



# Cabling System

# FANTON®

CABLES AND ELECTRICAL COMPONENTS



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# THE ENERGY *of values.*

## **Daily commitment for timeless quality.**

Designing new solutions for 19" rack cabinets, developing cables with superior performance, testing new active equipment: it is important to us to believe that our work makes a positive contribution to the work of others.

Important for the development of an industrial organisation in search of values which can sustain it in its commitment to globalisation and quality. Important for the assumption of responsibilities in guaranteeing products which must maintain their technological value for many years. Important for growing a commitment to continuous improvement.

We dedicate this catalogue to all our clients and collaborators – from factory workforce to sales agents, designers to installation technicians: it is the mark of the progress which every day, thanks to our commitment, enables millions of people to communicate with each other as part of their daily lives

Renzo Fanton







## Our products are environment-friendly



The European Union has issued clear directives to ensure better management of electrical waste throughout the production chain, to safeguard an environment increasingly under threat from problematical waste.

Fanton S.p.A. has always responded to the need for sustainable development with strategies which aim to comply with the strict European directives on production, disposal and the environment.

The fundamental EU legislation on environmental policy is the RoHS Directive 2002/95/EC - Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment.

In compliance with the RoHS directive, which restricts the use of some hazardous substances and pollutants in electrical and electronic equipment, Fanton S.p.A. banned the use of substances such as heavy metals (lead, mercury, cadmium and hexavalent chromium) or flame-retardants (brominated biphenyls, etc.) in July 2006, the year when the Directive came into force.

Compliance with this standard results in products which are safer for their users and the environment, two important aims towards which much of the work of our R&D laboratory and production departments is directed.

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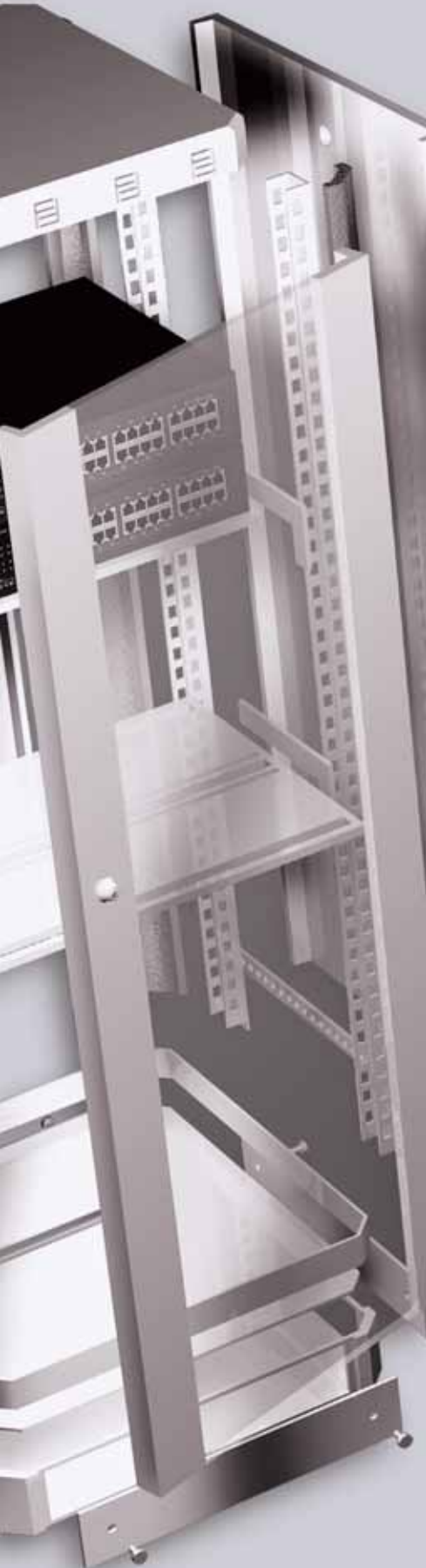
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## INTRODUCTION

This catalogue is designed to aid users, installation technicians and industry professionals in selecting cabling system components. The catalogue is divided by sector, both from the point of view of theory and product range. The theoretical part is a brief summary, since the details are dealt with in a separate telecommunications manual.

## CABLING SYSTEM

### ▼ GENERAL INFORMATION

The organisational flexibility of a modern company is largely dependent on how quickly it can react to the market in every way. This means that the modern enterprise requires computer systems which are adequate to these needs and hence a network capable of supporting the actual data traffic, along with any future reconfigurations and upgrades.

This need to guarantee the operation of the system with as little downtime as possible has for many years been supported by specific industrial standards. These are documents which govern cabling systems both in terms of their specifications (electrical and performance parameters) and physical installation. They establish standards of conduct for the fabrication of a product. The main purpose of a standard is to assure a minimum level of performance. It univocally defines what is to be used and how, how it is to be installed, how tested or commissioned, and how certified. The three main standards governing the installation of cabling system are ISO/IEC 11801, EIA/TIA 568-B, and EN 50173-1.

Another concept of importance for cabling systems is topology. The architectural model is very well defined by the standards cited above.

This structure is defined as a "hierarchical star", which implies two fundamental concepts.

- The first is that each peripheral service must satisfy its own needs, while its failure does not compromise the performance of the other peripherals which are individually connected to the centre of the star.
- The second is that this star is part of an assembly which is more complex at three hierarchical levels which corresponds to the maximum admitted level of complexity.

Such systems are composed of subsystems as follows:

### ▼ WORK AREA

The area of the system between the RJ45 wall socket and the surrounding environment in which the service operates and interacts with the telecommunications equipment (Fax, Telephone, Computer, etc.). A standard size of work area for office or commercial type installations is 10 m<sup>2</sup>. There are other standard sizes which are used as references for other types of application, as follows:

• Warehouse, industrial	80 m <sup>2</sup>
• Shops, supermarkets	40 m <sup>2</sup>
• Hotels	25 m <sup>2</sup>
• Hospitals	15 m <sup>2</sup>
• Schoolrooms, laboratories	5 m <sup>2</sup>



This initial design step is extremely important, since knowing the total area to be served makes it possible to estimate the overall requirements for sockets, ducting, cables and cabinets. Once the number of services is known and the areas to be served has been estimated, the average length of cable runs can be determined and the number of sockets, accessories and star centres (cabinets) can be calculated.

### ▼ HORIZONTAL CABLING

The area of the system which runs from one side at the service or resource to be connected to the telecommunications system to the other side, at the RJ5 wall socket.

The horizontal cabling is defined as such because it is usually laid out flat, and is composed of:

- Floor cabinet
- Patch panels
- Rigid cable
- Wall socket

As such, this level alone is sufficient for cabling small telecommunications networks in a star configuration.

### ▼ MACHINE ROOMS

Importante come lo studio dell'area di lavoro nella progettazione è la organizzazione dei locali tecnici, essi non solo definiscono la centralità del sistema e il loro sviluppo ma sono l'anello di congiunzione con ampliamenti e successivi livelli degli impianti. Just as important as the design of the work area is the organisation of the machine rooms: not only do they define the centrality of the system and its extension, but they are the link for future expansion and additional levels of the system. The machine rooms must satisfy both certain climatic requirements (temperature, dust, humidity, etc..) but also safety requirements (access authorisation, maintenance, administration, etc..) of the central telecommunications equipment, connections, cabinets containing switching and network equipment, etc. These spaces are divided into various areas and should as far as possible not share the heating, water supply, storage and so on requirements of the rest of the building.

With reference only to the topology of the system, there are three distinct classes:

- **Campus distributor**  
(first hierarchical level);  
Campus Distributor (CD): ISO/IEC term;  
Main Cross Connect (MC): EIA/TIA term;
- **Building distributor**  
(second hierarchical level);  
Building Distributor (BD): ISO/IEC term;  
Intermediate Cross Connect (IC): EIA/TIA term;

- **Floor distributor**  
(third hierarchical level);  
Floor Distributor (FD): ISO/IEC term;  
Horizontal Cross Connect: EIA/TIA term.

### ▼ BACKBONES

When systems are not limited to a solely horizontal extensions or to a single distributor/concentrator, but are extended over several levels, the connection between the levels is called a backbone.

Backbones are fundamentally important since their design determines the potential for development, expansion and reconfiguration of the system.

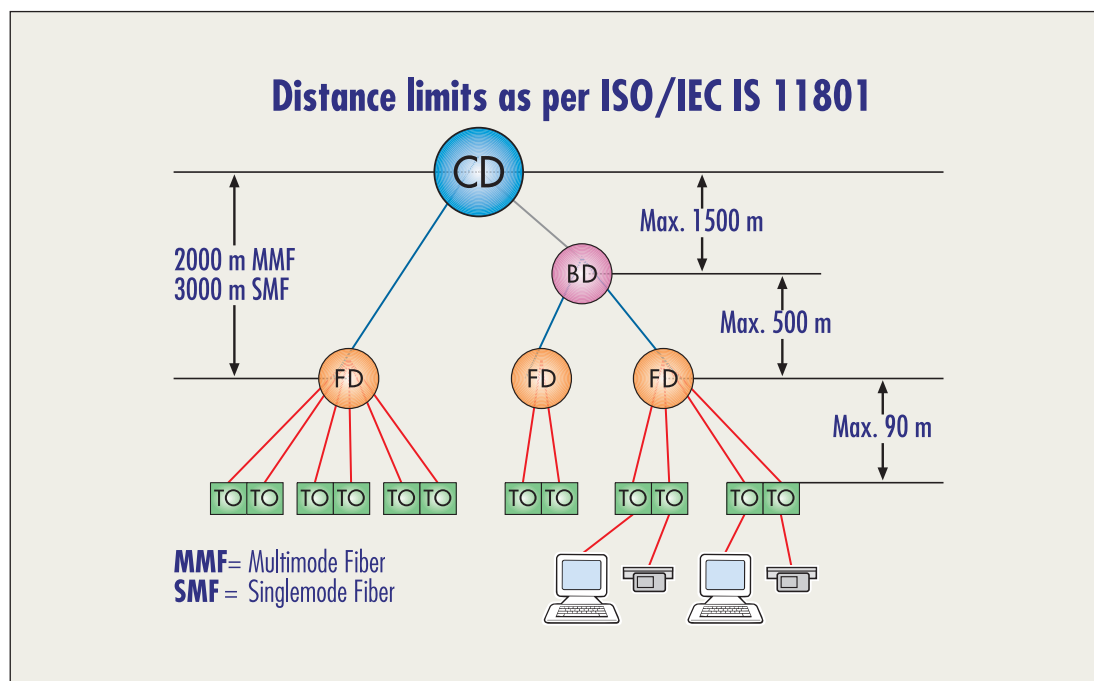
Backbones are divided into:

- Building or secondary backbones;
- Campus or main backbones.

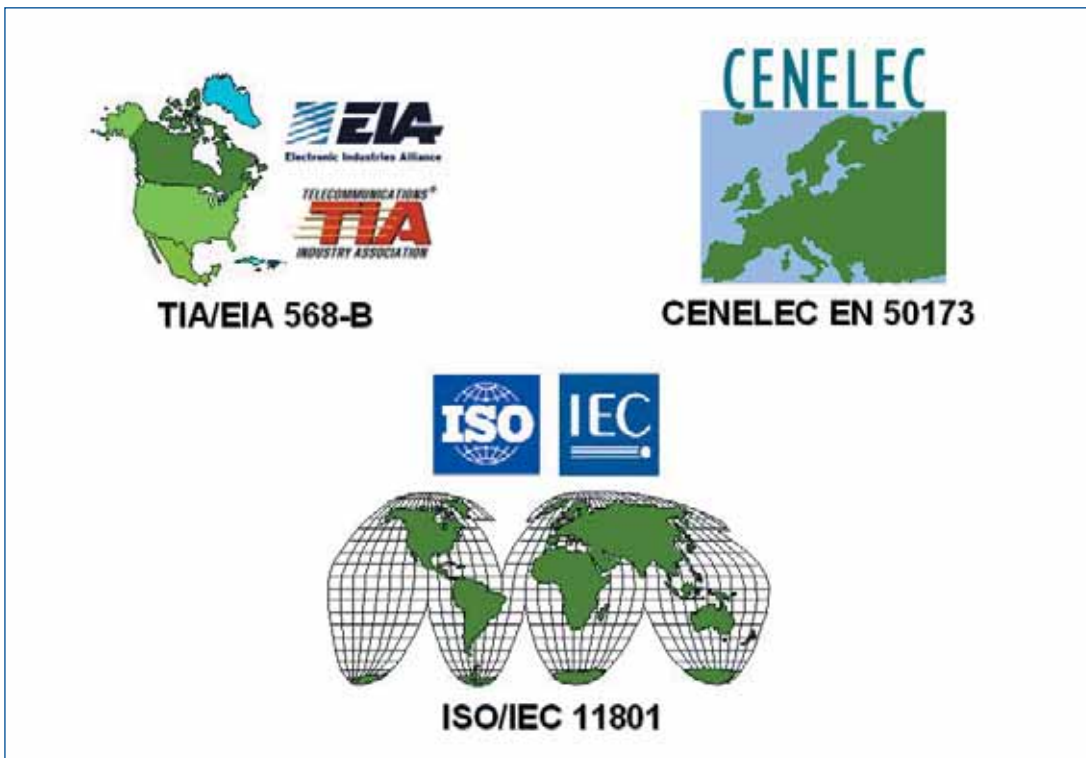
### ▼ DISTANCES

The distance between sites is a basic consideration. It is well known that for any technology employing copper wire, any two nodes may not be more than 90m apart; beyond this limit optical fibre must be used, which are reach up to 500m between FD and BD (building backbone) and 2000m between FD and CD (in other words, the sum of the campus plus building backbone must be no more than 2 km).

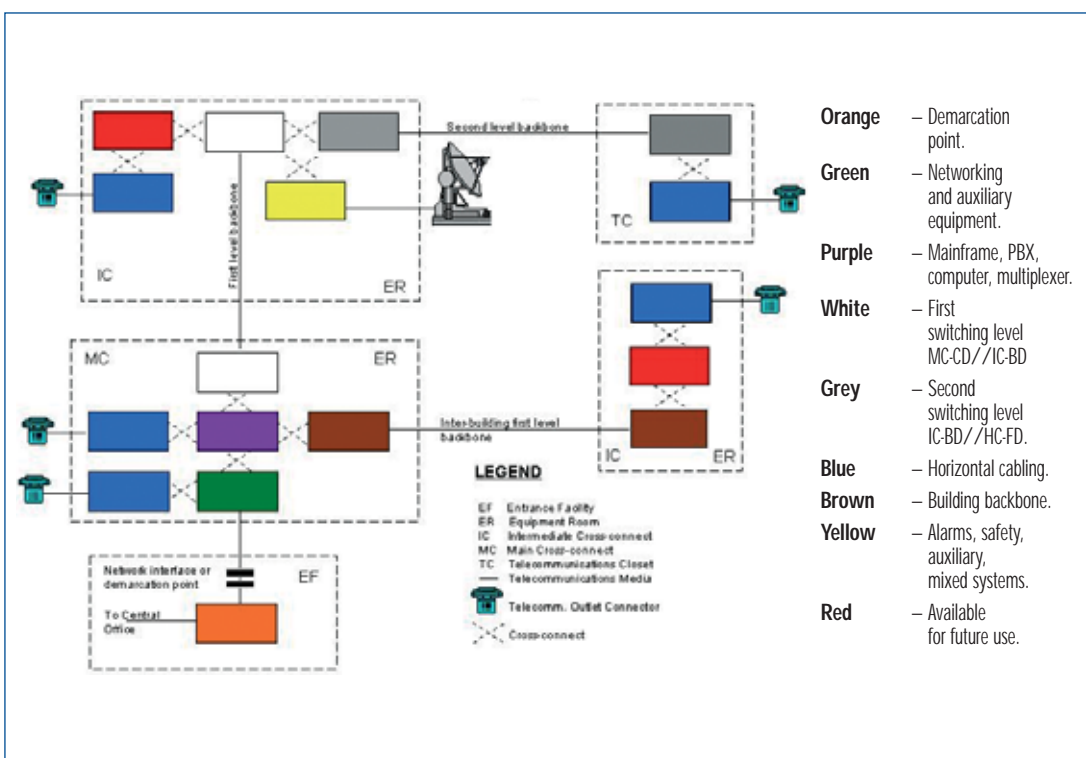
Optical fibre has much higher performance characteristics, but a cabling system is considered to be a plant covering well defined areas, so that the above limits apply.



## STANDARDS MAPS



## ILLUSTRATION OF SYSTEM AREA COLOUR CODES





# CONCEPT system FANTON<sub>ET</sub>

*Training  
assistance and  
warranty,  
total cabling*



Fanton S.p.A. has been a manufacturer of electrical equipment for more than 25 years. Now, with the FANTONet brand, we are also man-

ufacturers of a full range of products for cabling systems and, with our "ENERGY MASTER" training courses, we are opening a new phase in our history as a leader in the industry, by providing an important opportunity for growth and requalification to all installation technicians.

Fanton S.p.A.'s know how, experience, technology, strategy and innovation are thus a unique resource for all those who want to take advantage of this opportunity. FANTONet's professionalism, quality and experience are available in our practical and theoretical ENERGY MASTER courses, at a variety of levels. This is a unique opportunity for technicians, designers and installation technicians to catch up with new developments in cabling systems and networking.



## ▼ ASSISTANCE AT ALL LEVELS

Concept System is a programme developed by the FANTONet division to provide a complete technical and sales service to the two most important segments of the Networking market: the installation technician and the end user. Both have a wide range of critical requirements: from specific commercial needs to technical aspects, architectural problems which often require customisation of the product, design challenges, training for installation technicians and other users, to the legal provisions of specific standards and regulations in special sectors, such as military applications. The answer to this vast range of needs is Concept System, which employs both our local and inhouse collaborators in an organisation aimed to create ongoing collaborative relations with FANTONet clients. Concept System is indeed a "programme", with events already scheduled for the present year dealing with the entire range of the market's most pressing and important challenges.

## ▼ STRUCTURE

FANTONet offers a system based on quality products, ease of installation, versatile applications, a full range of accessories and, last but not least, assistance at every level. With its commitment to developing, in parallel with technological evolution, products at the forefront of the telecommunications sector, FANTONet can leverage the expertise of its technical department which, with years of experience in the development of cables and special components, can now boast participation in the national regulatory bodies. A widespread technical and commercial network throughout Italy which enables the company to react to the multifarious needs of the market...

...from DESIGN which, in line with the customer's technical

2009  
2010

CONCEPT SYSTEM



and economic requirements, aims to provide the most advantageous solution for applications running from building construction to refurbishment. . .

. . . to practical and theoretical TRAINING courses run by skilled technicians and authoritative representatives of our partner organisations, with the aim of certifying participants, be they electricians or sales technicians to our prestigious company standards (FANTONet Qualified Installation Technician, FANTONet Qualified Technician). This certification can be renewed annually for those who wish to continue upgrading their professional skills in line with new developments. We must emphasise that this training is especially important inasmuch as, as is well known, the cabling systems sector is governed by standards and developed to support a wide range of ongoing technical and technological evolutions, so that our participation in the most important technical committees makes the Concept System programme particularly suited to the needs of the most frequent design and installation challenges.

There are three levels of courses: BASIC, 1st LEVEL, 2nd LEVEL. The courses cover the entire range of subjects from regulatory technical theory to practical installation and design of small, medium and large systems. The participation of industrial authorities enables the participant to clarify the issues surrounding the regulatory obligations impinging on installation technicians in the NETWORKING industry, which are increasingly hotly debated. Highly qualified cabling system installation and testing technicians provide practical demonstrations, using equipment provided by FANTON S.p.A., covering the connection, commissioning and certification of cabling system installations.

## ▼ WARRANTY

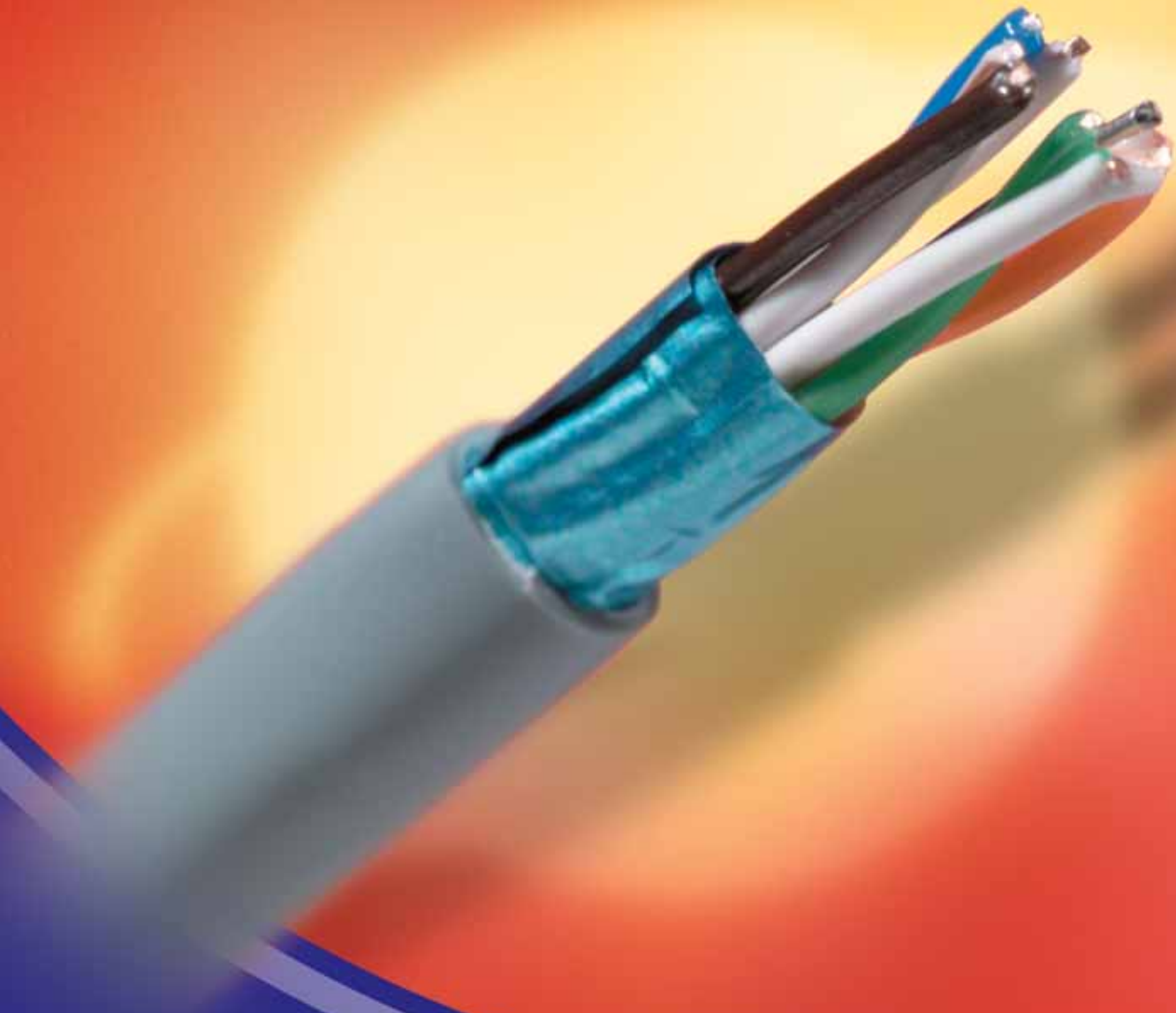
The FANTONet WARRANTY consists in an extension of the warranty for parts to 25 years. The certificate is issued on completion of the installation by certified IQF installation technicians according to a schedule which includes analysis, on-site inspections, testing and in-house filing of the respective descriptive/photographic documentation. All system passive components must be provided by FANTONet.

The warranty cover materials and fabrication defects of the individual components, the functionality of the system and the installation if done by FANTONet certified technicians. A multiple year warranty provides the security that customers often demand for their data systems. Given the importance of telecommunications systems in commercial buildings, it is understandable that the customer should demand a certain security in regard to the performance of the installation during its service life.

FANTONet, thanks especially to its large number of certified installation technicians, offers its own warranty programme, directed not at the intermediaries but rather at the company which has installed/purchased an entire FANTONet certified system.

The 25 year guarantee of system performance makes FANTON S.p.A. a direct partner of the company as the unique party with which it has stipulated the warranty. FANTON S.p.A.'s commitment is limited to the repair or replacement of parts which do not conform with their certified performance and standards, at FANTON S.p.A.'s discretion, to be implemented either by the company itself or by third parties.





