-LAN FTP ETHERNET INDUSTRIAL 24AWGX4P CAT.5E (DC-PVC) PR	
23350025	ELECT. CABLE MULTI-LAN FTP ETHERNET INDUSTRIAL 24AWGX4P CAT.5E (TPU) PR	

(1) Other configuration is under consulting.

INDUSTRIAL PATCH CORD U/UTP MULTILAN CAT.5e

Related products		
	Channel U/UTP	Industrial keystone jack CAT.5e
		Industrial electronic cable U/UTP CAT.5e
Constructive characteristic		
	Length	From 1,5 to 5 metros
	Nominal diameter	7,6mm
	Weight	0,070kg/m
	Color	Black
	Connector type	RJ-45
		IP 67 RJ-45
	Cable type	U/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of 0,20mm nominal diameter
	Material of the first layer	PVC no fire propagation and no fire transmission
	Flammability degree	CMX
	Quantity of pairs	4 Pairs, 24AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0
		Protector boot IP67 in special thermoplastic material PBT (plybutylene yerephalate)
	Default assembly	T568-A (default assembly)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	To see the performance table for CAT.5e cables - page 107	
Package		
	Quantity per box	From 1,5 to 2,5m: 40 Pieces From 3,0 to 4,0m: 25 Pieces From 4,0 to 5,0m: 15 Pieces
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 106)		

(1) It can be assembled with the two ends in RJ-45 IP67 or hybrid (RJ-45/RJ-45 IP67).

Only illustrative images

INDUSTRIAL KEYSTONE JACK MULTILAN CAT.5e

Only illustrative images

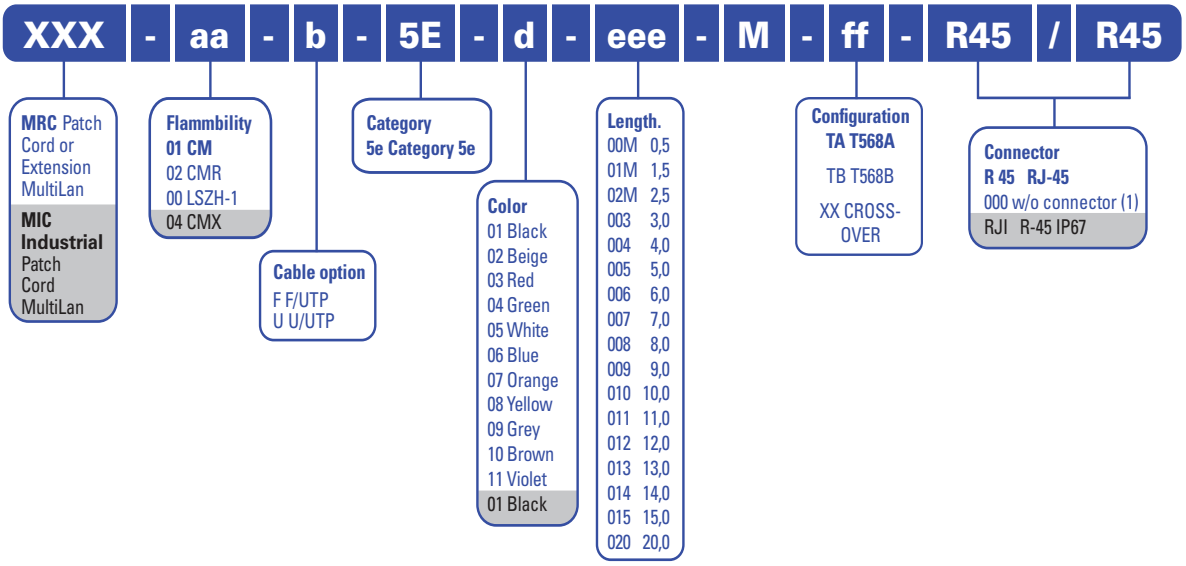
Related products		
	Channel U/UTP	Industrial patch cord U/UTP CAT.5e
		Industrial electronic cable U/UTP CAT.5e
		IP67 faceplate
		IP67 surface mounting box
Constructive Characteristic		
	Color	Black
	Connector type	RJ-45
	Material of product body	Thermoplastic connector no fire propagation and no fire transmission UL 94V-0 IP67 Boot protector: special thermoplastic material PBT (plybutylene terephalate)
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	24 to 22AWG
	Default assembly	T568 A /B
	Protection degree	67
Performance		
	Quantity of cycles	≥ 1000 RJ45
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof.	1000V (RMS, 60Hz, 1min)
	Return loss	1 ≤ f ≤ 31,5MHz: 30dB 31,5 ≤ f ≤ 100MHz: 20-20log(f/100)
	Retention force	800g
Package		
	Plastic bag and cardboard box	
	Quantity per box	10 Connectors
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed and Verified	E173971
Codification		
35050208	INDUSTRIAL KEYSTONE JACK CAT.5E T568A/B	

MULTILAN INDUSTRIAL CAT.5e U/UTP 24AWG x 4P ELECTRONIC CABLE

Related products		
	U/UTP channel	Industrial U/UTP CAT.5e patch cord
		Industrial CAT.5e keystone jack connector
		Industrial surface box
Constructive characteristics		
	Color	Black
	Nominal diameter	7,5mm
	Cable weight	59kg/km
	External jacket	TPU - used to add mechanical resistance
	Flame standard	PVC - used to increase chemical, dust and humidity protection compared to standard cables
		CMX (TPU)
		CM (PVC 105°C)
	Number of pair	4 pairs, 24AWG
	Installation temperature	0°C up to +40°C
	Storage temperature	-40°C up to +70°C
	Operation temperature	-10°C up to +105°C
Performance		
	See the performance table to the CAT.5e cable - page 107	
Package		
	Wood reel	
	Standard length	1000 meters
Certifications		
	UL	E160837
Codification		
23200083	ELECT. CABEL MULTI-LAN ETHERNET INDUSTRIAL 24AWGX4P CAT.5E (DC-PVC) PR	
23200074	ELECT. CABLE MULTI-LAN ETHERNET INDUSTRIAL 24AWGX4P CAT.5E (TPU) PR	

Other configuration is under consulting.

ALPHANUMERIC CODING SYSTEM TO PATCH CORD AND EXTENSION MULTILAN



(1) In the case of extension, the field "h" must be filled according to the "without connector" option.
(2) The grey highlighted items are supplies exclusives and mandatory to industrial patch cord option.
(3) The highlighted items represent the standard supply of Furukawa.

Example 1:

Patch cord, category 5e, shielded, LSZH-1, yellow, 3.0 meters, T568A:

MRC-00-F-5E-08-003M-TA-R45/R45

Example 2:

Industrial patch cord, category 5e, shielded, 3.0 meters, T568A, hybrid:

MIC-04-F-5E-01-003M-TA-RJI/R45

Example 3:

Solid extension, category 5e, shielded, LSZH-1, grey, 2.5 meters, T568B:

MRC-00-F-5E-09-02MM-TB-R45/000

CATEGORY 5e ELECTRONIC CABLES PERFORMANCE TABLE

Unbalance resistance	5%	
Maximum DC resistance at 20°C	93,8Ω/km	
Maximum mutual capacitance at 1kHz	56pF/m	
Capacitive disequilibrium 1kHz - maximum	3,3pF/m	
Characteristic Impedance	100±15Ω	
Propagation delay	545ns/100m@10MHz	
Delay skew	45ns/100m	
NVP	68%	
Insulation resistance	10000 MΩ/km	
	F/UTP	U/UTP
Pair-pair tension test	1.000 VDC/3s	2.500 VDC/3s
Shield-pair tension	500 VDC/3s	-

Freq. (MHz)	IL (dB)		NEXT (dB)		PSNEXT (dB)		ACR (dB)	
	Máximum	Typical	Minimal	Typical	Minimal	Typical	Minimal	Typical
1	2,0	1,7	65,3	83,1	62,3	76,8	63,3	75,3
4	4,1	3,6	56,3	74,8	53,3	67,8	52,2	64,4
8	5,8	5,1	51,8	70,0	48,8	63,4	46,0	57,9
10	6,5	5,7	50,3	68,6	47,3	61,7	43,8	55,7
16	8,2	7,3	47,3	63,4	44,3	57,4	39,0	50,8
20	9,3	8,3	45,8	63,7	42,8	57,6	36,5	49,9
25	10,4	9,3	44,3	61,0	41,3	54,3	33,9	44,5
31,25	11,7	11,1	42,9	60,7	39,9	53,7	31,2	43,6
62,5	17,0	15,0	38,4	55,4	35,4	49,3	21,4	34,7
100	22,0	19,3	35,3	51,9	32,3	45,2	13,3	25,8
155	-	23,7	-	50,0	-	43,0	-	20,0
200	-	27,5	-	47,0	-	40,0	-	13,0
250	-	31,1	-	44,0	-	37,0	-	7,0
350	-	37,4	-	41,0	-	34,0	-	6,0

Freq. (MHz)	PSACR (dB)		ELFEXT (dB)		PSELFEXT (dB)		RL (dB)	
	Minimal	Typical	Minimal	Typical	Minimal	Typical	Minimal	Typical
1	60,3	75,1	63,8	84,8	60,8	76,5	20,0	35,7
4	49,2	64,3	51,7	74,2	48,7	65,3	23,1	39,1
8	43,0	58,3	45,7	68,1	42,7	59,2	24,5	36,3
10	40,8	56,0	43,8	66,5	40,8	57,4	25,0	35,1
16	36,0	50,1	39,7	61,4	36,7	53,2	25,0	36,0
20	33,5	49,4	37,7	59,7	34,7	51,3	25,0	37,5
25	30,9	45,1	35,8	56,8	32,8	48,9	24,3	37,7
31,25	28,8	42,9	33,9	53,3	30,9	45,6	23,6	34,8
62,5	18,4	34,4	27,8	47,9	24,8	40,2	21,5	34,1
100	13,3	26,1	23,8	43,3	20,8	35,7	20,1	32,3
155	-	19,0	-	40,0	-	31,0	-	
200	-	13,0	-	37,0	-	29,0	-	
250	-	6,0	-	35,0	-	27,0	-	
350	-	3,0	-	31,0	-	24,0	-	

Data and voice in the same space.

FISAFLEX® Data and Telephony

VOICE PANEL CAT.3

Configuration		
		1 Voice panel
		1 Rear cable management bracket
		Fixation accessories
Related products		
	Channel U/UTP	Voice patch cord
		25 Pairs Multilan cable CAT.5e
		4 Pairs Fislan cable CAT.3
Constructive characteristic		
	Height	44,2mm (1U)
	Depth	480mm
	Color	Black (epoxy)
	Connector type	RJ-45
		RJ-11 compatible
	Quantity of ports	30 Ports
		50 Ports
	Material of product body	Structure: steel Front Panel: high impact thermoplastic no fire transmission and no fire propagation UL 94V-0
	Material of electric contact	RJ-45: phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphor bronze with 100µin (2,54µm) of nickel and tinned
	Conductor diameter	24 to 22AWG
Performance		
	Retention proof between jack and plug	Minimum 133N
	Quantity of cycles	≥ 750 RJ45 y ≥ 200 RJ11 ≥ 200IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	300mΩ
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	10 Pieces
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
Codification		
35050224	30 PORTS VOICE PANEL CAT.3	
35050200	50 PORTS VOICE PANEL CAT.3	

Only illustrative images

FURUKAWA

VOICE METALLIC PATCH CORD U/UTP

Related products		
	U/UTP	CAT.3 voice panel
Constructive characteristic		
	Length	From 0,5 to 20 metros
	Nominal diameter	3,6mm (1 pair) 4,6mm (2 pairs)
	Weight	0,07kg/m
	Color	Blue
	Connector type	RJ-45/RJ-45
	Cable type	U/UTP
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of nominal diameter of 0,20mm
	Flammability degree	CM (default supply)
	Quantity of pairs	1 Pair, 24AWG
		2 Pairs, 24AWG
	Material of electric contact	8 Pins in phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	Transparent thermoplastic material no fire transmission and no fire propagation UL 94V-0
	Default assembly	1 Pair: 4 and 5 pair numbers
		2 Pares: 3 and 6, 4 and 5 pair numbers
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Package		
	Cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 115)		

Only illustrative images

110IDC BACKBOARD (100 AND 200 PAIRS)

Configuration			
	100 Pairs	1 Connection backboard 19"x1U	
		2 Connecting block 50 pairs 110IDC without mounting legs	
		1 Horizontal cable management bracket 1U	
		Fixation accessories	
	200 Pairs	1 Connection backboard 19"x4U	
		2 Connecting blocks 100 pairs 110IDC without mounting legs	
		1 Horizontal cable management bracket 2U	
		Fixation accessories	
Related products			
	U/UTP	Connecting block (110IDC connectors)	
		110IDC patch cord	
		Cable U/UTP MultiLan CAT.5e	
		Cable U/UTP Fast-lan CAT.6	
Constructive characteristic			
	Quantity of pairs	100 Pairs	200 Pairs
	Height	88mm	177mm
	Depth	482mm	482mm
	Color	Metallic structure: black (epoxy)	
		Connecting block: white	
	Connector type	RJ-45	
	Quantity of pairs	100 Pairs	
		200 Pairs	
	Material of product body	Structure: steel Connecting block: high impact transparent thermoplastic no fire propagation and no fire transmission UL 94V-0	
Package			
	Cardboard box		
	Quantity per box	1 Piece	
	Minimum and multiple lot	1 Box	
Certifications			
	UL Listed	E173971	
	ETL 4 connections CAT.6 (U/UTP)	3073041CRT-003	
	ETL 4 connections CAT.5e (U/UTP)	3075278CRT-003	
Codification			
35050698	BACKBOARD 19INX2U WITH CONNECTING BLOCK 110IDC (B50) 100 PAIRS		
35050697	BACKBOARD 19INX4U WITH CONNECTING BLOCK 110IDC (B50) 200 PAIRS		

110IDC CONNECTING BLOCK

Related products		
U/UTP	110IDC connecting block	
	110IDC patch cord	
	Cable U/UTP MultiLan CAT.5e	
	Cable U/UTP Fast-Lan CAT.6	
	110IDC connection backboard	

Constructive characteristic		
Quantity of pairs	100 Pairs	50 Pairs
Height	88,9mm	44mm
Depth	272,30mm	272,30mm
Color	Beige	
Conductor diameter	26 to 22AWG	
Quantity of pairs	100 Pairs	
	50 Pairs	
Material of product body	High impact thermoplastic no fire propagation and no fire transmission UL 94V-0	

Package	
Cardboard box	
Quantity per box	8 Pieces
Minimum and multiple lot	1 Box

Certifications	
UL Listed	E173971
ETL 4 connections CAT.6 (U/UTP)	3073041CRT-003
ETL 4 connections CAT.5e (U/UTP)	3075278CRT-003

Codification	
35050182	CONNECTING BLOCK 110IDC (B50) 100 PAIRS (WITH MOUNTING LEGS)
35050644	CONNECTING BLOCK 110IDC (B50) 100 PAIRS (WITHOUT MOUNTING LEGS)
35050173	CONNECTING BLOCK 110IDC (B50) 50 PAIRS (WITH MOUNTING LEGS)
35050191	CONNECTING BLOCK 110IDC (B50) 50 PAIRS (WITHOUT MOUNTING LEGS)

110IDC CONNECTING BLOCK KIT

Configuration	
U/UTP	1 IDC connecting block 100 pairs (without mounting legs)
	20 Connectors 110IDC (4 pairs CAT.5e or CAT.6)
	4 Connectors 110IDC (5 pairs CAT.5e)
	Identification system

Codification	
35050175	KIT 110IDC CONNECTING BLOCK CAT.5E 100 PAIRS

Only illustrative images

110IDC CONNECTORS (CONNECTING BLOCKS)

Only illustrative images

Related products		
	U/UTP	110IDC backboard
		110IDC connecting block
		110IDC patch cord
Constructive characteristic		
	Color	Beige
	Connector type	110IDC female
	Quantity of pairs	4 Pairs - CAT.6
		4 or 5 pairs - CAT.5e
	Material of product body	High impact thermoplastic no fire propagation and no fire transmission UL 94V-0
	Material of electric contact	Phosphor bronze with 50µin (1,27µm) of gold and 100µin (2,54µm) of nickel
	Conductor diameter	26 to 22AWG
Performance		
	Retention proof between jack and plug	Minimum 133N
	Quantity of cycles	≥ 200IDC block
	Isolation resistance	500MΩ
	Contact resistance	20mΩ
	DC resistance	0,1Ω
	Dielectric tension proof	1000V (RMS, 60Hz, 1min)
	Retention force	800g
Package		
	Cardboard box	
	Quantity per box	300 Pieces
	Minimum and multiple lot	1 Box
Certifications		
	ETL 4 connections	3075278CRT-003
	UL	E173971

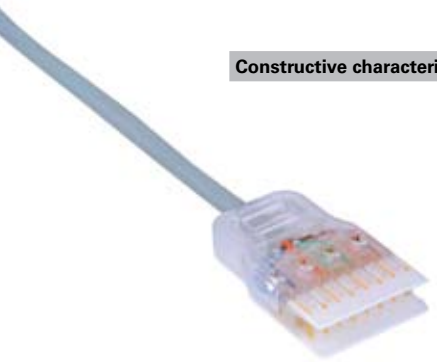
Codification	
35050349	110IDC CONNECTOR (B50) CAT.6 FEMALE 4 PAIRS (PACKAGE 10 PIECES)
35050374	110IDC CONNECTOR CAT.5E FEMALE 4 PAIRS (PACKAGE 10 PIECES)
35050373	110IDC CONNECTOR CAT.5E FEMALE 5 PAIRS (PACKAGE 10 PIECES)

110IDC TELECOMMUNICATION POINT

Configuration		
	1 Metallic box	
	1 Connecting block 110IDC 100 pairs	
	Fixation accessories	
Related products		
	110IDC patch cord	
	Cable U/UTP or F/UTP MultiLan CAT.5e	
	Cable U/UTP or F/UTP Fast-lan CAT.6	
Constructive characteristic		
	Height	115mm
	Wide	300mm
	Depth	405mm
	Quantity of pairs	100 Pairs
	Connector type	110IDC
	Color	Silver (metallic box)
		White (connecting block)
	Material of product body	Structure steel SAE1020 Connecting block: high impact transparent thermoplastic no fire propagation and no fire transmission UL94V-0
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple lot	1 Box

Codification	
35050137	CONSOLIDATION POINT FOR 110IDC BLOCK (B50) 100 PAIRS - E300

110IDC PATCH CORD U/UTP FISAFLEX CAT.6



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Related products		
	U/UTP	110IDC connection backboard
		110IDC connecting block
		110IDC connector CAT.6 (connecting block)
Constructive characteristic		
	Length	From 0,5 to 20 metros
	Nominal diameter	5,5mm
	Weight	0,068kg/m
	Color	Standard: gray, blue, white, red and green
		No standard: yellow, brown, beige and orange (1)
	Connector type	110IDC - 110IDC
		110IDC - RJ-45
	Cable type	U/UTP CAT.6
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of nominal diameter of 0,20mm
	Flammability degree	CM (default supply)
	Quantity of pairs	4 Pairs, 24AWG
	Material of electric contact	110IDC: phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold RJ-45: 8 pins in copper with 100µin of nickel and 50µin of gold
	Material of product body	High transparent impact thermoplastic no fire transmission and no fire propagation UL94V-0
	Default assembly	T568-A (default supply)
		T568-B
		Cross-over
	Installing temperature	0ºC to +40ºC
	Storage temperature	-40ºC to +70ºC
	Operating temperature	-10°C to +60ºC
Performance		
	Maximum CC resistance (per conductor) at 20°C	93,8Ω/km
	Maximum operating capacitance at 1kHz	56pF/m
	Characteristic impedance from 1MHz to 250MHz	100±15Ω
	Tension-proof between conductors and shielding	2500 VDC/3s
	Nominal velocity of propagation	66%
Package		
	Cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Certifications		
	Anatel (for Brazilian market)	1145-04-0256
	UL Listed	E173971
	ETL 4 connections (U/UTP)	3073041CRT-003
Codification		

Alphanumeric codification system for metallic patch cords (to see the table - page 115)

(1) No default supply products must correspond to a minimum order equivalent to 3.000 meters of cable.