CABLING  
SYSTEM

## LAN CABLES

- U/UTP - F/UTP - SF/UTP Cat. 5E cables
- U/UTP Cat. 5e Flex cables
- U/UTP - F/UTP Cat. 5e cables with PE sheath
- F/UTP Cat. 5e cables with double PVC sheath
- U/UTP - F/UTP - SF/UTP Cat. 6 cables
- U/UTP Cat. 6 cables with PE sheath
- F/UTP Cat. 6 cables with PE sheath
- F/UTP Cat. 6 cables with double PVC sheath
- U/UTP Cat. 6A cables with PVC and LSZH sheath 10 Gigabit
- F/UTP Cat. 6A cables, 550 Mhz 10 Gigabit
- F/FTP - S/FTP Cat. 6A cables, 550 Mhz 10 Gigabit
- S/FTP Cat. 7 cables



## U/UTP Cat. 5e Data transmission cables - gauge AWG 24

Codes A82500 (Box 305m) - A82506 (Coil 500m) - A82507 (Coil 1000m) - PVC  
Codes A82550 (Box 305m) - A82556 (Coil 500m) - A82557 (Coil 1000m) - LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 0.90 mm  
Classification: -  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Separator: Polyester tape  
External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)  
Classification: IEC 60332-1 (PVC and LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)  
Colour: Grey (RAL 7001)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - U/UTP 4 PR AWG 24/1 100 OHM CATEGORY 5E EN 50288-3-1 IEC 60332.1 CM 75°C VERIFIED - LSZH or PVC m 000 - (order no.)  
LSZH or PVC Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82500	4x2 (4 pairs) AWG 24/1	5.2 mm	Box 305 m	Dimensions 360x190x365 mm	12 Kg
A82506*	4x2 (4 pairs) AWG 24/1	5.2 mm	Coil 500 m	∅ 400 mm - h 200 mm	19 Kg
A82507	4x2 (4 pairs) AWG 24/1	5.2 mm	Coil 1000 m	∅ 500 mm - h 300 mm	30 Kg
• LSZH					
A82550	4x2 (4 pairs) AWG 24/1	5.2 mm	Box 305 m	Dimensions 360x190x360 mm	12 Kg
A82556*	4x2 (4 pairs) AWG 24/1	5.2 mm	Coil 500 m	∅ 400 mm - h 200 mm	19 Kg
A82557	4x2 (4 pairs) AWG 24/1	5.2 mm	Coil 1000 m	∅ 500 mm - h 300 mm	30 Kg

(\*) Special order

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10





## F/UTP Cat. 5e Data transmission cables - gauge AWG 24 screen

Codes A82510 (Box 305m) - A82516 (Coil 500m) - A82517 (Coil 1000m) - PVC  
Codes A82560 (Box 305m) - A82566 (Coil 500m) - A82567 (Coil 1000m) - LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm  
Classification: -  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Separator: Coupled aluminium/polyester (AL/PES) tape  
External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)  
Classification: IEC 60332-1 (PVC and LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)  
Colour: Grey (RAL 7001)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 5E EN 50288-2-1 IEC 60332.1 CM 75°C VERIFIED - LSZH or PVC m 000 - (order no.)  
LSZH or PVC Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82510	4x2 (4 pairs) AWG 24/1	6.3 mm	Box 305 m	Dimensions 425x210x430 mm	15 Kg
A82516*	4x2 (4 pairs) AWG 24/1	6.3 mm	Coil 500 m	Ø 400 mm - h 200 mm	25 Kg
A82517	4x2 (4 pairs) AWG 24/1	6.3 mm	Coil 1000 m	Ø 500 mm - h 300 mm	39 Kg
• LSZH					
A82560	4x2 (4 pairs) AWG 24/1	6.3 mm	Box 305 m	Dimensions 425x215x425 mm	15 Kg
A82566*	4x2 (4 pairs) AWG 24/1	6.3 mm	Coil 500 m	Ø 400 mm - h 200 mm	25 Kg
A82567	4x2 (4 pairs) AWG 24/1	6.3 mm	Coil 1000 m	Ø 500 mm - h 300 mm	39 Kg

(\*) Special order

### ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10





FANTONET BY AMBRA90 - 23803 - 20



## SF/UTP Cat. 5e

### Data transmission cables - gauge AWG 24

### Double screen

Code A82526 (Coil 500m) – PVC  
Code A82576 (Coil 500m) – LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

#### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1

Isolation of single conductor: Polietilene (PE) spessore 0.95 mm

Classification: –

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Separator: Coupled aluminium/polyester (AL/PES) tape and copper braid, coverage 60%

External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)

Classification: IEC 60332-1 (PVC and LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)

Colour: Grey (RAL 7001)

Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - SF/UTP 4 PR AWG 24/1 100 OHM CATEGORY 5E EN 50288-2-1 IEC 60332.1 CM 75°C VERIFIED - LSZH or PVC m 000 - (order no.)  
LSZH or PVC Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82526	4x2 (4 pairs) AWG 24/1	6.1 mm	Coil 500 m	∅ 500 mm - h 300 mm	39 Kg
• LSZH					
A82576	4x2 (4 pairs) AWG 24/1	6.1 mm	Coil 500 m	∅ 500 mm - h 300 mm	39 Kg

#### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

#### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 80 (N/mm<sup>2</sup>)

#### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10





## U/UTP Cat. 5e FLEX Data transmission cables - gauge AWG 24/7

Codes A82600 (Box 305m) - A82606 (Coil 500m) - A82607 (Coil 1000m) - PVC

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Flexible (strand 7x0.2 mm<sup>2</sup>) in red copper – nominal gauge AWG 24/7 or 0.54 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 5

Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm

Classification: –

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Separator: Polyester tape

External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR)

Classification: IEC 60332-1  
CEI 20-22 | CEI 20-35

Colour: Grey (RAL 7001)

Marking: FANTONET BY AMBRA90 - dddy - hh:mm - U/UTP 4 PR AWG 24/7 100 OHM CATEGORY 5E EN 50288-3-2 IEC 60332.1 CM 75°C VERIFIED - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82600	4x2 (4 pairs) AWG 24/7	5.9 mm	Box 305 m	Dimensions 370x195x375 mm	13 Kg
A82601	4x2 (4 pairs) AWG 24/7	5.9 mm	Box 305 m	Ø 200 mm - h 100 mm	4 Kg
A82606*	4x2 (4 pairs) AWG 24/7	5.9 mm	Coil 500 m	Ø 400 mm - h 260 mm	20 Kg
A82607*	4x2 (4 pairs) AWG 24/7	5.9 mm	Coil 1000 m	Ø 500 mm - h 300 mm	39 Kg

(\*) Special order

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10





## U/UTP Cat. 5e Black PE sheath Data transmission cables - gauge AWG 24 double sheath

Codes A82456 (Coil 500m) - A82457 (Coil 1000m) - PE

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 0.90 mm  
Classification: -  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Separator: N/A  
External sheath and fire behaviour: Polyester tape (PES)  
Classification: Sheath 1 PVC 5.6 mm diameter  
Sheath 2 polyolefin (PE) 7.2 mm diameter  
Colour: Black (RAL 9005)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - U/UTP 4 PR AWG 24/1 100 OHM CATEGORY 5E EN 50288-3-1 IEC 60332.1 CM 75°C VERIFIED - PE - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
A82456	4x2 (4 pairs) AWG 24/1	7.2 mm	Coil 500 m	∅ 500 mm - h 300 mm	26 Kg
A82457	4x2 (4 pairs) AWG 24/1	7.2 mm	Coil 1000 m	∅ 600 mm - h 300 mm	52 Kg

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10



# F/UTP Cat. 5e Black PE sheath

Data transmission cables - gauge AWG 24  
Screen, double sheath

Codes A82486 (Coil 500m) - A82487 (Coil 1000m) – PE

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

## ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1

Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm

Classification: –

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Screen: Coupled aluminium/polyester (AL/PES) tape

External sheath and fire behaviour: Sheath 1 PVC 6mm diameter  
Sheath 2 polyolefin (PE) 8.9 mm diameter

Classification: Polyolefins are flammable

Colour: Black (RAL 9005)

Marking: FANTONET BY AMBRA90 - dddy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 5E EN 50288-2-1 IEC 60332.1 CM 75°C VERIFIED - PE - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
A82486	4x2 (4 pairs) AWG 24/1	8.9 mm	Coil 500 m	Ø 500 mm - h 300 mm	42 Kg
A82487	4x2 (4 pairs) AWG 24/1	8.9 mm	Coil 1000 m	Ø 600 mm - h 300 mm	80 Kg

## ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

## ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 70 (N/mm<sup>2</sup>)

## ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10





## F/UTP Cat. 5e - Double screen Isolation PVC GR° 4 BLUE

### Data transmission cables - gauge AWG 24 Screen, double sheath

Code A82477 (Coil 1000m)

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

#### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1

Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm

Classification: -

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Screen: Coupled aluminium/polyester (AL/PES) tape

External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR)  
Double sheath, thickness 1.2 mm each layer

Classification: IEC 60332-1  
CEI 20-22 I CEI 20-35  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034

Colour: Blue (RAL 5015)

Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 5E EN 50288-2-1 IEC 60332.1 CM 75°C VERIFIED - 0,6/1kV - PVC - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
A82477	4x2 (4 pairs) AWG 24/1	8.7 mm	Coil 1000 m	∅ 700 mm - h 420 mm	74 Kg

#### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

#### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 70 (N/mm<sup>2</sup>)

#### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 5E dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00
Attenuation	Typical	2.3	3.8	5.4	6.0	7.5	8.4	9.2	10.1	15.2	19.4
	EIA/TIA 568/B.2	2.0	4.1	5.8	6.5	8.2	9.3	10.4	11.7	17.0	22.0
NEXT	Typical	70.20	62.50	56.80	55.00	52.90	50.10	49.00	47.20	43.40	40.40
	EIA/TIA 568/B.2	65.30	56.30	51.80	50.30	47.20	45.80	44.30	42.90	38.40	35.30
ACR	Typical	67.9	58.7	51.4	49.00	45.4	41.7	38.8	37.1	28.2	21.0
	EIA/TIA 568/B.2	63.3	52.2	46.0	43.8	39.0	36.5	33.9	31.2	21.4	13.3
PSNext	Typical	67.2	59.5	53.8	52.0	49.9	47.1	46.0	44.2	40.4	29.3
	EIA/TIA 568/B.2	62.3	53.3	48.8	47.3	44.2	42.8	41.3	39.9	35.4	32.3
Return Loss	Typical	24.60	28.80	31.60	31.80	32.20	31.20	35.00	35.00	35.70	26.20
	EIA/TIA 568/B.2	20.00	23.00	24.50	25.00	25.00	25.00	24.30	23.60	21.50	20.10





## U/UTP Cat. 6 Data transmission cables - gauge AWG 23

Codes A82840 (Box 305m) - A82846 (Coil 500m) - A82847 (Coil 1000m) - PVC  
Codes A82940 (Box 305m) - A82946 (Coil 500m) - A82947 (Coil 1000m) - LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 0.98 mm  
Classification: -  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Separator: Polyester tape  
External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)  
Classification: IEC 60332-1 (PVC and LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)  
Colour: Grey (RAL 7001)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - U/UTP 4 PR AWG 23/1 100 OHM CATEGORY 6E EN 50288-6-1 IEC 60332.1 CM 75°C VERIFIED - m. 000 - (order no.)  
LSZH or PVC Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82840	4x2 (4 pairs) AWG 23/1	6.0 mm	Box 305 m	Dimensions 425x215x425 mm	12 Kg
A82846*	4x2 (4 pairs) AWG 23/1	6.0 mm	Coil 500 m	∅ 400 mm - h 200 mm	19 Kg
A82847	4x2 (4 pairs) AWG 23/1	6.0 mm	Coil 1000 m	∅ 500 mm - h 300 mm	38 Kg
• LSZH					
A82940	4x2 (4 pairs) AWG 23/1	6.0 mm	Box 305 m	Dimensions 425x215x425 mm	12 Kg
A82946*	4x2 (4 pairs) AWG 23/1	6.0 mm	Coil 500 m	∅ 400 mm - h 200 mm	19 Kg
A82947	4x2 (4 pairs) AWG 23/1	6.0 mm	Coil 1000 m	∅ 500 mm - h 300 mm	38 Kg

(\*) Special order

### ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### TRANSMISSIVE SPECIFICATIONS FOR CAT. 6 dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00	155.0	200.0	250.0
Attenuation	Typical	2.0	3.7	5.3	5.9	7.5	8.4	9.5	10.6	15.3	19.8	25.1	28.9	32.8
	EIA/TIA 568/B.2	1.6	3.4	4.8	5.4	6.8	7.7	8.6	9.7	13.8	17.6	22.0	24.8	27.9
NEXT	Typical	79.9	70.3	68.8	61.2	67.1	64.8	66.6	63.3	57.3	57.1	55.0	53.9	55.9
	EIA/TIA 568/B.2	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3	41.4	39.7	38.3
ACR	Typical	78.3	67.1	64.2	56.1	60.2	57.0	58.1	54.3	44.4	40.7	32.5	28.9	29.1
	EIA/TIA 568/B.2	72.2	61.4	55.4	53.3	48.6	46.3	43.8	41.2	31.9	24.5	16.2	10.8	5.4
PSNext	Typical	78.0	69.5	66.9	61.0	64.5	62.8	64.4	60.1	55.4	54.3	49.1	49.9	51.9
	EIA/TIA 568/B.2	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3	39.4	37.7	36.3
Return Loss	Typical	27.0	31.1	34.0	34.6	33.9	33.9	40.1	42.3	32.4	31.8	30.5	29.1	36.3
	EIA/TIA 568/B.2	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1	19.0	18.0	17.3



FANTONET BY AMBRA90 - 29/03 - 10:00 - UT





## F/UTP Cat. 6

### Data transmission cables - gauge AWG 24 shielded

Codes A82856 (Coil 500m) - A82857 (Coil 1000m) - PVC  
Codes A82956 (Coil 500m) - A82957 (Coil 1000m) - LSZH

Applications: Sistemi di cablaggio strutturato trasmissione dati ad alta frequenza.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

#### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1

Isolation of single conductor: Polyethylene (PE) thickness 1.10 mm

Classification: -

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Screen: Coupled aluminium/polyester (AL/PES) tape

External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)

Classification: IEC 60332-1 (PVC and LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)

Colour: Grey (RAL 7001)

Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 6 EN 50288-5-1 IEC 60332.1 CM 75°C VERIFIED - LSZH o PVC - m. 000 - (order no.)  
LSZH or PVC Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82856	4x2 (4 pairs) AWG 24/1	7.2 mm	Coil 500 m	∅ 400 mm - h 200 mm	23 Kg
A82857*	4x2 (4 pairs) AWG 24/1	7.2 mm	Coil 1000 m	∅ 500 mm - h 300 mm	46 Kg
• LSZH					
A82956	4x2 (4 pairs) AWG 24/1	7.2 mm	Coil 500 m	∅ 400 mm - h 200 mm	24 Kg
A82957*	4x2 (4 pairs) AWG 24/1	7.2 mm	Coil 1000 m	∅ 500 mm - h 300 mm	49 Kg

(\*) Special order

#### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

#### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 70 (N/mm<sup>2</sup>)

#### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6 dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00	155.00	200.00	250.00
Attenuation	Typical	2.0	3.7	5.3	5.9	7.5	8.4	9.5	10.6	15.3	19.8	25.1	28.9	32.8
	EIA/TIA 568/B.2	1.6	3.4	4.8	5.4	6.8	7.7	8.6	9.7	13.8	17.6	22.0	24.8	27.9
NEXT	Typical	79.9	70.3	68.8	61.2	67.1	64.8	66.6	63.3	57.3	57.1	55.0	53.9	55.9
	EIA/TIA 568/B.2	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3	41.4	39.7	38.3
ACR	Typical	78.3	67.1	64.2	56.1	60.2	57.0	58.1	54.3	44.4	40.7	32.5	28.9	29.1
	EIA/TIA 568/B.2	72.2	61.4	55.4	53.3	48.6	46.3	43.8	41.2	31.9	24.5	16.2	10.8	5.4
PSNext	Typical	78.0	69.5	66.9	61.0	64.5	62.8	64.4	60.1	55.4	54.3	49.1	49.9	51.9
	EIA/TIA 568/B.2	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3	39.4	37.7	36.3
Return Loss	Typical	27.0	31.1	34.0	34.6	33.9	33.9	40.1	42.3	32.4	31.8	30.5	29.1	36.3
	EIA/TIA 568/B.2	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1	19.0	18.0	17.3



# SF/UTP Cat. 6

## Data transmission cables - gauge AWG 24

### Double screen

Codes A82866 (Coil 500m) - A82867 (Coil 1000m) – PVC  
 Codes A82966 (Coil 500m) - A82967 (Coil 1000m) – LSZH

Applications: High frequency data transmission cabling systems.  
 IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet  
 Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
 Connection system: EIA/TIA 568 A and B  
 Installation: EN 50174  
 Directives: RoHS 2002/95/EC

#### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.54 mm<sup>2</sup>  
 Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
 Isolation of single conductor: Polyethylene (PE) thickness 1.10 mm  
 Classification: –  
 Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
 Screen: Coupled aluminium/polyester (AL/PES) tape and copper braid, coverage 60%  
 External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)  
 Classification: IEC 60332-1 (PVC and LSZH)  
 CEI 20-22 | CEI 20-35(PVC and LSZH)  
 CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)  
 Colour: Grey (RAL 7001)  
 Marking: FANTONET BY AMBRA90 - dddy - hh:mm - SF/UTP 4 PR AWG 24/1 100 OHM CATEGORY 6E EN 50288-5-1 IEC 60332.1 CM 75°C VERIFIED - LSZH o PVC - m. 000 - (order no.)  
 LSZH or PVC Sheath material  
 m 000 Progressive metre reference  
 No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82866*	4x2 (4 pairs) AWG 24/1	7.9 mm	Coil 500 m	Ø 400 mm - h 260 mm	28 Kg
A82867	4x2 (4 pairs) AWG 24/1	7.9 mm	Coil 1000 m	Ø 500 mm - h 300 mm	54 Kg
• LSZH					
A82966*	4x2 (4 pairs) AWG 24/1	7.9 mm	Coil 500 m	Ø 400 mm - h 260 mm	28 Kg
A82967	4x2 (4 pairs) AWG 24/1	7.9 mm	Coil 1000 m	Ø 500 mm - h 300 mm	54 Kg

(\*) Special order

#### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
 Capacitance pF/m: 5.36 (pF/m)  
 Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

#### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
 Installation temperature: -5°C ÷ +50°C  
 Storage temperature: -15°C ÷ +70°C  
 Minimum bending radius: 8 x cable diameter (mm)  
 Maximum pulling strain: 80 (N/mm<sup>2</sup>)

#### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6 dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00	155.0	200.0	250.0
Attenuation	Typical	2.0	3.7	5.3	5.9	7.5	8.4	9.5	10.6	15.3	19.8	25.1	28.9	32.8
	EIA/TIA 568/B.2	1.6	3.4	4.8	5.4	6.8	7.7	8.6	9.7	13.8	17.6	22.0	24.8	27.9
NEXT	Typical	79.9	70.3	68.8	61.2	67.1	64.8	66.6	63.3	57.3	57.1	55.0	53.9	55.9
	EIA/TIA 568/B.2	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3	41.4	39.7	38.3
ACR	Typical	78.3	67.1	64.2	56.1	60.2	57.0	58.1	54.3	44.4	40.7	32.5	28.9	29.1
	EIA/TIA 568/B.2	72.2	61.4	55.4	53.3	48.6	46.3	43.8	41.2	31.9	24.5	16.2	10.8	5.4
PSNext	Typical	78.0	69.5	66.9	61.0	64.5	62.8	64.4	60.1	55.4	54.3	49.1	49.9	51.9
	EIA/TIA 568/B.2	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3	39.4	37.7	36.3
Return Loss	Typical	27.0	31.1	34.0	34.6	33.9	33.9	40.1	42.3	32.4	31.8	30.5	29.1	36.3
	EIA/TIA 568/B.2	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1	19.0	18.0	17.3





## U/UTP Cat. 6 Black PE sheath Data transmission cables - gauge AWG 23 Double sheath

Code A82426 (Coil 500m) – PE  
Code A82427 (Coil 1000m) – PE

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 23/1 or 0.56 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm  
Classification: –  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Screen: N/A  
Separator: Polyester tape (PES)  
External sheath and fire behaviour: Sheath 1 PVC 6mm diameter  
Sheath 2 polyolefin (PE) 8.3 mm diameter  
Classification: Polyolefins are flammable  
Colour: Black (RAL 9005)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - U/UTP 4 PR AWG 23/1 100 OHM CATEGORY 6 EN 50288-6-1 IEC 60332.1 CM 75°C VERIFIED - PE - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
A82426	4x2 (4 pairs) AWG 23/1	8.3 mm	Coil 500 m	∅ 400 mm - h 500 mm	36 Kg
A82427	4x2 (4 pairs) AWG 23/1	8.3 mm	Coil 1000 m	∅ 700 mm - h 420 mm	72 Kg

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6 dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00	155.00	200.00	250.00
Attenuation	Typical	2.0	3.7	5.3	5.9	7.5	8.4	9.5	10.6	15.3	19.8	25.1	28.9	32.8
	EIA/TIA 568/B.2	1.6	3.4	4.8	5.4	6.8	7.7	8.6	9.7	13.8	17.6	22.0	24.8	27.9
NEXT	Typical	79.9	70.3	68.8	61.2	67.1	64.8	66.6	63.3	57.3	57.1	55.0	53.9	55.9
	EIA/TIA 568/B.2	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3	41.4	39.7	38.3
ACR	Typical	78.3	67.1	64.2	56.1	60.2	57.0	58.1	54.3	44.4	40.7	32.5	28.9	29.1
	EIA/TIA 568/B.2	72.2	61.4	55.4	53.3	48.6	46.3	43.8	41.2	31.9	24.5	16.2	10.8	5.4
PSNext	Typical	78.0	69.5	66.9	61.0	64.5	62.8	64.4	60.1	55.4	54.3	49.1	49.9	51.9
	EIA/TIA 568/B.2	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3	39.4	37.7	36.3
Return Loss	Typical	27.0	31.1	34.0	34.6	33.9	33.9	40.1	42.3	32.4	31.8	30.5	29.1	36.3
	EIA/TIA 568/B.2	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1	19.0	18.0	17.3



# F/UTP Cat. 6 - Double screen Isolation PVC GR° 4 BLUE

## Data transmission cables - gauge AWG 24 Screen, double sheath

Code A82876 (Coil 500m) - A82877 (Coil 1000m) – PVC

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1

Isolation of single conductor: Polyethylene (PE) thickness 1.10 mm

Classification: –

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Screen: Coupled aluminium/polyester (AL/PES) tape

External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR)  
Double sheath, thickness 1.2 mm each layer

Classification: IEC 60332-1  
CEI 20-22 I CEI 20-35  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034

Colour: Blue (RAL 5015)

Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 6 EN 50288-5-1 IEC 60332.1 CM 75°C VERIFIED - 0.6/1kV - PVC - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82876	4x2 (4 pairs) AWG 24/1	9.0 mm	Coil 500 m	Ø 500 mm - h 300 mm	40 Kg
A82877*	4x2 (4 pairs) AWG 24/1	9.0 mm	Coil 1000 m	Ø 700 mm - h 420 mm	80 Kg

(\*) Special order

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6 dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00	155.0	200.0	250.0
Attenuation	Typical	2.0	3.7	5.3	5.9	7.5	8.4	9.5	10.6	15.3	19.8	25.1	28.9	32.8
	EIA/TIA 568/B.2	1.6	3.4	4.8	5.4	6.8	7.7	8.6	9.7	13.8	17.6	22.0	24.8	27.9
NEXT	Typical	79.9	70.3	68.8	61.2	67.1	64.8	66.6	63.3	57.3	57.1	55.0	53.9	55.9
	EIA/TIA 568/B.2	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3	41.4	39.7	38.3
ACR	Typical	78.3	67.1	64.2	56.1	60.2	57.0	58.1	54.3	44.4	40.7	32.5	28.9	29.1
	EIA/TIA 568/B.2	72.2	61.4	55.4	53.3	48.6	46.3	43.8	41.2	31.9	24.5	16.2	10.8	5.4
PSNext	Typical	78.0	69.5	66.9	61.0	64.5	62.8	64.4	60.1	55.4	54.3	49.1	49.9	51.9
	EIA/TIA 568/B.2	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3	39.4	37.7	36.3
Return Loss	Typical	27.0	31.1	34.0	34.6	33.9	33.9	40.1	42.3	32.4	31.8	30.5	29.1	36.3
	EIA/TIA 568/B.2	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1	19.0	18.0	17.3





## F/UTP Cat. 6 Black PE sheath Data transmission cables - gauge AWG 24 Double sheath

Code A82436 (Coil 500m) – PE  
Code A82437 (Coil 1000m) – PE

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 1.10 mm  
Classification: —  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Screen: Coupled aluminium/polyester (AL/PES) tape  
External sheath and fire behaviour: Sheath 1 PVC 6mm diameter  
Sheath 2 polyolefin (PE) 8.3 mm diameter  
Classification: Polyolefins are flammable  
Colour: Black (RAL 9005)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 6 EN 50288-5-1 IEC 60332.1 CM 75°C VERIFIED - PE - m. 000 - (order no.)  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
A82436	4x2 (4 pairs) AWG 24/1	9.5 mm	Coil 500 m	∅ 500 mm - h 300 mm	40 Kg
A82437*	4x2 (4 pairs) AWG 24/1	9.5 mm	Coil 1000 m	∅ 700 mm - h 420 mm	80 Kg

(\*) Special order

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6 dB/100.00 m

Frequency	Reference value	1.00	4.00	8.00	10.00	16.00	20.00	25.00	31.25	62.50	100.00	155.0	200.0	250.0
Attenuation	Typical	2.0	3.7	5.3	5.9	7.5	8.4	9.5	10.6	15.3	19.8	25.1	28.9	32.8
	EIA/TIA 568/B.2	1.6	3.4	4.8	5.4	6.8	7.7	8.6	9.7	13.8	17.6	22.0	24.8	27.9
NEXT	Typical	79.9	70.3	68.8	61.2	67.1	64.8	66.6	63.3	57.3	57.1	55.0	53.9	55.9
	EIA/TIA 568/B.2	74.3	65.2	60.7	59.3	56.2	54.7	53.3	51.8	47.3	44.3	41.4	39.7	38.3
ACR	Typical	78.3	67.1	64.2	56.1	60.2	57.0	58.1	54.3	44.4	40.7	32.5	28.9	29.1
	EIA/TIA 568/B.2	72.2	61.4	55.4	53.3	48.6	46.3	43.8	41.2	31.9	24.5	16.2	10.8	5.4
PSNext	Typical	78.0	69.5	66.9	61.0	64.5	62.8	64.4	60.1	55.4	54.3	49.1	49.9	51.9
	EIA/TIA 568/B.2	72.3	63.2	58.7	57.3	54.2	52.7	51.3	49.8	45.3	42.3	39.4	37.7	36.3
Return Loss	Typical	27.0	31.1	34.0	34.6	33.9	33.9	40.1	42.3	32.4	31.8	30.5	29.1	36.3
	EIA/TIA 568/B.2	20.0	23.0	24.5	25.0	25.0	25.0	24.3	23.6	21.5	20.1	19.0	18.0	17.3



## U/UTP Cat. 6A - 550 Mhz 10 Gigabit Data transmission cables - gauge AWG 23

Codes A82750 (Box 305m) - A82756 (Coil 500m) - A82757 (Coil 1000m) – PVC  
Codes A82740 (Box 305m) - A82746 (Coil 500m) - A82747 (Coil 1000m) – LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm  
Classification: Internal separator  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Separator: Polyester tape  
External sheath and fire behaviour: PVC and Low Smoke Zero Halogen (LSZH)  
Classification: IEC 60332-1 (LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
IEC 60754-1 and 60754-2  
IEC 61034 (LSZH)  
Colour: Grey (RAL 7001)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - U/UTP 4 PR AWG 24/1 100 OHM CATEGORY 6A EN 50288-10 IEC 60332.1 CM 75°C VERIFIED - m. 000 - (order no.)  
LSZH Sheath material  
m 000 Progressive metre reference  
No. Production lot number



Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82750	4x2 (4 pairs) AWG 23/1	7.5 mm	Box 305 m	Dimensions 425x215x425 mm	12 Kg
A82756*	4x2 (4 pairs) AWG 23/1	7.5 mm	Coil 500 m	Ø 400 mm - h 200 mm	19 Kg
A82757*	4x2 (4 pairs) AWG 23/1	7.5 mm	Coil 1000 m	Ø 500 mm - h 300 mm	38 Kg
• LSZH					
A82740	4x2 (4 pairs) AWG 23/1	7.5 mm	Box 305 m	Dimensions 425x215x425 mm	12 Kg
A82746*	4x2 (4 pairs) AWG 23/1	7.5 mm	Coil 500 m	Ø 400 mm - h 200 mm	19 Kg
A82747*	4x2 (4 pairs) AWG 23/1	7.5 mm	Coil 1000 m	Ø 500 mm - h 300 mm	38 Kg

(\*) Special order

### ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### TRANSMISSIVE SPECIFICATIONS FOR CAT. 6A dB/100.00 m

Frequency	Reference value	4.00	10.00	20.00	62.50	100.00	250.00	500.00	550.00
Attenuation	Typical	3.6	5.6	8.0	14.2	18.1	28.9	41.2	43.5
	IEC 61156-5	3.8	5.9	8.4	15.0	19.1	31.1	45.3	-
NEXT	Typical	71	65	61	53	50	44	40	39
	IEC 61156-5	65.3	59.3	54.8	47.4	44.3	38.3	33.8	-
PSNext	Typical	68	62	58	50	47	41	37	36
	IEC 61156-5	63.3	57.3	52.8	45.4	42.3	36.3	31.8	-
ELFEXT	Typical	73	65	59	49	45	37	31	30
	IEC 61156-5	58	50	44	34.1	30	22	16	-
Return Loss	Typical	27	27	27	25.8	25	22	18	17
	IEC 61156-5	23	25	25	21.5	20.1	17.3	15.2	-
PSANEXT	Typical	85	85	80	75	75	75	75	75
	IEC 61156-5	76.5	72.5	69.5	64.5	62.5	56.5	52	-



FANTONET BY AMBRA90 - 29/03 - 10:00 - UT



## F/UTP Cat. 6A - 550 Mhz 10 Gigabit Data transmission cables - gauge AWG 24 LSZH Double screen

Code A82716 (Coil 500m) – LSZH

Code A82717 (Coil 1000m) – LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T, 1000 BASE-T, Gigabit Ethernet

Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1

Connection system: EIA/TIA 568 A and B

Installation: EN 50174

Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 24/1 or 0.51 mm<sup>2</sup>

Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1

Isolation of single conductor: Polyethylene (PE) thickness 0.95 mm

Classification: Internal separator

Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown

Separator: Polyester tape

External sheath and fire behaviour: Low Smoke Zero Halogen (LSZH)

Classification: IEC 60332-1 (LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
IEC 60754-1 and 60754-2  
IEC 61034 (LSZH)

Colour: Grey (RAL 7001)

Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - F/UTP 4 PR AWG 24/1 100 OHM CATEGORY 6A EN 50288-10 IEC 60332.1 CM 75°C VERIFIED - m. 000 - (order no.)  
LSZH Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
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#### • LSZH

<b>A82716</b>	4x2 (4 pairs) AWG 24/1	7.8 mm	Coil 500 m	∅ 500 mm - h 300 mm	30 Kg
<b>A82717*</b>	4x2 (4 pairs) AWG 24/1	7.8 mm	Coil 1000 m	∅ 700 mm - h 420 mm	60 Kg

(\* ) Articolo a richiesta

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)

Capacitance pF/m: 5.36 (pF/m)

Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C

Installation temperature: -5°C ÷ +50°C

Storage temperature: -15°C ÷ +70°C

Minimum bending radius: 8 x cable diameter (mm)

Maximum pulling strain: 70 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6A dB/100.00 m

Frequency	Reference value	4.00	10.00	20.00	62.50	100.00	250.00	500.00	550.00
Attenuation	Typical	3.6	5.6	8.0	14.2	18.1	28.9	41.2	43.5
	IEC 61156-5	3.8	5.9	8.4	15.0	19.1	31.1	45.3	-
NEXT	Typical	71	65	61	53	50	44	40	39
	IEC 61156-5	65.3	59.3	54.8	47.4	44.3	38.3	33.8	-
PSNext	Typical	68	62	58	50	47	41	37	36
	IEC 61156-5	63.3	57.3	52.8	45.4	42.3	36.3	31.8	-
ELFEXT	Typical	73	65	59	49	45	37	31	30
	IEC 61156-5	58	50	44	34.1	30	22	16	-
Return Loss	Typical	27	27	27	25.8	25	22	18	17
	IEC 61156-5	23	25	25	21.5	20.1	17.3	15.2	-
PSANEXT	Typical	85	85	80	75	75	75	75	75
	IEC 61156-5	76.5	72.5	69.5	64.5	62.5	56.5	52	-



## F/FTP and S/FTP Cat. 6A 550 Mhz 10 Gigabit Data transmission cables - gauge AWG 23 LSZH

F/FTP Code A82726 (Coil 500m) – LSZH  
F/FTP Code A82727 (Coil 1000m) – LSZH

S/FTP Code A82736 (Coil 500m) – LSZH  
S/FTP Code A82737 (Coil 1000m) – LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T ETHERNET, 1000 BASE-T, Gigabit Ethernet, 10GBASE-T  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 23/1 or 0.54 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 1.45 mm  
Classification: -  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Separator: Polyester tape  
Screen: Aluminium/polyester on each pair – Aluminium/polyester or copper braid under sheath  
External sheath and fire behaviour: Low Smoke Zero Halogen (LSZH)  
Classification: IEC 60332-1 (LSZH)  
CEI 20-22 | CEI 20-35(PVC and LSZH)  
IEC 60754-1 and 60754-2  
IEC 61034 (LSZH)  
Colour: Grey (RAL 7001)  
Marking:  
• FANTONET BY AMBRA90 - dddyy - hh:mm - S/FTP 4 PR AWG 23/1 100 OHM CATEGORY 6A 10Gbit - EN50288-10 IEC 60332.1 CM 75°C VERIFIED - m. 000 - (order no.)  
• FANTONET BY AMBRA90 - dddyy - hh:mm - F/FTP 4 PR AWG 23/1 100 OHM CATEGORY 6A 10Gbit - EN50288-10 IEC 60332.1 CM 75°C VERIFIED - m. 000 - (order no.)  
LSZH Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
<b>• F/FTP - LSZH</b>					
A82726	4x2 (4 pairs) AWG 23/1	8.4 mm	Coil 500 m	Ø 500 mm - h 300 mm	30 Kg
A82727*	4x2 (4 pairs) AWG 23/1	8.4 mm	Coil 1000 m	Ø 700 mm - h 420 mm	60 Kg
<b>• S/FTP - LSZH</b>					
A82736*	4x2 (4 pairs) AWG 23/1	7.7 mm	Coil 500 m	Ø 500 mm - h 300 mm	30 Kg
A82737*	4x2 (4 pairs) AWG 23/1	7.7 mm	Coil 1000 m	Ø 700 mm - h 420 mm	60 Kg

(\* Special order)

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 5.36 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -15°C ÷ +70°C  
Installation temperature: -5°C ÷ +50°C  
Storage temperature: -15°C ÷ +70°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 78 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 6A dB/100.00 m

Frequency	Reference value	4.00	10.00	20.00	62.50	100.00	250.00	500.00	550.00
Attenuation	Typical	3.6	5.6	8.0	14.2	18.1	28.9	41.2	43.5
	IEC 61156-5	3.8	5.9	8.4	15.0	19.1	31.1	45.3	-
NEXT	Typical	90	90	90	90	85	77	74	73
	IEC 61156-5	65.3	59.3	54.8	47.4	44.3	38.3	33.8	-
PSNext	Typical	87	87	87	87	82	74	71	70
	IEC 61156-5	63.3	57.3	52.8	45.4	42.3	36.3	31.8	-
ELFEXT	Typical	86	85	82	76	72	60	51	50
	IEC 61156-5	58	50	44	34.1	30	22	16	-
Return Loss	Typical	27	27	27	25.8	25	22	18	17
	IEC 61156-5	23	25	25	21.5	20.1	17.3	15.2	-
PSANEXT	Typical	85	85	80	75	75	75	75	75
	IEC 61156-5	76.5	72.5	69.5	64.5	62.5	56.5	52	-





## S/FTP Cat. 7 10 Gigabit Data transmission cables - gauge AWG 23 Double screen

Codes A82886 (Coil 500m) A82887 (Coil 1000m) – PVC  
Codes A82986 (Coil 500m) A82987 (Coil 1000m) – LSZH

Applications: High frequency data transmission cabling systems.  
IEEE 802.3, IEEE 802.5, ATM, 100 BASE-T, 1000 BASE-T, Gigabit Ethernet  
Applicable standards: EN 50288, ISO/IEC 11801, EIA/TIA 568.B, EN 50173.1  
Connection system: EIA/TIA 568 A and B  
Installation: EN 50174  
Directives: RoHS 2002/95/EC

### ▼ CONSTRUCTION SPECIFICATIONS

Internal conductor: Rigid, red copper - nominal gauge AWG 23/1 or 0.56 mm<sup>2</sup>  
Compliant with: IEC 60228 cl. 1, VDE 0295 cl. 1  
Isolation of single conductor: Polyethylene (PE) thickness 1.45 mm  
Classification: –  
Colours: Blue+White/Blue, Orange+White/Orange, Green+White/Green, Brown+White/Brown  
Screen: Coupled aluminium/polyester (AL/PES) tape on each pair and copper braid, coverage 60% over total  
External sheath and fire behaviour: Fire retardant polyvinyl chloride (PVC-FR) or Low Smoke Zero Halogen (LSZH)  
Classification: IEC 60332-1 (PVC and LSZH)  
CEI 20-22 I CEI 20-35(PVC and LSZH)  
CEI 20-37 IEC 60754-1 and 60754-2 IEC 61034 (LSZH)  
Colour: Grey (RAL 7001)  
Marking: FANTONET BY AMBRA90 - dddyy - hh:mm - S/FTP 4 PR AWG 23/1 100 OHM CATEGORY 7  
EN 50288-4-1 IEC 60332.1 CM 75°C VERIFIED - LSZH o PVC - m. 000 - (order no.)  
LSZH or PVC Sheath material  
m 000 Progressive metre reference  
No. Production lot number

Code	Training	Nominal external diameter (mm)	Type of package	Package dimensions (mm)	Approx. weight (kg)
• PVC					
A82886*	4x2 (4 pairs) AWG 23/1	7.7 mm	Coil 500 m	∅ 500 mm - h 300 mm	29 Kg
A82887*	4x2 (4 pairs) AWG 23/1	7.7 mm	Coil 1000 m	∅ 700 mm - h 420 mm	58 Kg
• LSZH					
A82986	4x2 (4 pairs) AWG 24/1	7.7 mm	Coil 500 m	∅ 500 mm - h 300 mm	29 Kg
A82987*	4x2 (4 pairs) AWG 24/1	7.7 mm	Coil 1000 m	∅ 700 mm - h 420 mm	58 Kg

(\*) Special order

### ▼ ELECTRICAL SPECIFICATIONS

Impedance: 100 ± 15 (Ω)  
Capacitance pF/m: 1600 (pF/m)  
Conductor DC resistance (at 20°C): 82.8 (Ω/Km)

### ▼ MECHANICAL SPECIFICATIONS

Operating temperature: -20°C ÷ +60°C  
Installation temperature: -0°C ÷ +50°C  
Storage temperature: -0°C ÷ +50°C  
Minimum bending radius: 8 x cable diameter (mm)  
Maximum pulling strain: 95 (N/mm<sup>2</sup>)

### ▼ TRANSMISSIVE SPECIFICATIONS FOR CAT. 7 dB/100.00 m

Frequency	Reference value	4.00	10.00	20.00	62.50	100.00	250.00	300.00	600.00	650.00
Attenuation	Typical	3.6	5.5	7.9	14.5	18.5	29.6	32.8	47.6	49.7
	IEC 61156-5	3.7	5.9	8.3	14.9	19	31	34.2	50.1	–
NEXT	Typical	90	90	90	90	85	77	76	73	72
	IEC 61156-5	78	78	78	75	72	66	65	61	–
ACR	Typical	86.4	84.5	82.1	75.5	66.5	47.4	43.2	25.4	22.3
	IEC 61156-5	74.3	72.1	69.7	60.1	53.0	35.0	30.8	10.9	–
PSNext	Typical	87	87	87	87	82	74	73	70	69
	IEC 61156-5	75	75	75	72	69	63	62	58	–
ELFEXT	Typical	86	85	82	76	72	60	57	42	38
	IEC 61156-5	78	74	68	58	54	46	44	38	–
PSANEXT	Typical	26	26	26	26	24	22	21	19	18
	IEC 61156-5	23	25	25	21.5	20.1	17.3	16.7	14.7	–



# TRANSMISSIVE PARAMETERS

The electrical parameters of a cable are essentially determined by its mechanical parameters. The relation between them cannot, however, be reduced to simple formulae, especially at high frequencies, where electromagnetic phenomena must be considered in addition to purely electrical ones. The following parameters apply to screened/unscreened cable connections and are basic measures, in other words, the cable's dataplate data.

• <b>WM</b>	Wiremap;	• <b>PSN</b>	Power Sum Next;
• <b>LP</b>	Loop resistance;	• <b>PSACR</b>	Power Sum Attenuation to Crosstalk Ratio;
• <b>IL</b>	Insertion Loss;	• <b>ELFECT</b>	Equal Level Far End Crosstalk;
• <b>RL</b>	Return Loss;	• <b>PSELFECT</b>	Power Sum Equal Level Far End Crosstalk;
• <b>NEXT</b>	Near End Crosstalk;	• <b>AXT</b>	Alien Cross Talk;
• <b>FEXT</b>	Far End Crosstalk;	• <b>PD</b>	Propagation Delay;
• <b>ACR</b>	Attenuation to Crosstalk Ratio;	• <b>DS</b>	Delay Skew.

## ▼ WM - Wiremap;

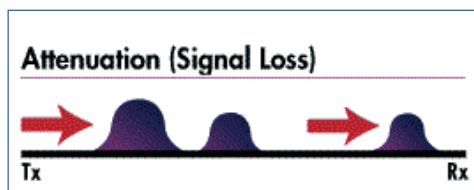
Established standards prescribe two different types of connection depending on the reference standard, which invert the positions of the White/Orange pair with that of the White/Green pair. Furthermore, the wiremap should preferably be made available with a software which can be used by the administrator to manage the process of evolution.

## ▼ LP - Loop resistance;

The DC resistance of the copper conductor of the circuit composed of wires "a" and "b" of the pair in question. Expressed in W/m. For the measurement to be precise, the resistance of the short circuit at the far end should be negligible. Otherwise, one can only distinguish a low resistance short circuit (<1000W) from a high resistance one.

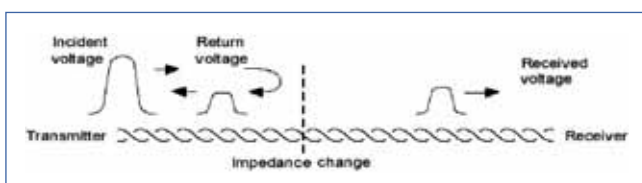
## ▼ IL - Insertion loss;

Reduction of amplitude of an electrical or optical signal propagated in a transmissive medium (copper pair or optical fibre). Expressed in dB/m or dB/km, in which case one speaks of specific attenuation.



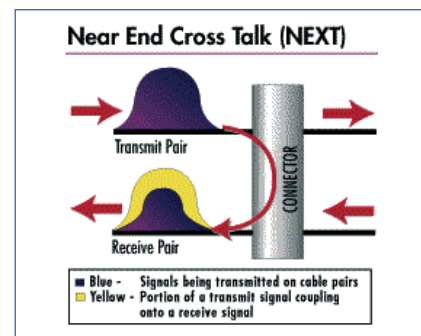
## ▼ RL - Return loss;

The ratio of the transmitted to the reflected signal measured at the line input. Expressed in dB. In practice, this is the attenuation suffered by the reflection of an electrical signal which occurs at the points of impedance mismatch of a copper conductor. The RL of an optical fibre is analogous but the concept of reflection is different, inasmuch as it consists in the energy reflected when the light is transmitted in a reflective medium.



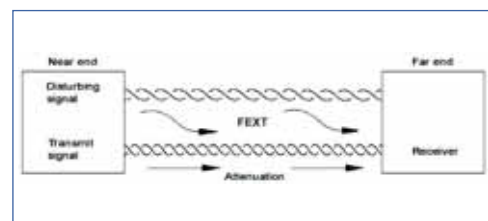
## ▼ NEXT - Near end crosstalk;

The energy of an electrical signal induced by a disturbing circuit in a disturbed circuit, measured on the disturbed circuit at the same end as the disturbing source. In practice one measures near end crosstalk attenuation, in other words, to what extent the disturbing signal induced on the disturbed circuit is attenuated by the line. Expressed in dB.



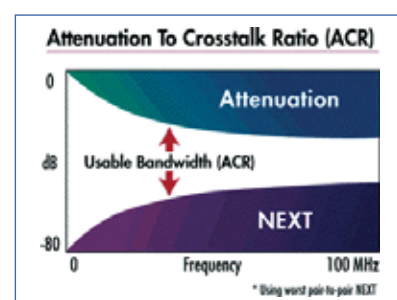
## ▼ FEXT - Far end crosstalk;

The energy of an electrical signal induced by a disturbing circuit in a disturbed circuit, measured on the disturbed circuit at the opposite end from the disturbing source. In practice one measures far end crosstalk attenuation, in other words, to what extent the disturbing signal induced on the disturbed circuit is attenuated by the line. Expressed in dB.



## ▼ ACR - Attenuation to Crosstalk Ratio;

The difference between the attenuation (IL) and near end crosstalk (NEXT). Expressed in dB at a given frequency. This is a quality critical parameter, inasmuch as it ensures that the signal transmitted on a pair is stronger in reception than the sum of crosstalk from adjacent pairs. PAIR TO PAIR AND POWER SUM MEASUREMENT



▼ **PSNEXT - Power Sum Next;**

The inductive coupling of the sum of the near end crosstalk of all disturbing pairs on a single disturbed pair.

▼ **PSACR - Power Sum Attenuation to Crosstalk Ratio;**

The ratio between the signal and the sum of disturbances (IL and NEXT) of all disturbing pairs on a single disturbed pair.

▼ **ELFEXT - Equal Level Far End Crosstalk;**

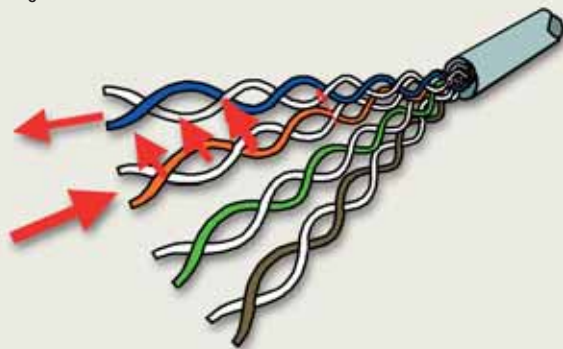
The ratio between the received (usable) signal and the disturbance induced on the pair in question by a signal transmitted from the far end of the adjacent pair.

▼ **PSELFEXT - Power Sum Equal Level Far End Crosstalk;**

The sum of couplings of all ELFEXT originating in all pairs towards a given single pair.

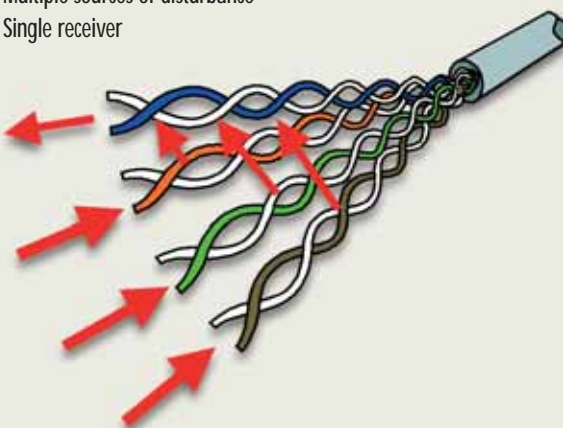
**PAIR TO PAIR MEASUREMENT:**

Single source of disturbance  
Single receiver



**POWER SUM MEASUREMENT:**

Multiple sources of disturbance  
Single receiver

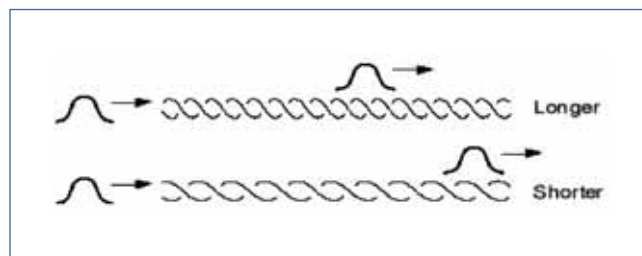


▼ **AXT - Alien Cross Talk;**

Disturbo indotto su una o più coppie di un cavo dei segnali propagatesi su coppie appartenenti a cavi diversi. Il fenomeno si rileva allorquando si verificano parallelismi dei cavi superiori a circa 15 metri.

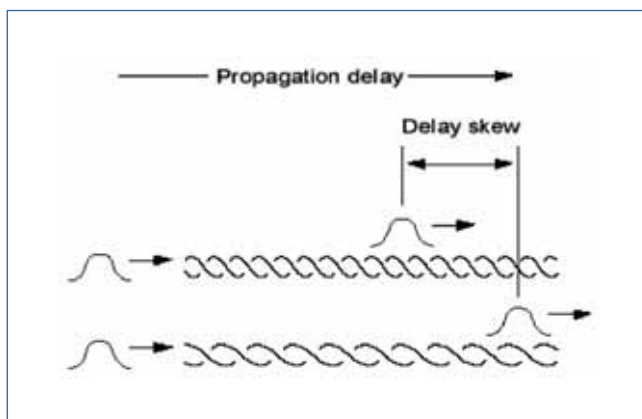
▼ **PD - Propagation Delay;**

The time required for a signal to propagate from the input to the output of a transmission line. Expressed in ns. Depends on the length of the cable and the speed of propagation.



▼ **DS - Delay Skew.**

The difference between the propagation delays of the shortest and longest pairs of a single cable. Depends on the various steps of stranding of the pairs required to reduce NEXT. Expressed in ns.

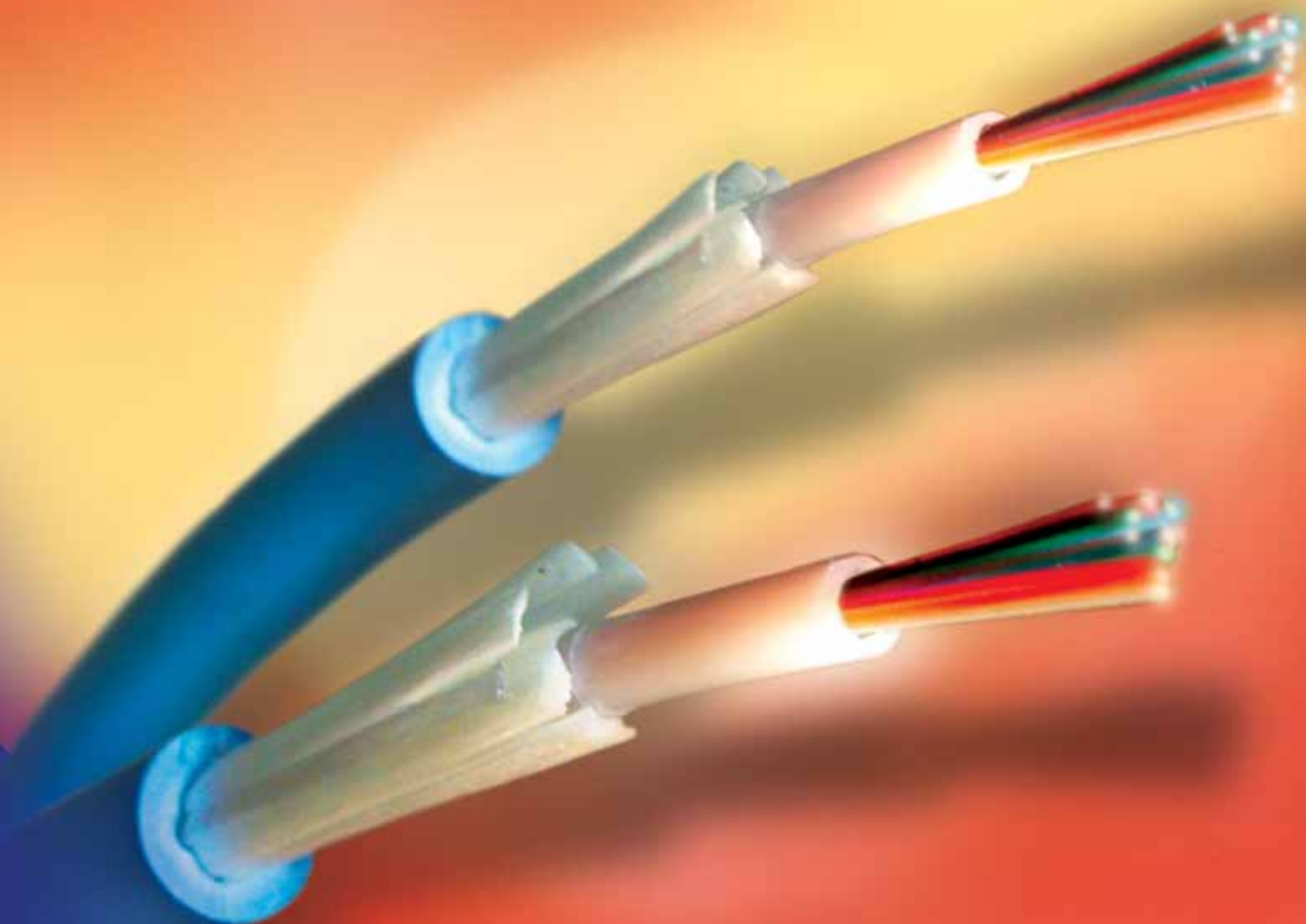


▼ **IMPEDANCE**

A secondary constant which measures the overall opposition to the passage of an alternating current along a transmission line due to the combined action of the four primary constants: resistance, inductance, capacitance and conductance. Expressed in Ohm.