PATCH CORD 110IDC U/UTP FISAFLEX CAT.5e

Only illustrative images

Related products		
	U/UTP	110IDC connection blackboard
		110IDC connecting block
		110IDC connector CAT.5e (connecting block)
Constructive characteristic		
	Length	From 0,5 to 20 metros
	Nominal diameter	3,6mm (1 pair) 4,6mm (2 pairs) 5,2mm (4 pairs)
	Weight	0,07kg/m
	Color	Standard: gray, blue, white, red and green
		Non-standard: yellow, brown, beige and orange
	Connector type	110IDC - 110IDC
		110IDC - RJ-45
	Cable type	U/UTP CAT.5e
	Conductor type	Electrolytic copper, flexible, naked, formed with 7 filaments of nominal diameter of 0,20mm
	Flammability degree	CM (default supply)
	Quantity of pairs	1, 2 e 4 pairs, 24AWG
	Material of electric contact	110 IDC: phosphor bronze with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold RJ-45: 8 pins in copper with 100µin (2,54µm) of nickel and 50µin (1,27µm) of gold
	Material of product body	High transparent impact thermoplastic no fire transmission and no fire propagation UL94V-0
	Default assembly	T568-A (default supply)
		T568-B
		Cross-over
	Installing temperature	0°C to +40°C
	Storage temperature	-40°C to +70°C
	Operating temperature	-10°C to +60°C
Performance		
	Maximum CC resistance (per conductor) at 20°C.	93,8Ω/km
	Maximum operating capacitance at 1kHz	56pF/m
	Characteristic impedance from 1MHz to 250MHz	100±15Ω
	Tension-proof between conductors and shielding	1500VDC/3s
	Nominal velocity of propagation	66%
Package		
	Cardboard box	
	Quantity per box	From 0,5 to 2,5m: 40 pieces From 3,0 to 4,0m: 25 pieces From 4,0 to 6,0m: 15 pieces From 6,0 to 12,0m: 10 pieces From 12,0 to 15,0m: 6 pieces Longer than 15,0m: 5 pieces
	Minimum and multiple lot	1 Box
Certifications		
	UL Listed	E173971
	ETL 4 connections (U/UTP)	3075278CRT-003
Codification		
Alphanumeric codification system for metallic patch cords (to see the table - page 115)		

FISAFLEX

FISLAN CAT.3 ELECTRONIC CABLE

Constructive characteristics

Color	Grey
Diameter	

Number of pairs	Thickness (mm)	Nominal external diameter (mm)
2	0.50	4.0
3	0.50	4.3
4	0.50	4.7
6	0.70	6.1
10	0.80	6.9
12	0.80	7.8
25	0.80	10.5

Flame standard	CMX (or CM up to 4 pairs)
Quantity of pairs	1 up to 25 pairs
Conductor diameter	24AWG
Shield	U/UTP
Installation temperature	0°C up to +40°C
Storage temperature	-40°C up to +70°C
Operation temperature	-10°C up to +60°C

Performance

Conductor maximum DC resistance at 20°C		93.8	Ω/km
Mutual maximum capacitance at 20°C		65	pF/m
Characteristic impedance at 20°C (1 up to 16MHz)		100±15	Ω
NVP		66	%
Maximum attenuation	1MHz	2.56	dB/100m
	4MHz	5.6	
	10MHz	9.84	
	16MHz	13.12	
NEXT attenuation (minimal)	1MHz	41	
	4MHz	32	
	10MHz	26	
	16MHz	23	
Tension test pair-pair		1500	VDC/3s

Package

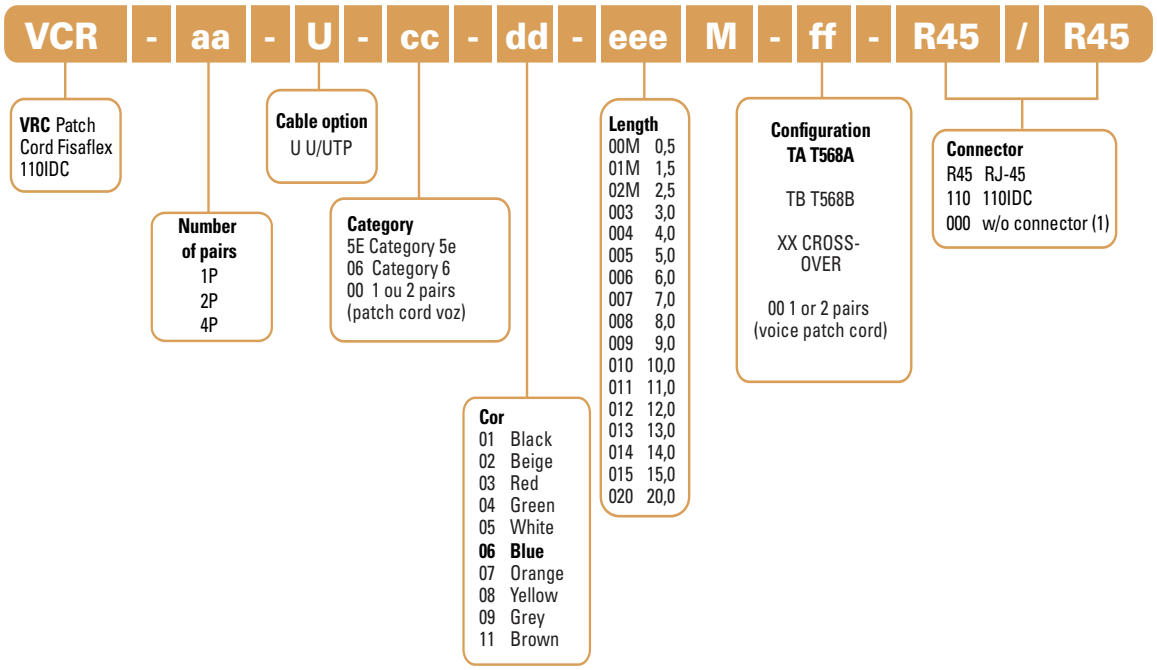
Number of pairs	Package	Standard length (m)
2	FASTBOX	500
3		400
4		300
6	Reel	1000 a 2000
10		
12		
25		

Codification

23000002	ELECTR. CABLE FIS-LAN 24AWGX2P - 100-CZ
23000010	ELECTR. CABLE FIS-LAN 24AWGX4P - 100-CZ
23000018	ELECTR. CABLE FIS-LAN 24AWGX12P - 100-CZ
23000026	ELECTR. CABLE FIS-LAN 24AWGX25P - 100-CZ

Other configuration is under consulting.

ALPHANUMERIC CODING SYSTEM TO PATCH CORD FISAFLEX



(1) In the case of extension 110IDC, the field "h" must be filled according to the "without connector" option.
(2) To patch cord 110IDC category 6, the number of pairs must be 4 pairs.

Example 1:

Voice patch cord, 2 pairs, 3.0 meters, both sides RJ-45

VRC-2P-U-00-06-003M-00-R45/R45

Example 2:

Voice patch cord, 2 pairs, 3.0 meters, 110IDC/RJ-45

VRC-2P-U-00-06-003M-00-110/R45

Example 3:

Voice patch cord, category 6, 5.0 meters, red, 110IDC/110IDC

VRC-4P-U-06-03-005M-TA-110/110

Customized accessories for an easy and safe installation.

FISACESSO

High Density

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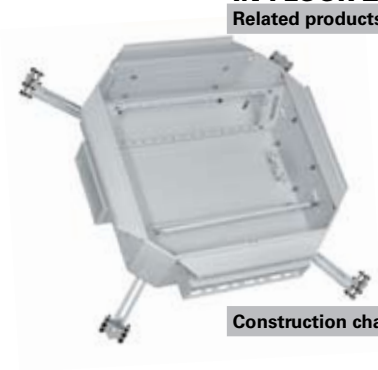
IN-FLOOR ZONE CABLING BOX - ZDA



Related products

- HDMPO cassette
- LGX adapter plate
- GigaLan patch panel
- MultiLan patch panel
- High-density discharged patch panel
- Modular patch panel

Construction characteristics

Height	180mm
Width	580mm (without flaps)
Depth	580mm (without flaps)
Quantity of positions	Up to 288 metallic ports, as defined in TIA/EIA-942 Std 336 optical fibers
Color	Grey RAL 7035
Products body material	Body made of aluminum. External and internal supports made of steel

Package

Cardboard box	
Quantity per box	1 Piece
Minimum and multiple batch	1 Box

Codification

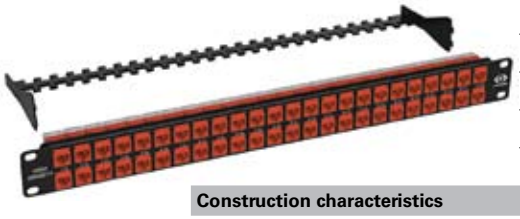
35150054	IN-FLOOR ZONE CABLING BOX - ZDA 6U

HIGH DENSITY MODULAR PATCH PANEL

Configuration

- 1 High density modular patch panel
- Rear cable manager
- Clamping accessories

Related products



- Open rack 19" x 44U
- GigaLan CAT.6 keystone jack
- MultiLan CAT.5e/CAT.6 keystone jack
- Optical adapter set
- Horizontal cable guide

Construction characteristics

Height	1U
Width	482mm (19")
Quantity of positions	48 Ports
Type of compatible connector/ adapter	RJ-45 RJ-11 SC-duplex LC F
Color	Black (epoxy)
Products body material	SAE1020 steel

Package

Cardboard box	
Quantity per box	1 Piece
Minimum and multiple batch	1 Box

Codification

35050212	HIGH-DENSITY MODULAR PATCH PANEL 48P 1U

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HIGH-DENSITY CLOSED VERTICAL CABLE MANAGERS - OPTICAL

Configuration		
	1 Vertical manager to accommodate optical cables	
	Round supports (bend limiter)	
	Clamping accessories	
Related products		
	Open rack 19″ x 44U	
Construction characteristics		
	Height	44U
	Width	200mm
	Depth	475,5mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150112	HIGH DENSITY VERTICAL CABLE MANAGERS - 44U - OPTICAL	

HIGH-DENSITY VERTICAL CABLE GUIDE

Related products		
	Open rack 19″ x 44U	
	Clamping accessories (included)	
Construction characteristics		
	Height	44U (2127,1mm)
	Width	200mm
	Depth (base)	255mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Part number		
35150024	HIGH DENSITY VERTICAL CABLE MANAGER - 44U	

HIGH-DENSITY BETWEEN-RACKS CABLE MANAGER

Related products		
	Open rack 19″ x 44U	
Construction characteristics		
	Height	44U
	Width	315mm
	Depth	513mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150111	HIGH DENSITY VERTICAL BETWEEN-RACKS CABLE MANAGER - 44U	

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HIGH DENSITY HORIZONTAL CABLE MANAGER

Related products		
	Open rack 19" x 44U	
Construction characteristics		
	Height	1U
	Width	482,6mm (standard 19")
	Depth	92,75mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150039	HIGH DENSITY HORIZONTAL CABLE MANAGER 1U	

OPEN HORIZONTAL CABLE MANAGER

Related products		
	Open rack 19"	
Construction characteristics		
	Height	1U
		2U
	Width	482,6mm (standard 19")
	Depth	92mm - for 1U
		85m - for 2U
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150173	OPEN HORIZONTAL CABLE MANAGER 1U	
35150164	OPEN HORIZONTAL CABLE MANAGER 2U	

HIGH DENSITY UPPER CABLE MANAGER

Related products		
	Open rack 19" x 44U	
Construction characteristics		
	Height	105mm
	Width	604,5mm
	Depth (base)	120mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150025	HIGH DENSITY UPPER CABLE MANAGER	

HIGH DENSITY LOWER CABLE MANAGER

Related products		
	Open rack 19" x 44U	
Construction characteristics		
	Height	177mm (4U)
	Width	482mm
	Depth (base)	112mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150026	HIGH-DENSITY LOWER CABLE MANAGER	

Customized accessories for an easy and safe installation.

Standard

OPEN RACK 19”

Related products		
	Vertical cable managers	
	Upper and lower cable managers	
	Shelves	
	Closing panel	
	Organization clamp	
	Nuts kit	
	Horizontal cable managers	
Construction characteristics		
	Height	44U (2169,6mm)
		36U (1774mm)
	Width	540mm
	Depth (base)	300mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150048	OPEN RACK 19” x 36U	
35150034	OPEN RACK 19” x 44U	

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FILLER PANEL

Construction characteristics			
	4U	Height	4U
		Width	482mm
	1U	Height	1U
		Width	482mm
	Color	Black (epoxy)	
	Products body material	SAE1020 steel	
Package			
	Cardboard box		
	Quantity per box	1 Piece	
	Minimum and multiple batch	1 Box	
Codification			
35150084	FILLER PANEL 1U		
35150118	FILLER PANEL 4U		

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OPEN VERTICAL CABLE MANAGER

Related products		
	Open rack 19"	
Construction characteristics		
	Height	44U
		36U
	Width	140mm
	Depth (base)	177,5mm (36U)
		177,5mm (44U)
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150201	OPEN VERTICAL CABLE MANAGER - 36U	
35150004	OPEN VERTICAL CABLE MANAGER - 44U	

HORIZONTAL CABLE MANAGER

Related products		
	Open rack 19"	
Construction characteristics		
	Height	43,7mm (1U)
		88,1mm (2U)
	Width	482,6mm (standard 19")
	Depth	40mm (1U)
		85mm (2U)
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150033	HORIZONTAL CABLE MANAGER 1U	
35150037	HORIZONTAL CABLE MANAGER 2U	

PERFORATED OPEN HORIZONTAL CABLE MANAGER

Related products		
	Open rack 19"	
Construction characteristics		
	Height	1U
		2U
	Width	482,6mm (standard 19")
	Depth	117,7mm (1U)
		184,7mm (2U)
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150180	PERFORATED OPEN CABLE MANAGER1U	
35150156	PERFORATED OPEN CABLE MANAGER 2U	

ZERO-U HORIZONTAL CABLE MANAGER

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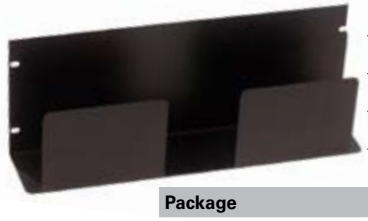
Related products		
	Open rack 19"	
Construction characteristics		
	Height	1U (shared with the patch panel)
	Width	482mm (standard 19")
	Depth	80mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150113	ZERO-U HORIZONTAL CABLE MANAGER	

REAR HORIZONTAL CABLE MANAGER

Related products		
	Modular patch panel	
Construction characteristics		
	Height	1U
	Width	482mm
	Depth	100mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150175	REAR HORIZONTAL CABLE MANAGER	

LOWER CABLE MANAGER



Related products		
	Open rack 19"	
Construction characteristics		
	Height	4U
	Width	482mm
	Depth (base)	101mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150234	LOWER CABLE MANAGER	

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UPPER CABLE MANAGER

Related products		
	Open rack 19″	
Construction characteristics		
	Height	68mm
	Width	604,5mm
	Depth	100,3mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150047	UPPER CABLE MANAGER	

SHELVES FOR RACK

Related products			
	Open rack 19″		
Construction characteristics			
	Standard	Height	88mm
		Width	482mm
		Depth	290mm
	Extended	Height	88mm
		Width	482mm
		Depth	482mm
	Ventilated	Height	88mm
		Width	482mm
		Depth	290mm
	Color	Black (epoxy)	
	Products body material	SAE1020 steel	
Package			
	Cardboard box		
	Quantity per box	1 Piece	
	Minimum and multiple batch	1 Box	
Codification			
35150058	EXTENDED SHELVES 2U		
35150132	VENTILATED SHELVES 2U		
35150045	STANDART SHELVES 2U		

ARTICULATE BRACKET

Construction characteristics		
	Height	235mm
	Width	488mm
	Depth	298mm
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35150036	BRACKET 19″ x 5U	

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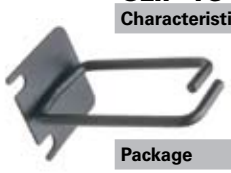
CLIP TO VERTICAL ORGANIZATION

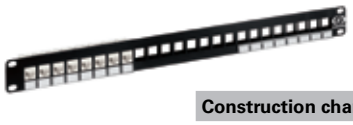


Characteristic constructive		
	Height	43,75mm
	Width	44mm
	Depth	86mm
	Color	Black (epoxy)
	Products body material	Steel SAE1020
Package		
	Box	
	Quantity per box	1 Piece
	Lot minimum and multiple	1 Piece
Codification		
35150194	CLIP TO VERTICAL ORGANIZATION	

SHIELDED MODULAR PATCH PANEL

Configuration		
	1 Shielded modular patch panel	
	Rear cable manager	
	Clamping accessories	
Related products		
	Open rack 19"	
	GigaLan Augmented CAT.6A shielded keystone jack	
	GigaLan CAT.6 shielded keystone jack	
	MultiLan CAT.5e shielded keystone jack	
Construction characteristics		
	Height	1U
	Width	482mm
	Quantity of positions	24 Ports
	Type of compatible connector	RJ-45 shielded
	Color	Black (epoxy)
	Products body material	SAE1020 steel/high-impact thermoplastic UL94V-0
Package		
	Cardboard box	
	Quantity per box	15 Pieces
	Minimum and multiple batch	1 Box
Codification		
35050495	SHIELDED MODULAR PATCH PANEL 24P	

MODULAR PATCH PANEL



Related products		
	Open rack 19"	
	GigaLan CAT.6 keystone jack	
	MultiLan CAT.5e keystone jack	
	Optical adapter set	
	Horizontal cable manager	
Construction characteristics		
	Height	1U
	Width	482mm
	Quantity of positions	24 Ports
		16 Ports
	Type of compatible connector	RJ-45
		RJ-11
		SC
		LC
		F
	Color	Black (epoxy)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	15 Pieces
	Minimum and multiple batch	1 Box
Codification		
35050138	STANDART MODULAR PATCH PANEL 24P	
35050133	MODULAR PATCH PANEL 16P	
35050124	STANDART MODULAR PATCH PANEL 16P	

Only illustrative images

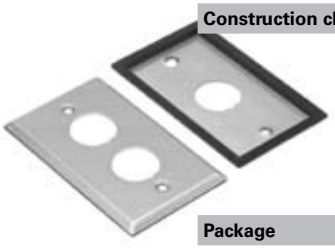
CONSOLIDATION POINT

Configuration		
	1 Metallic box to accommodate female connectors	
	Clamping accessories	
Related products		
	MultiLan CAT.5e keystone jack	
	GigaLan CAT.6 keystone jack	
	MultiLan CAT.5e U/UTP or F/UTP cable	
	FastLan CAT.6 U/UTP or F/UTP cable	
Construction characteristics		
	Height	115mm
	Width	300mm
	Depth	405mm
	Quantity of positions	36 Positions or 100 pairs
	Type of connector	RJ-45 or 110IDC block
	Color	Silver (metallic box)
	Products body material	SAE1020 steel
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batch	1 Box
Codification		
35050136	MODULAR TELECOMUNICATION POINT 36 P	
35050137	110IDC CONSOLIDATION POINT 100 PAIR	

IP67 INDUSTRIAL SURFACE BOX

Related products		
	Industrial faceplate	
	Industrial ethernet cable	
	Industrial keystone jack	
Construction characteristics		
	Double (4x4″)	Height 128mm
		Width 128mm
		Depth 66mm
	Color	White
		Silver (faceplate)
	Quantity of positions	1, 2 and 4 positions
	Products body material	Thermoplastic box
		Stainless steel faceplate
Package		
	Cardboard box	
	Quantity per box	10 Pieces
	Minimum and multiple batches	1 Box
Codification		
35050192	INDUSTRIAL SURFACE MOUNT BOX 1P	
35050194	INDUSTRIAL SURFACE MOUNT BOX 2P	
35050172	INDUSTRIAL SURFACE MOUNT BOX 4P	

IP67 INDUSTRIAL FACEPLATE



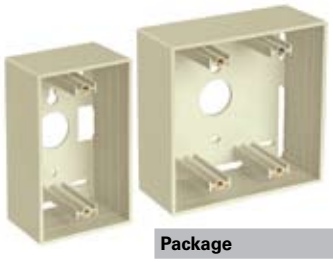
Related products		
	Industrial surface box	
	Industrial keystone jack	
Construction characteristics		
	Dimension	Simple (4x2″)
	Color	Silver
	Quantity of positions	1 and 2 positions
	Products body material	Stainless steel
Package		
	Cardboard box	
	Quantity per box	10 Pieces
	Minimum and multiple batches	1 Box
Codification		
35050141	INDUSTRIAL FACEPLATE 1P	
35050036	INDUSTRIAL FACEPLATE 2P	

MULTIMEDIA SURFACE MOUNT BOX

Only illustrative images

Related products		
	MultiLan CAT.5e keystone jack	
	GigaLan CAT.6 keystone jack	
	Optical adapter	
	Patch cord	
Construction characteristics		
	Height	30mm
	Width	170mm
	Depth	110mm
	Quantity of positions	6 positions
	Type of compatible connector	RJ-45
		RJ-11
		SC
		LC
		F
		Blind lid
	Color	Beige
	Products body material	Thermoplastic
Package		
	Cardboard box	
	Quantity per box	10 Pieces
	Minimum and multiple batch	1 Box
Codification		
35050523	MULTIMEDIA SURFACE MOUNT BOX 6P	

SURFACE MOUNT BOX



Related products			
	Mirror		
	Modular mirror		
Construction characteristics			
	Double (4x4")	Height	114mm
		Width	116mm
		Depth	48mm
	Simples (4x2")	Height	114mm
		Width	69mm
		Depth	48mm
	Color	Beige	
	Products body material	Thermoplastic resistant UL 94 V-0	
Package			
	Cardboard box		
	Quantity per box	10 Pieces	
	Minimum and multiple batch	1 Box	
Codification			
35060029	SURFACE MOUNT BOX (4"x4") - BEIGE		
35060028	SURFACE MOUNT BOX (4"x2") - BEIGE		

Only illustrative images

SURFACE MOUNT BOX (OUTLET)

Related products			
	Option for U/UTP	GigaLan CAT.6 keystone jack	
		MultiLan CAT.5e keystone jack	
	Option for F/UTP	GigaLan Augmented CAT.6A shielded keystone jack	
		GigaLan CAT.6 shielded keystone jack	
		MultiLan CAT.5e shielded keystone jack	
Construction characteristics			
	1P	Height	44,5mm
		Width	65mm
		Depth	19mm
	2P	Height	75,5mm
		Width	65mm
		Depth	19mm
	Quantity of positions	1 e 2 positions	
	Color	Beige white and grey	
	Type of connector	RJ-45	
	Products body material	Thermoplastic resistant UL 94 V-0	
Package			
	Cardboard box		
	Quantity per box	15 Pieces for 2P	
		20 Pieces for 1P	
	Minimum and multiple batch	1 Box	

Codification	
35050256	SURFACE MOUNT BOX (OUTLET) 1P - BEIGE
35050255	SURFACE MOUNT BOX (OUTLET) 1P - WHITE
35050257	SURFACE MOUNT BOX (OUTLET) 1P - GREY
35050259	SURFACE MOUNT BOX (OUTLET) 2P - BEIGE
35050258	SURFACE MOUNT BOX (OUTLET) 2P - WHITE
35050260	SURFACE MOUNT BOX (OUTLET) 2P - GREY
35050510	SHIELDED SURFACE MOUNT BOX (OUTLET) 1P - BEIGE
35050511	SHIELDED SURFACE MOUNT BOX (OUTLET) 2P - BEIGE

FACEPLATE

Related products			
	Apparent box		
	Identification icon		
Construction characteristics			
	Double (4x4")	Height	114,3mm
		Width	114,3mm
	Simple (4x2")	Height	114,3mm
		Width	69,8mm
	Color	Beige, white and grey	
	Connector options	RJ-45	
		RJ-11	
		SC	
		LC	
		F	
		Blind lid	
	Quantity of positions (4x4)	6	
	Quantity of positions (4x2)	2	
		4	
	Products body material	Thermoplastic resistant UL 94 V-0	
Package			
	Cardboard box		
	Quantity per box	10 Pieces	
	Minimum and multiple batch	1 Box	

Codification	
35050046	FACEPLATE 6P - BEIGE (4"x4")
35050093	FACEPLATE 6P - WHITE (4"x4")
35050045	FACEPLATE 6P - GREY (4"x4")
35050039	FACEPLATE 2P - BEIGE (4"x2")
35050053	FACEPLATE 2P - WHITE (4"x2")
35050037	FACEPLATE 2P - GREY (4"x2")
35050249	FACEPLATE 4P - BEIGE (4"x2")
35050090	FACEPLATE 4P - WHITE (4"X2")
35050248	FACEPLATE 4P - GREY (4"x2")

ANGULAR FACEPLATE

Only illustrative images

Related products			
	Apparent box 3”x3”		
	Identification icon		
Construction characteristics			
	3x3”	Height	75mm
		Width	75mm
	4x4”	Height	114,5mm
		Width	116,8mm
	Color	Beige, white and grey (only for 8P)	
	Connector options	RJ-45	
		RJ-11	
		Blind lid	
	Quantity of positions	2	
		8	
	Products body material	Thermoplastic resistant UL 94 V-0	
Package			
	Cardboard box		
	Quantity per box	8 Pieces for 2P	
		80 Pieces for 8P	
	Minimum and multiple batches	1 Box	

Codification	
35050150	ANGULAR FACEPLATE 8P - BEIGE (4”x4”)
35050151	ANGULAR FACEPLATE 8P - WHITE (4”x4”)
35050152	ANGULAR FACEPLATE 8P - GREY (4”x4”)
35050489	ANGULAR FACEPLATE 2P - WHITE (3”x3”)
35050488	ANGULAR FACEPLATE 2P - BEIGE (3”x3”)

MODULAR FACEPLATE

Related products		
	Surface mount box	
	Insert module	
	Module for faceplate	
Construction characteristics		
	Dimension	4x4” (double)
		4x2” (simple)
	Color	Beige and white
	Quantity of positions (4”x4”)	6 Modules
	Quantity of positions (4”x2”)	3 Modules
	Products body material	Thermoplastic resistant UL 94 V-0
Package		
	Cardboard box	
	Quantity per box	25 Pieces (4”x2”)
		15 Pieces (4”x4”)
	Minimum and multiple batches	1 Box

Codification	
35060031	MODULAR FACEPLATE (4”x2”) - BEIGE
35060032	MODULAR FACEPLATE (4”x2”) - WHITE
35060033	MODULAR FACEPLATE (4”x4”) - BEIGE
35060034	MODULAR FACEPLATE (4”x4”) - WHITE

Only illustrative images

INSERT MODULE

Related products			
	Modular faceplate		
Construction characteristics			
	Module 1P	Quantity of positions	1 Position
	Module 2P		2 Positions
	Module angular 2P		2 Positions
	Blind module		-
	Products body material	Thermoplastic resistant UL 94 V-0	
	Connector options	RJ-45	
		RJ-11	
		SC	
		LC	
		F	
	Color	White and beige	
Package			
	Cardboard box		
	Quantity per box	30 Pieces	
	Minimum and multiple batches	1 Box	

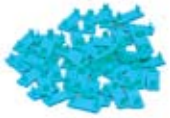
Codification	
35060035	INSERT MODULE 1P - BEIGE
35060039	INSERT MODULE 1P - WHITE
35060030	INSERT MODULE 2P - BEIGE
35060041	INSERT MODULE 2P - WHITE
35060036	BLANK INSERT MODULE - BEIGE
35060037	BLANK INSERT MODULE - WHITE
35060040	ANGULAR INSERT MODULE 2P - BEIGE
35060038	ANGULAR INSERT MODULE 2P - WHITE

ADAPTER SET

Related products				
	Discharged patch panel			
	Flat faceplate			
Construction characteristics				
	F connector	Color	Beige, white and grey	
		Quantity of positions	1 Position	
		Package	Cardboard box	
			Quantity per box	25 Pieces
			Minimum and multiple batches	1 Box
	Y divider (RJ-45)	Color	White	
		Quantity of positions	1 for 2 positions	
		Assembly standard	Voice	
			Modular	
			10 BaseT	
		Package	Cardboard box	
			Quantity per box	25 Pieces
			Minimum and multiple batches	1 Box
	Adapter for faceplate	Color	White	
		Quantity of positions	1 Position	
		Connector options	RJ-45	
		Package	Cardboard box	
			Quantity per box	10 Pieces
			Minimum and multiple batches	1 Box
	Blank adapter	Color	Beige, grey, white and black	
		Quantity of positions	1 Position	
		Package	Cardboard box	
			Quantity per box	50 Pieces
			Minimum and multiple batches	1 Box
	Products body material	Thermoplastic resistant UL 94 V-0		

Codification	
35050344	F-TYPE ADAPTER - BEIGE (5 QTY)
35050379	F-TYPE ADAPTER - WHITE (5 QTY)
35050376	F-TYPE ADAPTER - GREY (5 QTY)
35050663	VOICE DIVISOR
35050662	MODULAR DIVISOR FOR CABLE 4 PAIRS
35050664	DIVISOR 10BASE-T
35050250	EUROPEAN FACEPLATE ADAPTER 45X22.5MM - WHITE
35050372	BLANK ADAPTER - BEIGE (10 QTY)
35050371	BLANK ADAPTER - WHITE (10 QTY)
35050370	BLANK ADAPTER - GREY (10 QTY)
35050369	BLANK ADAPTER - BLACK (10 QTY)

IDENTIFICATION ICON



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Related products		
	Patch panel	
	Keystone jack GigaLan and MultiLan	
Construction characteristics		
	Products body material	Thermoplastic resistant UL 94 V-0
Package		
	Cardboard box	
	Quantity per box	50 Pieces
	Minimum and multiple batches	1 Box

Codification		Actuation area
35050334	IDENTIFICATION ICON - YELLOW	Auxiliary circuits
35050331	IDENTIFICATION ICON - BLUE	Horizontal cabling
35050330	IDENTIFICATION ICON - WHITE	“Backbone” level 1
35050329	IDENTIFICATION ICON - GREY	“Backbone” level 2
35050375	IDENTIFICATION ICON - ORANGE	Demarcation point
35050338	IDENTIFICATION ICON - BROWN	“Backbone” between buildings
35050337	IDENTIFICATION ICON - GREEN	Network connection on the client’s side
35050336	IDENTIFICATION ICON - RED	Telephone systems
35050335	IDENTIFICATION ICON - VIOLET	Common equipment

TOOLS

Related products		
	Female connectors and patch panel	GigaLan
		MultiLan
	Connection blocks 110IDC	FisafLex
	Voice panel	
Package		
	Cardboard box	
	Quantity per box	1 Piece
	Minimum and multiple batches	1 Box

Codification	
35300001	PLUG TERMINATION TOOL
35050324	MULTI WIRE PUNCHDOWN TOOL 110IDC
35050332	SINGLE WIRE PUNCHDOWN TOOL 110IDC
35050027	REPLACEMENT BLADE (110 TYPE)

Monitoring the network in real time.

PatchView FOR THE Enterprise

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MASTER

Related products	
	PatchView management software
	Optional modules (CAD, HP Open View, IBM, Trivoli, CA Unicenter)
	Optional applications: Dashboard, Site Pro
	Expander
	Scanner
	Mini-scanner
	Round flat connection cables

Constructive characteristic		
	Height	44,4mm/1.75" (1U)
	Width	482,6mm/19"
	Depth	159,3mm/6,27"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	1 RJ-45 FTP port (ethernet standard)
		1 DB-9 male (RS-232) port
		4 RJ-45 FTP (RS-485) ports
	Power source	Automatic 100~240 ACV
	It monitors up to 4 scanners or expanders	

Package	
Cardboard box	
Quantity per box	1 Item

Codification	
35710006	PATCHVIEW - MASTER

MASTER EXPANDER

Related products	
PatchView management software	
Optional modules (CAD, HP Open View, IBM, Trivoli, CA Unicenter)	
Optional applications: Dashboard, Site Pro	
Expander	
Scanner	
Mini-scanner	
Round flat connection cables	

Constructive characteristic		
	Height	44,4mm/1.75" (1U)
	Width	482,6mm/19"
	Depth	159,3mm/6,27"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	1 RJ-45 FTP port (ethernet standard)
		1 DB-9 male (RS-232) port
		8 RJ-45 FTP (RS-485) ports
	Power source	Automatic 100~240 ACV
	It monitors up to 8 scanners or expanders	

Package	
Cardboard box	
Quantity per box	1 Item

Codification	
35710012	PATCHVIEW - MASTER EXPANDER

EXPANDER

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Related products		
	Master or master expander	
	Scanner	
	Mini scanner	
Constructive characteristic		
	Height	44,4mm/1.75" (1U)
	Width	482,6mm/19"
	Depth	159,3mm/6,27"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	8 RJ-45 FTP (RS-485) down link ports
		1 DB-9 male (RS-232) port
		1 RJ-45 FTP (RS-485) uplink ports
	Power source	Automatic 100~240 ACV
	It controls directly up to 8 scanners or other expanders	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
35710016	PATCHVIEW - EXPANDER	

SCANNER

Related products		
	Master or master expander	
	Smart patch panel/DIO	
	Expander	
	Round flat connection cable	
	Control pad	
Constructive characteristic		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	191.7mm/7,547"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	1 RJ-45 FTP port for control pad
		1 RJ-45 FTP (RS-485) ports
		1 DB-9 male (RS-232) port
		Twelve 26 pins rear connectors for connection cable
	Power source	Automatic 100~240 AC V
	It monitors up to 24 manageable patch panels/DIOs with 24 ports	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
35710007	PATCHVIEW - SCANNER	

MINI-SCANNER

Related products		
	Round flat connection cable	
	Smart patch panel/DIO	
	Control pad	
Constructive characteristic		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	191.7mm/7,547"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	1 RJ-45 FTP for control pad
		1 RJ-45 FTP (RS-485) ports
		1 DB-9 male (RS-232) port
		Six 26 pins rear connectors for connection cable
	Power source	Automatic 100~240 ACV
	It monitors up to 12 manageable patch panels/DIOs with 24 ports	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
35710014	PATCHVIEW - MINI SCANNER	

LOCAL SCANNER

Related products		
	Smart patch panel/DIO	
	Round flat connection cable	
Constructive characteristic		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	191.7mm/7,547"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	1 RJ-45 FTP (RS-485) port
		Three 26 pins rear connectors for connection cable
		Automatic 100~240 ACV
	It monitors up to 6 manageable patch panels/DIOs with 24 ports	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
35710017	PATCHVIEW - LOCAL SCANNER	

PATCHVIEW MANAGEMENT SOFTWARE

Functionalities		
	Core	Management software may be accessed on the web
		Requirements: Microsoft Windows 2000 Server or 2003 Server, (Microsoft Windows 2003 Server is recommended), Microsoft SQL Server 2005 and Crystal Report 11 Developer Edition
		Accessible via Microsoft Internet Explorer 6.X and 7.0 web browser
		Multi-user platform
		Compatible with PatchView (master, scanner, expander, etc) products
		Module available for integration with Autodesk AutoCAD (*Optional module)
		Modules available for integration with HP Openview, CA Unicenter, IBM Tivoli Netview (*Optional module)
		Commercialized in per point licenses
		No limit for the maximum number of points managed (metallic/optical)
		Automatic detection of manageable patch panels and DIOs
		Generation of electronic service orders
	Additional packages	PBX module - module used for mapping PBX doors
		Provisioning module - it automates the management process for the physical layer and layout changes
		Cable test results module - module to record electrical tests done by a test equipment
		SDK module - it allows system customization and integration to other applications
		Security module - it records the authorized Mac Address list
		Self-Discovery PLET - it recognizes all TCP/IPs equipment connected to the network
		SitePRO module - allows the PatchView integration with PDA's
Package		
	CD-ROM	
	Quantity per box	1 Item
	Minimum lot	License for 500 ports
Codification		
Under request		

Only illustrative images

OPTIONAL MODULES FOR THE SOFTWARE

Functionalities		
	CAD	It allows the inclusion of lower floor blueprints and 2D AutoCAD drawings using the management software
		It allows network asset and liability management, locating them graphically on two dimensional drawing
	HP Open View	It allows the integration of the Enterprise PatchView management software with the NNM HP OpenView® management software
	CA Unicenter	It allows the integration of the Enterprise PatchView management software with the CA Unicenter software
	IBM Tivoli	It allows the integration of the Enterprise PatchView management software with the IBM Tivoli NetView software
Package		
	CD-ROM	
	Quantity per box	1 Item
	Minimum lot	1 License
Codification		
Under request		

Only illustrative images

OPTIONAL APPLICATIONS

Functionalities		
	Dashboard 360	Real-time analysis using easy to visualize graphic measuring devices
		Graphic report generation
	Site Pro	Allows the integration of PatchView with hand-held PDA's
		Real-time integration using a PDA, using wireless communications technology
		Online message sending and receiving support. It allows execution and programming of electronic service orders
Package		
	CD-ROM	
	Quantity per box	1 Item
	Minimum lot	License for 500 points or for 1 user (Site Pro)
Codification		
Under request		

CONTROL PAD

Related products		
	Smart patch panel/DIO	
	Round flat connection cable	
	Scanner	
	Mini-scanner	
Constructive characteristic		
	Color	Beige
	Material used in the body of the product	Thermoplastic
	Number of positions	1 RJ-45 FTP (RS-485) port
	It gets connected directly to the scanner	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
35710008	PATCHVIEW - CONTROL PAD	

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RACK CONTROL INDICATOR

Related products		
	Master or master expander	
	Expander	
	Rack indicator (siren)	
Constructive characteristic		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	159.3mm/7,547"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions	1 RJ-45 FTP (RS-485) port
		1 DB9 male (RS-232) port
	Power source	Automatic 100~240 ACV
	It monitors up to 8 RACKs	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
Under request		

SECURITY CONTROLLER

Related products		
	Master or master expander	
	Expander	
Constructive characteristic		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	159.3mm/7,547"
	Color	Blue
	Material used in the body of the product	SAE steel
	Number of positions height	1 RJ-45 FTP (RS-485) port
		1 DB9 male (RS-232) port
		16 I/O ports
		8 Rack indicator outputs
		8 External load control outputs
	Width	Automatic 100~240 ACV
	It monitors up to 8 RACKs	
Package		
	Cardboard box	
	Quantity per box	1 Item
Codification		
35710176	PATCHVIEW - SECURITY CONTROLLER	

ROUND FLAT CABLE

Related products		
	Scanner or mini-scanner	
	Smart patch panel/DIO	
	Splitter cable	
Constructive characteristic		
	Length	1.5, 2.5, 4, 6 and 12 meters
	Color	Black
	Type	A: it supports a splitter cable
		B: Y cable format
	It supports up to two manageable patch panels/DIOs with 24 ports each or one patch panel with 48 ports	
Package		
	Cardboard box	
Codification		
35710098	PATCHVIEW -TYPE A - 1.5M ROUND FLAT CABLE	
35710099	PATCHVIEW -TYPE A - 2.5M ROUND FLAT CABLE	
35710100	PATCHVIEW -TYPE A - 6.0M ROUND FLAT CABLE	
35710101	PATCHVIEW -TYPE A - 12.0M ROUND FLAT CABLE	
35710018	PATCHVIEW -TYPE B - 1.5M ROUND FLAT CABLE	
35710005	PATCHVIEW -TYPE B - 2.5M ROUND FLAT CABLE	
35710019	PATCHVIEW -TYPE B - 4.0M ROUND FLAT CABLE	
35710020	PATCHVIEW -TYPE B - 6.0M ROUND FLAT CABLE	
35710021	PATCHVIEW -TYPE B - 12.0M ROUND FLAT CABLE	

Only illustrative images

CABLE AND SPLITTER

Related products	
Round flat cable	
Smart patch panel/DIO	
Constructive characteristic	
Length	0.30cm
Color	Black
It supports up to 2 manageable patch panels or DIOs type A	
Package	
Cardboard box	
Codification	
35710097	PATCHVIEW - SPLITTER CABLE
35710094	PATCHVIEW - SPLITTER

INTERNAL MANAGEABLE OPTICAL (DIO)

Related products	
Round flat cable	
Fusion accessories	
Splice tray	
Constructive characteristic	
Height	44mm - 1U
Width	482.6mm
Depth	300mm
Color	Black (epoxy)
Material used in the body of the product	Steel
Package	
Cardboard box	
Quantity per box	1 Item
Minimum lot	1 Box

MANAGEABLE LC DUPLEX/MPO 48F 24P 1U DIO

Constructive characteristics	
Assembly cable type	Type B round flat cable
	It supports MPO 12F trunk cables
Number of positions	24 Positions
Number of fibers	Up to 48 fibers
Connector type	LC-duplex
Codification	
Under request	

MANAGEABLE LC DUPLEX 48F 24P 1U DIO

Constructive characteristics	
Assembly cable type	Type B round flat cable
Number of positions	24 Positions
Number of fibers	Up to 48 fibers
Connector type	MT-RJ duplex
Codification	
35710027	PATCHVIEW - MANAGEABLE MMF LC DUPLEX 24P 48F 1U DIO
35710003	PATCHVIEW - MANAGEABLE SMF LC-PC/LC-PC DUPLEX 24P 48F 1U DIO

MANAGEABLE MT-RJ DUPLEX 48F 24P 1U

Constructive Characteristics	
Assembly cable type	Round Type B
Number of positions	24 positions
Number of fibers	Up to 48 fibers
Connector Type	MT-RJ Duplex
Codification	
35710102	PATCHVIEW - MT-RJ DUPLEX 24P 48F 1U MANAGEABLE DIO

SC DUPLEX 24-DOOR 48F 2U MANAGEABLE

Constructive characteristics	
Height	88mm - 2U
Width	482.6mm
Depth	320mm
Assembly cable type	Round, type A, flat cable
Number of positions	24 Positions
Number of fibers	Up to 48 fibers
Connector type	SC/PC
	SC/APC
Codification	
35710103	PATCHVIEW - MMF SC-PC/SC-PC DUPLEX 24P 48F 2U MANAGEABLE DIO
35710105	PATCHVIEW - SMF SC-APC/SC-APC DUPLEX 24P 48F 2U MANAGEABLE DIO
35710104	PATCHVIEW - SMF SC-PC/SC-PC DUPLEX 24P 48F 2U MANAGEABLE DIO

INTELLIGENT OPTICAL ROUND CORD

Configuration			
	Zip-cord (duplex) optical cables		
	Optical characteristics at both extremities		
	Metallic pin for management purposes (optical cord rupture identification)		
Constructive characteristics			
	Color	Standard PatchView system	
	Connector options	LC-duplex	"Push-pull" connector type
			Polycarbonate UL-94V0 body
			Ceramic push bolt
		SC-duplex	"Push-pull" connector type
			Polycarbonate UL-94V0 body
			Ceramic ferrule
		MT-RJ duplex	"Push-pull" connector type
			Polycarbonate UL-94V0 body
			Plastic ferrule
			Male connector with a guide pin
			Keystone jack without a guide pin
	Nominal length	1, 2, 3 and 5.0 meters	
	Electrical contact material (management)	Phosphorous bronze with a 50 micro inches gold layer	
	Fiber options	Singlemode (9/125)	G.652.B
		Multimode (50/125)	OM3
		Multimode (62.5/125)	OM1
	Flammability class	COG LSZH (HFFR)	
Package			
	Cardboard box		
	Quantity per box	10 Items	
	Minimum lot	1 Box	
Codification			
Alphanumeric coding system for intelligent optical cords (see table - page 142)			