▼ **CHARACTERISTIC IMPEDANCE**

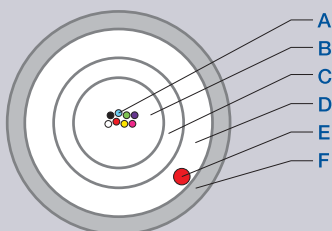
The impedance measured at the input of an infinitely long line.



CABLING  
SYSTEM

# OPTICAL FIBRE CABLES

- "LOOSE" optical fibre
- "LOOSE" REINFORCED optical fibre
- "TIGHT" optical fibre
- "MULTITUBE" optical fibre
- "BREAK-OUT" optical fibre



- A Optical fibres with 250 micron coating
- B Buffer gel
- C Plastic monotube
- D Glass fibre strands
- E Strength member
- F Jacket

## "LOOSE" optical fibre For indoors/outdoors installation

Data transmission optical fibre cables OM1 OM2 OM3 OS1 (multimode and singlemode)  
From 4 to 24 fibres - Dielectric reinforcement - LSZH external sheath  
62.5/125 OM1, 50/125 OM2, 50/125 OM3, 9/125 OS1

### ▼ DESCRIPTION

LOOSE type cables are suited for both indoors and outdoors installation thanks to their robust, simple construction. They are composed of a single plastic tube at the centre which contains the robust fibres immersed in a gel for greater mechanical protection. The fibres are covered with a 250 micron acrylate to make them easier to handle. The tube is itself surrounded by glass fibres to give it traction resistance, resistance against attack by rodents and protection against dampness. The entire assembly is enclosed in a black sheath suited to outdoors installation in a low smoke zero halogen material (LSZH). Furthermore, the sheath complies with IEC regulations governing flame and fire performance. The optical fibres are available in all four standard homologated versions: MultiMode OM1, OM2, OM3, and SingleMode OS1.

### ▼ CHARACTERISTICS

- Glass fibre protection against rodent attack and damp
- Coloured fibres for quick identification
- Rip cord for quick stripping
- LSZH sheath for indoors installation
- Black sheath colour for UV resistance in outdoors installations
- 1600 N traction resistance.

### ▼ APPLICATION

- Suited for installation in indoors and outdoors cable ducts and overhead supports.
- Suited for use on campus backbones, building backbones, horizontal cabling
- Suited for high density sites and fusion splicing
- Compact structure, suited for installation in limited areas such as duct pipes.

### ▼ COLOUR CODE



### ▼ PHYSICAL SPECIFICATIONS

Number of fibres	Physical characteristics		Traction resistance		Bending radius	
	Cable diameter (mm)	Cable weight (kg/km)	Brief traction resistance (N)	Prolonged traction resistance (N)	Bending radius during installation (cm)	Bending radius when installed (cm)
4	7.6	60	1600	800	20	10
6	7.6	60	1600	800	20	10
8	7.6	60	1600	800	20	10
12	7.6	60	1600	800	20	10
24	7.6	60	1600	800	20	10

### ▼ OPTICAL SPECIFICATIONS

	OM1	OM2	OM3	OS1
	62.5/125 microns (850/1300)	50/125 microns (850/1300)	50/125 microns (850/1300)	9/125 microns (1310/1550)
Attenuation (dB/Km)	2.8/0.8	2.8/0.8	2.7/0.7	0.38/0.24
Minimum bandwidth (MHz/Km)	200/500	500/500	1500/1500	-
Primary coating dia. (micron)	250	250	250	250

### ▼ SPECIFICATIONS OF USE

- Storage temperature: -40° to +75°C
- Installation temperature: -20° to +70°C
- Operating temperature: -20° to +70°C
- Fire performance: LSZH indoors/outdoors
- Fire resistance: IEC 60332-1

## ■ Codes and structure

N° Fibres	Multimode OM1 62.5/125	Multimode OM2 50/125	Multimode OM3 50/125	Singlemode OS1 9/125
4	A88107	A88007	A88457	A88207
6	A88117	A88017	A88467	A88217
8	A88127	A88027	A88477	A88227
12	A88147	A88047	A88487	A88247
2x12 (24)	A88157	A88057	A88497	A88257
1x24	A88177	A88077	A88445	A88277

## "LOOSE" reinforced optical fibre

### For outdoors installation

Data transmission optical fibre cables OM1 OM2 OM3 OS1 (multimode and singlemode)  
 4 to 24 fibres - outdoors installation - steel reinforcement - PE jacket  
 62.5/125 OM1, 50/125 OM2, 50/125 OM3, 9/125 OS1

#### ▼ DESCRIPTION

This optical fibre cable features a simple, but very robust construction. The fibres themselves are coated with a 250 micron thick coloured acrylate which facilitates identification, and are bundled in a single PTB tube with a waterproof sheath, filled with a gel which provides mechanical and hydroscopic protection. The entire assembly is contained in a corrugated steel tube covered with a black PE jacket for UV resistance. The cable is further reinforced by two steel strength members for increased traction resistance.

#### ▼ CHARACTERISTICS

- Corrugated steel tube
- Coloured fibres for quick identification
- Double steel strength member for increased traction resistance
- PE jacket
- Black jacket for UV resistance
- 1800 N traction resistance
- Waterproof internal layer

#### ▼ APPLICATION

- Suited for installation in indoors and outdoors cable ducts and overhead supports.
- Suited for use on campus backbones, building backbones, horizontal cabling
- Suited for high density sites and fusion splicing
- Compact structure, suited for installation in limited areas such as duct pipes.

#### ▼ COLOUR CODE



#### ▼ PHYSICAL SPECIFICATIONS

Number of fibres	Physical characteristics		Traction resistance		Bending radius	
	Cable diameter (mm)	Cable weight (kg/km)	Brief traction resistance (N)	Prolonged traction resistance (N)	Bending radius during installation (cm)	Bending radius when installed (cm)
4	10.0	165	1800	800	25	15
6	10.0	165	1800	800	25	15
8	10.0	165	1800	800	25	15
12	10.0	165	1800	800	25	15
24	10.0	165	1800	800	25	15

#### ▼ OPTICAL SPECIFICATIONS

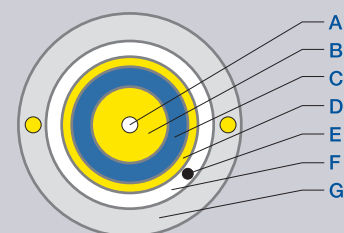
	OM1	OM2	OM3	OS1
	62.5/125 microns (850/1300)	50/125 microns (850/1300)	50/125 microns (850/1300)	9/125 microns (1310/1550)
Attenuation (dB/Km)	2.8/0.8	2.8/0.8	2.7/0.7	0.38/0.24
Minimum bandwidth (MHz/Km)	200/500	500/500	1500/1500	-
Primary coating dia. (micron)	250	250	250	250

#### ▼ SPECIFICATIONS OF USE

- Storage temperature: -40° to +75°C
- Installation temperature: -20° to +70°C
- Operating temperature: -20° to +70°C
- Fire performance: LSZH indoors/outdoors
- Fire resistance: IEC 60332-1

### Codes and structure

N° Fibres	Multimode OM1 62.5/125	Multimode OM2 50/125	Multimode OM3 50/125	Singlemode OS1 9/125
4	A88102	A88002	A88452	A88202
6	A88112	A88012	A88462	A88212
8	A88122	A88022	A88472	A88222
12	A88142	A88042	A88482	A88242
24 (2x12)	A88152	A88052	A88492	A88252
1x24	A88172	A88072	A88442	A88272



- A Optical fibre: 250 Micron MM or SM
- B Fibre protection: Gel
- C Internal tube: PBT polyester
- D Waterproof coating: waterproof layer
- E Strength member: steel
- F Reinforcement: corrugated steel
- G Jacket: black LSZH.



## "TIGHT" optical fibre For indoors installation

Data transmission optical fibre cables OM1 OM2 OM3 OS1 (multimode and singlemode)  
From 4 to 24 fibres - Dielectric reinforcement - LSZH jacket

### ▼ DESCRIPTION

"Tight" type cables are suited for indoors installation and are available according to colour standards with 900 micron coloured fibre sheaths. The single tube is composed of a single bundle of fibre strands surrounded by glass fibres to give it traction resistance and resistance against attack by rodents. The entire assembly is enclosed in a black sheath suited to outdoors installation in a low smoke zero halogen material (LSZH). Furthermore, the sheath complies with IEC regulations governing flame and fire performance. The optical fibres are available in all four standard homologated versions: MultiMode OM1, OM2, OM3, and SingleMode OS1.

### ▼ CHARACTERISTICS

- Coloured fibres for quick identification
- Rip cord for quick stripping
- Black LSZH jacket for indoors and outdoors installation
- Compact design for installation in restricted space.

### ▼ APPLICATION

- Suited for laying in indoors ducting,
- Suited for use on campus backbones, building backbones, horizontal cabling
- Suited for high density sites and fusion splicing
- Compact structure, suited for installation in limited areas such as duct pipes.

### ▼ COLOUR CODE



### ▼ PHYSICAL SPECIFICATIONS

Number of fibres	Physical characteristics		Traction resistance		Bending radius	
	Cable diameter (mm)	Cable weight (kg/km)	Brief traction resistance (N)	Prolonged traction resistance (N)	Bending radius during installation (cm)	Bending radius when installed (cm)
4	5.3	28	660	300	8.0	5.3
8	6.0	37	660	300	9.0	6.0
12	7.1	47	660	300	10.6	7.1

### ▼ OPTICAL SPECIFICATIONS

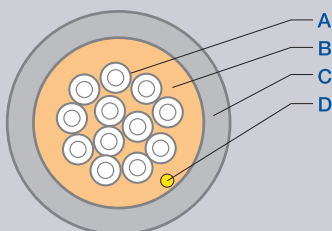
	OM1	OM2	OM3	OS1
	62.5/125 microns (850/1300)	50/125 microns (850/1300)	50/125 microns (850/1300)	9/125 microns (1310/1550)
Attenuation (dB/Km)	2.8/0.8	2.8/0.8	2.7/0.7	0.38/0.24
Minimum bandwidth (MHz/Km)	200/500	500/500	1500/1500	-
Primary coating dia. (micron)	250	250	250	250

### ▼ SPECIFICATIONS OF USE

- Storage temperature: -40° to +75°C
- Installation temperature: -20° to +70°C
- Operating temperature: -20° to +70°C
- Fire performance: LSZH indoors/outdoors
- Fire resistance: IEC 60332-1

### ■ Codes and structure

N° Fibres	Multimode OM1	Multimode OM2	Multimode OM3	Singlemode OS1
	62.5/125	50/125	50/125	9/125
4	<b>A88617</b>	<b>A88517</b>	-	-
8	<b>A88627</b>	<b>A88527</b>	-	-
12	<b>A88637</b>	<b>A88537</b>	-	-



- A Optical fibres with 250 micron coating and 900 micron PVC tight sheath
- B Glass fibres
- C LSZH jacket
- D Strength member

# Multitube optical fibre

## 24/144 fibre Steel reinforced For outdoors or underground installation

Data transmission optical fibre cables OM1 OM2 OM3 OS1 (multimode and singlemode)

### DESCRIPTION

Reinforced multitube cables are suited for outdoors and directly underground installation, with polyethylene jacket. The reinforcement is composed of a corrugated steel tube waterproofed with a tape. The fibres are available according to colour standards, with 250 micron coloured sheaths. The fibres are contained in six PTB tubes, filled with GEL. Due to its construction, this cable has a high resistance to impact and is very waterproof. The optical fibres are available in all four standard homologated versions: MultiMode OM1, OM2, OM3, and SingleMode OS1.

### CHARACTERISTICS

- Coloured fibres for quick identification
- Rip cord for quick stripping
- PE jacket
- High mechanical strength
- High degree of waterproofing

### APPLICATION

- Black colour for outdoors or directly underground installation.

### CODICE COLORAZIONE



### PHYSICAL SPECIFICATIONS

Number of fibres	Physical characteristics		Traction resistance		Bending radius	
	Cable diameter (mm)	Cable weight (kg/km)	Brief traction resistance (N)	Prolonged traction resistance (N)	Bending radius during installation (cm)	Bending radius when installed (cm)
<b>6 fibre sub-unità</b>						
24	10.5	126	3000	1000	20 x D	10 x D
48	13.6	130	3000	1000	20 x D	10 x D
96	16.8	190	3000	1000	20 x D	10 x D
144	16.8	260	3000	1000	20 x D	10 x D

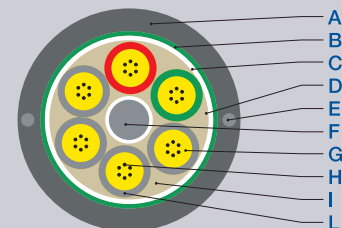
### OPTICAL SPECIFICATIONS

	OM1	OM2	OM3	OS1
	62.5/125 microns (850/1300)	50/125 microns (850/1300)	50/125 microns (850/1300)	9/125 microns (1310/1550)
Attenuation (dB/Km)	2.8/0.8	2.8/0.8	2.7/0.7	0.38/0.24
Minimum bandwidth (MHz/Km)	200/500	500/500	1500/1500	-
Primary coating dia. (micron)	250	250	250	250

### SPECIFICATIONS OF USE

- Strength members: Two, steel
- Crush Test: 3000 N
- Reinforcement: Steel tube with glass fibre
- Central filling: -
- Storage temperature: - 40° to + 70°C
- Installation temperature: - 20° to + 60°C
- Operating temperature: - 20° to + 60°C
- Flame resistance: -
- Fire resistance: -

■ Special order only - Minimum order 1000m



- A PE jacket
- B Steel reinforcement
- C Waterproof coating
- D Tape
- E Parallel steel wires
- F Reinforcement central filler
- G Waterproof gel
- H Optical fibre
- I Glass fibres
- L PBT tube



- A Optical fibres with 250 micron coating and 900 micron PVC tight sheath
- B Glass fibres
- C LSZH jacket
- D Individual structure
- E CSM filler covered with LSZH
- F LSZH Jacket
- G Strength member

## "BREAK-OUT" optical fibre

### For indoors/outdoors installation

Optical fibre cables for data transmission OM1 OM2 OM3 OS1 (multimode and singlemode)

#### ▼ DESCRIPTION

"Break-out" type cables are multi-tight cables suited for indoors installation and are available according to colour standards with 900 micron coloured fibre sheaths. Each structure is like a single-unit tight cable, composed of a central single bundle of fibre strands surrounded by glass fibres to give it traction resistance and resistance against attack by rodents. This is bundled with other structures around a filler to create the break-out or multi-tight structure. The whole assembly is enclosed in a black jacket for outdoors installation. The jacket has LSZH (low smoke zero halogen) fire specification and complies with IEC standards regarding flame and fire performance. The optical fibres are available in all four standard homologated versions: MultiMode OM1, OM2, OM3, and SingleMode OS1.

#### ▼ CHARACTERISTICS

- Coloured fibres for quick identification
- Rip cord for quick stripping
- Black LSZH jacket for indoors and outdoors installation
- Compact design for installation in restricted space.

#### ▼ APPLICATION

- Suited for laying in indoors ducting
- Suited for use in campus backbones, building backbones and horizontal cabling
- Suited for high density sites and fusion splicing
- Compact structure, suited for installation in limited areas such as duct pipes.

#### ▼ CODICE COLORAZIONE



#### ▼ PHYSICAL SPECIFICATIONS

	Physical characteristics		Traction resistance		Bending radius	
	Number of fibres	Cable diameter (mm)	Cable weight (kg/km)	Brief traction resistance (N)	Prolonged traction resistance (N)	Bending radius during installation (cm)
<b>6 fibre sub-units</b>						
24	14.8	151	1500	750	28.8	14.8
<b>12 fibre sub-units</b>						
36	16.7	162	1500	750	25.0	16.7
48	18.2	207	2700	1000	27.5	18.2
60	20.7	257	2700	1000	31.0	20.7
72	21.3	318	2700	1000	32.0	21.3
84	23.2	381	2700	1000	35.0	23.2
96	25.6	454	2700	1000	38.5	25.6
144	27.1	480	2700	1000	41.5	27.1

#### ▼ OPTICAL SPECIFICATIONS

	OM1	OM2	OM3	OS1
	62.5/125 microns (850/1300)	50/125 microns (850/1300)	50/125 microns (850/1300)	9/125 microns (1310/1550)
Attenuation (dB/Km)	2.8/0.8	2.8/0.8	2.7/0.7	0.38/0.24
Minimum bandwidth (MHz/Km)	200/500	500/500	1500/1500	-
Primary coating dia. (micron)	900	900	900	900

#### ▼ SPECIFICATIONS OF USE

- Type: Multi Unit
- Strength member: On all units
- Crush Test: 2000 N
- Reinforcement: Glass fibres
- Central filling: FRP in LSZH
- Packaging temperature: - 40° to + 75°C
- Installation temperature: - 20° to + 75°C
- Operating temperature: - 20° to + 70°C
- Fire performance: LSZH for indoors/outdoors installation
- Flame performance: IEC 60332-1

■ Special order only - Minimum order 1000m

# OPTICAL FIBRE CABLES

## ▼ GENERAL CHARACTERISTICS

Optical fibre is a transmissive medium which carries photons (light) rather than electrical current, as is the case for normal copper conductors. The fundamental requirement for this type of transmission is thus that the material be transparent, like glass, rather than a good conductor.

Optical fibres are composed of thin fibres of silicon oxide (SiO<sub>2</sub>), which act as tunnels to transport the light to distant destinations.

This "tunnel" is extremely small; it is measured in microns. Nonetheless, there are various types of optical fibre cables, because light has different ways of propagating in such restricted spaces.

The advantages of this technology include:

- Very wide operative bandwidth;
- Total immunity from electromagnetic disturbance (photons are electrically neutral);
- Absence of electromagnetic emissions and practically zero crosstalk;
- High transmissive capacity;
- Elimination of grounding problems;
- Low attenuation: around 25 times less than that of equivalent copper conductors;
- Very low weight and size;
- Safety.

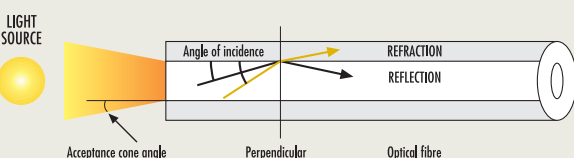
## ▼ CLASSIFICATION

What are singlemode and multimode optical fibres? The fibre is composed of two coaxial cylinders, one inside the other, in glass fibre, and the difference between these two layers of glass consists in the fact that they have different indices of refraction.

Refraction and reflection characterise the mode of propagation of the light wave in the fibre. From the figure, we can see that when a light ray impinges on the boundary between the two layers of glass it is reflected so that it stays entirely within the core. Refraction occurs when the angle of incidence is such that the ray, while deflected from its original direction, passes through the boundary between the two layers and propagates in the cladding. In optical fibres the light is guided by internal reflection, so that refraction is absent.

This is governed by the physical principle that states that if the angle of incidence is less than a certain critical angle depending on the ratio of the two indices of refraction, total reflection occurs, in other words, the emerging light ray propagates with an equal but opposite angle relative to the boundary (*Thanks to the refractive index N, the ratio between the speed of light in vacuum and in the transmissive medium, which is different in the core and in the cladding, the light is confined in the core, while any light which passes from a high to a low refractive index medium tends to move away from the perpendicular*).

The value of this critical angle is also the limit (since it is the same) of the angle of the acceptance cone, at the start of the fibre, relative to its axis. In practice, this shows that we can exploit as many modes of propagation of light inside the fibre as we can create angles of incidence below the critical value. It follows that



a multimode fibre is one which can transmit several rays of light simultaneously with different angles of propagation (since it has a large diameter core), while a singlemode fibre can only transmit a single ray of light parallel to the fibre's own axis. In order to insert the largest number possible of lasers in the transmitter and receiver, we must use optical coupling methods.

A factor which controls this coupling is the Numerical Aperture (NA) which is the sine of the angle of the acceptance cone, and is a function of the indices of refraction N<sub>1</sub> and N<sub>2</sub> of the core and cladding respectively:

$$N.A. = \sin\theta = \sqrt{N_1^2 - N_2^2}$$

Fibre optic cables not only differ in their transmission mode (multimode/singlemode) but also in the ratio between the indices of refraction of the core and cladding. Step index multimode fibre is the simplest of fibres. It has a core of diameter in the range from 100 to 970 micron in glass, PCS (Plastic Clad Silica) or plastic. In this fibre the core and cladding have very different refractive indices (the core has the higher value). This fibre is characterised by the fact that with such a large diameter core, it has many modes of transmission, which results in, among others, different distances of transmission.

On the other hand, this fibre is subject to intermode distortion due to the delay with which signals with high angles of incidence (ray sections) arrive at the far end, since they have to travel further than those with small angles of incidence. This type of fibre is used for low speed data transmission over limited distances (2/3 km).

The most widely used fibres today are of the graded index type. In these fibres there is a not a sharp difference between the refractive index of the core and cladding since successive layers of glass of varying refractive indices in the core ensure that the rays follow a curved path, remaining within the core.

Such fibres are suited to high speed data transmission and provide a limited margin of error over distances of several km. Finally, for long distance (trunk) high speed transmission, singlemode step index fibres are the only solution. Indeed, by using such cables with only passive signal cleaning and regeneration equipment, distances of hundreds of kilometres can be covered.

## ▼ OPTICAL FIBRE CABLES - STRUCTURE

The main structural difference between different types of optical fibre is that between loose tube buffer and tight buffer. In loose tube buffer structures, each fibre, along with its various coatings, is loosely packed inside the tube which contains it along with the other fibres.

In turn the tube (generally in Kevlar for greater mechanical strength) is covered with sheaths of various types depending on the intended installation. In tight buffer construction, on the other hand, each fibre is contained inside a series of protective coatings up to the jacket, with no space between the various layers. Such cables may contain one or many fibres; in the latter case, the fibres are separate from each other.

The advantages and disadvantages of these constructions depend on the type of installation. Tight buffer cables can be routed around tighter bends, are more flexible and have better mechanical strength; furthermore, in case of breakage, the point of failure can be exactly identified.

A loose tube buffer construction, on the other hand, may not enable precise identification of the point of failure without the aid of special instrumentation, but better isolates the individual fibres from mechanical stress and is also more resistant to thermal excursion and external agents in general.

There are also other types of construction which, however, employ the same criteria discussed above, such as open slot construction, which is similar to loose buffer, and ribbon cable, which is similar to tight buffer.

## ▼ ATTENUATION

As it travels along the fibre's core, the light will attenuate under the action of four factors:

### 1) ABSORPTION

This is caused by impurities in the fibre which absorb the light; such impurities in the glassy matrix of the fibre are due to the presence of hydroxide compounds (OH).

### 2) SCATTERING

This is caused by variable density of the material or at the molecular level in the fibre's glassy matrix. Scattering is at the basis of the OTDR concept (Optical Time Domain Reflectometer).

### 3) MACROBENDING

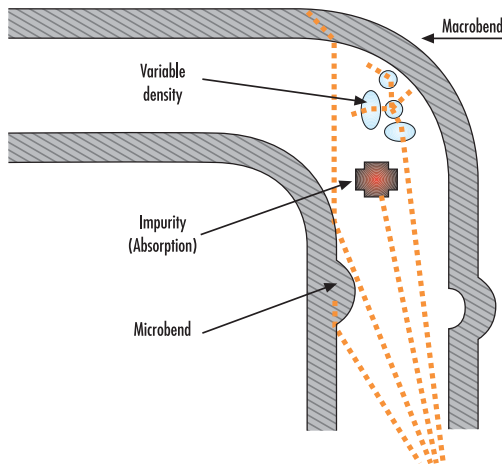
Lack of circularity of the core, micro-bends, micro-fractures. Bending the fibre beyond its maximum bending radius during installation (this is a typical problem in installation) creates problems of refraction.

### 4) MICROBENDING

Micro-distortions of the cable during its fabrication can cause the same problems as macrobending.

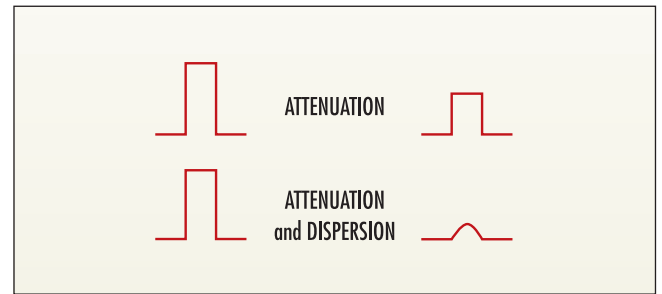
As well as depending on these factors, which can be considered accidental, attenuation in fibre optic transmission is also a function of wavelength. This varies in a non-uniform manner with the emission wavelength; this is why, at the lowest values of attenuation where losses are minimal, three standard windows have been defined (see figure) for light emission:

- First window 820-850 nm
- Second window around 1300 nm
- Third window around 1500 nm



As can be seen, rather than using the frequency it is preferable to use the wavelength to define bandwidth in fibre optic transmission, since the numbers are more convenient to use. Attenuation is the loss in power of the light pulse travelling along a fibre. Dispersion is the diffusion of the light pulse travelling along a fibre. If we had only attenuation losses on each pulse, we would simply lose power, but unfortunately there are also dispersion effects which correspond physically to the capacity of diffusion of light in an environment.