Only illustrative images

CAT.6A SHIELDED MANAGEABLE PATCH PANEL

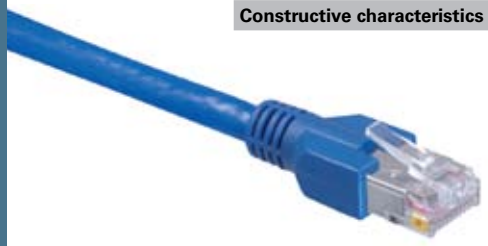
Related products		
	Scanner or mini-scanner	
	CAT.6A F/UTP intelligent patch cord	
	Round flat cable B	
Constructive characteristics		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	100mm/3.94"
	Color	Epoxy black
	Material used in the body of the product	SAE1020 steel
	Number of positions	24 Positions
	Connector type	Keystone jack 10 pin RJ-45 UTP (front portion)
		110IDC terminal (back portion)
		14 Pin plug to connect with the scanner
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1.27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphorous bronze with 100µin (2,54µm) nickel, and tin plated
	Conductor diameter	26 to 22AWG
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
35710177	PATCHVIEW - ARMORED, MANAGEABLE CAT.6A 24P 1U PATCH PANEL	

MANAGEABLE CAT.6A U/UTP PANEL

Only illustrative images

Related products		
	Scanner or mini-scanner	
	Intelligent CAT.6A U/UTP patch cord	
	Round flat cable B	
Constructive characteristics		
	Height	44.4mm/1,75″ (1U)
	Width	482.6mm/19″
	Depth	35mm/1.375″
	Color	Black (epoxy)
	Material used in the body of the product	Aluminum
	Number of positions	24 Positions
	Connector type	Keystone jack 10 pin RJ-45 UTP (front portion) 110IDC terminal (back portion) 14 Pin plug to connect with the scanner
	Material used in the electrical contact	RJ-45: phosphorous bronze with 50µin (1.27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphorous bronze with 100µin (2,54µm) nickel, and tin plated
	Conductor diameter	26 to 22AWG
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
35710178	PATCHVIEW - MANAGEABLE CAT.6A 24P 1U PATCH PANEL	

INTELLIGENT PATCH CORD CAT.6A S/FTP



Related products		
	CAT.6A armored manageable patch panel	
Constructive characteristics		
	Length	From 1.0 to 5.0 meters
	Nominal diameter	6.0 ± 0.2mm
	Color	Blue
	Connector type	RJ-45 plug (10 pins)
	Cable type	S/FTP
	Conductor type	Flexible 24AWG x 4 pair copper + 1 control wire (26AWG) for management purposes
	Number of pairs	4 Pairs
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) of gold plating
	Material used in the body of the product	UL-94V0 polycarbonate
	Assembly standard	T568 B
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
Alphanumeric coding system for intelligent patch cords (see table page 142)		

INTELLIGENT PATCH CORD CAT.6A U/FTP

Only illustrative images

Related products		
	CAT.6A U/UTP manageable patch panel	
Constructive characteristics		
	Length	From 1.0 to 5.0 meters
	Nominal diameter	6.0 ± 0.2mm
	Color	Blue
	Connector type	10 Pin RJ-45 plug
	Cable type	U/FTP
	Conductor type	Flexible 24AWG x 4 pair copper + 1 control wire (26AWG) for management purposes
	Number of pairs	4 Pairs
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) of gold plating
	Material used in the body of the product	UL-94V0 polycarbonate
	Assembly standard	T568 B
Package		
	Cardboard box	
	Quantity per box	10 Items
	Minimum lot	1 Item
Codification		
Alphanumeric coding system for intelligent patch cords (see table page 142)		

CAT.6 SHIELDED MANAGEABLE PATCH PANEL

Related products		
	Scanner or mini-scanner	
	CAT.6 S/FTP intelligent patch cord	
	Round flat cable	
Constructive characteristics		
	Height	44mm - 1U
	Width	482.6mm
	Depth	35mm
	Color	Epoxy black
	Material used in the body of the product	SAE1020 steel
	Number of positions	24 Positions
	Connector type	Keystone jack 10 pin RJ-45 UTP (front portion)
		Terminal 110IDC (back portion)
		14 Pin plug to connect with a scanner
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) gold plate 110IDC: phosphorous bronze with 100µin (2,54µm) nickel and tin plate
	Conductor diameter	26 to 22AWG
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
35710024	PATCHVIEW - ARMORED, MANAGEABLE CAT.6 24P 1U PATCH PANEL	

CAT.6 MANAGEABLE PATCH PANEL

Related products		
	Scanner or mini-scanner	
	Intelligent CAT.6 U/UTP patch cord	
	Round flat cable B	
Constructive characteristics		
	Height	44mm/1,75" (1U)
	Width	482,6mm/19"
	Depth	35mm/1,375"
	Color	Black (epoxy)
	Material used in the body of the product	SAE1020 steel
	Number of positions	24 Positions
	Connector type	Keysone jack 10 pin RJ-45 UTP (front portion) Terminal 110IDC (back portion) 14 Pin plug to connect with the scanner
	Material used in the electrical contact	RJ-45: phosphorous bronze with 50µin (1.27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphorous bronze with 100µin (2,54µm) nickel, and tin plated
	Conductor diameter	26 to 22AWG
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
35710025	PATCHVIEW - MANAGEABLE CAT.6A 24P 1U PATCH PANEL	

Only illustrative images

HIGH DENSITY CAT.6 MANAGEABLE PATCH PANEL

Related products		
	Scanner or mini-scanner	
	Intelligent CAT.6 U/UTP patch cord	
	Round flat cable B	
Constructive characteristics		
	Height	44.4mm/1,75" (1U)
	Width	482.6mm/19"
	Depth	46mm/1.375"
	Color	Black (epoxy)
	Material used in the body of the product	SAE1020 steel
	Number of positions	48 Positions
	Connector type	Keystone jack 10 pin RJ-45 UTP (front portion) Terminal 110IDC (back portion) 14 Pin plug to connect with the scanner
	Material used in the electrical contact	RJ-45: phosphorous bronze with 50µin (1.27µm) of gold and 100µin (2,54µm) of nickel 110IDC: phosphorous bronze with 100µin (2,54µm) nickel, and tin plated
	Conductor diameter	26 to 22AWG
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
35710023	PATCHVIEW - HIGH DENSITY MANAGEABLE CAT.6A 24P 1U PATCH PANEL	

CAT.6 F/UTP INTELLIGENT PATCH CORD

Related products		
	CAT.6 armored manageable patch panel	
Constructive characteristics		
	Length	From 1.0 to 5.0 meters
	Nominal diameter	6.0 ± 0.2mm
	Color	Blue
	Connector type	10 Pin RJ-45 plug
	Cable type	F/UTP
	Conductor type	Flexible 24AWG x 4 pair copper + 1 control wire (26AWG) for management purposes
	Number of pairs	4 Pairs
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) of gold plating
	Material used in the body of the product	UL-94V0 polycarbonate
	Assembly standard	T568 B
Package		
	Cardboard box	
	Quantity per box	10 Items
	Minimum lot	1 Item
Codification		
Alphanumeric coding system for intelligent patch cords (see table page 142)		

CAT.6 U/UTP INTELLIGENT PATCH CORD

Related products		
	CAT.6 manageable patch panel	
Constructive characteristics		
	Length	From 1.0 to 5.0 meters
	Nominal diameter	6.0 ± 0.2mm
	Color	Blue
	Connector type	10 Pin RJ-45 plug
	Cable type	U/UTP
	Conductor type	Flexible 24AWG x 4 pair copper + 1 control wire (26AWG) for management purposes
	Number of pairs	4 Pairs
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) of gold plating
	Material used in the body of the product	UL-94V0 polycarbonate
	Assembly standard	T568 B
Package		
	Cardboard box	
	Quantity per box	10 Items
	Minimum lot	1 Item
Codification		
Alphanumeric coding system for intelligent patch cords (see table page 142)		

Only illustrative images

MODULAR, MANAGEABLE PATCH PANEL

Related products		
	Scanner or mini-scanner	
	CAT.6 U/UTP intelligent smart connect patch cord	
	CAT.6A U/UTP intelligent smart connect patch cord	
	Keystone jack GigaLan Augmented	
	Keystone jack GigaLan	
	Round flat cable	
Constructive characteristics		
	Length	44mm - 1U
	Height	482.6mm
	Depth	105mm
	Color	Black
	Material used in the body of the product	Aluminum and thermal plastic
	Number of positions	24 Positions
	Connector type	RJ-45 keystone jack
Package		
	Cardboard box	
	Quantity per box	1 Item
	Minimum lot	1 Item
Codification		
35710025	PATCHVIEW - MANAGEABLE CAT.6 24P 1U PATCH PANEL	

CAT.6A U/UTP INTELLIGENT SMART CONNECT PATCH CORD

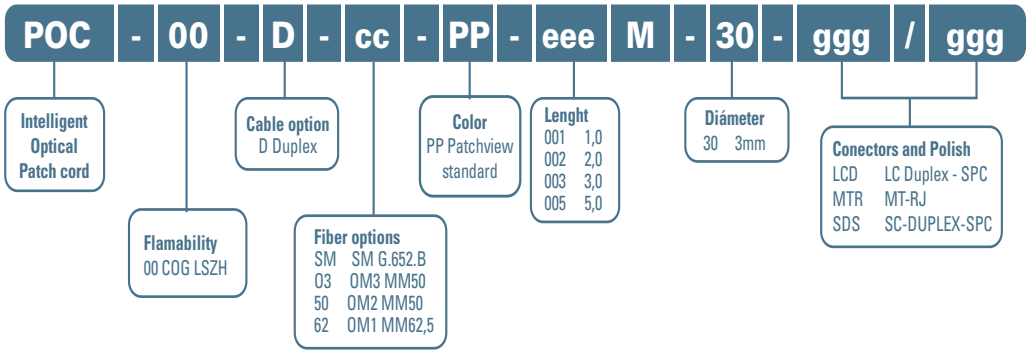
Related products		
	Modular, manageable patch panel	
Constructive characteristics		
	Length	2.0; 3.0 and 5.0 meters
	Nominal diameter	6.0 ± 0.2mm
	Color	Blue
	Connector type	9 Pin RJ-45 plug
	Cable type	U/UTP
	Conductor type	Flexible 24AWG x 4 pair copper + 1 control wire (26AWG) for management purposes
	Number of pairs	4 Pairs
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) of gold plating
	Material used in the body of the product	UL-94V0 polycarbonate
	Assembly standard	T568 B
Package		
	Cardboard box	
	Quantity per box	10 Items
	Minimum lot	1 Item
Codification		
Alphanumeric coding system for intelligent patch cords (see table page 142)		

Only illustrative images

INTELLIGENT SMART CONNECT PATCH CORD CAT.6 U/UTP

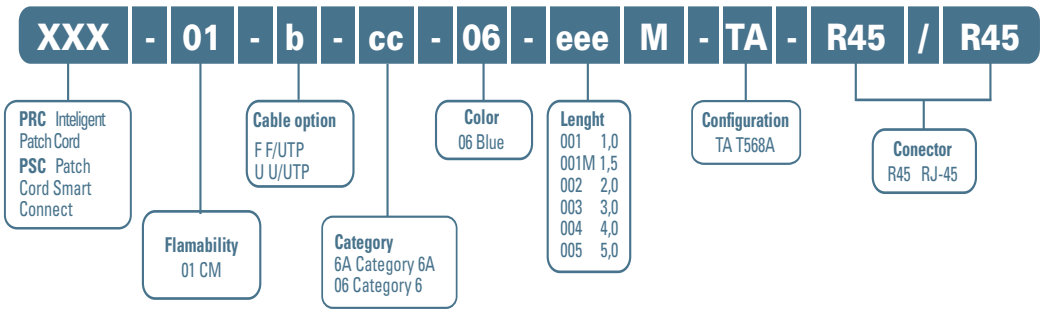
Related products		
	Modular, manageable patch panel	
Constructive characteristics		
	Length	2.0; 3.0 and 5.0 meters
	Nominal diameter	6.0 ± 0.2mm
	Color	Blue
	Connector type	9 Pin RJ-45 plug
	Cable type	U/UTP
	Conductor type	Flexible 24AWG x 4 pair copper + 1 control wire (26AWG) for management purposes
	Number of pairs	4 Pairs
	Material used for the electrical contact	RJ-45: phosphorous bronze with 50µin (1,27µm) of gold plating
	Material used in the body of the product	UL-94V0 polycarbonate
	Assembly standard	T568 B
Package		
	Cardboard box	
	Quantity per box	10 Items
	Minimum lot	1 Item
Codification		
Alphanumeric coding system for intelligent patch cords (see table page 142)		

ALPHANUMERIC CODING SYSTEM FOR AN INTELLIGENT OPTICAL PATCH VIEW CORD



(1) The pre-defined items are supplied according to the Furukawa standard.

ALPHANUMERIC CODING SYSTEM FOR INTELLIGENT PATCHVIEW PATCH CORD



(1) Pay attention to the messages that have been specified in each of the patch cords.
(2) The pre-defined items are to be supplied pursuant to the Furukawa standard.

All PatchView products are sold according to a specific project, being dimensioned by one of our engineers and/or accredited partners

Products that connect your network into the future.

Access Advantage System

MODULAR SPLITTER LGX

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Related products			
	Chassis to splitter modular		
	Orbital cabinet		
	DIO HDMOD		
	Optical patch cord fanout		
Constructive characteristics			
	1x2; 1x4; 1x16; 1x32	Height	129,6mm
		Width	29,2mm
		Depth	101,5mm
		IN connector option	SC, LC
		OUT connector option	1x2 and 1x4: SC, LC 1x16 and 1x32: MPO
	1X8	Height	129,6mm
		Width	58,4mm
		Depth	101,5mm
		IN/OUT connector option	SC, LC
	Fiber option	Monomodo (SM)	
	Polishment option	PC, APC	
	Color	Gray	
Certification			
	Anatel (Brazilian market)	2101-07-0256	
Codification			
35500013	MODULAR SPLITTER 1X2 SC/APC LGX FURUKAWA		
35500014	MODULAR SPLITTER 1X4 SC/APC LGX FURUKAWA		
35500000	MODULAR SPLITTER 1X8 SC/APC LGX FURUKAWA		
35500015	MODULAR SPLITTER 1X16 SC/APC LGX FURUKAWA		
35500016	MODULAR SPLITTER 1X32 SC/APC LGX FURUKAWA		

SPLITTER RUGGEDIZED

Related products		
	Including the basis for fixing the splitter in the tray of splice box type FOSC	
Constructive characteristics		
	Fiber options	Singlemode (SM)
	Pigtail's length	2 meters
	Options	1x4, 1x8, 1x16, 1x32
Certification		
	Anatel (Brazilian market)	2101-07-0256
Codification		
300535010	RUGGED SPLITTER OFS 1x4 - R1-1X4-FULL-UNC-00-BAL	
300534997	RUGGED SPLITTER OFS 1x8 - R1-1X8-FULL-UNC-00-BAL	
300535002	RUGGED SPLITTER OFS 1x16 - R1-1X16-FULL-UNC-00-BAL	
300524378	RUGGED SPLITTER OFS 1x32 - R1-1X32-FULL-UNC-00-BAL	

Only illustrative images

SPLITTERS

Related products						
	Options	1x2	1x4	1x8	1x16	1x32
	Length	50mm	40mm	41,5mm	50mm	52mm
	Nominal diameter	3mm	-	-	-	-
	Width	N/A	4mm	3,9mm	3,9mm	7mm
	Height	N/A	4mm	3,9mm	3,9mm	4mm
	Technology option	FBT	PLC			
	Pigtails' length	2 meters				
	Nude optical fiber diameter	0,25mm				
Performance						
	Options	1x2	1x4	1x8	1x16	1x32
	Maximum loss insertion	3,7dB	7,1dB	10,5dB	13,7dB	17,1dB
	Uniformity	0,5dB	0,6dB	1,0dB	1,3dB	1,5dB
	Sensitivity to maximum Polarizing (PDL)	0,2dB	0,2dB	0,25dB	0,3dB	0,4dB
	Optical band	1260~1360nm y 1480~1580nm				
	Focus	>55dB				
	Loss return					
Certification						
	Anatel (Brazilian market)	2101-07-0256				

Codification	
35500001	OPTICAL SPLITTER 1X2 , 2M, W/O CONNECTOR
35500002	OPTICAL SPLITTER SEMICONDUCTOR (PLC) 1X4, 2M, W/O CONNECTOR
35500003	OPTICAL SPLITTER SEMICONDUCTOR (PLC) 1X8, 2M, W/O CONNECTOR
35500004	OPTICAL SPLITTER SEMICONDUCTOR (PLC) 1X16, 2M, W/O CONNECTOR
35500005	OPTICAL SPLITTER SEMICONDUCTOR (PLC) 1X32, 2M, W/O CONNECTOR

ORBITAL CABINET

Application	
	Cabinet pre-mounted in plant used for local distribution point of the optical fibers in FTTx nets

Constructive characteristics	
Height	914mm
Width	610mm
Depth	457mm
Product material	Aluminum
Color	Beige (epoxy)
Position	288 positions to access and 48 positions to interconnect
Fiber option	Singlemode (SM)
Connector option	LC, SC
Polishment option	PC (SPC/UPC)/APC
Cable option	"Loose" or "ribbon" optical cable
Protect indices	IEC IP-56 (equivalent to NEMA 4)

Codification	
36100140	CABINET OFS MODEL ORBITAL WITH LC/APC IN 24 FIBERS LOOSE AND OUT 2X144 FIBERS LOOSE
36100021	CABINET OFS MODEL ORBITAL WITH LC/APC IN 48 FIBERS LOOSE AND OUT 2X144 FIBERS LOOSE

TRIBOX CABINET

Only illustrative images

Application	
	Used like local and internal distribution point of the optical fibers (fiber management) in FTTx and HFC (hybrid fiber-coax) net or structured cabling

Constructive characteristics	
Height	330mm
Width	597mm
Depth	305mm
Product material	Steel
Color	Gray (epoxy)
Positions	144 Positions to SC optical adapters 12 slots to accommodation of modular splitters or panels LGX
Fiber option	Singlemode (SM) Multi mode (MM)
Connector option	LC, SC
Pulishment option	PC (SPC/UPC) / APC
Protect indices	IEC IP-54 (equivalent a NEMA 13)

Codification	
35260054	TRIBOX CABINET
35260053	SUPPORT FOR SPLICE TRAY TO TRIBOX CABINET
35260052	SPLICE TRAY TO TRIBOX CABINET
35250019	CONJUNCT OF 12 OPTICAL ADAPTERS SC TO TRIBOX CABINET
35260056	CABLES INSTALLATION KIT OF TRIBOX CABINET
35260055	PANEL FOR OPTICAL ADAPTERS SC 18F TO TRIBOX CABINET

Entertainment, services and information at high speeds.

Optical Cables

Premise Network (indoor/outdoor)

OPTICAL CABLE FIBER-LAN-AR

Description

Indoor/outdoor tight-buffered optical cable, available in 2 to 12 optical fibers. The cable contains two layers and additional protection against rodent with corrugated steel armor

Application

Indoor/outdoor and duct installation	
Application needing rodent resistance	

Constructive characteristic

Optical fiber type	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
	Snglemode (9/125)	G.652.B
		G.652.D
		G.657.A
	Singlemode NZD (/125)	G.655
Number of fibers	2 to 12	
Strength member	Aramid yarns	
Inner jacket	Flame resistance thermoplastic material	
Protection against rodent	Corrugated steel armor	
Rip cord	Dielectric and hygroscopic material	
Outer jacket	Flame resistance thermoplastic material with protection against weather and UV rays	
Flame rate	COG (standard)	
	COG LSZH	

Number of fibers	Cable diameter (mm)	Cable weight (kg/km)
2	11,5	129
4		
6		
8		139
10		143
12		145

Tensile rating under installation (kgf)	Minimum bending radius (mm)	
	Under installation	Under long term
185	15 x Cable diameter	10 x Cable diameter

Performance

In accordance with ET-1480

Package

Wood reel	
Normal length	1050m (1)

(1) Tolerance +/- 5%. Other length is under request.

Only illustrative images

Only illustrative images

OPTICAL CABLE FIBER-LAN INDOOR/OUTDOOR

Description

Indoor/outdoor tight-buffered optical cable, available in 2 to 12 optical fibers. Dielectric strength members surround the set of fibers and a black thermoplastic flame-retardant outer jacket provides enhanced protection

Application

Indoor/outdoor installation: distribution networks

Constructive characteristic

Optical fiber type	Singlemode (9/125)	G.652.B
		G.652.D
		G.657.A
	Singlemode NZD (9/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 a 12	
Strength member	Aramid yarns	
Outer jacket	Flame resistance thermoplastic material with protection against weather and UV rays	
Color	Black	
Flame rate	COG (standard)	
	COG LSZH	
	COR	

Number of fibers	Cable diameter (mm)	Cable weight (kg/km)
2	4,8	19
4	5,2	21
6	5,4	24
8	6,0	34
10	6,4	38
12	6,6	40

Tensile rating under installation (kg)	Minimum bending radius (mm)	
	Under installation	Under long term
185	15 x Cable diameter	10 x Cable diameter

Performance

In accordance with ET-1030

Package

Wood reel	
Normal length	2100m (1)

(1) Tolerance +/- 5%. Other length is under request.

OPTICAL CABLE FIS-OPTIC FTTH

Description

All dielectric self-supported loose tube type cable for outdoor drop applications

Application

Outdoor - aerial self-supported or underground in-duct

Constructive characteristic

Optical fiber type	Singlemode (9/125)	G.652.B	
		G.652.D	
		G.657.A	
	Singlemode NZD (9/125)	G.655	
	Multimode (50/125)	OM3	
		OM3+	
		OM2	
		OM2+	
	Multimode (62.5/125)	OM1	
		OM1+	
Fiber count	1 to 12		
Strength member	Two fiberglass rods are placed diametrically opposite on either side of the fiber core		
Outer jacket	Polyethylene		
Color	Black		

Characteristic	Unit	Values
Cable dimensional	mm	4.3 x 7.8
Nominal weight	kg/km	32
Maximum span - sag 1%	m	88

Maximum rated cable load (N)	Maximum long term load (N)	Tensile rating - under installation (N)	Minimum crush resistance (N/mm)	Minimum bending radius (mm)	
				Under installation	Under long term
1335	667	555	22	300	150

Performance

In accordance ICEA S-110-717

Package

Wood reel	
Normal length	610m (1)

(1) Tolerance +/- 5%. Other length is under request.

Only illustrative images

OPTICAL CABLE FIS-OPTIC-AS

Only illustrative images

Description

All dielectric self-supporting loose tube optical cable with multimode fiber, stranded in parallel with two dielectric strength member. This whole unit is covered with black polyethylene jacket

Application

Outdoor application - self-supported installation

Constructive characteristic

Optical fiber type	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 12	
Strength member	Dielectric member (FRP) to avoid contractions in optical cable	
Rip cord	Dielectric and hygroscopic material	
Outer jacket	Polyethylene with protection against weather and UV rays	
Color	Black	

Number of fibers	Cable weight	Cable diameter	
		Span 80m	Span 120m
2 - 6 fibers	65kgf/km	7,7mm	-
8 - 12 fibers		8,2mm	
2 - 12 fibers		-	8,2mm

Tensile rating under installation (max)	Minimum bend radius (mm)	
	Under installation	Under long term
2 x Cable weight/km (kgf)	20 x Cable diameter	10 x Cable diameter

Performance

In accordance with ET-0631

Package

Wood reel	
Norma length	3000m (1)

(1) Tolerance +/- 5%. Other length is under request.

OPTICAL CABLE FIS-OPTIC-DG

Only illustrative images

Description

All dielectric loose tube optical cable for ducts applications, stranded in parallel with a dielectric strength member. This whole unit is covered with black polyethylene jacket

Application

Outdoor Installation – underground in-duct or lashed aerial

Constructive characteristic

Optical fiber type	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (9/125)	G.655
Number of fibers	2 a 12	
Strength member	Dielectric member (FRP) to avoid contractions in optical cable	
Outer jacket	Flame resistance thermoplastic material with protection against weather and UV rays	
Color	Black	

Number of fibers	Cable weight (kgf/km)	Cable diameter (mm)
2 - 6	28	4,2 x 6,7
8 - 12	42	4,5 x 7,3

Number of Fibers	Tensile rating under installation (max.)	Minimum bend radius (mm)	
		Under installation	Under long term
2 - 6	175kgf	160	80
8 - 12		180	90

Performance

In accordance with ET-0690

Package

Wood reel	
Normal length	2100m (1)

(1) Tolerance +/- 5%. Other length is under request.

OPTICAL CABLE OPTIC-LAN INDOOR/OUTDOOR

Description

All dielectric loose tube optical cable for indoor/outdoor or in-ducts applications with flame resistance thermoplastic material with protection against weather and UV rays.

Application

Indoor/outdoor application: underground in-duct or lashed aerial

Constructive characteristic

Optical fiber type	Singlemode (9/125)	G.652.B
		G.652.D
		G.657.A
	Singlemode NZD (9/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 12	
Strength member	Dielectric yarn	
Outer jacket	Flame resistance thermoplastic material with protection against weather and UV rays	
Color	Black	
Flame rate	COG (standard)	
	COG LSZH	

Characteristic	Unit	Typical value
Cable diameter	mm	6.2
Cable weight	Kg/km	30
Minimum bending radius	mm	62
Operating temperature	°C	-20 to +65
Tensile rating under installation (max.)	Kgf	60

Performance

In accordance with ET-0330

Package

Wood reel	
Normal length	2100m (1)

(1) Tolerance +/- 5%. Other length is under request.

OPTICAL CABLE OPTIC-LAN-AR

Only illustrative images

Description

Loose tube optical cable available in 2 to 12 optical fibers. The cable contains two layers and additional protection against rodent with corrugated steel armor

Application

Outdoor application - underground in-duct and applications needed rodent resistance

Constructive characteristic

Optical fiber type	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (9/125)	G.655
Number of fibers	2 to 12	
Strength member	Dielectric yarns	
Inner jacket	Flame resistance thermoplastic material	
Protection against rodent	Corrugated steel armor	
Outer jacket	Polyethylene with protection against weather and UV rays	
Flame rate	COG (standard)	
	COG LSZH	

Number of fibers	Cable diameter (mm)	Cable weight (kg/km)
2	11,5	110
4		
6		
8		
10		
12		

Tensile rating under installation (kg)	Minimum bending radius (mm)
100	230

Performance

In accordance with ET-1468

Package

Wood reel	
Normal length	2100m (1)

(1) Tolerance +/- 5%. Other length is under request.

OPTICAL CABLE OPTIC-LAN-AR (PFV)

Only illustrative images

Description

All dielectric loose tube optical fiber available in 2 to 12 fibers with fiber glass yarns for additional protection against rodent

Application

Outdoor application - underground in-duct and applications needed rodent resistance

Constructive characteristic

Optical fiber type	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (9/125)	G.655
Number of fibers	2 to 12	
Strength member	Dielectric yarns	
Inner jacket	Flame resistance thermoplastic material	
Protection against rodent	Fiber glass yarns	
Outer jacket	Flame resistance thermoplastic material with protection against weather and UV rays	
Flame rate	COG (standard)	
	COG LSZH	

Number of fibers	Cable diameter (mm)	Cable weight (kg/km)
2	12,0	150
4		
6		
8		
10		
12		

Tensile rating under installation (N)	Minimum bending radius (mm)	
	Under installation	Under long term
3000	20 x cable diameter	10 x cable diameter

Performance

In accordance with ET-1550

Package

Wood reel	
Normal length	2100m (1)

(1) Tolerance +/- 5%. Other length is under request.

Only illustrative images

INDOOR/OUTDOOR OPTICAL CABLE

Designation

CFOT-X-MF/UB

Description

All dielectric fiber optic cable for indoor/outdoor application, consisting in tight buffer or loose tube construction

Application

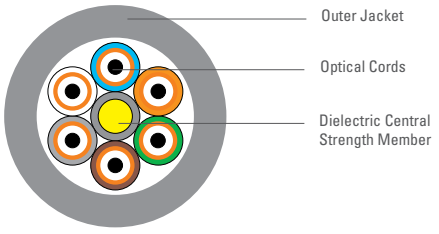
Indoor/outdoor application - underground in-duct or lashed aerial (CFOT-UB)

Constructive characteristic

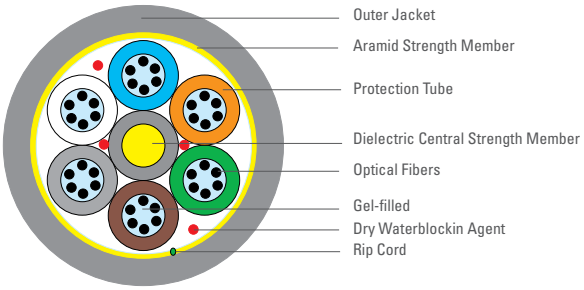
Optical fiber type	Monomode (9/125)	G.652.B
		G.652.D
	Monomode NZD (9/125)	G.655
	Singlemode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Singlemode (62.5/125)	OM1
		OM1+
Number of fibers		2 - 12 (tight buffer cable)
		18 - 144 (loose tube cable)
Strength member		No metallic
Outer jacket		Flame resistance thermoplastic material with protection against weather and UV rays
Color		Black
Flame rate		COG (standard)
		COG LSZH
		COR

Cable type	Construction	Number of fibers	Number of fibers per tube	Cable diameter (mm)	Cable weight (kg/km)
CFOT-X-MF	Tight	2	-	10,0	94
		4	-	10,0	94
		6	-	11,2	120
		8	-	12,7	143
		10	-	14,3	176
		12	-	16,1	230
CFOT-X-UB	Loose	18 a 30	6	10,8	88
		36	6	11,0	92
		48 a 60	12	11,7	117
		72	12	12,2	138
		96	12	14,0	157
		120	12	16,5	196
		144	12	18,3	240

Tensile rating under installation	Minimum bending radius (mm)	
	Under installation	Under long term
1 x Cable weight/km	15 x Cable diameter	10 x Cable diameter



CFOT-X-MF 6 FIBERS



CFOT-X-UB 36 FIBERS

Performance

In accordance ET-1252

Package

Wood reel	
Normal length	2000m (1)

(1) Tolerance +/- 5%. Other length is under request.

OPTICAL CABLE DROP FIG.8 FTTH

Only illustrative images

Description

Self-supported loose tube optical cable. The cable cross section is a fig.8 made with a steel wire strength member

Application

Indoor/outdoor - aerial self-supported

Constructive characteristic

Optical fiber type	Singlemode (9/125)	G.652.B
		G.652.D
		G.657.A
	Singlemode NZD (9/125)	G.655
	Multimodo (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimodo (62.5/125)	OM1
		OM1+
Fiber count	1 to 12	
Strength member	Steel wire	
Strength member (loose tube)	Aramid yarns	
Rip cord	Dielectric and no-hygroscopic material	
Outer jacket	Flame resistance thermoplastic material with protection against weather and UV rays	
Color	Black and gray	
Flame rate	COG	

Characteristics	Unit	Values
Dimensional (height x width)	mm	9,4x 5,0 (±0,5)
Nominal loose tube diameter	mm	2,0
Minimal outer jacket thickness	mm	0,85
Average outer jacket thickness	mm	1,1
Nominal steel wire diameter	mm	1,3
Nominal steel wire jacket diameter	mm	2,8±0,3
Fuerza a de separación	kgf	Min. 1,5/max. 4,0
Nominal weight	kg/km	43
Maximum span - sag 1%	m	80

Maximum rated cable load (CMO) (N)	Every day strain (EDS)	Minimum bending radius (mm)	
		Under installation	Under long term
1250	500	150	75

Performance

In accordance with ICEA S-110-717	
In accordance with ET-1667	

Package

Wood reel	
Normal length	500m (1)

(1) Tolerance +/- 5%. Other length is under request.

Entertainment, services and information at high speeds.

Optical Cables

Indoor Networks

INDOOR OPTICAL CABLE

Designation

CFOI-X-MF/UB

Description

All dielectric optical cable to indoor application, ideal for almost any application between the building entrance splice and the user's desktop, in both the horizontal distribution and vertical

Application

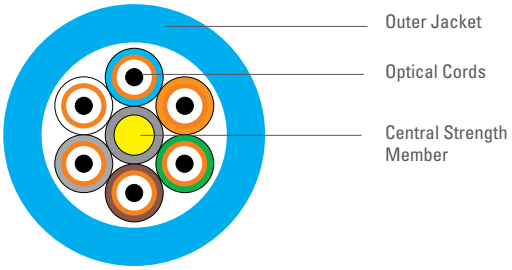
Indoor application

Constructive characteristic

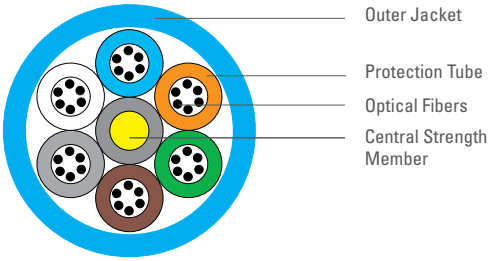
Optical fiber type	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (9/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 - 12 (tight buffer cable)	
	18 - 144 (loose tube cable)	
Strength member	No metallic material	
Outer jacket	Flame resistance thermoplastic material	
Color	Blue	
Flame Rate	COG (standard)	
	COG LSZH	
	COR	

Cable type	Construction	Number of fibers	Number of fibers per tube	Cable diameter (mm)	Cable weight (kg/km)
CFOI-X-MF	Tight	2	-	9,5	86
		4	-	9,5	89
		6	-	10,7	117
		8	-	12,2	151
		10	-	13,8	194
		12	-	15,6	247
CFOI-X-UB	Loose	18 a 30	6	9,5	79
		36	6	10,4	87
		48 a 60	12	10,4	98
		72	12	11,2	105
		96	12	13,2	136
		120	12	15,3	175
		144	12	17,0	228

Tensile rating under installation	Minimum bending radius (mm)	
	Under installation	Under long term
1 x Cable weight/km	15 x Cable diameter	10 x Cable diameter



CFOI-X-UB 6 FIBERS



CFOI-X-UB 36 FIBERS

Performance

In accordance ET-1195

Package

Wood reel	
Normal length	2000m (1)

(1) Tolerance +/- 5%. Other length is under request.

Only illustrative images

FURUKAWA

Only illustrative images

OPTICAL CORD

Designation

COA-X-MF/DP

Description

Optical cords simplex or duplex provide excellent performance and protection of the optical fibers in a controlled environments

Application

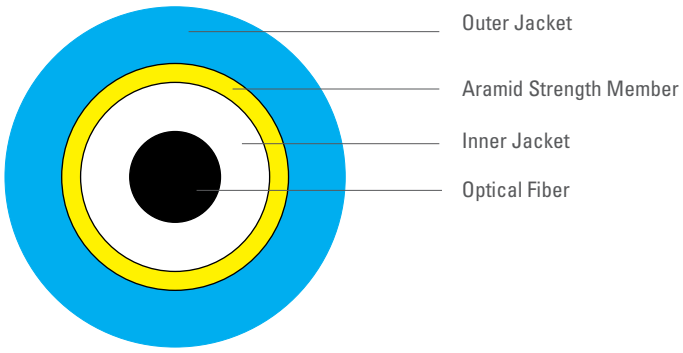
Indoor application

Constructive characteristic

Optical fiber type	Singlemode (9/125)	G.652.B
		G.652.D
		G.657.A
	Singlemode NZD (9/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	1 (Simplex)	
	2 (Duplex)	
Color of optical cord	In accordance with bellcore	
Color of tight buffer	White (Simplex)	
	Red and whit (duplex)	
Strength member	Aramid yarns	
Outer jacket	Flame resistance thermoplastic material	
Flame rate	COG	
	COG LSZH	
	COR	

Optical cord type	Optical cord diameter (mm)	Tight buffer diameter (mm)	Nominal weight (kgf/km)
Simplex	1,8	0,9	3,5
	2,0 (standard)		4,0
	2,9		9,0
Duplex	1,8x3,7		6,5
	2,0x4,1 (standard)		8,0
	2,9x5,9		18,0

Optical cord type	Tensile rating under installation (N)	Minimum bending radius (mm)	Operating temperature (°C)
Simplex	200	50	10 to 40
Duplex	400		



COA-X-MF

Performance

In accordance with ET-0127

Package

Wood reel	
Normal length	1000m (1)

(1) Tolerance +/- 5%. Other length is under request.

Entertainment, services and information at high speeds.

Optical Cables

Self-Supported Air Networks

Only illustrative images

ALL DIELECTRIC SELF-SUPPORTED OPTICAL CABLE - DRY CORE

Designation

CFOA-X-ASY-S

Description

All dielectric self-supported (ADSS) fiber optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with hydro-expansible material to prevent water intrusion and migration. This set unit is reinforced with aramid yarns and covered with black polyethylene external sheath

Application

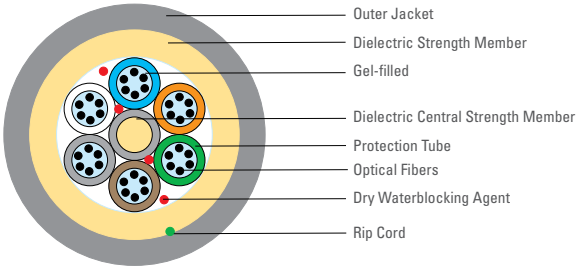
Self supported aerial installation, outside plant use

Constructive characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 up to 144	
Maximum span	Until 200m	
Central member	Non metallic material	
Core	Dry core - hydro-expansible material	
Inner jacket	Polyethylene	
Strength member	Aramid yarns	
Outer jacket	Black polyethylene with or without flame retardant protection (NR or FR)	

Number of fibers in cable	Number of fibers per loose tube	Normal jacket						Flame retardant jacket					
		Nominal external diameter (mm)			Nominal net weight (kg/km)			Nominal external diameter (mm)			Nominal net weight (kg/km)		
		Span (m)						Span (m)					
		80	120	200	80	120	200	80	120	200	80	120	200
6 to 36	6	11,7	11,8	12,1	99	102	107	11,7	11,8	12,1	109	112	116
48 to 60	12	13,0	13,3	13,6	123	127	131	13,0	13,3	13,6	137	142	146
72		13,0	13,3	13,6	126	130	134	13,0	13,3	13,6	140	144	148
96		14,7	14,9	15,3	163	167	176	14,7	14,9	15,3	179	183	193
120		16,8	17,0	17,4	209	214	224	16,8	17,0	17,4	227	233	244
144		19,0	19,2	19,6	258	267	276	19,0	19,2	19,6	280	289	298

Tensile strength without increase in attenuation (N)		Compressive load (N)	Creep after 20 years of installation (%)	Minimum Bend Radius (mm)	
Span (m)	Maximum rated cable load (MRCL)			During installation	After installation
80	1,5 x Weight of cable /km	1 x Weight of cable /km (minimum 1000)	Until 0,2	20 x External diameter of the cable	10 x External diameter of the cable
120	2 x Weight of cable /km				
200	3 x Weight of cable /km				



CFOA-X-ASY-S 36 FIBERS

Accessories recommendation

Furukawa recommends just only use preformed assembled hardware as accessories to anchorage of the cables. For other information, please contact us

Performance

According to Furukawa specification PT 1105

Package

Wood reel	
Standard length	4000m

FURUKAWA

ALL DIELECTRIC SELF-SUPPORTED OPTICAL CABLE - JELLY FILLED CORE

Only illustrative images

Designation

CFOA-X-ASY-G

Description

All dielectric self-supported (ADSS) fiber optical cable with fibers placed in jelly filled loose buffer tube stranded around dielectric central member. The cable core is protected with jelly to prevent water intrusion and migration and covered with inner jacket. This set unit is reinforced with aramid yarns and covered with black polyethylene external sheath

Application

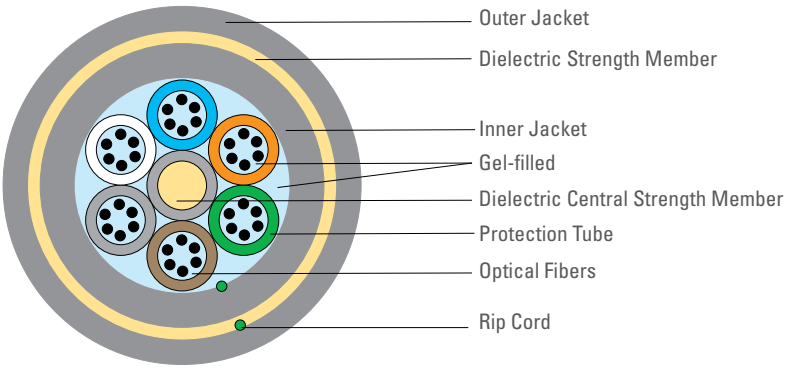
Self supported aerial installation, outside plant use

Constructive characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 up to 144	
Maximum span	Until 200m	
Central member	Non metallic material	
Core	Jelly filled	
Inner jacket	Polyethylene	
Strength member	Aramid yarns	
Outer jacket	Black polyethylene with or without flame retardant protection (NR or FR)	

Number of fibers in cable	Number of fibers per loose tube	Normal jacket						Flame retardant jacket					
		Nominal external diameter (mm)			Nominal weight (kg/km)			Nominal external diameter (mm)			Nominal weight (kg/km)		
		Span (m)						Span (m)					
		80	120	200	80	120	200	80	120	200	80	120	200
6 to 36	6	11,6	11,7	12,0	105	105	115	11,6	11,7	12,0	115	117	121
48 to 60	12	13,1	13,2	13,3	130	133	140	13,1	13,2	13,3	145	147	154
72		13,1	13,2	13,7	136	140	146	13,1	13,2	13,7	147	151	158
96		14,9	15,2	15,4	179	189	204	14,9	15,2	15,4	190	203	215
120		16,8	17,0	17,2	224	232	250	16,8	17,0	17,2	235	248	260
144		18,4	18,7	18,9	272	278	295	18,4	18,7	18,9	283	290	307

Tensile strength without Increase in attenuation (N)		Compressive load (N)	Creep after 20 years of installation (%)	Minimum bend radius (mm)	
Span (m)	Maximum rated cable Load MRCL)			During installation	After installation
80	1,5 x Weight of cable/km	1 x Weight of cable/km (minimum 1000)	Max. 0,2	20 x External cable diameter	10 x External cable diameter
120	2 x Weight of cable/km				
200	3 x Weight of cable/km				



CFOA-X-ASY-G 36 FIBERS

Accessories recommendation

Furukawa recommends just only use preformed assembled hardware as accessories to anchorage of the cables.
For other information, please contact us

Performance

According to Furukawa specification PT 1105

Package

Wood reel	
Standard length	4000m

FIGURE 8 SELF-SUPPORTED OPTICAL FIBER CABLE

Only illustrative images

Designation

CFOA-X-FIG.8

Description

Self-supported figure 8 optical cable with fibers placed in jelly filled loose buffer tube stranded around dielectric central member. The cable core is protected with jelly or waterblocking material to prevent water intrusion and migration. This set unit and galvanized steel messenger are covered with polyethylene outer jacket