In reality, the useful bandwidth is limited by the combination of dispersion/diffusion (although the resulting bandwidth is still vastly superior to that available with electrical transmission methods). Connection losses and reflections are the primary causes of attenuation in fibres; connections must always be made with the greatest attention to detail and skill.



## ▼ BANDWIDTH OF OPTICAL FIBRES

Measured in MHz x km: since the pulse spreads out in proportion with the length of the cable run (dispersion).

• Window I 800 - 900 nm MM	150 MHz x Km
• Window II 1250 - 1350 nm MM	500 MHz x Km
• MM laser window II	1 GHz x Km
• SM laser window II	10 GHz x Km
• Window III 1500 - 1550 nm SM	100 GHz x Km

## ▼ TYPES OF OPTICAL FIBRES

The ISO/IEC 11801 standard defines four types of optical fibres:

• OM1 (50 or 62.5/125 $\mu$ ):	bandwidth $\geq$ 200 MHz-km at 850 nm
• OM2 (50 or 62.5/125 $\mu$ ):	bandwidth $\geq$ 500 MHz-km at 850 nm
• OM3 (50/125 $\mu$ ):	bandwidth $\geq$ 1500 MHz-km at 850 nm
• OS1 singlemode:	$\geq$ 100 GHz x Km

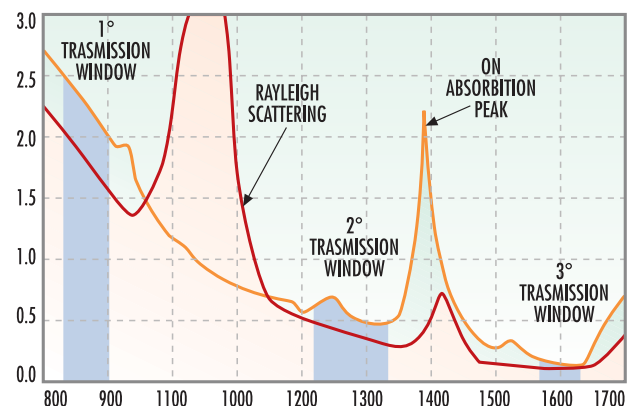
N.B. for classes OM1, OM2, OM3 at 1300 nm banda  $\geq$  500 MHz-km

## ▼ PRESENTATION OF OPTICAL FIBRE CONNECTIONS

The ISO/IEC 11801 standard defines 3 classes of connection:

- OF-300: channels which support applications over a minimum distance of 300 metres;
- OF-500: channels which support applications over a minimum distance of 500 metres
- OF 2000: channels which support applications over a minimum distance of 2000 metres.

The corresponding type of fibre must be evaluated in each case in terms of the length of the connection and the type of application in question.





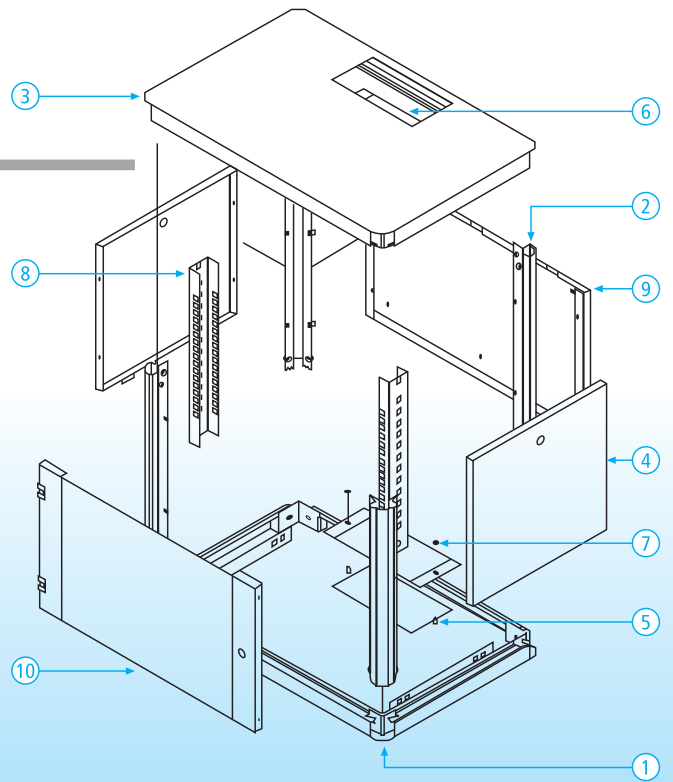
CABLING  
SYSTEM

# GREENET ENCLOSURES

- 10" Greenet Minilan panels
- 19" Greenet wall panels
- Greenet swing out panels
- 19" Greenet floor enclosures
- IP55 enclosures
- 19" open racks
- Kit-Net
- Enclosure accessories

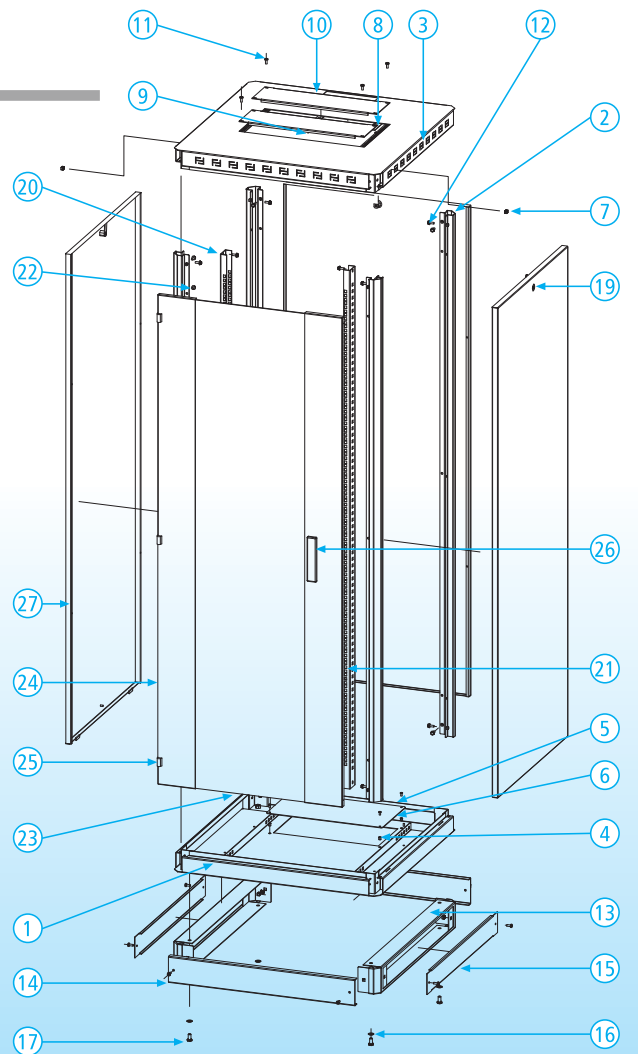
## WALL-MOUNT PANELS GREENET 19" RACK SERIES

TITLE	Ref.
• Base	1
• Upright	2
• Top panel	3
• Side panel	4
• M 5x12 welded pin	5
• Buffer flange	6
• M5 nut	7
• Internal upright	8
• Rear door	9
• Front door	10



## Floor enclosures GREENET 19" RACK SERIES

TITLE	Ref.
• Base	1
• Upright	2
• Top panel	3
• M6 Rivelox	4
• Base flange	5
• TC M5x12 ZB countersunk screw	6
• M6 cage nut	7
• 3U flange	8
• M5 flanged nut	9
• Fan flange	10
• M6x15 screw	11
• M6x16 screw	12
• Plinth	13
• Plinth part	14
• Plinth side panel	15
• 10 washer	16
• M10x20 screw	17
• Triangle lock	19
• Internal upright	20
• Front door	21
• Hex screw	22
• Tempered glass	23
• Metal support	24
• Hinge	25
• Lock	26
• Side panel	27



# 10" GREENET MINILAN PANEL

## ▼ GENERAL CHARACTERISTICS

In order to satisfy the requirement for minimum overall dimensions, the Greenet line also has a wall panel version which designed for installation in restricted spaces.

The Minilan version panel maintains the characteristics of the standard versions, including: completely disassemblable panel, key opening, side panel opening, tempered glass door, top and bottom cable access flanges. The only difference is in size, which is 10" rather than the standard 19". And there is a full range of 10" accessories, from blind panels to panels with windows, from pre-cabled panels to optical panels, power bars to drawers.

The panels are constructed in line with IEC 297-1 and IEC 297-2 as regards sizing and spacing of perforations. As regards the IP protection rating as per EN 60529 or CEI 70-1, the wall and swing out versions are IP 20 while the floor version is IP 30. The doors are complete with 4 mm tempered glass as required by UNI 7142 and have metal locks with dimple keys.

## ■ Greenet MINILAN wall panel - 10" rack

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23123	380 x 300 x 470 mm	8	■ ■ ■ ■	Carton	1
23143	380 x 300 x 470 mm	8	■ ■ ■ ■	Carton	1

## ■ Power bar - 10" rack

Code	Outputs	Description	Units	Colour	Package	Pack Pcs
23214	2	16A Schuko with lamp switch	2	■ ■ ■ ■	Carton	12
23215	1+2	16A Schuko + 2x16A double-pitch + lamp switch	2	■ ■ ■ ■	Carton	12

## ■ Drawers - 10" rack

Code	Description	Units	Colour	Package	Pack Pcs
23448	Fixed drawer, 180 mm deep	1	■ ■ ■ ■	Bag	1
23388	Fixed drawer, 180 mm deep	1	■ ■ ■ ■	Bag	1

## ■ Panels - 10" rack

Code	Description	Units	Colour	Package	Pack Pcs
23405	Blind panel	1	■ ■ ■ ■	Bag	1
23355	Blind panel	1	■ ■ ■ ■	Bag	1
23406	Slotted panel	1	■ ■ ■ ■	Bag	1
23356	Slotted panel	1	■ ■ ■ ■	Bag	1
23407	Cable guide panel	1	■ ■ ■ ■	Bag	1
23357	Cable guide panel	1	■ ■ ■ ■	Bag	1

## ■ Precabled patch panel, Cat. 5e

Code	Description	Units	Colour	Package	Pack Pcs
23409	12 door panel complete with RJ45 UTP modules	1	■ ■ ■ ■	Carton	1

## ■ Empty patch panels - 10" rack

(require coloured windows art. 23.800 and successive)

Code	Description	Units	Colour	Package	Pack Pcs
23408	8 door empty panel	1	■ ■ ■ ■	Bag	1
23358	8 door empty panel	1	■ ■ ■ ■	Bag	1

## ■ Optical switching drawers - 10" rack

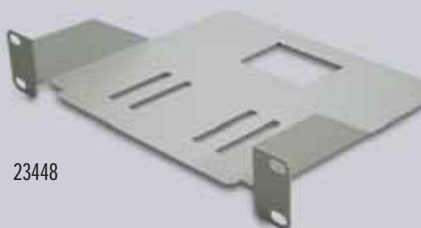
Code	Description	Units	Colour	Package	Pack Pcs
24010	12 door minilan optical door ST empty	1	■ ■ ■ ■	Carton	1
24011	12 door minilan optical door SC empty	1	■ ■ ■ ■	Carton	1



23123



23214



23448



23405



23406



23407



23409



23408



24011

## GREENET 19" WALL PANELS

### ▼ GENERAL CHARACTERISTICS

The Greenet series of panels includes, in the 19 inch rack wall version, a wide range of products. In fact, starting from 6 unit racks, the range goes on to 9U, 12U, 15U and 20 unit racks.

To provide greater flexibility these latter two products (15 and 20 unit racks) can be transformed into floor units with an accessory plinth. The fundamental characteristic of the Greenet wall panels is that the back panel can be removed, mounted to the wall, and then the rest of the panel attached to it. This means that installation can be done by one person working alone.

The entire panel can of course be disassembled, inspected via the two side panels, cables can be routed through the top and bottom panels as well as the back and the door is equipped with a lock as well as tempered glass.

The panels are constructed in line with IEC 297-1 and IEC 297-2 as regards sizing and spacing of perforations. The panels are IP20 as per EN 60529 or CEI 70-1. The doors are complete with 4 mm tempered glass as required by UNI 7142 and have a metal lock with simple key.

### ■ GREENET 19" wall panels - depth 400 mm

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23124	610 x 400 x 390 mm	6	■ ■ ■ ■	Carton	1
23144	610 x 400 x 390 mm	6	■ ■ ■ ■ (*)	Carton	1
23125	610 x 400 x 520 mm	9	■ ■ ■ ■	Carton	1
23145	610 x 400 x 520 mm	9	■ ■ ■ ■ (*)	Carton	1
23126	610 x 400 x 650 mm	12	■ ■ ■ ■	Carton	1
23146	610 x 400 x 650 mm	12	■ ■ ■ ■ (*)	Carton	1
23127	610 x 400 x 780 mm	15	■ ■ ■ ■	Carton	1
23147	610 x 400 x 780 mm	15	■ ■ ■ ■ (*)	Carton	1
23128	610 x 400 x 1000 mm	20	■ ■ ■ ■	Carton	1
23148	610 x 400 x 1000 mm	20	■ ■ ■ ■ (*)	Carton	1

(\*) Black on special order

### ■ GREENET 19" wall panels - depth 500 mm

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23080	610 x 500 x 390 mm	6	■ ■ ■ ■	Carton	1
23085	610 x 500 x 390 mm	6	■ ■ ■ ■ (*)	Carton	1
23081	610 x 500 x 520 mm	9	■ ■ ■ ■	Carton	1
23086	610 x 500 x 520 mm	9	■ ■ ■ ■ (*)	Carton	1
23082	610 x 500 x 650 mm	12	■ ■ ■ ■	Carton	1
23087	610 x 500 x 650 mm	12	■ ■ ■ ■ (*)	Carton	1
23083	610 x 500 x 780 mm	15	■ ■ ■ ■	Carton	1
23088	610 x 500 x 780 mm	15	■ ■ ■ ■ (*)	Carton	1
23084	610 x 500 x 1000 mm	20	■ ■ ■ ■	Carton	1
23089	610 x 500 x 1000 mm	20	■ ■ ■ ■ (*)	Carton	1

(\*) Black on special order



23127



23084



## GREENET 19" wall panels - depth 600 mm

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23090	610 x 600 x 390 mm	6	■ ■ ■ ■	Carton	1
23095	610 x 600 x 390 mm	6	■ ■ ■ ■ (*)	Carton	1
23091	610 x 600 x 520 mm	9	■ ■ ■ ■	Carton	1
23096	610 x 600 x 520 mm	9	■ ■ ■ ■ (*)	Carton	1
23092	610 x 600 x 650 mm	12	■ ■ ■ ■	Carton	1
23097	610 x 600 x 650 mm	12	■ ■ ■ ■ (*)	Carton	1
23093	610 x 600 x 780 mm	15	■ ■ ■ ■	Carton	1
23098	610 x 600 x 780 mm	15	■ ■ ■ ■ (*)	Carton	1
23094	610 x 600 x 1000 mm	20	■ ■ ■ ■	Carton	1
23099	610 x 600 x 1000 mm	20	■ ■ ■ ■ (*)	Carton	1

(\*) Black on special order



23083

## GREENET 19" SWING OUT PANELS

### ▼ GENERAL CHARACTERISTICS

The wall panel series is further developed in the swing out series. This series of products has been designed to meet the need for frequent maintenance with equipment requiring work from the back or with outputs via the back. The panel is composed of two parts; a 100 mm deep rear flange, which is mounted to the wall, and the rest of the enclosure which can be swung out from the wall on two hinges. The unit mounts to the wall by simply installing the rear flange and then sliding the panel down onto the two hinges; no fasteners need to be tightened or screwed in.

The panel as a whole protrudes 500 mm from the wall and has all the features of normal wall panels. Seen from above, the panel swings out clockwise.

This model is available in 6U, 9U, 12U and 15U versions.

The panels are constructed in line with IEC 297-1 and IEC 297-2 as regards sizing and spacing of perforations. The panels are IP20 as per EN 60529 or CEI 70-1. The doors are complete with 4 mm tempered glass as required by UNI 7142 and have a metal lock with dimple key.

## GREENET 19" rack swing out panels

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23160	610 x 500 x 390 mm	6	■ ■ ■ ■	Carton	1
23170	610 x 500 x 390 mm	6	■ ■ ■ ■ (*)	Carton	1
23161	610 x 500 x 520 mm	9	■ ■ ■ ■	Carton	1
23171	610 x 500 x 520 mm	9	■ ■ ■ ■ (*)	Carton	1
23162	610 x 500 x 650 mm	12	■ ■ ■ ■	Carton	1
23172	610 x 500 x 650 mm	12	■ ■ ■ ■ (*)	Carton	1
23163	610 x 500 x 780 mm	15	■ ■ ■ ■	Carton	1
23173	610 x 500 x 780 mm	15	■ ■ ■ ■ (*)	Carton	1

(\*) Black on special order



23162

2009  
2010

GREENET ENCLOSURES AND PANELS

## GREENET 19" FLOOR ENCLOSURES



23130

### ▼ GENERAL CHARACTERISTICS

We can now offer a sealed IP 55 version for areas in which telecommunications equipment must be isolated from the exterior, and a stainless steel version for areas where washability and corrosion resistance are important.

The panels maintain the usual benefits in terms of both installation and daily use, such as key operated lock, 6U 19" rack top panel for dedicated accessories such as cable slots or 2 and 3 module ventilation panels which would otherwise normally install inside the panel.

The panels can be completely dis- and re-assembled with a simple allen key, as well as featuring custom design with colour options for the uprights and the entire enclosure.

### ▼ TECHNICAL CHARACTERISTICS

- IP 20 protection rating
- 15/10 steel sheeting panels
- Smokey grey tempered glass
- Embossed epoxy powder coating, grey RAL 7035
- Standard plinth, access for inspection
- Key lock
- Blind back flange
- 6 19" rack units on the top panel
- Front door opening >180°
- Copper plated stud bolts on all panels for ground plant connection
- Door can be mounted to open to the left or right
- Optional rear door
- Option to mount several enclosures together with accessory kit
- Colours options for enclosure/angle members on special order
- Rear rack uprights available on special order (see page 52)

### ■ Greenet 620x620 floor enclosures

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23129	620 x 620 x 1200 mm	24	■ ■ ■ ■	Carton	1
23149	620 x 620 x 1200 mm	24	■ ■ ■ ■ (*)	Carton	1
23130	620 x 620 x 1500 mm	31	■ ■ ■ ■	Carton	1
23150	620 x 620 x 1500 mm	31	■ ■ ■ ■ (*)	Carton	1
23131	620 x 620 x 1800 mm	38	■ ■ ■ ■	Carton	1
23151	620 x 620 x 1800 mm	38	■ ■ ■ ■ (*)	Carton	1
23132	620 x 620 x 2000 mm	42	■ ■ ■ ■	Carton	1
23152	620 x 620 x 2000 mm	42	■ ■ ■ ■ (*)	Carton	1
23133	620 x 620 x 2200 mm	47	■ ■ ■ ■	Carton	1
23153	620 x 620 x 2200 mm	47	■ ■ ■ ■ (*)	Carton	1

### ■ Greenet 620x800 floor enclosures

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23104	620 x 800 x 1800 mm	38	■ ■ ■ ■	Carton	1
23164	620 x 800 x 1800 mm	38	■ ■ ■ ■ (*)	Carton	1
23105	620 x 800 x 2000 mm	42	■ ■ ■ ■	Carton	1
23165	620 x 800 x 2000 mm	42	■ ■ ■ ■ (*)	Carton	1
23106	620 x 800 x 2200 mm	47	■ ■ ■ ■	Carton	1
23166	620 x 800 x 2200 mm	47	■ ■ ■ ■ (*)	Carton	1

### ■ Greenet 800x620 floor enclosures

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23107	800 x 620 x 1800 mm	38	■ ■ ■ ■	Carton	1
23167	800 x 620 x 1800 mm	38	■ ■ ■ ■ (*)	Carton	1
23108	800 x 620 x 2000 mm	42	■ ■ ■ ■	Carton	1
23168	800 x 620 x 2000 mm	42	■ ■ ■ ■ (*)	Carton	1
23109	800 x 620 x 2200 mm	47	■ ■ ■ ■	Carton	1
23169	800 x 620 x 2200 mm	47	■ ■ ■ ■ (*)	Carton	1



23133



## Greenet 800x800 floor enclosures

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23141	800 x 800 x 1200 mm	24	■ ■ ■ ■	Carton	1
23181	800 x 800 x 1200 mm	24	■ ■ ■ ■ (*)	Carton	1
23142	800 x 800 x 1500 mm	31	■ ■ ■ ■	Carton	1
23182	800 x 800 x 1500 mm	31	■ ■ ■ ■ (*)	Carton	1
23134	800 x 800 x 1800 mm	38	■ ■ ■ ■	Carton	1
23154	800 x 800 x 1800 mm	38	■ ■ ■ ■ (*)	Carton	1
23135	800 x 800 x 2000 mm	42	■ ■ ■ ■	Carton	1
23155	800 x 800 x 2000 mm	42	■ ■ ■ ■ (*)	Carton	1
23136	800 x 800 x 2200 mm	47	■ ■ ■ ■	Carton	1
23156	800 x 800 x 2200 mm	47	■ ■ ■ ■ (*)	Carton	1

## Greenet 800x1000 floor enclosures

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23137	800 x 1000 x 2000 mm	42	■ ■ ■ ■	Carton	1
23157	800 x 1000 x 2000 mm	42	■ ■ ■ ■ (*)	Carton	1
23138	800 x 1000 x 2200 mm	47	■ ■ ■ ■	Carton	1
23158	800 x 1000 x 2200 mm	47	■ ■ ■ ■ (*)	Carton	1

(\*) Black on special order

## IP55 enclosures

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23175 (*)	600 x 600 x 1200 mm	24	■ ■ ■ ■	Carton	1
23176 (*)	600 x 600 x 1800 mm	38	■ ■ ■ ■	Carton	1
23177 (*)	800 x 800 x 1800 mm	38	■ ■ ■ ■	Carton	1
23178 (*)	800 x 800 x 2000 mm	42	■ ■ ■ ■	Carton	1
23179 (*)	600 x 600 x 1500 mm	31	■ ■ ■ ■	Carton	1

(\*) Special order items

# 19" OPEN RACKS

### ▼ GENERAL CHARACTERISTICS

In addition to our wall and floor enclosures, as part of our cabling system range Fanton is now offering a range of 19" open racks. These are required in conditions in which existing structures cannot be replaced, such as wall cavities or antique furnishings, or in cases which require frequent dis- and re-assembly. Open racks are composed of a base with access from below via a blind flange or with dust strip, and two vertical uprights equipped with standard perforations and a horizontal member joining them at the top. The structure is made rigid by the use of two rear members which run at an angle from the uprights to the base, to which they are bolted. The entire structure can be easily dis- and re-assembled using a single 10 mm socket driver

### ▼ CARATTERISTICHE TECNICHE

- Epoxy powder coating, grey RAL 7035
- Base dimensions L= 520 mm, W= 600 mm, H= 10 mm.

## 19" open rack

Code	Dimensions	Units	Colour	Package	Pack Pcs
23110	Open rack, h 1200	24	■ ■ ■ ■	Carton	1
23111	Open rack, h 1500	31	■ ■ ■ ■	Carton	1
23112	Open rack, h 1800	38	■ ■ ■ ■	Carton	1
23113	Open rack, h 2000	42	■ ■ ■ ■	Carton	1
23114	Open rack, h 2200	47	■ ■ ■ ■	Carton	1



23134



23110

## RACK EASYNET

The range of racks proposed by Fanton, is now wider: a new version called Easy net was introduced. It contemplates the proposals with 6-9-12-15-20 units, just like the Greenet racks.

These racks are built in conformity to the IEC 297-1 standards, and studied to be satisfactory for people who need the simplest installation and quick mounting device. Its easy-building process allows the structure to have a light weight on the whole, so that it can be mounted in common areas, such as telecommunication-halls or data processing offices.

### ▼ DESCRIPTION

- Metallic-sheet cabinet 12/10.
- Smokey Glass
- Key-locking device
- Possibility to insert cables on the back, on top and on the base

### ▼ ITEM'S STRUCTURAL SPECIFICATIONS

- Inspectionable
- IP 20 Protection grade
- Embossed painting RAL 7035
- Depth 400mm
- detachable side panels
- Invertible door opening
- earthing loops

### ▼ ENVIRONMENTAL SPECIFICATIONS

- Storing & transport temp. - 40 + 70° C
- Installation temperature - 20 + 70° C
- Operation temperature - 20 + 70° C

### ▼ USAGE

- Network nodes
- Distribution on Plan and/or Building
- Transition point
- Floor distributor

### ▼ REFERENCE TO NORMS

- IEC 297-1 (Holes width)
- IEC 297-2 (Cabinets and structures)
- DIN 41494 (Rack 19" Structures)
- CEI 306-2 (Installation guide)
- EN 60529 e CEI 70-1 (Protection Grade)
- UNI 7142 (Blended Glass)
- CEI EN 50310 (Earth-wiring connections)



23001



### ■ Rack EasyNet

Code	Dimensions (lxwxh)	Units	Colour	Package	Pack Pcs
23000	610 x 400 x 390 mm	6	■ ■ ■ ■ ■ ■	Carton	1
23001	610 x 400 x 520 mm	9	■ ■ ■ ■ ■ ■	Carton	1
23002	610 x 400 x 650 mm	12	■ ■ ■ ■ ■ ■	Carton	1
23003	610 x 400 x 780 mm	15	■ ■ ■ ■ ■ ■	Carton	1
23010	610 x 500 x 390 mm	6	■ ■ ■ ■ ■ ■	Carton	1
23011	610 x 500 x 520 mm	9	■ ■ ■ ■ ■ ■	Carton	1
23012	610 x 500 x 650 mm	12	■ ■ ■ ■ ■ ■	Carton	1
23013	610 x 500 x 780 mm	15	■ ■ ■ ■ ■ ■	Carton	1



# GREENET: *modularity and ease of installation.*

All Greenet series enclosures, both wall and floor models, can be completely disassembled with a single 10mm socket driver. They are constructed in such a way that the four uprights are fixed to the top and bottom panels with an insert and just 2 bolts each, so that 16 bolts are used to assemble the entire structure.



**1** Place the base on a flat, level surface and insert the four external uprights into the four corners by pushing them down as shown in the figure, making sure that they are fully inserted



**2** Once the upright is fully inserted, the two holes inside the base at each corner should coincide with the two threaded inserts



**3** Screw the bolts through the holes inside the corners and into the threaded inserts using an allen key. Repeat the operation for the other three uprights as shown in the figure.



**4** Now fit the top panel to the top of the uprights with the window facing the same side as the window in the base. Just as with the base, push the top panel down onto the uprights so that they fully insert for the entire height of the panel.



**5** As before, the two holes inside each corner should now coincide with the two threaded pins on the uprights.



**6** Once the bolts have been fitted and fully tightened down, there must be no gaps between the uprights and the top panel.

## Wall mounting



**1** The wall panel's back panel is attached to the structure with two bolts and an insert.



**2** This enables the panel to be mounted to the wall, after which the enclosure itself can be mounted to the panel with only two bolts to prevent accidental detachment.

# KIT-NET *Complete, ready-to-use solutions.*

## NET enclosure kit Cat. 6 complete for 24 users

Cod 99905



- 

**23124**  
GREENET 19" rack wall panel  
610 x 400 x 390 mm  
6 units • grey  
*quantity: 1*
- 

**23652**  
Patch Panel 24 ports 1 unit  
for 600mm 19" rack enclosures  
complete with RJ45 Cat.6 modules • grey  
*quantity: 1*
- 

**23411**  
Cable guide panel 1 unit  
for 19" rack enclosures • grey  
*quantity: 1*
- 

**23449**  
Fixed drawer, depth 250 mm  
with raised side panels, 2 units  
for 19" rack enclosures • grey  
*quantity: 1*
- 

**23203**  
Horizontal power bar for 19" rack enclosures:  
6x16A SCHUKO sockets  
+ thermal cutout – cabled with 3 m cable.  
HO5VV-F 3x1.50 and 2P+T 16A Schuko plug • grey  
*quantity: 1*
- 

**23541**  
UTP Cat. 6 patch cord  
length 1.0 m • grey  
*quantity: 24*
- 

**23710**  
Horizontal socket 8/8c: RJ45 not screened Cat.6  
• white  
*quantity: 24*
- 

**A82840**  
LAN cable Cat. 6 enhanced UTP 4x2xAWG 24/1  
sheath PVC-FR • grey  
*quantity: 305 m*

## NET enclosure kit Cat. 5e complete for 24 users

Cod 99902



- 

**23124**  
GREENET 19" rack wall panel  
610 x 400 x 390 mm  
6 units • grey  
*quantity: 1*
- 

**23422**  
Patch Panel 24 ports 1 unit  
for 600mm 19" rack enclosures  
complete with RJ45 Cat.5e modules • grey  
*quantity: 1*
- 

**23411**  
Cable guide panel 1 unit  
for 19" rack enclosures • grey  
*quantity: 1*
- 

**23449**  
Fixed drawer, depth 250 mm  
with raised side panels, 2 units  
for 19" rack enclosures • grey  
*quantity: 1*
- 

**23203**  
Horizontal power bar for 19" rack enclosures:  
6x16A SCHUKO sockets  
+ thermal cutout – cabled with 3 m cable.  
HO5VV-F 3x1.50 and 2P+T 16A Schuko plug • grey  
*quantity: 1*
- 

**23501**  
UTP Cat.5e patch cord  
length 1.0 m • grey  
*quantity: 24*
- 

**23702**  
Horizontal socket 8/8c: RJ45 not screened Cat.5e  
• white  
*quantity: 24*
- 

**A82500**  
LAN cable Cat. 5e enhanced UTP 4x2xAWG 24/1  
sheath PVC-FR • grey  
*quantity: 305 m*





The **MINILAN kit**, ideal for domestic and similar network applications, offers a full range of accessories pre-installed on the panel: cable, sockets, patch cords, power bar. For medium size installation there are other wall versions, which can also be equipped with an accessory plinth since, as is often the case, 15 unit enclosures offer an excellent aesthetic and functional solution even when floor mounted, although originally designed for wall mounting.

## NET enclosure kit Cat. 5e complete for 48 users

Cod 99903





- 


**23125**  
GREENET 19" rack wall panel  
610 x 400 x 520 mm - 9 units • grey  
*quantity: 1*
- 

**23427**  
Patch Panel 48 ports 2 units for 600 mm enclosures  
19" rack complete with RJ45 Cat.5e modules • grey  
*quantity: 1*
- 

**23411**  
Cable guide panel 1 unit  
for 19" rack enclosures • grey  
*quantity: 1*
- 

**23449**  
Fixed drawer, depth 250 mm with raised side panels  
2 units for 19" rack enclosures • grey  
*quantity: 1*
- 

**23401**  
Blind panel 2 units for 19" rack enclosures • grey  
*quantity: 1*
- 

**23203**  
Horizontal power bar for 19" rack enclosures:  
6x16A SCHUKO sockets + thermal cutout  
cabled with 3 m cable H05VV-F 3x1.50  
and 2P+T 16A Schuko plug • grey  
*quantity: 1*
- 

**23501**  
UTP Cat.5e patch cord  
length 1.0 m • grey  
*quantity: 48*
- 

**23702**  
Horizontal socket 8/8c. RJ45 not screened Cat.5e • white  
*quantity: 48*
- 

**A82500**  
LAN cable Cat. 5 enhanced UTP 4x2xAWG 24/1  
sheath PVC-FR • grey  
*quantity: 305 m*

## NET enclosure kit Cat. 5e complete for 8 users

Cod 99904



- 

**23123**  
GREENET MINI 10" rack wall panel  
380 x 300 x 470 mm - 8 units • grey  
*quantity: 1*
- 

**23407**  
Cable guide panel 10" for MINILAN enclosures • grey  
*quantity: 1*
- 

**23448**  
Fixed drawer, depth 180 mm - with raised  
side panels, 2 units for MINILAN enclosures • grey  
*quantity: 1*
- 

**23405**  
Blind panel 10" for MINILAN enclosures • grey  
*quantity: 1*
- 

**23408**  
Patch panel 8 ports - MINILAN enclosures • grey  
*quantity: 1*
- 

**23500**  
UTP patch cord Cat.5e - length 0.50 m • grey  
*quantity: 8*
- 

**23801**  
Coloured windows for patch panels • green  
*quantity: 8*
- 

**23214**  
Horizontal power bar for MINILAN 10" rack enclosures:  
2x16A SCHUKO sockets + lamp switch cabled  
with 3 m cable H05VV-F 3x1.50  
and 2P+T 16A Schuko plug • grey  
*quantity: 1*
- 

**23702**  
Horizontal socket 8/8c. RJ45 not screened Cat.5e  
• white  
*quantity: 16*
- 

**A82500**  
LAN cable Cat.5e UTP 4x2xAWG 24/1 PVC-FR sheath • grey  
*quantity: 305 m*

## CABINET ACCESSORIES

### ■ Empty patch panels

(REQUIRE coloured windows art. 23.800 and successive)

#### ▼ TECHNICAL CHARACTERISTICS

- Steel sheet, 1.5 mm, folded inward
- Epoxy powder coating, embossing effect
- Grey RAL 7035

Code	Description	Colour	Package	Pack Pcs
23421	Panel 16 ports empty 19" - 1 unit with cable slots	■ ■ ■ ■	Bag	1
23371	Panel 16 ports empty 19" - 1 unit with cable slots	■ ■ ■ ■	Bag	1
23426	Panel 32 ports empty 19" - 2 unit with cable slots	■ ■ ■ ■	Bag	1
23376	Panel 32 ports empty 19" - 2 unit with cable slots	■ ■ ■ ■	Bag	1

### ■ Empty patch panels

(DO NOT REQUIRE coloured windows art. 23.800 and successive)

Code	Description	Colour	Package	Pack Pcs
23423	Panel 16 ports empty 19" - 1 unit with cable slots	■ ■ ■ ■	Bag	1
23373	Panel 16 ports empty 19" - 1 unit with cable slots	■ ■ ■ ■	Bag	1

### ■ Panels for 19" racks

#### ▼ TECHNICAL CHARACTERISTICS

- Steel sheet, 1.5 mm, folded inward
- Epoxy powder coating, embossing effect
- Grey RAL 7035

Code	Description	Colour	Package	Pack Pcs
23400	Blind panel 19" - 1 unit	■ ■ ■ ■	Bag	1
23350	Blind panel 19" - 1 unit	■ ■ ■ ■	Bag	1
23401	Blind panel 19" - 2 units	■ ■ ■ ■	Bag	1
23351	Blind panel 19" - 2 units	■ ■ ■ ■	Bag	1
23402	Blind panel 19" - 3 units	■ ■ ■ ■	Bag	1
23352	Blind panel 19" - 3 units	■ ■ ■ ■	Bag	1
23410	19" Cable through guide Panel - 1 unit	■ ■ ■ ■	Bag	1
23360	19" Cable through guide Panel - 1 unit	■ ■ ■ ■	Bag	1
23411	Cable guide panel 19" welded rings h.42 - 1 unit	■ ■ ■ ■	Bag	1
23361	Cable guide panel 19" welded rings h.42 - 1 unit	■ ■ ■ ■	Bag	1
23431	Cable guide panel 19" welded rings h.80 - 1 unit	■ ■ ■ ■	Bag	1
23362	Cable guide panel 19" welded rings h.80 - 1 unit	■ ■ ■ ■	Bag	1
23432	Cable guide panel 19" welded rings h.80 - 2 unit	■ ■ ■ ■	Bag	1
23363	Cable guide panel 19" welded rings h.80 - 2 unit	■ ■ ■ ■	Bag	1



23421



23426



23423



23401



23410



23411



## IDENTIFICATION SYSTEMS

### ■ Coloured windows

Code	Description	Colour	Package	Pack Pcs
23800	Windows for empty patch panels	■ ■ ■ ■	Bag 20 pcs	100
23801	Windows for empty patch panels	■ ■ ■ ■	Bag 20 pcs	100
23802	Windows for empty patch panels	■ ■ ■ ■	Bag 20 pcs	100
23803	Windows for empty patch panels	■ ■ ■ ■	Bag 20 pcs	100
23804	Windows for empty patch panels	■ ■ ■ ■	Bag 20 pcs	100



23800

### ■ Icons for coloured windows

Code	Description	Colour	Package	Pack Pcs
23810	Set 12 snap-on icons	■ ■ ■ ■	Bag 2 sets	10
23811	Set 12 snap-on icons	■ ■ ■ ■	Bag 2 sets	10
23812	Set 12 snap-on icons	■ ■ ■ ■	Bag 2 sets	10
23813	Set 12 snap-on icons	■ ■ ■ ■	Bag 2 sets	10
23814	Set 12 snap-on icons	■ ■ ■ ■	Bag 2 sets	10



23810

### ■ Panel hole cover

Code	Description	Colour	Package	Pack Pcs
23820	Blind hole cover for empty patch panels	■ ■ ■ ■	Bag 20 pcs	20



23820

### ■ Dust cap

Code	Description	Colour	Package	Pack Pcs
23735	Pack of dust caps	■ ■ ■ ■	Bag 6 pcs	6



23735

### ■ Patch panel stickers - plaques - windows

Code	Description	Colour	Package	Pack Pcs
23821	Sheets of 34 coloured stickers - various symbols	■ ■ ■ ■	Pack of 3 sheets	3
23822	Sheets of 34 coloured stickers - various symbols	■ ■ ■ ■	Pack of 3 sheets	3
23823	Sheets of 34 coloured stickers - various symbols	■ ■ ■ ■	Pack of 3 sheets	3
23824	Sheets of 34 coloured stickers - various symbols	■ ■ ■ ■	Pack of 3 sheets	3
23825	Sheets of 34 coloured stickers - various symbols	■ ■ ■ ■	Pack of 3 sheets	3



23821

### ■ Strips

Code	Description	Colour	Package	Pack Pcs
23321	Pack of 20 pcs - 250x20 mm strips	■ ■ ■ ■	Bag 20 pcs	20



23321

### ■ Labelling

Code	Description	Colour	Package	Pack Pcs
23981	"Letratag" dymo		Blister	1
23982	Metallic Dymo tape	■ ■ ■ ■	Blister	1
23983	White paper Dymo tape	□ □ □ □	Blister	1



23981

2009  
2010

CABINET ACCESSORIES

## 19" ROTARY RACKS

### ▼ GENERAL CHARACTERISTICS

Designed specifically to facilitate access to the rear of cabling systems, simplifies normal cabling and maintenance since it can be opened to the right and the left.

Made in 15/10 steel sheeting, embossed epoxy powder coating RAL 7035, easy to install and secures to the enclosure structure with socket cap head screws.

### ▼ TECHNICAL CHARACTERISTICS

- Embossed coating RAL 7035
- Copper coated stud bolts for grounding, all models
- 19" rack perforation spacings as per IEC 297-1



23610



Code	Description	Units	Colour	Package	Pack Pcs
23600	Rotary rack for wall panel	6	■ ■ ■ ■ (*)	Carton	1
23601	Rotary rack for wall panel	9	■ ■ ■ ■ (*)	Carton	1
23602	Rotary rack for wall panel	12	■ ■ ■ ■ (*)	Carton	1
23603	Rotary rack for wall panel	15	■ ■ ■ ■ (*)	Carton	1
23604	Rotary rack for wall panel	20	■ ■ ■ ■ (*)	Carton	1
23605	Rotary rack for floor panel	23	■ ■ ■ ■ (*)	Carton	1
23606	Rotary rack for floor panel	30	■ ■ ■ ■ (*)	Carton	1
23607	Rotary rack for floor panel	37	■ ■ ■ ■ (*)	Carton	1
23608	Rotary rack for floor panel	41	■ ■ ■ ■ (*)	Carton	1
23609	Rotary rack for floor panel	46	■ ■ ■ ■ (*)	Carton	1
23610	Rotary rack for wall panel	6	■ ■ ■ ■	Carton	1
23611	Rotary rack for wall panel	9	■ ■ ■ ■	Carton	1
23612	Rotary rack for wall panel	12	■ ■ ■ ■	Carton	1
23613	Rotary rack for wall panel	15	■ ■ ■ ■	Carton	1
23614	Rotary rack for wall panel	20	■ ■ ■ ■	Carton	1
23615	Rotary rack for floor panel	23	■ ■ ■ ■	Carton	1
23616	Rotary rack for floor panel	30	■ ■ ■ ■	Carton	1
23617	Rotary rack for floor panel	37	■ ■ ■ ■	Carton	1
23618	Rotary rack for floor panel	41	■ ■ ■ ■	Carton	1
23619	Rotary rack for floor panel	46	■ ■ ■ ■	Carton	1

(\*) Black on special order

### ■ Pair of supplementary rack uprights

(Not suited to installation on open racks - see page 47)

Code	Description	Units	Colour	Package	Pack Pcs
23480	Pair of uprights h 1200 mm	24	■ ■ ■ ■	Package	1
23485	Pair of uprights h 1200 mm	24	■ ■ ■ ■	Package	1
23481	Pair of uprights h 1500 mm	31	■ ■ ■ ■	Package	1
23486	Pair of uprights h 1500 mm	31	■ ■ ■ ■	Package	1
23482	Pair of uprights h 1800 mm	38	■ ■ ■ ■	Package	1
23487	Pair of uprights h 1800 mm	38	■ ■ ■ ■	Package	1
23483	Pair of uprights h 2000 mm	42	■ ■ ■ ■	Package	1
23488	Pair of uprights h 2000 mm	42	■ ■ ■ ■	Package	1
23484	Pair of uprights h 2200 mm	47	■ ■ ■ ■	Package	1
23489	Pair of uprights h 2200 mm	47	■ ■ ■ ■	Package	1

### ■ Enclosure connection kit

Code	Description	Colour	Package	Pack Pcs
23473	Enclosure connection kit – complete with 4 union brackets	■ ■ ■ ■	Bag	1



23473



## DRAWERS FOR ENCLOSURES

### ▼ GENERAL CHARACTERISTICS

Drawers play an essential role in enclosures inasmuch as they provide support for all those accessories and devices which are not designed for use on 19" racks and hence have no attachments for this type of structure. For example, they can be used to support a computer, monitor, keyboard, UPS etc. Given the wide range of enclosures on offer and the various applications they are used for, our drawers are divided into two main groups.

### ▼ TECHNICAL CHARACTERISTICS

- Steel sheet, 1.5 mm, folded inward
- Embossed type coating
- Equipped with grill for mounting accessories
- Slide out drawers on metal guides with ball bearings at the sides

### ■ Fixed drawers with raised sides for wall panels

Suited for installation on rotary racks

Code	Description	Depth	Units	Colour	Payload	Package	Pack Pcs
23449	Drawer for 19" rack enclosures	250	2	■ ■ ■ ■ ■	20 kg	Bag	1
23389	Drawer for 19" rack enclosures	250	2	■ ■ ■ ■ ■	20 kg	Bag	1

### ■ Fixed drawers with raised side panels for floor enclosures, depth 600mm

Suited for installation on rotary racks

Code	Description	Depth	Units	Colour	Payload	Package	Pack Pcs
23450	Drawer for 19" rack enclosures	350	2	■ ■ ■ ■ ■	15 kg	Bag	1
23390	Drawer for 19" rack enclosures	350	2	■ ■ ■ ■ ■	15 kg	Bag	1

### ■ Fixed drawers with raised side panels for floor enclosures depth 600mm and enclosures depth 800mm

Suited for installation on rotary racks

Code	Description	Depth	Units	Colour	Payload	Package	Pack Pcs
23451	Drawer for 19" rack enclosures	450	2	■ ■ ■ ■ ■	15 kg	Bag	1
23391	Drawer for 19" rack enclosures	450	2	■ ■ ■ ■ ■	15 kg	Bag	1

### ■ Fixed flat drawers - Max load ≤ 80 kg for floor enclosures

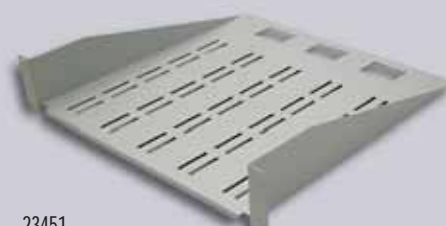
(Require pair of supplementary rack uprights - see page 54)

Code	Description	Depth	Units	Colour	Payload	Package	Pack Pcs
23452	Fixed drawer for 600 mm enclosures	400	1	■ ■ ■ ■ ■	80 kg	Carton	1
23392	Fixed drawer for 600 mm enclosures	400	1	■ ■ ■ ■ ■	80 kg	Carton	1
23453	Fixed drawer for 800 mm enclosures	600	1	■ ■ ■ ■ ■	80 kg	Carton	1
23393	Fixed drawer for 800 mm enclosures	600	1	■ ■ ■ ■ ■	80 kg	Carton	1
23454	Fixed drawer for 1000 mm enclosures	800	1	■ ■ ■ ■ ■	80 kg	Carton	1
23394	Fixed drawer for 1000 mm enclosures	800	1	■ ■ ■ ■ ■	80 kg	Carton	1

### ■ Slide out drawers - max load ≤ 40 kg for floor enclosures

(Require pair of supplementary rack uprights - see page 54)

Code	Description	Depth	Units	Colour	Payload	Package	Pack Pcs
23460	Slide out drawer for 600 mm enclosures	400	1	■ ■ ■ ■ ■	40 kg	Carton	1
23395	Slide out drawer for 600 mm enclosures	400	1	■ ■ ■ ■ ■	40 kg	Carton	1
23461	Slide out drawer for 800 mm enclosures	600	1	■ ■ ■ ■ ■	40 kg	Carton	1
23396	Slide out drawer for 800 mm enclosures	600	1	■ ■ ■ ■ ■	40 kg	Carton	1
23462	Slide out drawer for 1000 mm enclosures	800	1	■ ■ ■ ■ ■	40 kg	Carton	1
23397	Slide out drawer for 1000 mm enclosures	800	1	■ ■ ■ ■ ■	40 kg	Carton	1



23451



23452



23460

2009  
2010

CABINET ACCESSORIES

## VENTILATION PANELS

### ▼ GENERAL CHARACTERISTICS

Panels for forced ventilation of enclosures are in the 19 inch rack format and occupy a height of 3 modules. There are two versions: one with two ventilators for normal air exchange, and one with three ventilators for improved heat dissipation, especially for transformers and equipment powered inside the enclosure itself. Both versions are pre-cabled and equipped with power terminals, which may be direct or controlled.

In the first case, only cutting off power to the unit will switch off the fans.

In the second case, a panel equipped with an ON/OFF button and adjustable thermostat with temperature probe monitors the temperature inside the enclosure. This panel, as well as being equipped with power terminals and output for connection to the ventilation panel, is also supplied cabled with the power cord.

### ▼ TECHNICAL CHARACTERISTICS

- Power supply 230V AC 50 Hz. Absorption 0.5 A
- Epoxy powder coating, grey RAL 7035
- Air flow 2.5 m<sup>3</sup> or 90 CFM per ventilation unit
- Dimensions 3 units x 19 inches
- IP20 protection rating



23345



23346



23347



23341



23343



23303



23317



23315

### ■ Forced ventilation accessories

Code	Description	Units	Colour	Package	Pack Pcs	
23345	3 unit ventilation panel	3	■ ■ ■ ■	Carton	1	CE
23346	2 unit ventilation panel	3	■ ■ ■ ■	Carton	1	CE
23347	Ventilation control panel	1	■ ■ ■ ■	Carton	1	CE
23335	3 unit ventilation panel	3	■ ■ ■ ■	Carton	1	CE
23336	2 unit ventilation panel	3	■ ■ ■ ■	Carton	1	CE
23337	Ventilation control panel	1	■ ■ ■ ■	Carton	1	CE
23341	Flat helical panel, 220V power, including grille		■ ■ ■ ■	Carton	1	CE
23343	Power cable for 1 flat fan		■ ■ ■ ■	Bag	1	CE

## MISCELLANEOUS ACCESSORIES

### ■ 19" rack enclosure plinth

Code	Description	Depth	Colour	Package	Pack Pcs
23303	19" rack enclosure plinth - 15 and 20 units	400	■ ■ ■ ■	Carton	1
23304	19" rack enclosure plinth - 15 and 20 units	400	■ ■ ■ ■	Carton	1
23307	19" rack enclosure plinth - 15 and 20 units	500	■ ■ ■ ■	Carton	1
23308	19" rack enclosure plinth - 15 and 20 units	500	■ ■ ■ ■	Carton	1
23313	19" rack enclosure plinth - 15 and 20 units	600	■ ■ ■ ■	Carton	1
23314	19" rack enclosure plinth - 15 and 20 units	600	■ ■ ■ ■	Carton	1

### ■ Wheels

Code	Description	Colour	Package	Pack Pcs
23317	Kit of 4 double plastic caster wheels, max load 90 kg each	■ ■ ■ ■	Bag	1

### ■ Feet

Code	Description	Colour	Package	Pack Pcs
23315	Kit of 4 adjustable feet	■ ■ ■ ■	Bag	1



## ■ Cable routing flange

Code	Description	Colour	Package	Pack Pcs
23305	Flange complete with dust brush	■■■■■	Polyethylene	1
23306	Blind flange	■■■■■	Polyethylene	1

## ■ Document wallet

Code	Description	Colour	Package	Pack Pcs
23310	PVC document wallet, A4	■■■■■	Heat shrink	1

## ■ Mounting accessories

Code	Description	Package	Pack Pcs
23320	Kit viti e dadi a gabbia M6	Carton 50 pcs	1

## ■ Straps

Code	Length mm	Width mm	Strap dia.	Colour	Package	Pack Pcs
63101	100	2,5	22 mm	■■■■■	100 Pcs	1000
63105	140	3,6	33 mm	■■■■■	100 Pcs	1000
63113	250	4,8	60 mm	■■■■■	100 Pcs	1000

N.B.: For other sizes, refer to the "Cabling accessories" section of the F.M.E. catalogue

## ■ Ground plant

Code	Description	Colour	Package	Pack Pcs
23333	With pre-isolated terminals 6 mm <sup>2</sup> - Length 250 mm Complete with flanged nut M6	■■■■■	Bag 5 pcs	1

Note: Ground connections guarantee the safety of users against indirect contacts, as well as a certain degree of ECM screening.

## ■ Cable guide rings

Code	Description	Height	Colour	Package	Pack Pcs
23398	Pack of metal cable guide rings, 1 unit	42 mm	■■■■■	Bag 5 pcs	1
23470	Pack of metal cable guide rings, 1 unit	42 mm	■■■■■	Bag 5 pcs	1
23348	Pack of metal cable guide rings, 1 unit	80 mm	■■■■■	Bag 5 pcs	1
23471	Pack of metal cable guide rings, 1 unit	80 mm	■■■■■	Bag 5 pcs	1
23349	Pack of metal cable guide rings, 2 units	80 mm	■■■■■	Bag 5 pcs	1
23469	Pack of metal cable guide rings, 2 units	80 mm	■■■■■	Bag 5 pcs	1

## ■ Side-mounted cable distributors

Code	Description	Height	Colour	Package	Pack Pcs
23493	Pair of side cable distributors 80x150 mm	1200 mm	■■■■■	Package	1
23494	Pair of side cable distributors 80x150 mm	1500 mm	■■■■■	Package	1
23495	Pair of side cable distributors 80x150 mm	1800 mm	■■■■■	Package	1
23496	Pair of side cable distributors 80x150 mm	2000 mm	■■■■■	Package	1
23497	Pair of side cable distributors 80x150 mm	2200 mm	■■■■■	Package	1



23305



23310



23320



23333



23398



23470



23495

## POWER BARS

The new FANTONET power bars are constructed, like previous models, in polycarbonate (PC) for lightweight and ease of use. To this is added the convenience of the 19" rack standard in terms of sizing. The new series of power bars have a single rack unit footprint (44 mm) and are hence ideal for installation in telecommunications enclosures. There are three versions, with lamp switch, with lamp switch and overvoltage protection, and with thermal cutout.