Application

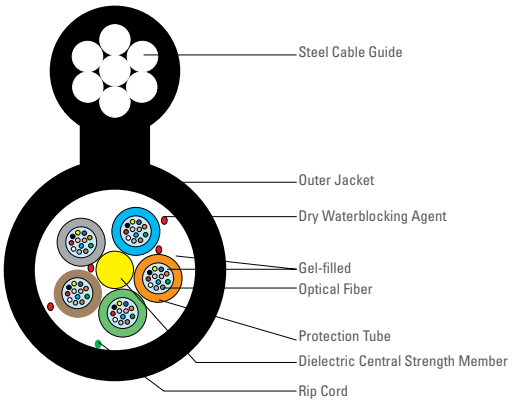
Self supported aerial installation outside plant use

Constructive characteristics

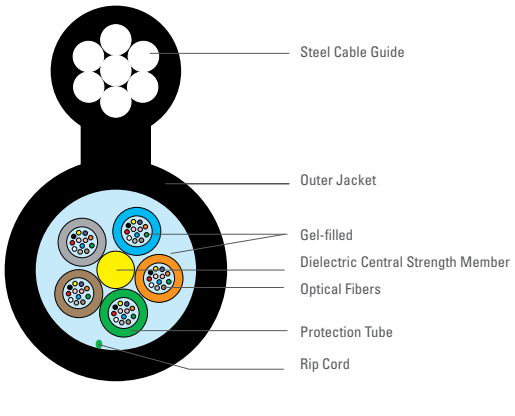
Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 96	
Maximum span	Until 150m	
Central member	Non metallic material	
Core	Dry - hydro-expansible material	
	Jelly-filled	
Core binder	Water blocking yarn (dry core)	
	Non-hygroscopic material yarn (jelly-filled core)	
Strength member	Steel messenger of 6,35mm nominal diameter (1/4")	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal height (mm)	Nominal net weight (kg/km)
6	6	10,1	22,1	310
12				
18				
24				
30				
36				
48	12	11,6	23,6	345
60				
72				
96		13,3	25,3	370

Maximum load by support messenger (N)	Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
			During installation	After installation
5400	1400	2200	20 x External cable diameter	10 x External cable diameter



CFOA-X-FIG.8-S



CFOA-X-FIG.8-G

Performance

According to Furukawa specification PT 1242

Package

Wood reel	
Standard length	4000m

ARMORED FIGURE 8 SELF-SUPPORTED OPTICAL CABLE WITH RODENT PROTECTION

Only illustrative images

Designation

CFOA-X-FIG.8-AR

Description

Self-supported figure 8 optical cable with fibers placed in jelly filled loose buffer tube stranded around dielectric central member. The cable core is protected with jelly or waterblocking material to prevent water intrusion and migration and covered with inner jacket. Over this set unit shall be aplied a corrugated steel tape. All whole unit and galvanized steel messenger are covered with black polyethylene outer jacket

Application

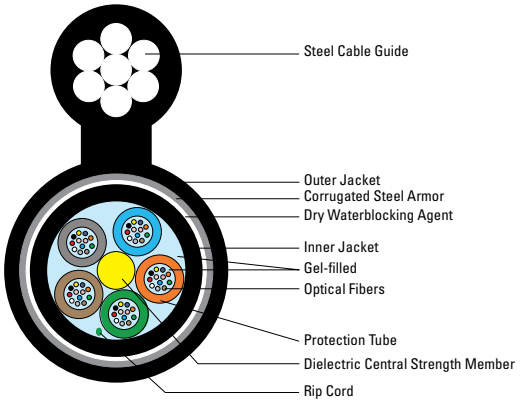
Self supported aerial installation, outside plant use and installation that needs mechanical strenghts and rodent protection

Constructive Characteristics

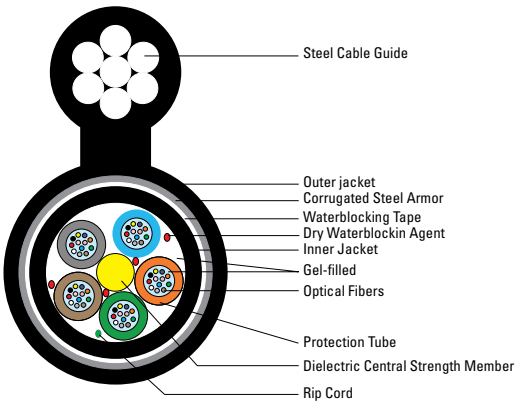
Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 96	
Maximum span	Until 150m	
Central member	Non metallic material	
Core	Dry - hydro-expansible material	
	Jelly-filled	
Core binder	Water blocking yarns (dry core)	
	Non-hygroscopic material yarns (jelly-filled core)	
Inner jacket	Polyethylene	
Rodent protection	Corrugated steel tape	
Strength member	Steel messenger of 6,35mm nominal diameter (1/4")	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal height (mm)	Nominal net weight (kg/km)
6	6	13,9	25,9	410
12				
18				
24				
30				
36				
48	12	14,1	27,4	460
60				
72		15,0		
96		17,3	29,1	500

Maximum load by support messenger (N)	Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
			During installation	After installation
6350	1700	3000	20 x External cable diameter	10 x External cable diameter



CFOA-X-FIG.8-G-AR



CFOA-X-FIG.8-S-AR

Performance

According to Furukawa specification PT 1245

Package

Wood reel	
Standard length	4000m (1)

Only illustrative images

LONG SPAN ALL DIELECTRIC SELF-SUPPORTED OPTICAL CABLE

Designation

CFOA-X-LV-AS-CMOY-S

Description

All dielectric self-supported (ADSS) fiber optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with hydro-expansible material to prevent water intrusion and migration and covered with inner jacket. This set unit is reinforced with aramid yarns and covered with black polyethylene external sheath

Application

Aerial self-supported installations on poles or overhead lines transmission with 20KN maximum MRCL, installed in location with electrical fields strengths up to 12 KV/m. For environments submitted to electrical fields strengths greater 12kV/m and up to 25kV/m, shall be used external sheath with tracking material resistance

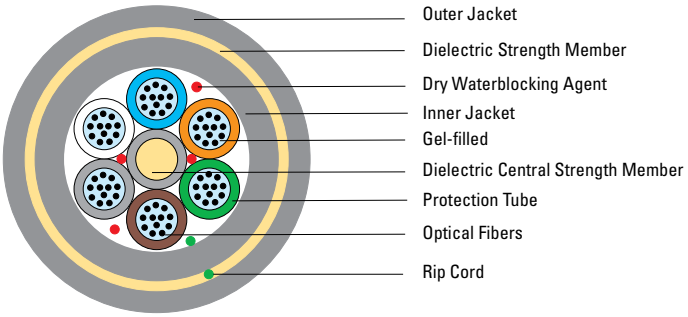
Constructive characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
Number of fibers	6 to 72	
Maximum rated cable load (MRCL)	until 20kN	
Central member	Non metallic material	
Core	Dry - hydro-expansible material	
Core binder	Water blocking yarns	
Inner jacket	Polyethylene	
Strength member	Aramid yarns	
Outer jacket	Polyethylene of black color w/wo flame retardant or tracking resistance material (NR, FR or TR)	

Electric field strength	Type of sheath	Cable marking
Between 12 and 25 kV	Tracking resistant	TR
≤ 12 kV	Flame retardant	FR
	Normal	NR

Maximum rated cable load (MRCL) * (N)	Number of fibers in cable	Number of fibers per loose tube	EDS ** (N)	Nominal external diameter (mm)	Nominal net weight (kg/km)	Minimum bend radius (mm)		Compressive load (N)
						During installation	After installation	
Up to 10kN	6 to 36	6	5000	13,3	141	20 x External cable diameter	10 x External cable diameter	2200 N
	48 to 72	12	6000	14,7	173			
Up to 20kN	6 to 36	6	7500	14,9	169			
	48 to 72	12	9500	16,4	213			

* MRCL - Maximum rated cable load is subject with wind and coincident temperature of 15°C)
** EDS - *Every day strain*



CFOA-X-LVY-S 36 FIBERS

Long span criteria cable design	Maximum rated cable Load (MRCL)	
	10KN	Between 10 and 20KN
Minimum sag	2%	3%
Maximum wind speed	120km/h	120km/h
Minimum temperature	-5 °C	-5 °C
Maximum temperature	+65°C	+65°C
Medium temperature	+20°C	+20°C
Coincident temperature	+ 15°C	+ 15°C

Accessories recommendation

Furukawa recommends just only use preformed assembled hardware as accessories to anchorage of the long span optical cables. For other information, please contact us

Performance

According to Furukawa specification PT 1204

Package

Wood reel	
Standard length	4000m

DIELECTRIC SELF-SUPPORTED OPTICAL CABLE AS120-RA

Only illustrative images

Description

All dielectric optical cable with singlemode fiber, stranded in parallel with a dielectric strength member.
This whole unit is covered with black polyethylene jacket

Application

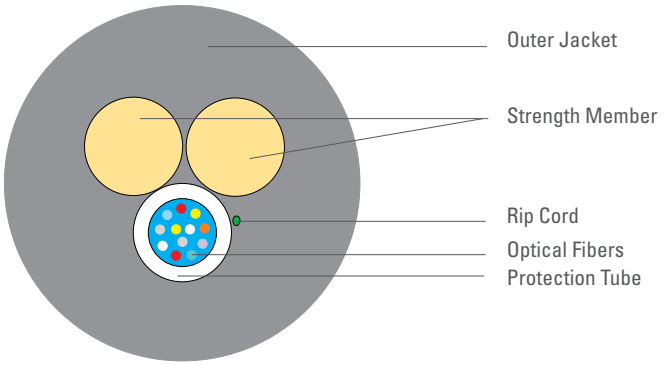
Outdoor application - self-supported aerial installation

Constructive characteristic

Fiber options	Singlemode (9/125)	G.652.B G.652.D
	Singlemode NZD (9/125)	G.655
Number of fibers	2 to 12	
Strength member	Dielectric member (FRP) to avoid contractions in optical cable	
Rip cord	Dielectric and hygroscopic material	
Outer jacket	Polyethylene with protection against weather and UV rays	
Color	Black	

Number of fibers	Cable weight	Cable diameter	
		Vain 80m	Vain 120m
2 - 6 fibers	65kgf/km	7,7mm	-
8 - 12 fibers		8,2mm	
2 - 12 fibers		-	8,2mm

Tensile rating under installation (max.)	Minimum Bend Radius (mm)	
	During installation	After installation
2 x Cable weight/km (kgf)	20 x External diameter	10 x External diameter



CFOA-X-AS120-RA 12 FIBERS

Performance

In accordance with ET-1249

Package

Wood reel	
Normal length	3000m (1)

(1) Tolerance +/- 5%. Other length is under request.

Entertainment, services and information at high speeds.

Optical Cables

Channelized Underground or Air Lashed Networks

Only illustrative images

DIELECTRIC OPTICAL CABLE FOR DUCTS - DRY CORE

Designation

CFOA-X-DD-S

Description

Totally dielectric optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with water blocking material to prevent water intrusion and migration, reinforced with dielectric fiber yarns and covered with black polyethylene external sheath

Application

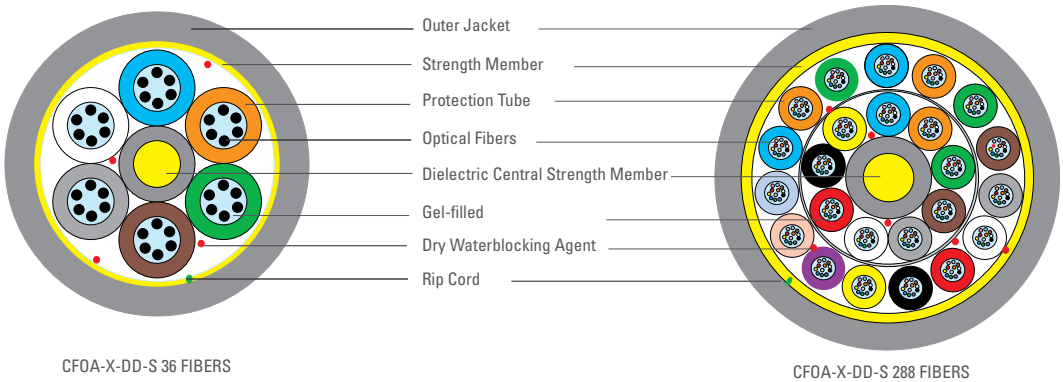
Underground or aerial lashed over steel messenger support outside plant use

Constructive Characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 288	
Central member	Non metallic material	
Core	Dry	
Core binder	Water blocking yarns	
Strength member	Dielectric fiber yarns	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal weight (kg/km)
6 to 36	6	10,2	78
48 to 60	12	10,9	90
72		11,5	102
96		12,8	127
120		14,6	160
144		16,4	195
216		16,8	200
288		19,2	260

Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
2700	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-DD-S 36 FIBERS

CFOA-X-DD-S 288 FIBERS

Performance

According to Furukawa specification PT 610

Package

Wood reel	
Standard length	4000m

FURUKAWA

DIELECTRIC OPTICAL CABLE FOR DUCTS - JELLY FILLED CORE

Only illustrative images

Designation

CFOA-X-DD-G

Description

Totally dielectric optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly to prevent water intrusion and migration, reinforced with dielectric fiber yarns and covered with black polyethylene external sheath

Application

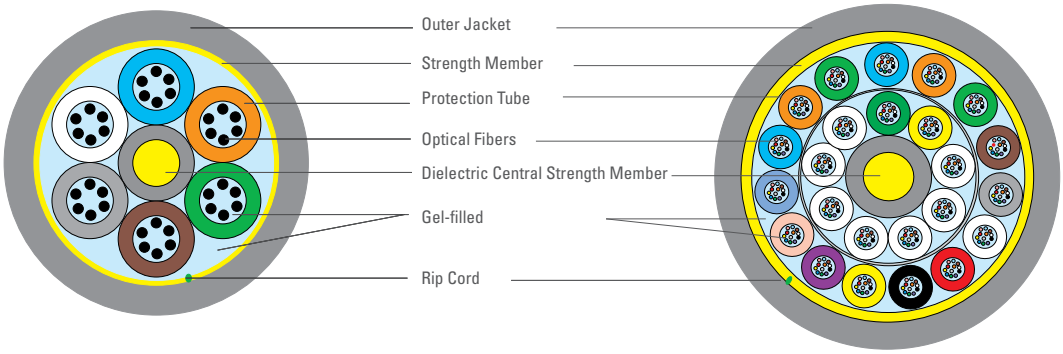
Underground or aerial lashed over steel messenger support outside plant use

Constructive Characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 288	
Central member	Non metallic material	
Core	Jelly-filled	
Strength member	Dielectric fiber yarns	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal weight (kg/km)
6 to 36	6	10,2	85
48 to 60	12	10,9	99
72		11,5	112
96		13,2	145
120		15,0	185
144		16,7	230
216		17,0	235
288		19,5	320

Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
2700	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-DD-G 36 FIBERS

CFOA-X-DD-G 288 FIBERS

Performance

According to Furukawa specification PT 610

Package

Wood reel	
Standard length	4000m

DIELECTRIC OPTICAL CABLE FOR DUCTS WITH RODENT PROTECTION - PFV

Only illustrative images

Designation

CFOA-X-DDR-W

Description

Dielectric optical fiber cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly or hydro-expansible material to prevent water intrusion and migration and covered with inner jacket. This set unit is protected with glass fiber yarns and covered with polyethylene outer jacket sheath

Application

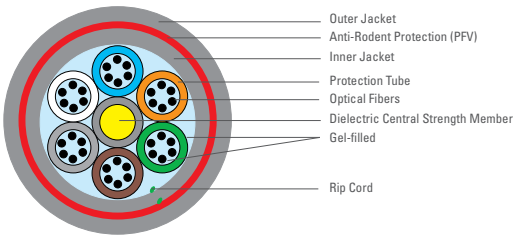
Underground outside plant use and installation that needs rodent protection

Constructive Characteristics

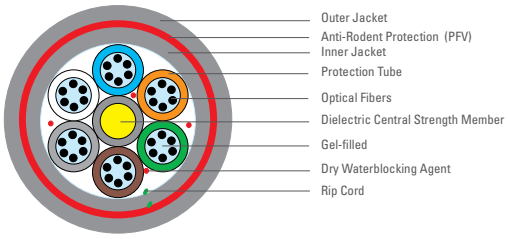
Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 144	
Central member	Non metallic material	
Core	Jelly-filled	
	Dry - hydro-expansible material	
Core's bind	Non-hygroscopic material yarn (jelly-filled core)	
	Water blocking yarns (dry core)	
Inner jacket	Polyethylene	
Strength member	Dielectric fiber yarns	
Rodent protection	Glass fiber yarns	
Outer jacket	Black Polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal net weight (kg/km)
6 to 36	6	14,3	195
48 to 72	12	15,9	240
96		17,6	295
120		19,1	345
144		21,0	410

Maximum Installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
2700	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-DDR-G 36 FIBERS



CFOA-X-DDR-S 36 FIBERS

Performance

According to Furukawa specification PT 1538

Package

Wood reel	
Standard length	4000m

ARMORED UNDERGROUND OPTICAL CABLE WITH RODENT PROTECTION

Only illustrative images

Designation

CFOA-X-ARD-W

Description

Armored fiber optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly or waterblocking material to prevent water intrusion and migration, reinforced with dielectric fiber yarns, protected with a corrugated steel tape and covered with a black polyethylene external sheath

Application

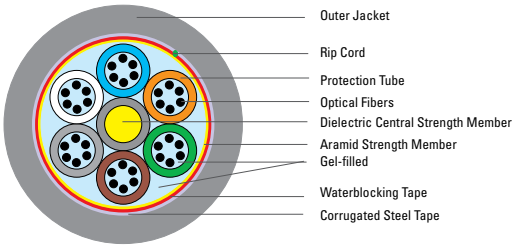
Underground outside plant use and installation that needs rodent protection

Constructive characteristics

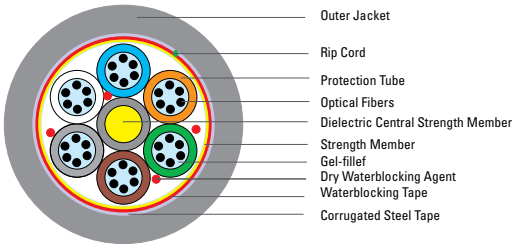
Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	02 to 288	
Central member	Non metallic material	
Core	Jelly-filled	
	Dry - hydro-expansible material	
Core's bind	Non-hygroscopic material yarns (jelly-filled core)	
	Water blocking yarns (dry core)	
Strength member	Dielectric fiber yarns	
Rodent protection	Corrugated steel tape	
Outer jacket	Black Polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal net weight (kg/km)
6 to 36	6	12,0	140
48 to 72	12	13,5	175
96		15,0	215
120		16,5	260
144		18,7	315
216		20,4	420
288		23,4	540

Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
2700	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-ARD-G 36 FIBERS



CFOA-X-ARD-S 36 FIBERS

Performance

According to Furukawa specification PT 1060

Package

Wood reel	
Standard length	4000m

Entertainment, services and information at high speeds.