### ▼ GENERAL CHARACTERISTICS

- Thermal cutout 1P+N, 16A with interruption power 3kA and warning lamp
- High mechanical strength thermoplastic housing
- Equipped with 3 m of 3x1.50 mm<sup>2</sup> cable, with double certified <HAR> H05VV-F isolation, secured to the housing with bolt-on cable retainer
- Injection moulded 2P+T 16A PVC Schuko plug.

**OVERVOLTAGE PROTECTION:** Equipment which protects against mains overvoltages due to external causes (discharges) or internal causes (electric motors) for a max. power rating of 30J; trips when the voltage exceeds 650 V with discharge power 1.2 KA (8/20μs). Particularly suited to protecting TV's, video recorders, HI-FI equipment, computers, cash registers, faxes, photocopiers, industrial and laboratory equipment, etc. Overvoltage discharge device protected with easy to replace 2.5A fuse. The protection is active when the led is on. Replace the fuse when the led is off, making sure to disconnect the unit from the mains first. In any case, when the led is off the unit operates as a normal multiplug.



23201



23202



23203

### ■ Power bars for 19" rack enclosures HEIGHT 1 UNIT

Code	Outputs	Description	Colour	Package	Pack Pcs
23201	6	2P+T 16A Double-pitch/Italian/German with lamp switch	■ ■ ■ ■	Carton	1
23202	6	2P+T 16A Double-pitch/Italian/German with switch and overvoltage protection	■ ■ ■ ■	Carton	1
23203	6	2P+T 16A Double-pitch/Italian/German with thermal cutout	■ ■ ■ ■	Carton	1

2009  
2010

CABINET ACCESSORIES



## ■ Power bars for MINILAN 10" rack enclosures

23214	2	2P+T 16A Italian/German with lamp switch	■■■■	Bag	1	
23215	1+2	2 x 2P+T 16A Double-pitch + 1 x 2P+T 16A Italian/German with lamp switch	■■■■	Bag	1	CE

## ■ Vertical power bars for 19" rack enclosures

Code	Outputs	Description	Colour	Package	Pack Pcs	
23220	8	2P+T 16A Italian/German with lamp switch and overvoltage protection	■■■■	Bag	1	CE
23221	8	2P+T 16A Italian/German with thermal cutout	■■■■	Bag	1	CE
23222	10	2P+T 16A Italian/German with lamp switch and overvoltage protection	■■■■	Bag	1	CE
23223	10	2P+T 16A Italian/German with thermal cutout	■■■■	Bag	1	CE
23224	12	2P+T 16A Italian/German with lamp switch and overvoltage protection	■■■■	Bag	1	CE
23225	12	2P+T 16A Italian/German with thermal cutout	■■■■	Bag	1	CE
23226	16	2P+T 16A Italian/German with lamp switch and overvoltage protection	■■■■	Bag	1	CE
23227	16	2P+T 16A Italian/German with thermal cutout	■■■■	Bag	1	CE

## ■ Mounting brackets

Code	Description	Colour	Package	Pack Pcs
23250(*)	Kit for mounting vertical power bars complete with 2 brackets, 6 bolts M6	■■■■	Bag	12

(\*) Required for mounting all vertical power bars.

## METAL POWER BARS

### ■ 19" metal rack module

Code	Outputs	Description	Colour	Package	Pack Pcs
23200	9	Metal power bar	■■■■	Carton	1



23214



23221



23222



23250



BACK



FRONT

23200

## WORK AREA ACCESSORIES

### Adapters for mounting to socket plates and supports

Code	Description	Colour	Package	Pack Pcs
23922	Adapter for socket plates and supports Gewiss CHORUS	□□□□	Carton 10 pcs	10
23923	Adapter for socket plates and supports Gewiss CHORUS	■ ■ ■ ■	Carton 10 pcs	10
23924	Adapter for socket plates and supports Gewiss CHORUS	■ ■ ■ ■	Carton 10 pcs	10
23925	Adapter for socket plates and supports Biticino AXOLUTE	■ ■ ■ ■	Carton 10 pcs	10
23926	Adapter for socket plates and supports Biticino AXOLUTE	■ ■ ■ ■	Carton 10 pcs	10
23927	Adapter for socket plates and supports Biticino MATIX	□□□□	Carton 10 pcs	10
23928	Adapter for socket plates and supports Biticino LIVING Magic TT	□□□□	Carton 10 pcs	10
23929	Adapter for socket plates and supports Biticino LIVING Ligth Tech	■ ■ ■ ■	Carton 10 pcs	10
23930	Adapter for socket plates and supports Gewiss PLAYBUS	■ ■ ■ ■	Carton 10 pcs	10
23931	Adapter for socket plates and supports Biticino LIVING	■ ■ ■ ■	Carton 10 pcs	10
23932	Adapter for socket plates and supports Biticino LIVING INTERNATIONAL	■ ■ ■ ■	Carton 10 pcs	10
23933	Adapter for socket plates and supports Vimar IDEA	■ ■ ■ ■	Carton 10 pcs	10
23934	Adapter for socket plates and supports Vimar IDEA White	□□□□	Carton 10 pcs	10
23935	Adapter for socket plates and supports Biticino MAGIC	□□□□	Carton 10 pcs	10
23936	Adapter for socket plates and supports Biticino LIVING LIGHT	□□□□	Carton 10 pcs	10
23937	Adapter for socket plates and supports Gewiss SYSTEM	□□□□	Carton 10 pcs	10
23938	Adapter for socket plates and supports Gewiss SYSTEM Black	■ ■ ■ ■	Carton 10 pcs	10
23939	Adapter for socket plates and supports Vimar PLANA	□□□□	Carton 10 pcs	10

### Universal freestanding socket plates for build-in boxes

Code	Description	Package	Pack Pcs
23945	Freestanding socket plate 1 output	Bag 10 pcs	10
23946	Freestanding socket plate 2 outputs	Bag 10 pcs	10
23947	Freestanding socket plate 3 outputs	Bag 10 pcs	10
23948	Freestanding socket plate 4 outputs	Bag 10 pcs	10
23949	Freestanding socket plate 6 outputs	Bag 10 pcs	10
23951	Blind freestanding socket plate	Bag 10 pcs	10
23952 <b>NEW</b>	Freestanding socket plate 1 - 2 - 3 outputs	Flow Pack 10 pcs	10
23953 <b>NEW</b>	Freestanding socket plate 4 - 5 - 6 outputs	Flow Pack 10 pcs	10
23954 <b>NEW</b>	Blind freestanding socket plate	Flow Pack 10 pcs	10
23966 <b>NEW</b>	Square freestanding socket plate 2 outputs (German and Spanish market)	Flow Pack 10 pcs	10

### Socket cover for universal freestanding socket plates

Code	Description	Package	Pack Pcs
23940	Socket cover for socket plate	Bag 20 pcs	20
23956 <b>NEW</b>	Socket cover for socket plate	Bag 30 pcs	30

### Outdoors box for rectangular socket plates

Code	Description	Package	Pack Pcs
23950	Box for rectangular socket plates	Carton	10
23955 <b>NEW</b>	Box for rectangular socket plates	Carton	10

### Outdoors sockets

Code	Description	Package	Pack Pcs
23941	Socket with 1 RJ45 8/8c output, not screened Cat. 5e	Bag	10
23943	Socket with 1 RJ45 8/8c output, screened Cat. 5e	Bag	10
23942	Socket with 2 RJ45 8/8c outputs, not screened Cat. 5e	Bag	10
23944	Socket with 2 RJ45 8/8c outputs, screened Cat. 5e	Bag	10

ARTICLES AVAILABLE WHILE STOCKS LAST.

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WORK AREA ACCESSORIES





CABLING  
SYSTEM

# PHONE SYSTEM

- Telephone switching systems
-

## TELEPHONE SWITCHING SYSTEMS (Phone System)

### ■ ADSL filters

Code	Description	Colour	Package	Pack Pcs
22386	Phone switcher for ADSL line, 2 ports + plug	■ ■ ■ ■	None	1
23759	Phone switcher for ADSL line, 3 ports	■ ■ ■ ■	None	1

### ■ 6/6c RJ12 sockets (Keystone jack) Cat. 3

Code	Description	Colour	Package	Pack Pcs
23708	6/6 horizontal TOOLESS socket, not screened Cat. 3 RJ12 telephone	□ □ □ □	Bag	10
23709	6/6 horizontal TOOLESS socket, not screened Cat. 3 RJ12 telephone	■ ■ ■ ■	Bag	10

### ■ Switching panels

Code	Description	Colour	Package	Pack Pcs
23414	Telephone switching panel 19" rack 50 RJ45 ports 1 unit	■ ■ ■ ■	Carton	1
23424	Telephone switching panel 19" rack 25 RJ45 ports 1 unit	■ ■ ■ ■	Carton	1
23364	Telephone switching panel 19" rack 50 RJ45 ports 1 unit	■ ■ ■ ■	Carton	1
23374	Telephone switching panel 19" rack 25 RJ45 ports 1 unit	■ ■ ■ ■	Carton	1
23415	Telephone switching panel 19" rack connections up to 50 cp.	■ ■ ■ ■	Carton	1
23365	Telephone switching panel 19" rack connections up to 50 cp.	■ ■ ■ ■	Carton	1
23416	Telephone switching panel 19" rack connections up to 100 cp.	■ ■ ■ ■	Carton	1
23366	Telephone switching panel 19" rack connections up to 100 cp.	■ ■ ■ ■	Carton	1
23417	Telephone switching panel 19" rack connections up to 150 cp.	■ ■ ■ ■	Carton	1
23367	Telephone switching panel 19" rack connections up to 150 cp.	■ ■ ■ ■	Carton	1

### ■ Junction box (without modules)

Code	Description	Colour	Package	Pack Pcs
23742	30 cp. Telephone box, key closure, 150 x 50 x 105	□ □ □ □	Carton	1
23744	50 cp. Telephone box, key closure, 190 x 100 x 200	□ □ □ □	Carton	1
23746	100 cp. Telephone box, key closure, 214 x 100 x 270	□ □ □ □	Carton	1

### ■ Connection modules

Code	Description	Colour	Package	Pack Pcs
23750	Distribution collar 50 cp. (connection module insertion)		Bag	1
23751	Distribution collar 100 cp. (connection module insertion)		Bag	1
23740	10 cp. connection module	□ □ □ □	Carton	5
23755	10 cp. decoupling module	□ □ □ □	Carton	5
23756	10 cp. NO contact module	■ ■ ■ ■	Carton	5
23758	Decoupling plugs	■ ■ ■ ■	Bag	10

### ■ Patch cords

Code	Description	Colour	Package	Pack Pcs
23760	Telephone patch cord 2 wires LSA - RJ12 L=1.5 m	□ □ □ □	Bag	1
23765	Telephone patch cord 4 wires LSA - RJ12 L=1.5 m	□ □ □ □	Bag	1
23770	Telephone patch cord 2 wires LSA - RJ45 L=1.5 m	□ □ □ □	Bag	1
23775	Telephone patch cord 4 wires LSA - RJ45 L=1.5 m	□ □ □ □	Bag	1



22386



23708



23414



23417



23744



23750



23740



23765



CABLING  
SYSTEM

# DATA SYSTEM 5e

- Data System 5e Switching system
- Patch Panel
- Patch Cords
- Type 110 switching systems

## DATA SYSTEM 5e SWITCHING SYSTEM

### ▼ GENERAL CHARACTERISTICS

The most widely used cabling systems at the present time are those with 100 Mhz bandwidth and Fastethernet protocol, in other words Cat. 5e. These were considered cutting edge in data transmission a years ago, nowadays they are considered an excellent compromise between performance and cost. These systems are presently best suited for large and small installations using the most common control software. Indeed, normal PC network cards and connected hardware rarely operate at more than 100 Mhz, and it is therefore pointless overspecifying the network.

The installation must comply with all applicable regulations and standards. These regulations are set out by international committees and reviewed by local agencies (CEI) which modify and improve them in terms of the established legislation and standards in the country or community in question.

### ▼ TECHNICAL CHARACTERISTICS

- Conforming to EIA/TIA 568A and B.
- Mount in panels or plates.



23700



23702



23706



23736



23737



23739



23741



23720



23730

### ■ 8/8c RJ45 sockets (Keystone jack) Cat. 5e



Code	Description	Colour	Package	Pack Pcs
23700	Unscreened socket – toolless crimping - Cat 5e	■ ■ ■ ■	Carton	10
23701	Screened socket - toolless crimping – Cat. 5e	■ ■ ■ ■	Carton	10
23702	Horizontal unscreened socket – Cat. 5e	□ □ □ □	Carton	10
23704	Horizontal unscreened socket – Cat. 5e	■ ■ ■ ■	Carton	10
23706	Horizontal screened socket – Cat. 5e (rear cable access)	■ ■ ■ ■	Carton	10

### ■ Couplers 8/8c. RJ45 Cat. 5e

Code	Description	Colour	Package	Pack Pcs
23736	Unscreened coupler Cat. 5e panel mount	□ □ □ □	Bag	10
23737	Unscreened coupler Cat. 5e panel mount	■ ■ ■ ■	Bag	10
23738	Unscreened coupler Cat. 5e	□ □ □ □	Bag	10
23739	Screened coupler Cat. 5e	■ ■ ■ ■	Bag	10
23741	Screened coupler Cat. 5e panel mount	■ ■ ■ ■	Bag	10

### ■ 8/8c. RJ45 connectors (plug) Cat. 5e Fork contacts with two teeth for flexible cable

Code	Description	Package	Pack Pcs
23720	Modular plug, unscreened Cat. 5e	Carton 100 pcs	100
23722	Modular plug, unscreened Cat. 5e – with insert	Carton 100 pcs	100
23724	Modular plug, screened Cat. 5e	Carton 100 pcs	100
23726	Modular plug, screened Cat. 5e - with insert	Carton 100 pcs	100

### ■ Coloured plug covers

Code	Description	Colour	Package	Pack Pcs
23730	RJ45 plug cover	■ ■ ■ ■	Bag 10 pcs	50
23731	RJ45 plug cover	■ ■ ■ ■	Bag 10 pcs	50
23732	RJ45 plug cover	■ ■ ■ ■	Bag 10 pcs	50
23733	RJ45 plug cover	■ ■ ■ ■	Bag 10 pcs	50
23734	RJ45 plug cover	■ ■ ■ ■	Bag 10 pcs	50



## DATA SYSTEM 5e PATCH PANEL

### ▼ GENERAL CHARACTERISTICS

Patch panels and modules are the devices to which connectors are installed. They may be screened or unshielded, depending on the quality and type of signal to be transmitted, and are of different sizes, depending on the quantity of users to be supplied. Special patch panels have switch type patching with the RJ45 ports laid out in two rows and connected vertically to each other (this permits a saving in patch cords) or with RJ45 ports also on the back of the panel to facilitate connections.

### ■ Precabled unshielded patch panels, 19" rack

Code	Description	Colour	Package	Pack Pcs
23419	UTP panel complete with 16 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23369	UTP panel complete with 16 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23422	UTP panel complete with 24 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23372	UTP panel complete with 24 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23427	UTP panel complete with 48 RJ45 Cat. 5e ports and rear cable guide 2 units	■ ■ ■ ■	Carton	1
23377	UTP panel complete with 48 RJ45 Cat. 5e ports and rear cable guide 2 units	■ ■ ■ ■	Carton	1

### ■ Precabled screened patch panels, 19" rack

Code	Description	Colour	Package	Pack Pcs
23438	FTP panel complete with 12 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23378	FTP panel complete with 12 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23439	FTP panel complete with 16 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23379	FTP panel complete with 16 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23442	FTP panel complete with 24 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1
23382	FTP panel complete with 24 RJ45 Cat. 5e ports and rear cable guide 1 unit	■ ■ ■ ■	Carton	1

### ■ Unshielded patch panel for wall mounting, vertical installation

Code	Description	Colour	Package	Pack Pcs
23368	12 port panel for wall mounting, complete with RJ45 Cat. 5e modules	■ ■ ■ ■	Carton	1



23422



23427



23442



23368

## DATA SYSTEM 5e PATCH CORDS

### ▼ GENERAL CHARACTERISTICS

The length of connections is an essential factor in the flexibility of the installation. ISO/IEC 11801 establishes that the maximum permitted length of the horizontal copper cable running from the distribution enclosure to the user socket is 90 m. On the other hand, the sum of the lengths of the flexible twisted pair patch cords used for connections inside the enclosure and for the socket/terminal connection, may not exceed 10 m. In total, then, a horizontal copper cable link (called a "channel" in ISO/IEC 11801) may be no longer than 100 m. This is not an arbitrary specification. It is the maximum length which can be guaranteed for a 10/100Base-TX connection over a category 5 twisted pair. Terminations must be injection moulded with RJ45 plugs, grey plug covers as per EIA/TIA568 A and B. Internal conductor AWG24.

### ■ UTP Cat. 5 enhanced patch cords

Code	Description	Length	Colour	Package	Pack Pcs
23500	UTP patch cords	0.5 m	■ ■ ■ ■ ■	Carton	10
23501	UTP patch cords	1.0 m	■ ■ ■ ■ ■	Carton	10
23502	UTP patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23503	UTP patch cords	3.0 m	■ ■ ■ ■ ■	Carton	10
23504	UTP patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10
23531	UTP patch cords	10.0 m	■ ■ ■ ■ ■	Carton	10
23532	UTP patch cords	15.0 m	■ ■ ■ ■ ■	Carton	10
23548	UTP Cross patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23549	UTP Cross patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10
23510	UTP patch cords	0.5 m	■ ■ ■ ■ ■	Carton	10
23511	UTP patch cords	1.0 m	■ ■ ■ ■ ■	Carton	10
23512	UTP patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23513	UTP patch cords	3.0 m	■ ■ ■ ■ ■	Carton	10
23514	UTP patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10
23515	UTP patch cords	0.5 m	■ ■ ■ ■ ■	Carton	10
23516	UTP patch cords	1.0 m	■ ■ ■ ■ ■	Carton	10
23517	UTP patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23518	UTP patch cords	3.0 m	■ ■ ■ ■ ■	Carton	10
23519	UTP patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10

### ■ FTP Cat. 5 Enhanced patch cords

Code	Description	Length	Colour	Package	Pack Pcs
23550	FTP patch cords	0.5 m	■ ■ ■ ■ ■	Carton	10
23551	FTP patch cords	1.0 m	■ ■ ■ ■ ■	Carton	10
23552	FTP patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23553	FTP patch cords	3.0 m	■ ■ ■ ■ ■	Carton	10
23554	FTP patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10
23581	FTP patch cords	10.0 m	■ ■ ■ ■ ■	Carton	10
23582	FTP patch cords	15.0 m	■ ■ ■ ■ ■	Carton	10
23560	FTP patch cords	0.5 m	■ ■ ■ ■ ■	Carton	10
23561	FTP patch cords	1.0 m	■ ■ ■ ■ ■	Carton	10
23562	FTP patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23563	FTP patch cords	3.0 m	■ ■ ■ ■ ■	Carton	10
23564	FTP patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10
23565	FTP patch cords	0.5 m	■ ■ ■ ■ ■	Carton	10
23566	FTP patch cords	1.0 m	■ ■ ■ ■ ■	Carton	10
23567	FTP patch cords	2.0 m	■ ■ ■ ■ ■	Carton	10
23568	FTP patch cords	3.0 m	■ ■ ■ ■ ■	Carton	10
23569	FTP patch cords	5.0 m	■ ■ ■ ■ ■	Carton	10



23502



23512



23517



## TYPE 110 SWITCHING SYSTEM

### ▼ GENERAL CHARACTERISTICS

110 type switching systems are ideal for connecting cabling systems, existing telephone systems, line-ins or telephone switchboards, as well as sectioning telephone backbones composed of multi-pair cable. Indeed, by using 100cp / 200cp patch panels and 110-RJ45 patch cords, it is possible to transfer a signal from a pair of a multi-pair cable to a LAN cable line. Given that the system is Cat.5e certified the classification of the system can be maintained where it is already established. It is therefore suited to future expansions, whether audio or data.

### ■ Patch panels Cat. 5e - Type 110 and accessories

Code	Description	Package	Pack Pcs
23781	Patch panel type 110 200cp. Cat.5e	Carton	1
23782	Connection block type 110 Cat. 5e 4cp.	Bag 10 pcs	10

### ■ Patch cords Cat. 5e - Type 110 - RJ45

Code	Description	Length	Package	Pack Pcs
23784	Patch cord type 110-RJ45 cat 5e 1cp.	1.5m	Bag	50
23785	Patch cord type 110-RJ45 cat 5e 2cp.	1.5m	Bag	50
23786	Patch cord type 110-RJ45 cat 5e 4cp.	1.5m	Bag	50
23794	Patch cord type 110-RJ45 cat 5e 1cp.	3.0m	Bag	50
23796	Patch cord type 110-RJ45 cat 5e 4cp.	3.0m	Bag	50

### ■ Patch cords Cat. 5e - Type 110 - 110

Code	Description	Length	Package	Pack Pcs
23787	Patch cord type 110-110 cat 5e 1cp.	1.5m	Bag	50
23788	Patch cord type 110-110 cat 5e 2cp.	1.5m	Bag	50
23789	Patch cord type 110-110 cat 5e 4cp.	1.5m	Bag	50
23797	Patch cord type 110-110 cat 5e 1cp.	3.0m	Bag	50
23798	Patch cord type 110-110 cat 5e 2cp.	3.0m	Bag	50
23799	Patch cord type 110-110 cat 5e 4cp.	3.0m	Bag	50

ARTICLES AVAILABLE WHILE STOCKS LAST.



23781



23782



23786



23787

2009  
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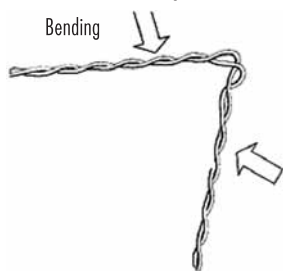
DATA SYSTEM 5e

## THE IMPORTANCE OF EXPERT INSTALLATION

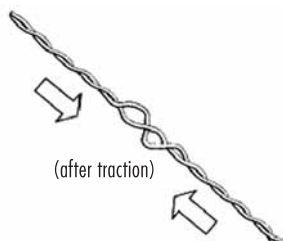
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FURTHER INFORMATION

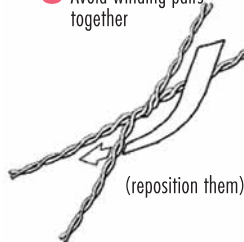
**1** Avoid opening pairs (after tensioning)



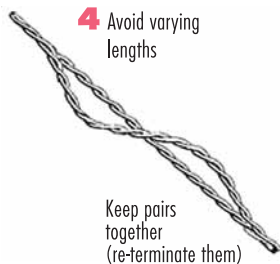
**2** Avoid opening pairs (after traction)



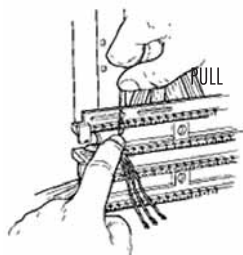
**3** Avoid winding pairs together



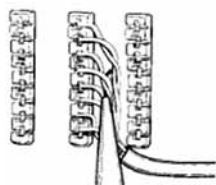
**4** Avoid varying lengths



**5** Apply tension to avoid separating pairs

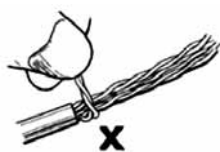


**6** Use a tool for re-installing (or re-terminating) open pairs



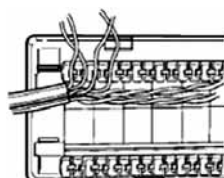
Maintain twisting to the wall outlet

**7** Avoid winding pairs together too much while terminating them

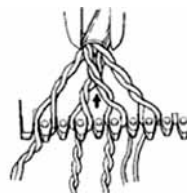


Always wind them against their twist

**8** Avoid terminations too close to the contact strip (min. 6 mm)



**9** Keep crossovers outside the sheath





CABLING  
SYSTEM

# DATA SYSTEM 6

- Data System 6  
Switching system
- Tools

## DATA SYSTEM 6 SWITCHING SYSTEM

### ▼ GENERAL CHARACTERISTICS

With the passing of time, technological progress allows for the diffusion and use of ever more complex hardware and software. Since increasing numbers of users are authorised to use such resources, networks must be specified to handle increasingly heavy traffic loads. What is required today in systems with high transmission requirements will tomorrow be quite normal; this is why Cat. 6 has been identified and standardised to permit high bandwidth transmission using copper wire and RJ45 connectors. This system considerably increases the performance of Cat. 5e and permits the transmission of much faster protocols. Special attention and care must be taken in installing the system components since high quality equipment is not itself sufficient for certification to Cat. 6. The reference standards at the present time are: EIA/TIA 568-B.2-1, EN 50173/1.



23710



23711



23712



23727



23657

### ■ 8/8c RJ45 sockets (Keystone jack) Cat. 6



Code	Description	Colour	Package	Pack Pcs
23710	Vertical unscreened socket - Cat. 6	□□□□	Carton	10
23711	Vertical screened socket - Cat. 6	■ ■ ■ ■	Carton	10
23712	Vertical unscreened socket - Cat. 6	■ ■ ■ ■	Carton	10

N.B. Fitting RJ11 and RJ12 telephone plugs can damage the socket, we recommend using RJ45 plugs also for telephony applications.