Optical Cables

Directly Buried Underground Networks

ARMORED DIRECTED BURIED OPTICAL CABLE WITH RODENT PROTECTION

Only illustrative images

Designation

CFOA-X-ARE-G

Description

Armored fiber optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly to prevent water intrusion and migration and covered with inner jacket. This set unit is protected with a corrugated steel tape and covered with polyethylene outer jacket sheath

Application

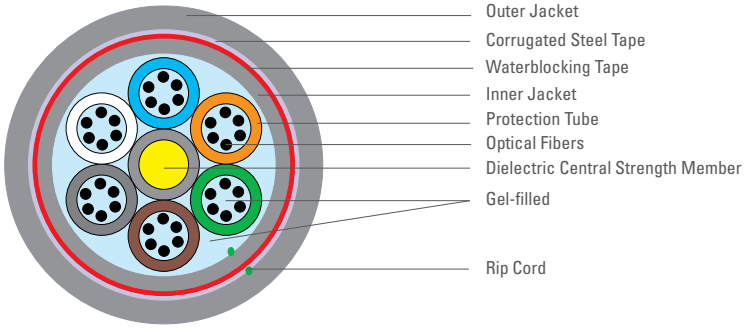
Direct buried outside plant use and installation that needs rodent protection

Constructive characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 288	
Central member	Non metallic material	
Core	Jelly filled	
Inner jacket	Polyethylene	
Rodent protection	Corrugated steel tape	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal net weight (kg/km)
6 to 36	6	13,6	175
48 to 72	12	14,5	215
96		16,2	260
120		18,1	310
144		19,7	365
216		23,5	500
288		26,5	630

Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
100	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-ARE-G 36 FIBERS

Performance

According to Furukawa specification PT 1060

Package

Wood reel	
Standard length	4000m

FURUKAWA

DIRECT BURIED DIELECTRIC OPTICAL CABLE WITH RODENT PROTECTION - PFV

Only illustrative images

Designation

CFOA-X-DER-G PFV

Description

Dielectric optical fiber cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly or hydro-expansible material to prevent water intrusion and migration and covered with inner jacket. Over inner jacket is applied a polyamide covering, protected with glass fiber yarns and covered with polyethylene outer jacket sheath

Application

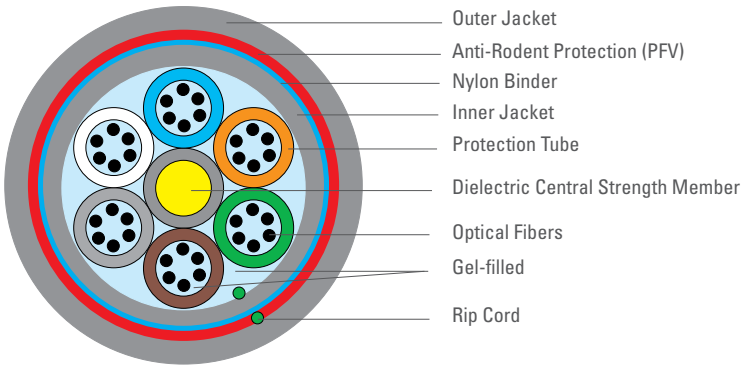
Direct buried outside plant use and installation that needs rodent protection

Constructive characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 144	
Central member	Non metallic material	
Core	Jelly-filled	
Inner jacket	Polyethylene	
Inner cover	Polyamide (nylon)	
Strength member	Dielectric fiber yarns	
Rodent protection	Glass fiber yarns	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal net weight (kg/km)
6 to 36	6	18,5	383
48 to 60	12	18,8	390
72		19,5	395
96		21,9	417
120		23,1	460
144		25,9	502

Maximum installation Load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
1000	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-DER-G (PFV) 36 FIBERS

Performance

According to Furukawa specification PT 1203

Package

Wood reel	
Standard length	4000m

UNDERGROUND DIELECTRIC OPTICAL CABLE WITH RODENT PROTECTION - PPU

Only illustrative images

Designation

COA-X-DER-G PPU

Description

Dielectric optical fiber cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly to prevent water intrusion and migration and covered with inner jacket. Over inner jacket is applied a polyamide covering, protected with fiber reinforced plastics (FRP) elements and covered with polyethylene outer jacket sheath

Application

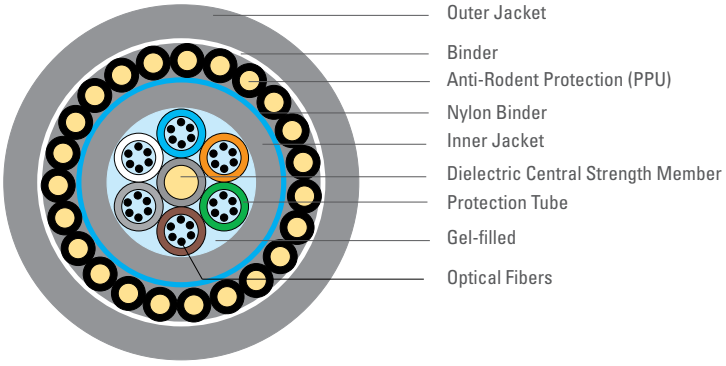
Direct buried outside plant use and installation that needs rodent protection

Constructive characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (9/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 144	
Central member	Non metallic material	
Core	Jelly-filled	
Inner jacket	Polyethylene	
Inner cover	Polyamide (nylon)	
Rodent protection	Fiber reinforced plastics (FRP)	
Outer jacket	Black polyethylene	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)	Nominal net weight (kg/km)
6 to 36	6	19,8	410
48 to 60	12	20,1	412
72		20,9	419
96		22,8	459
120		24,7	506
144		26,7	552

Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
1000	220	20 x External cable diameter	10 x External cable diameter



CFOA-X-DER-G (PPU) 36 FIBERS

Performance

According to Furukawa specification PT 1203

Package

Wood reel	
Standard length	3000m

Only illustrative images

DIRECT BURIED DIELECTRIC OPTICAL CABLE WITH DUCT

Designation

CFOA-X-DPE-G

Description

Totally dielectric optical cable with fibers placed in loose buffer tube stranded around dielectric central member. The cable core is protected with jelly to prevent water intrusion and migration, reinforced with dielectric fiber yarns and covered with black polyethylene sheath and polyamide. This set unit is protected with HDPE duct

Application

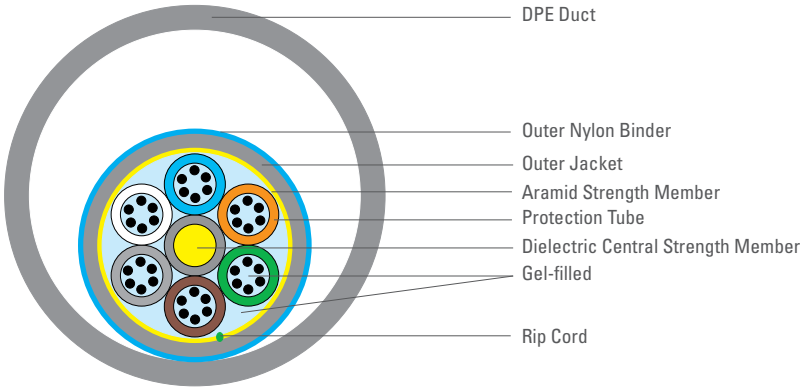
Direct buried outside plant use

Constructive Characteristics

Fiber options (acrylate protection)	Singlemode (9/125)	G.652.B
		G.652.D
	Singlemode NZD (8/125)	G.655
	Multimode (50/125)	OM3
		OM3+
		OM2
		OM2+
	Multimode (62.5/125)	OM1
		OM1+
Number of fibers	2 to 144	
Central member	Non metallic material	
Core	Jelly-filled	
Core binder	Non-hygroscopic material yarn	
Strength member	Dielectric fiber yarns	
Outer jacket	Black polyethylene	
Outer jacket covering	Polyamide (nylon)	
Duct	Black high density polyethylene (HDPE)	

Number of fibers in cable	Number of fibers per loose tube	Nominal external diameter (mm)		Nominal net weight (kg/km)	
		Cable	Duct	Cable	Duct
6 to 36	6	12,0	29,5	116	245
48 to 60	12	12,2	29,5	124	245
72		13,0	31,5	141	278
96		14,8	35,0	181	307
120		16,7	38,0	229	336
144		18,5	40,0	281	350

Maximum installation load (N)	Compressive load (N)	Minimum bend radius (mm)	
		During installation	After installation
1000	5000	15 x External duct diameter	10 x External duct diameter



CFOA-X-DPE-G 36 FIBERS

Performance

According to Furukawa specification PT 1202

Package

Wood reel	
Standard length	3000m

NOMENCLATURE

AERIAL NETWORK

CFOA-X-ASY-W-Z-K

- Covering
  - **RC** - Flame Retardant
  - **NR** - Standard
- Number of Fbers
- **G** - Jelly FIled Core, **S** - Dry Core
- Maximum Vain (80,120 and 200)
- **AS** - Self-Supported / FIG.8 With Steel Mesenger
- Fiber Options: **MM** - Multimode
  SM - Singlemode
  NZD - Non Zero Dispersion
- Covering of the Fber "Acrilate"
- Optic
- Fibeer
- Cable

CFOA-X-LV-AS-Y-W-Z-K

- Covering
  - **RT** - Tracking Resistant
  - **RC** - Flame Retardant
  - **NR** - Standard
- Number of Fbers
- **G** - Jelly FIled Core, **S** - Dry Core
- Maximum Rated Cable Load (5, 10, 15, 20, 25 kN)
- **AS** - Self-Supported
- Long Vain
- Fiber Options: **MM** - Multimode
  SM - Singlemode
  NZD - Non Zero Dispersion
- Covering of the Fiber "Acrilate"
- Optic
- Fiber
- Cable

UNDERGROUNG NETWORK

CFOA-X-Y-W-Z (K)

- Covering
  - **PFV** - Glass Fiber Yarns Protection
  - **PPU** - Fiber Reinforced Plastics (FRP)
- Number of Fibers
- **G** - Jelly Filled Core, **S** - Dry Core
- Application of Cable: **DD** - Dielectric for Duct
  DPE - Direct Buried Dielectric Optical Cable With Duct
  ARD - Armored Optical Cable With Rodent Protection for Ducts
  ARE - Armored Directed Buried Optical Cable With Rodent Protection
  DER - Direct Buried Dielectric Optical Cable With Rodent Protection
  DDR - Dielectric Optical Cable for Ducts With Rodent Protection
- Fiber Options: **MM** - Multimode
  SM - Singlemode
  NZD - Non Zero Dispersion
- Covering of the Fiber "Acrilate"
- Optic
- Fiber
- Cable

CFOA-X-ASY-RA-Z

- Subscriber Network

INDOOR / OUTDORR NETWORK

CFOT-X-Y-Z-W

- Flame resistant cover
  - **COG** - Optical Fiber Nonconductive General Purpose
  - **COR** - Optical Fiber Nonconductive Riser
  - **COP** - Optical Fiber Nonconductive Plenum
  - **LSZH** - Low Smoke Zero Halogen
- Number of Fibers
- Core Construction: **MF** - Singlefiber
  EO - Optical Element
  UB - Basic Unit
- Fiber Options: **MM** - Multimode
  SM - Singlemode
  NZD - Non Zero Dispersion
- Termination
- Optic
- Fiber
- Cable

CFOI-X-Y-Z-W

- Flame resistant cover
  - **COG** - Optical Fiber Nonconductive General Purpose
  - **COR** - Optical Fiber Nonconductive Riser
  - **COP** - Optical Fiber Nonconductive Plenum
  - **LSZH** - Low Smoke Zero Halogen
- Number of Fibers
- Core Construction: **MF** - Singlefiber
  EO - Optical Element
  UB - Basic Unit
- Fiber Options: **MM** - Multimode
  SM - Singlemode
  NZD - Non Zero Dispersion
- Indoor
- Optic
- Fiber
- Cable

COA-X-Y-Z-W

- Flame resistant cover
  - **COG** - Optical Fiber Nonconductive General Purpose
  - **COR** - Optical Fiber Nonconductive Riser
  - **LSZH** - Low Smoke Zero Halogen
- Optical Cord Diameter: **18** - 1,8mm
  20 - 2,0mm
  25 - 2,5mm
  29 - 2,9mm
- Construction: **MF** - Simplex
  DP - Duplex Zip Cord
- Fiber Options: **MM** - Multimode
  SM - Singlemode
  NZD - Non Zero Dispersion
- Covering of the fiber "Acrilate"
- Fiber
- Cord

Full compatibility with the network components, today.

Metallic Phone Cables

Indoor Network

AIR CORE FAST-CIT METALLIC CABLE

Application

Indicated for internal installations, in telephonic centrals, commercial buildings, industries or applications where flame rate security is demanded

Constructive characteristics

Number of pairs	10 up to 1200
Core	Dry
Conductor	Solid tinned copper, nominal diameter of 0,40, 0.50 or 0.60mm
Insulation	Polyolefin
Shield	Polyester aluminum tape. Drain wire placed in shield contact
Sheath	PVC
Color	Grey
Flame rate	CM

Designation	Conductor diameter (mm)	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FAST-CIT 40	0,40	10	7,1	67	1000
		15	8,1	88	
		20	9,0	105	
		25	10,3	132	
		30	10,6	145	
		40	11,7	183	
		50	12,5	216	
		75	13,8	305	
		100	16,1	380	
		200	22,6	748	500
		300	28,5	892	
		400	32,9	1293	
		600	40,1	1980	250
		800	45,3	2506	
		900	48,1	2831	
		1200	54,2	3755	
FAST-CIT 50	0,50	10	8,5	87	1000
		15	9,0	114	
		20	10,2	137	
		25	10,8	163	
		30	11,7	190	
		40	13,0	242	
		50	14,5	293	
		75	17,6	408	
		100	19,1	520	
		200	26,4	1033	500
		300	32,6	1333	
		400	37,0	1750	
		600	45,1	2832	250
		800	51,4	3698	
		900	54,0	4172	
		1200	61,6	5483	
FAST-CIT 60	0,60	10	9,1	91	1000
		15	10,1	124	
		20	11,6	165	
		25	12,6	198	
		30	13,6	232	
		40	15,1	297	
		50	16,6	368	
		75	19,6	543	500
		100	22,1	702	
		200	31,1	1450	
		300	36,6	2084	250
		400	41,6	2746	
		600	50,1	3997	

Technical specification

FURUKAWA ET 1167

Package

Wood reel

FAST-CIT xDSL 40 MHz INTERNAL BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 40MHz. It shall be installed in internal metallic networks

Constructive characteristics

Number of pairs	10 up to 1200
Core	Dry
Conductor	Solid tinned copper, nominal diameter of 0.50mm
Insulation	Polyolefin
Shielding	Polyester aluminum tape. Drain wire placed in shield contact
Sheath	PVC
Color	Grey
Flame rate	CM

Designation	Conductor diameter (mm)	Number of pairs	External nominal diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FAST CIT xDSL 50 40MHz	0,5	10	11,5	100	1000
		20	13,5	170	
		25	15,0	210	
		30	16,5	240	
		50	18,5	340	
		75	22,0	510	
		100	25,0	660	
		150	30,0	995	
		200	35,0	1280	500
		300	40,5	1840	
		400	46,0	2380	
		600	54,0	3450	250
		900	65,0	5080	
		1200	74,5	6640	

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

FAST-CIT xDSL 8,5MHz INTERNAL BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 8.5MHz. It shall be installed in internal metallic networks

Constructive characteristics

Number of pairs	10 up to 1200
Core	Dry
Conductor	Solid tinned copper, nominal diameter of 0.40mm
Insulation	Polyolefin
Shielding	Polyester aluminum tape. Drain wire placed in shield contact
Sheath	PVC
Color	Grey
Flame rate	CM

Designation	Conductor diameter (mm)	Number of pairs	External nominal diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FAST CIT xDSL 40 8,5MHz	0,4	10	10,5	90	1000
		20	13,0	145	
		25	14,0	210	
		30	15,5	195	
		50	17,0	295	
		75	21,0	405	
		100	24,0	520	
		150	29,0	780	
		200	34,0	990	500
		300	37,0	1340	
		400	42,0	1730	
		600	52,0	2480	250
		900	63,0	3560	
		1200	69,0	4680	

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

Full compatibility with the network components, today.

Metallic Phone Cables

Self-Supported Air Networks

FIGURE 8 AIR CORE LAP CABLE

Application

Indicated for internal installations, in telephonic centrals, commercial buildings, industries or applications where flame rate security is demanded

Constructive characteristics

Number of pairs	10 up to 1200
Core	Dry
Conductor	Solid tinned copper, nominal diameter of 0,40, 0.50 or 0.60mm
Insulation	Polyolefin
Shield	Polyester aluminum tape. Drain wire placed in shield contact
Sheath	PVC
Color	Grey
Flame rate	CM

Designation	Conductor diameter (mm)	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FAST-CIT 40	0,40	10	7,1	67	1000
		15	8,1	88	
		20	9,0	105	
		25	10,3	132	
		30	10,6	145	
		40	11,7	183	
		50	12,5	216	
		75	13,8	305	
		100	16,1	380	
		200	22,6	748	500
		300	28,5	892	
		400	32,9	1293	
		600	40,1	1980	250
		800	45,3	2506	
		900	48,1	2831	
		1200	54,2	3755	
FAST-CIT 50	0,50	10	8,5	87	1000
		15	9,0	114	
		20	10,2	137	
		25	10,8	163	
		30	11,7	190	
		40	13,0	242	
		50	14,5	293	
		75	17,6	408	
		100	19,1	520	
		200	26,4	1033	500
		300	32,6	1333	
		400	37,0	1750	
		600	45,1	2832	250
		800	51,4	3698	
		900	54,0	4172	
		1200	61,6	5483	
FAST-CIT 60	0,60	10	9,1	91	1000
		15	10,1	124	
		20	11,6	165	
		25	12,6	198	
		30	13,6	232	
		40	15,1	297	
		50	16,6	368	
		75	19,6	543	500
		100	22,1	702	
		200	31,1	1450	
		300	36,6	2084	250
		400	41,6	2746	
		600	50,1	3997	

Technical specification

FURUKAWA ET 1167

Package

Wood reel

LAP-FIGURE 8 xDSL 8,5MHz BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 8.5MHz. It shall be installed in internal metallic networks

Constructive characteristics

Number of pairs	10 up to 1200
Core	Dry
Conductor	Solid tinned copper, nominal diameter of 0.40mm
Insulation	Polyolefin
Shielding	Polyester aluminum tape. Drain wire placed in shield contact
Sheath	PVC
Color	Grey
Flame rate	CM

Designation	Conductor diameter (mm)	Number of pairs	External nominal diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FAST CIT xDSL 8,5MHz	0,40	10	10,5	90	1000
		20	13,0	145	
		25	14,0	210	
		30	15,5	195	
		50	17,0	295	
		75	21,0	405	
		100	24,0	520	
		150	29,0	780	
		200	34,0	990	500
		300	37,0	1340	
		400	42,0	1730	
		600	52,0	2480	250
		900	63,0	3560	
		1200	69,0	4680	

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

FIGURE 8 LAP xDSL 40MHz BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 40MHz. It shall be installed in internal metallic networks

Constructive characteristics

Number of pairs	10 up to 1200
Core	Dry
Conductor	Solid tinned copper, nominal diameter of 0.50mm
Insulation	Polyolefin
Shielding	Polyester aluminum tape. Drain wire placed in shield contact
Sheath	PVC
Color	Grey
Flame rate	CM

Designation	Conductor diameter (mm)	Number of pairs	External nominal diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FAST CIT xDSL 40MHz	0,50	10	11,5	100	1000
		20	13,5	170	
		25	15,0	210	
		30	16,5	240	
		50	18,5	340	
		75	22,0	510	
		100	25,0	660	
		150	30,0	995	
		200	35,0	1280	500
		300	40,5	1840	
		400	46,0	2380	
		600	54,0	3450	250
		900	65,0	5080	
		1200	74,5	6640	

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

Full compatibility with the network components, today.

Metallic Phone Cables

Underground Networks or Air Lashed Networks

LAP xDSL 40MHz BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 40MHz. This cable is intended for normal outside plant use. It may be installed in ducts or aerial lashed

Constructive characteristics

Number of pairs	10 up to 1500
Core	Dry
Conductor	Solid annealed bare copper, 24AWG nominal size
Insulation	HDPE
Jacket	LAP sheath
Color	Black

Designation	Conductor size	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
LAP-xDSL 40MHz	24AWG	10	10,9	103	2000
		20	13,1	152	
		25	14,2	174	
		30	15,4	221	
		50	18,8	330	
		75	23,0	452	
		100	25,2	615	
		150	29,4	835	
		200	34,1	1126	1000
		300	39,8	1546	
		400	45,5	2046	
		600	54,9	3021	500
		900	65,2	4437	
		1200	77,0	5842	400
		1500	85,0	7249	

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

LAP xDSL 8,5MHz BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 8.5MHz. This cable is intended for normal outside plant use. It may be installed in ducts or aerial lashed

Constructive characteristics

Number of pairs	10 up to 1800
Core	Dry
Conductor	Solid annealed bare copper, 26AWG nominal size
Insulation	HDPE
Jacket	LAP sheath
Color	Black

Designation	Conductor size	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
LAP-xDSL 8,5MHz	26AWG	10	10,4	82	2000
		20	12,4	127	
		25	13,4	161	
		30	14,6	177	
		50	17,9	263	
		75	21,6	390	
		100	23,5	475	
		150	27,6	674	
		200	31,9	887	
		300	37,4	1265	1000
		400	42,9	1672	
		600	51,6	2462	500
		900	62,4	3607	
		1200	71,3	4734	400
		1500	80,1	5863	
		1800	87,6	7062	300

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

AIR CORE LAP CABLE

Application

The ultimate technical characteristics of this cable allow it to transmit analogical and digital signals. It allows good multimedia service quality, teleconference, internet, among others. This cable is intended for normal outside plant use. It may be installed in ducts or aerial lashed

Constructive characteristics

Number of pairs	10 up to 2400
Core	Dry
Conductor	Solid annealed bare copper, nominal sizes 26, 24 or 22AWG
Insulation	HDPE
Jacket	LAP sheath
Color	Black

Designation	Conductor size Number of pairs	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
LAP CABLE	26AWG	10	9,4	72	2000
		20	10,9	108	
		30	12,0	150	
		50	13,7	204	
		75	16,6	294	
		100	17,6	370	
		200	23,8	699	
		300	28,1	1004	
		400	32,0	1342	1000
		600	37,7	1929	
		900	46,0	2911	500
		1200	51,2	3735	
		1500	57,9	5060	400
		1800	62,4	5799	
		2400	71,9	7707	
LAP CABLE	24AWG	10	10,1	98	2000
		20	12,3	156	
		30	13,5	205	
		50	17,2	318	
		75	20,0	455	
		100	22,7	594	
		200	30,1	1107	1000
		300	36,2	1618	
		400	40,2	2095	
		600	47,8	3119	500
		900	57,5	4586	400
		1200	66,3	6015	
		1500	75,4	7673	
LAP CABLE	22AWG	10	11,2	125	2000
		20	14,0	205	
		30	16,4	301	
		50	20,4	473	
		75	23,8	698	
		100	27,1	873	
		200	37,1	1692	1000
		300	42,5	2478	500
		400	49,3	3286	400
		600	58,3	4849	
		900	73,1	7065	

Technical specification

ANSI/ICEA S85 625 and REA PE 22

Package

Wood reel

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FILLED LAP CABLE

Application

The ultimate technical characteristics of this cable allow it to transmit analogical and digital signals. It allows good multimedia service quality, teleconference, internet, among others. This cable is intended for normal outside plant use. It may be installed in ducts

Constructive characteristics

Number of pairs	10 up to 1800
Core	Filled
Conductor	Solid annealed bare copper, nominal sizes 26, 24 or 22AWG
Insulation	HDPE
Jacket	LAP sheath
Color	Black

Designation	Conductor size	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FILLED LAP	26AWG	10	10,6	95	2000
		20	12,6	152	
		30	14,3	195	
		50	16,8	290	
		75	19,0	415	
		100	21,8	518	
		200	29,7	1008	
		300	35,1	1446	
		400	38,3	1844	1000
		600	46,8	2830	500
		900	57,3	4280	
		1200	66,7	5720	
		1500	73,5	7124	400
		1800	80,8	8256	
FILLED LAP	24AWG	10	11,6	120	2000
		20	14,0	207	
		30	17,2	291	
		50	19,0	429	
		75	23,8	640	
		100	25,4	792	
		200	34,5	1434	1000
		300	40,8	2192	500
		400	46,8	2972	
		600	57,3	4196	
		900	70,8	6295	400
		1200	79,4	8760	
FILLED LAP	22AWG	10	14,2	207	2000
		20	17,9	315	
		30	20,8	459	
		50	24,2	655	
		75	30,1	1008	
		100	33,4	1272	1000
		200	45,8	2442	500
		300	54,4	3562	
		400	60,5	4710	400
		600	73,4	7221	

Technical specification

ANSI/ICEA S84 608 and REA PE 39

Package

Wood reel

FILLED FOAM SKIN LAP xDSL 40MHz BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 40MHz. This cable is intended for normal outside plant use. It shall be installed in ducts

Constructive characteristics

Number of pairs	10 up to 1500
Core	Filled
Conductor	Solid bare copper, nominal diameter 24AWG
Insulation	Foam skin
Filling compound	ETPR
Jacket	LAP sheath
Color	Black

Designation	Conductor size (AWG)	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
LAP FS-xDSL 40MHz	24AWG	10	11,6	131	2000
		20	13,6	192	
		25	14,6	232	
		30	15,4	257	
		50	19,2	447	
		75	23,4	699	
		100	25,0	884	
		150	29,8	1107	
		200	33,5	1605	1000
		300	38,6	1984	
		400	44,1	2594	
		600	53,2	3829	500
		900	64,6	5615	
		1200	74,0	7400	400
		1500	81,9	9243	300

Technical specification

ANSIT1 413, ANSIT1 417 and G652 for optical fiber

Package

Wood reel

FILLED FOAM SKIN LAP xDSL 8,5MHz BROADBAND CABLE

Application

Broadband telephone cable developed to comply with xDSL transmissions and other digital technologies in frequencies up to 8.5MHz. This cable is intended for normal outside plant use. It may be installed in ducts

Constructive characteristics

Number of pairs	10 up to 1800
Core	Filled
Conductor	Solid annealed bare copper, 26AWG nominal size
Insulation	Foam skin
Filling compound	ETPR
Jacket	LAP sheath
Color	Black

Designation	Conductor size	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
LAP FS xDSL 8,5MHz	26AWG	10	10,8	114	2000
		20	12,3	153	
		25	13,6	179	
		30	14,7	235	
		50	17,5	314	
		75	21,6	482	
		100	23,2	564	
		150	26,8	883	
		200	31,6	1065	1000
		300	37,6	1565	
		400	42,8	2052	
		600	51,9	3065	500
		900	62,4	4460	
		1200	72,3	5903	400
		1500	79,8	7913	300
		1800	87,1	8842	

Technical specification

ANSIT1 413 and ANSIT1 417

Package

Wood reel

Only illustrative images

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FOAM SKIN FILLED LAP CABLE

Application

The ultimate technical characteristics of this cable allow it to transmit analogical and digital signals. It allows good multimedia service quality, teleconference, internet, among others. This cable is intended for normal outside plant use. It may be installed in ducts

Constructive characteristics

Number of pairs	10 up to 2400
Core	Filled
Conductor	Solid annealed bare copper, nominal sizes 26 and 24AWG
Insulation	Foam skin
Jacket	LAP sheath
Color	Black

Designation	Conductor size	Number of pairs	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
FS FILLED LAP CABLE	26AWG	10	8,9	82	2000
		20	10,7	126	
		30	12,4	169	
		50	14,2	252	
		75	17,7	355	
		100	18,7	446	
		200	25,3	834	
		300	30,1	1215	1000
		400	34,2	1606	
		600	41,5	2274	
		900	49,6	3348	500
		1200	56,7	4386	400
		1500	62,9	5782	
		1800	68,3	6770	
		2400	76,3	8702	
FS FILLED LAP CABLE	24AWG	10	9,7	99	2000
		20	12,3	162	
		30	13,6	240	
		50	16,8	336	
		75	19,9	543	
		100	22,9	657	
		200	32,3	1336	1000
		300	37,9	1927	
		400	43,3	2490	500
		600	51,4	3672	
		900	60,8	4908	400
		1200	64,2	7209	

Technical specification

ANSI/ICEA S84 608 and REA PE 89

Package

Wood reel

FILLED FOAM SKIN LAP xDSL 40MHz HYBRID BROADBAND CABLE

Application

Broadband telephone cable combined with optical fibers developed to comply with the xDSL transmissions in frequencies up to 40MHz and other optical fibers technologies networks. This cable is intended for new hybrid metallic-optical outside plant use. It can be installed in ducts

Constructive characteristics

Number of pairs	50 up to 200
Core	Filled
Conductor	Solid bare copper, 24AWG
Insulation	Foam skin
Optical core	Singlemode or multimode optical fibers coated with acrylate, and protected with a thermoplastic loose tube
Filling compound	ETPR
Jacket	LAP sheath
Color	Black

Number of pairs/fibers	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
50/24	19,8	400	2000
100/24	26,5	710	2000
200/24	35,8	1360	2000

Reference specifications

ANSIT1 413, ANSIT1 417 and G651 or G 652 for optical fiber

Package

Wood reel

FILLED FOAM SKIN LAP xDSL 8,5MHz HYBRID BROADBAND CABLE

Application

Broadband telephone cable combined with optical fibers developed to comply with the xDSL transmissions in frequencies up to 8,5MHz and other optical fibers technologies networks. This cable is intended for new hybrid metallic-optical outside plant use. It can be installed in ducts

Constructive characteristics

Number of pairs	50 up to 200
Core	Filled
Conductor	Solid bare copper, 26AWG
Insulation	Foam skin
Optical core	Singlemode or multimode optical fibers coated with acrylate, and protected with a thermoplastic loose tube
Filling compound	ETPR
Jacket	LAP sheath
Color	Black

Number of pairs/fibers	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
50/24	20,8	370	2000
100/24	26,7	635	2000
200/24	35,7	1090	2000

Reference specifications

ANSIT1 413, ANSIT1 417 and G651 or G 652 for optical fiber

Package

Wood reel

AIR CORE LAP xDSL 40MHz HYBRID BROADBAND CABLE

Application

Broadband telephone cable combined with optical fibers developed to comply with the xDSL transmissions in frequencies up to 40MHz and other optical fibers technologies networks. This cable is intended for new hybrid metallic-optical outside plant use. It can be installed in ducts or aerial lashed

Constructive characteristics

Number of pairs	50 up to 200
Core	Dry
Conductor	Solid bare copper, 24AWG
Insulation	HDPE
Optical core	Singlemode or multimode optical fibers coated with acrylate, and protected with a thermoplastic loose tube
Jacket	LAP sheath
Color	Black

Designation	Number of pairs/fibers	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
HYBRID-LAP-xDSL 24AWG 40MHz	50/24	19,6	325	2000
	100/24	25,7	590	2000
	200/24	34,6	1093	2000

Reference specifications

ANSIT1 413, ANSIT1 417 and G651 or G 652 for optical fiber

Package

Wood reel

AIR CORE LAP xDSL 8,5MHz HYBRID BROADBAND CABLE

Application

Broadband telephone cable combined with optical fibers developed to comply with the xDSL transmissions in frequencies up to 8,5MHz and other optical fibers technologies networks. This cable is intended for new hybrid metallic-optical outside plant use. It can be installed in ducts or aerial lashed

Constructive characteristics

Number of pairs	50 up to 200
Core	Dry
Conductor	Solid bare copper, 26AWG
Insulation	HDPE
Optical core	Singlemode or multimode optical fibers coated with acrylate, and protected with a thermoplastic loose tube
Jacket	LAP sheath
Color	Black

Designation	Number of pairs/fibers	Nominal external diameter (mm)	Nominal net weight (kg/km)	Nominal length (m)
HYBRID-LAP-xDSL 26AWG 8,5MHz	50/24	17,9	268	2000
	100/24	23,3	485	2000
	200/24	31,9	905	2000

Reference specifications

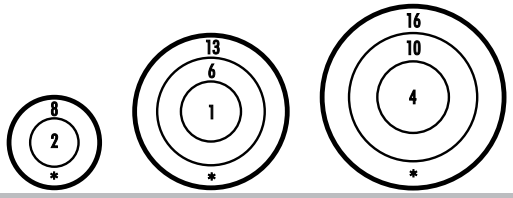
ANSIT1 413, ANSIT1 417 and G651 or G 652 for optical fiber

Package

Wood reel

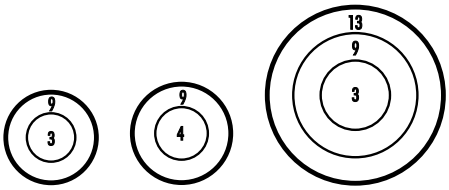
CABLE LAY UP

Concentric Lay Up



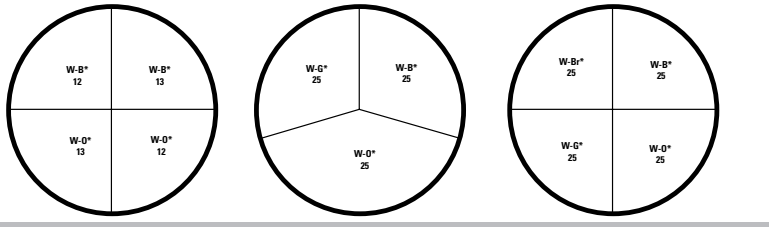
10 Pairs | 20 Pairs | 30 Pairs

Units for Multiple Lay Up

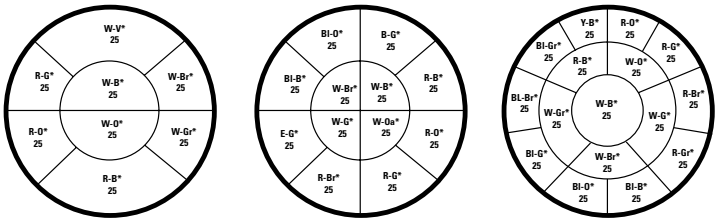


12 Pairs | 13 Pairs | 25 Pairs

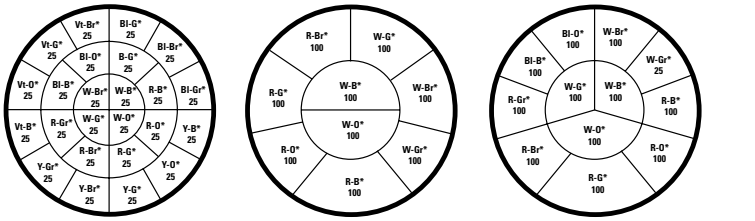
Multiple Lay Up



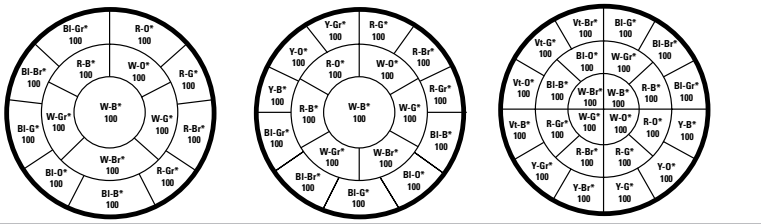
50 Pairs | 75 Pairs | 100 Pairs



200 Pairs | 300 Pairs | 400 Pairs



600 Pairs | 900 Pairs | 1200 Pairs



1500 Pairs | 1800 Pairs | 2400 Pairs

• FAST-CIT-XDSL • FAST-CIT • FIGURE 8 AIR CORE • FIGURE 8 XDSL AIR CORE • AIR CORE LAP CABLE • FILLED LAP CABLE • FILLED FOAM SKIN LAP CABLE • AIR CORE LAP XDSL CABLE • FILLED FOAM SKIN XDSL LAP CABLE • AIR CORE LAP XDSL HYBRID CABLE • FILLED FOAM SKIN LAP XDSL HYBRID CABLE

*** Spare pair (when required)**
Note: The color code in the figure, indicate binder colors of groups or super-groups. Spare pairs: More than 400 pairs count, the spare pairs are stranded together and placed in the interstices of groups or external layer of super-groups

COLOR CODE

Concentric lay up

Pair	Color	Pair	Color	Pair	Color	Pair	Color	Pair	Color
1	W-B	6	R-B	11	Bl-B	16	Y-B	21	Vl-B
2	W-O	7	R-O	12	Bl-O	17	Y-O	22	Vl-O
3	W-G	8	R-G	13	Bl-G	18	Y-G	23	Vl-G
4	W-Br	9	R-Br	14	Bl-Br	19	Y-Br	24	Vl-Br
5	W-Gr	10	R-Gr	15	Bl-Gr	20	Y-Gr	25	Vl-Gr

Multiple lay up

Number of group or super-group	Binder colors of group or super-group	Group pair count	Super-group pair count
1	W-B	1 to 25	1 to 100
2	W-O	26 to 50	101 to 200
3	W-G	51 to 75	201 to 300
4	W-Br	76 to 100	301 to 400
5	W-Gr	101 to 125	401 to 500
6	R-B	126 to 150	501 to 600
7	R-O	151 to 175	601 to 700
8	R-G	176 to 200	701 to 800
9	R-Br	201 to 225	801 to 900
10	R-Gr	226 to 250	901 to 1000
11	Bl-B	251 to 275	1001 to 1100
12	Bl-O	276 to 300	1101 to 1200
13	Bl-G	301 to 325	1201 to 1300
14	Bl-Br	326 to 350	1301 to 1400
15	Bl-Gr	351 to 375	1401 to 1500
16	Y-B	376 to 400	1501 to 1600
17	Y-O	401 to 425	1601 to 1700
18	Y-G	426 to 450	1701 to 1800
19	Y-Br	451 to 475	1801 to 1900
20	Y-Gr	476 to 500	1901 to 2000
21	Vl-B	501 to 525	20001 to 2100
22	Vl-O	526 to 550	2101 to 2200
23	Vl-G	551 to 575	2201 to 2300
24	Vl-Br	576 to 600	2301 to 2400

Spair pairs identification

Spare pair	Colors		
Number	Color code	Tip	Ring
1	W-R	White	Red
2	W-Y	White	Yellow
3	W-Vt	White	Violet
4	R-Bl	Red	Black
5	R-Y	Red	Yellow
6	R-Vt	Red	Violet
7	Bl-Y	Black	Yellow
8	Bl-Vt	Black	Violet
9	Y-Vt	Yellow	Violet
10	B-O	Blue	Orange
11	B-G	Blue	Green
12	B-Br	Blue	Brown

Service pair and spare pairs quantity (when required)

Nominal number of pairs in cable	Number of service pairs	Number of spare pairs
10	1	-
20	1	-
30	1	-
50	1	-
75	1	-
100	1	-
200	2	-
300	3	-
400	4	-
600	6	2
900	9	2
1200	12	3
1500	15	4
1800	18	5
2400	24	6

Color identification
W = White, Bl = Blue, O = Orange, G = Green, Br = Brown, S = Slate, R = Red, BK = Black, Y = Yellow, Vt = Violet

CORRECTION FACTORS AND CROSSTALK POWER SUMMATIONS CALCULATION

1) Unbalance Capacitance (△C)

A) Pair-Pair

For the length ℓ, in meters, different from 1000 meters, the limits of unbalance capacitance (△C) shall be in accordance with the following:

Maximum RMS

$$\triangle C_{(\ell)} = 45{,}3 \cdot \sqrt{\frac{\ell}{1000}} \text{ (pF)}$$

Maximum individual

$$\triangle C_{(\ell)} = 181 \cdot \frac{\ell}{1000} \text{ (pF)}$$

B) Pair-Ground

For the length ℓ, in meters, different from 1000 meters, the limits of Capacitance (△C) shall be in accordance with the following:

Maximum Average

$$\triangle C_{(\ell)} = 574 \cdot \frac{\ell}{1000} \text{ (pF)}$$

Maximum Individual

$$\triangle C_{(\ell)} = 2625 \cdot \frac{\ell}{1000} \text{ (pF)}$$

2) ELFEXT (RT)

For the length ℓ, in meters, different from 1000 meters, the limits of ELFEXT shall be in accordance with the following:

Minimal RMS

150 kHz

$$RT_{(\ell)} = 68 + 10 \log \frac{1000}{\ell} \text{ (dB)}$$

1024 kHz

$$RT = 52 + 10 \log \frac{1000}{\ell} \text{ (dB)}$$

Minimal Individual

150 kHz

$$RT_{(\ell)} = 58 + 10 \log \frac{1000}{\ell} \text{ (dB)}$$

1024 kHz

$$RT = 35 + 10 \log \frac{1000}{\ell} \text{ (dB)}$$

3) PS NEXT and PS ELFEXT

In digital transmission xDSL cables, the Power Sum requirements shall be obtained as following:

$$\mathbf{PS} = 10 \log \sum_{n=1}^{n} 10^{\frac{(-dB)n}{10}} \text{ (dB)}$$

Where

PS = Power Sum (NEXT or ELFEXT)
DB = Crosstalk measured at a specific frequency.

N = amount of pairs measured minus one
(Ex: For a 50 pairs cable; N=49)

CABLES FOR BROADBAND TRANSMISSION

Operation frequency	
8,5MHz	40MHz
Cable	
LAP-xDSL - dry core, fig 8 and foam skin jelly filled	LAP-xDSL - dry core, fig 8 and foam skin jelly filled
Description	
Jelly filled and dry core 26AWG (0,404mm) conductor gauge	Jelly filled and dry core 24AWG (0,511mm) conductor gauge

CHARACTERISTICS OF TRANSMISSION

Frequency (MHz)	Characteristic impedance (Ω)	Transmission attenuation at 20°C (dB/100m)	PSNEXT (dB)	PSELFEXT (dB/100m)	Return loss (dB)
0,15	130 ± 20	0,9	67	66	36
0,30		1,2	63	63	32
0,50		1,3	59	58	30
1,1		1,9	50	52	28
2		2,4	45	47	26
6,3		4,1	39	38	24
8,5		4,8	34	34	18
20	n/a	n/a	n/a	n/a	n/a
31,25	n/a	n/a	n/a	n/a	n/a
40	n/a	n/a	n/a	n/a	n/a

Frequency (MHz)	Characteristic impedance (Ω)	Transmission attenuation at 20°C (dB/100m)	PSNEXT (dB)	PSELFEXT (dB/100m)	Return loss (dB)
0,15	100 ± 15	0,8	73	71	39
0,30		1,0	69	68	36
0,50		1,3	66	64	34
1,1		1,9	58	57	32
2		2,6	53	51	31
6,3		4,7	46	44	29
8,5		5,5	42	40	21
20		8,7	39	35	18
31,25		10,9	34	30	15
40		12,4	32	23	14

Remark:
n/a = Not aplicable.

ELECTRICAL CHARACTERISTICS

Cable				LAP - dry core, fig 8 and jelly filled					FAST-CIT (1)		
				Sólido	Foam Skin	Sólido	Foam Skin	Sólido	Sólido		
Conductor size AWG (mm)				26 (0,404)		24 (0,511)		22 (0,643)	0,40	0,50	0,60
Maximum DC resistance (W/km at 20°C)				144,2		89,5		56,6	153,0	97,8	67,9
Unbalance resistance (%)		Maximum average		1,5		1,5		1,5	3,0		
		Individual maximum		5,0		5,0		4,0	7,0		
Mutual capacitance (nF/km)	Average	≤ 20 pares		52 ± 4					≤70		
		> 20 pares		52 ± 2							
Capacitance unbalance (pF/km)	P x P	Maximum RMS		45					45,3		
		Individual maximum		145					181		
	P x T	Maximum average		574					574		
		Individual maximum		2625					2625		
ELFEXT (dB/km) minimun	150kHz	RMS		68					68		
		individual		58					58		
	1024kHz	RMS		52					52		
		individual		35					35		
NEXT (dB) - minimun	150kHz	individual		58					53		
	1024kHz	individual		40					40		
Transmission attenuation (dB/km at 20°C)	150kHz	Maximun average	Filled	11,2	12,1	7,4	7,8	5,9	n/a		
			Dry	11,4	n/a	8,0	n/a	6,2	13,4	11,6	8,7
	1024kHz		Filled	25,1	25,8	19,0	19,5	15,3	n/a		
			Dry	26,0	n/a	19,8	n/a	16,5	31,4	30,1	23,9
Dielectric strenght (Vcc/3s)		C x C	Filled	2800	2400	4000	3000	5000	n/a		
			Dry	2500	n/a	3000	n/a	3600	1500		
		C x B	Filled	10000	10000	10000	10000	10000	n/a		
			Dry		n/a		n/a		2800		

Remark:
n/a = Not aplicable.
(1) Conductor diameter in milimeters.

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