### ■ 8/8c. RJ45 connectors (plug) Cat. 6

Code	Description	Package	Pack Pcs
23727	Modular plug, unscreened - Cat. 6	Carton 100 pcs	100
23728	Modular plug, unscreened - Cat. 6 with insert	Carton 100 pcs	100
23729	Modular plug, screened - Cat. 6	Carton 100 pcs	100
23719	Modular plug, screened - Cat. 6	Carton 100 pcs	100

### ■ Precabled unscreened patch panels, 19" rack

Code	Description	Colour	Package	Pack Pcs
23651	UTP panel complete with 16 RJ45 Cat. 6 ports and rear cable guide - 1 unit	■ ■ ■ ■	Carton	1
23652	UTP panel complete with 24 RJ45 Cat. 6 ports and rear cable guide - 1 unit	■ ■ ■ ■	Carton	1
23654	UTP panel complete with 48 RJ45 Cat. 6 ports and rear cable guide - 2 units	■ ■ ■ ■	Carton	1
23656	UTP panel complete with 16 RJ45 Cat. 6 ports and rear cable guide - 1 unit	■ ■ ■ ■	Carton	1
23657	UTP panel complete with 24 RJ45 Cat. 6 ports and rear cable guide - 1 unit	■ ■ ■ ■	Carton	1
23659	UTP panel complete with 48 RJ45 Cat. 6 ports and rear cable guide - 2 units	■ ■ ■ ■	Carton	1



## ■ Empty patch panels 19" rack

(art. 3702 - 23704 - 237010 - 23711 - 23712 only)

Code	Description	Colore	Package	Pack Pcs
23662	Screened empty panel 24 ports, complete with rear cable guide - 1 unit	■ ■ ■ ■ ■	Carton	1
23667	Screened empty panel 24 ports, complete with rear cable guide - 1 unit	■ ■ ■ ■ ■	Carton	1



23662



23667

## ■ UTP Cat. 6 patch cord



Code	Description	Length	Colore	Package	Pack Pcs
23540	UTP patch cord	0.5 m	■ ■ ■ ■ ■	Carton	10
23541	UTP patch cord	1.0 m	■ ■ ■ ■ ■	Carton	10
23542	UTP patch cord	2.0 m	■ ■ ■ ■ ■	Carton	10
23543	UTP patch cord	3.0 m	■ ■ ■ ■ ■	Carton	10
23544	UTP patch cord	5.0 m	■ ■ ■ ■ ■	Carton	10

## ■ FTP Cat. 6 patch cord

Code	Description	Length	Colore	Package	Pack Pcs
23590	FTP patch cord	0.5 m	■ ■ ■ ■ ■	Carton	10
23591	FTP patch cord	1.0 m	■ ■ ■ ■ ■	Carton	10
23592	FTP patch cord	2.0 m	■ ■ ■ ■ ■	Carton	10
23593	FTP patch cord	3.0 m	■ ■ ■ ■ ■	Carton	10
23594	FTP patch cord	5.0 m	■ ■ ■ ■ ■	Carton	10



23591

2009  
2010

DATA SYSTEM 6

## TOOLS

### ▼ GENERAL CHARACTERISTICS

Crimping tools are essential for connecting cables, sockets and patch panels. Dispersion is highest at the connections between passive components. To optimise transmission performance, you must use tools specially designed to make the most of the various physical supports. Badly executed crimping generates attenuations which can even declassify the category of a cabling system; this aspect must be treated with the proper care and attention.

### ■ Cable clamp pliers

Code	Description	Package	Pack Pcs
63090	Cable clamp tighteners	Blister	1

### ■ Plug pliers

Code	Description	Package	Pack Pcs
22312	6 / 8 pin plug pliers	Blister	1
23990	4, 6, 8 pin ratchet plug pliers	Blister	1

### ■ Keystone jack pliers

Codice	Description	Package	Pack Pcs
23991	Krone type keystone jack pliers	Blister	1
23993	Keystone jack pliers	Blister	1

### ■ Cable strippers

Code	Description	Package	Pack Pcs
23998	Copper/fibre strippers	Blister	1

### ■ Safety base

Code	Description	Package	Pack Pcs
23997	Safety base for RJ45 180° socket crimping pliers	Bag	1
23999	Safety base for RJ45 90° socket crimping pliers	Bag	1



63090



22312



23990



23991



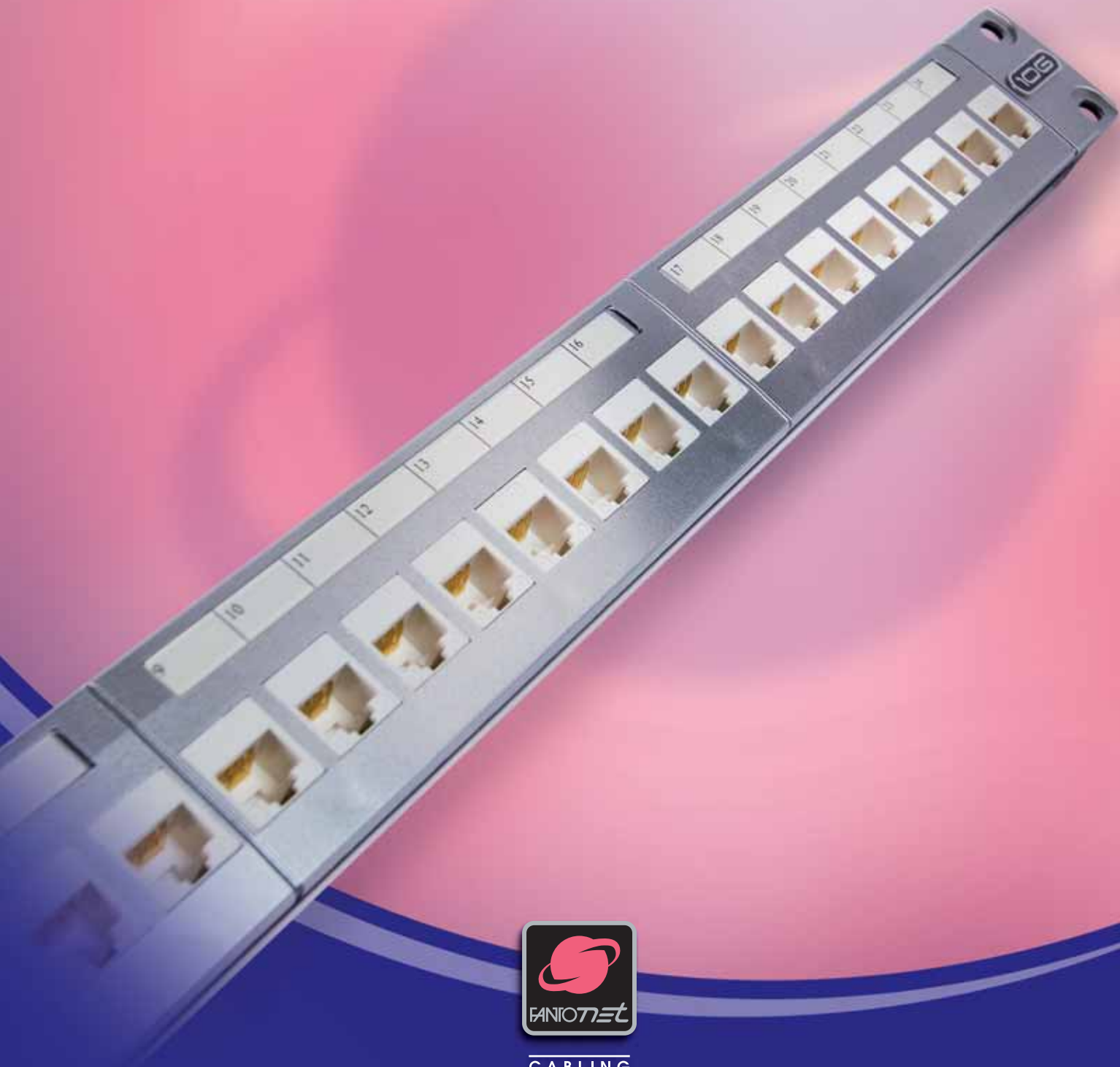
23993



23998



23999



CABLING  
SYSTEM

# DATA SYSTEM 6A 10 GIGA

- Data System 6A  
Switching system
- Tools

## DATA SYSTEM 6A 10 GIGA SISTEMA DI PERMUTAZIONE



23715



23716



23672



23577

### ■ 8/8c RJ45 sockets (Keystone jack) Cat. 6A

Code	Description	Colour	Package	Pack Pcs
23715	Vertical unshielded socket - Cat. 6A	□□□□	Carton	10
23716	Vertical screened socket - Cat. 6A	■ ■ ■ ■	Carton	10
23717	Vertical unshielded socket - Cat. 6A	■ ■ ■ ■	Carton	10

N.B.: Fitting RJ11 and RJ12 telephone plugs can damage the socket, we recommend using RJ45 plugs also for telephony applications.

### ■ Precabled unshielded patch panels, 19" rack

Code	Description	Colour	Package	Pack Pcs
23672	UTP panel complete with 24 RJ45 Cat. 6A ports and rear cable guide 1 units	■ ■ ■ ■	Carton	1
23677	UTP panel complete with 24 RJ45 Cat. 6A ports 1 unit	■ ■ ■ ■	Carton	1

### ■ Precabled screened patch panels, 19" rack

Code	Description	Colour	Package	Pack Pcs
23682	FTP panel complete with 24 RJ45 Cat. 6A ports and rear cable guide 1 units	■ ■ ■ ■	Carton	1
23687	FTP panel complete with 24 RJ45 Cat. 6A ports 1 unit	■ ■ ■ ■	Carton	1

### ■ UTP Cat. 6A patch cord

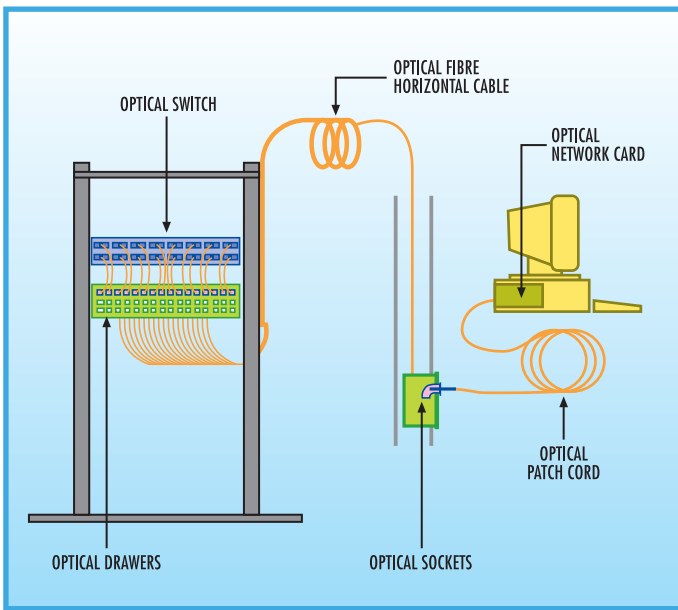
Code	Description	Length	Colour	Package	Pack Pcs
23535	UTP patch cord	0.5 m	■ ■ ■ ■	Carton	10
23536	UTP patch cord	1.0 m	■ ■ ■ ■	Carton	10
23537	UTP patch cord	2.0 m	■ ■ ■ ■	Carton	10
23538	UTP patch cord	3.0 m	■ ■ ■ ■	Carton	10
23539	UTP patch cord	5.0 m	■ ■ ■ ■	Carton	10

### ■ S/FTP Cat. 6A patch cord

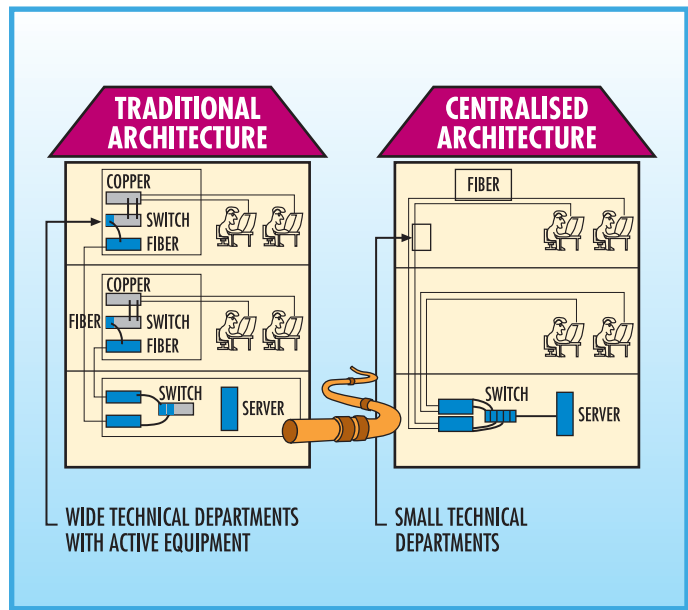
Code	Description	Length	Colour	Package	Pack Pcs
23575	S/FTP patch cord	0.5 m	■ ■ ■ ■	Carton	10
23576	S/FTP patch cord	1.0 m	■ ■ ■ ■	Carton	10
23577	S/FTP patch cord	2.0 m	■ ■ ■ ■	Carton	10
23578	S/FTP patch cord	3.0 m	■ ■ ■ ■	Carton	10
23579	S/FTP patch cord	5.0 m	■ ■ ■ ■	Carton	10

# DESIGN BASICS

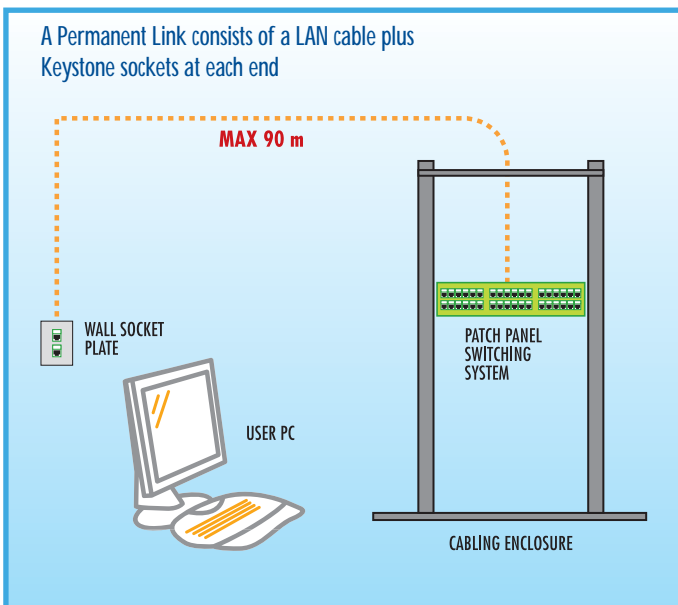
## "FIBER TO THE DESK" SOLUTIONS



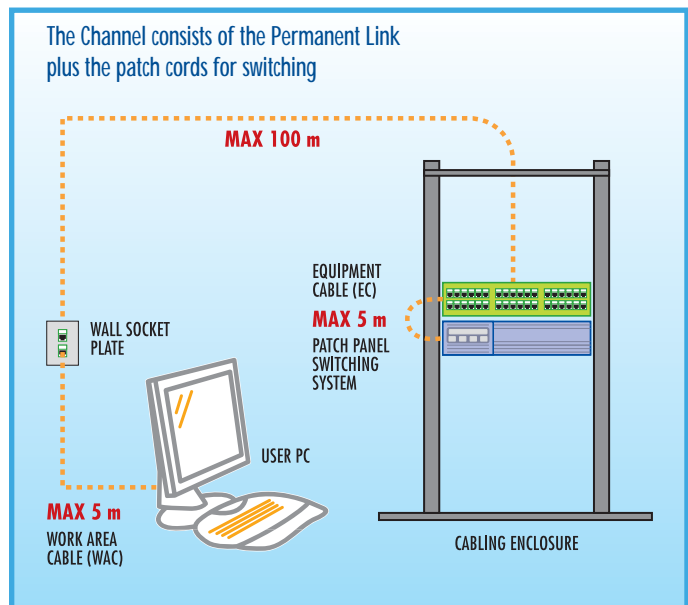
## COMPARING ARCHITECTURES



## THE PERMANENT LINK



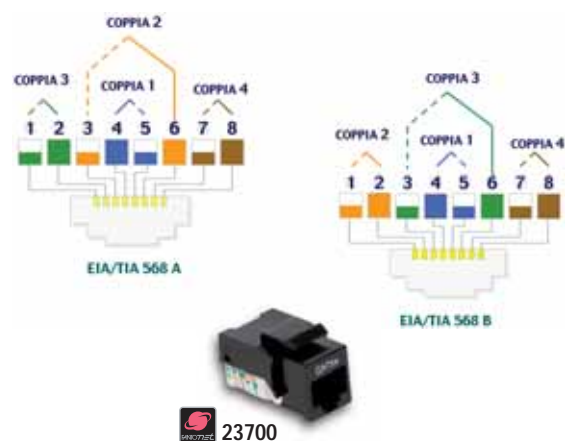
## THE CHANNEL



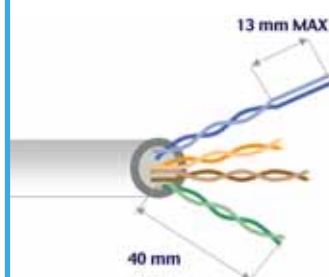
## RJ45 SOCKETS



The two crimping methods are equivalent, but cannot coexist in a single installation. It follows that once the type of connection (A or B) has been chosen for a cabling system, it cannot be changed.



The untwisted length of a section of cable as the result of a termination towards a connecting component must be as short as possible. Only the absolutely necessary amount of wire must be unwound for terminating and finishing the cable. Furthermore, for connections with category 5 components and above, the detwisting of the cable must not exceed a length of 13 mm.



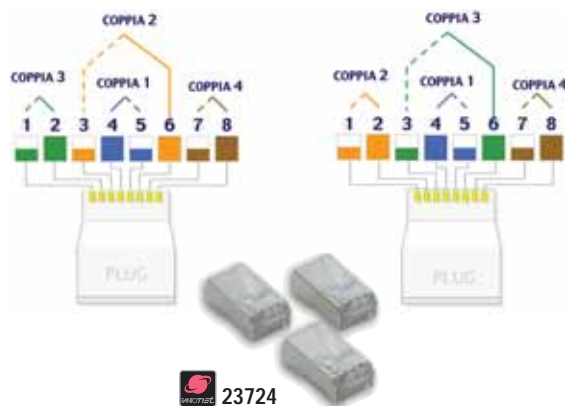
- In the case of screened cables, the cable screen must be securely attached to the plug with the specially provided collar.
- When using self-crimping systems, check that the insulation has been properly perforated.

## RJ45 PLUG

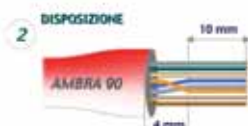
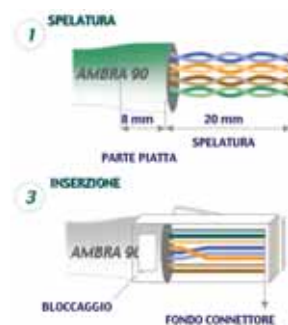


The 100 Ω patch cord cable (flexible conductor), must be connected at both ends with a modular male connector (plug), of the 8 position RJ45 type.

- Follow the instructions regarding connection to the RJ45 jack.

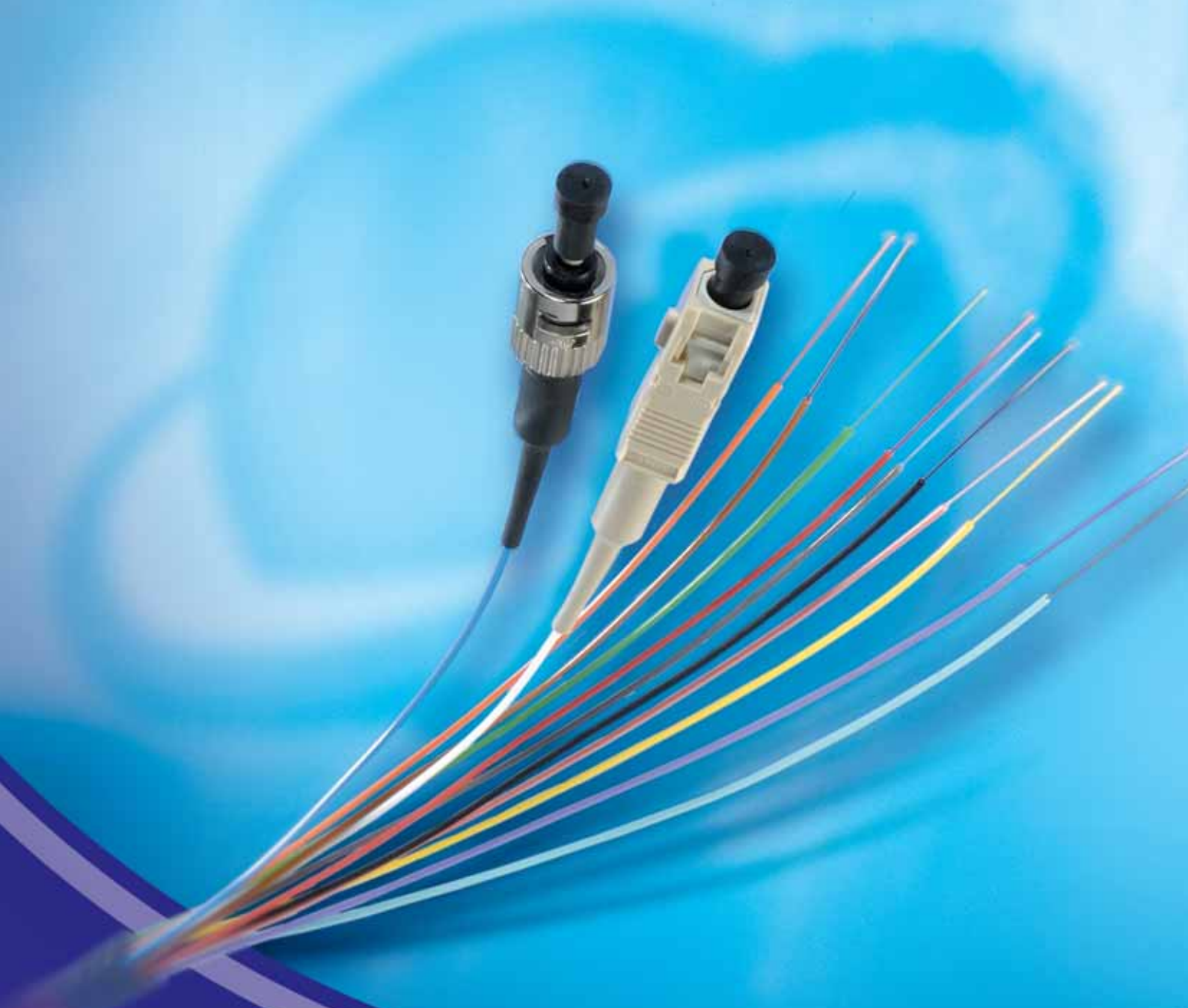


When making up patch cords, we recommend following some simple precautions to optimise the operation of the system



- after crimping, check that the cable is round in cross-section within 6 mm of the connector.

For further information, request the FANTONet technical manual.



CABLING  
SYSTEM

# LIGHT SYSTEM

- Optical fibre connectors and sockets
- Pigtails
- Optical fibre patch cords
- Optical fibre connection accessories

## OPTICAL FIBRE CONNECTORS AND SOCKETS

### LightCrimp connectors

Code	Description	Ferrule	Package	Pack Pcs
24109	ST-LightCrimp SM connector	PC	Bag 1 pcs	1
24110	ST-LightCrimp MM connector	PC	Bag 1 pcs	1
24111	SC-LightCrimp MM connector	PC	Bag 1 pcs	1

### LightCrimp-Plus connectors

Code	Description	Ferrule	Package	Pack Pcs
24113	ST-LightCrimp plus 62.5/125 connectors, with connector pre-assembled	PC	Bag 1 pcs	1
24114	ST-LightCrimp plus 50/125 connectors, with connector pre-assembled	PC	Bag 1 pcs	1
24115	SC-LightCrimp plus 62.5/125 connectors, with connector pre-assembled	PC	Bag 1 pcs	1
24116	SC-LightCrimp plus 50/125 connectors, with connector pre-assembled	PC	Bag 1 pcs	1

### Glue crimp connectors

Code	Description	Ferrule	Package	Pack Pcs
24117	ST MM glue crimp connector	UPC	Bag 1 pcs	1
24118	SC MM glue crimp connector	UPC	Bag 1 pcs	1
24126	LC MM glue crimp connector	UPC	Bag 1 pcs	1
24127	FC MM glue crimp connector	UPC	Bag 1 pcs	1
24130	ST SM glue crimp connector	UPC	Bag 1 pcs	1
24131	SC SM glue crimp connector	UPC	Bag 1 pcs	1
24128	LC SM glue crimp connector	UPC	Bag 1 pcs	1
24129	FC SM glue crimp connector	UPC	Bag 1 pcs	1

### Sockets and accessories

Code	Description	Colour	Package	Pack Pcs
24091	LC-LC "Duplex" MM socket	■ ■ ■ ■	Bag 1 pcs	1
24092	FC-FC MM socket	■ ■ ■ ■	Bag 1 pcs	1
24093	FC-SC SM socket	■ ■ ■ ■	Bag 1 pcs	1
24094	FC-FC SM socket	■ ■ ■ ■	Bag 1 pcs	1
24095	SC-SC "Duplex" SM socket	■ ■ ■ ■	Bag 1 pcs	1
24096	SC-SC "Duplex" MM socket	■ ■ ■ ■	Bag 1 pcs	1
24097	ST-ST SM socket	■ ■ ■ ■	Bag 1 pcs	1
24098	SC-SC SM socket	■ ■ ■ ■	Bag 1 pcs	1
24100	ST-ST MM socket	■ ■ ■ ■	Bag 1 pcs	1
24101	SC-SC MM socket	■ ■ ■ ■	Bag 1 pcs	1
24102	MTRJ-MTRJ socket	■ ■ ■ ■	Bag 1 pcs	1
24103	Cap x window + ST socket	□ □ □ □	Bag 1 pcs	1
24104	Cap x window + ST socket	■ ■ ■ ■	Bag 1 pcs	1
24105	Cap x window + SC socket	□ □ □ □	Bag 1 pcs	1
24106	Cap x window + SC socket	■ ■ ■ ■	Bag 1 pcs	1
24107	2 port junction box complete with ST sockets	□ □ ■ ■	Bag 1 pcs	1
24108	2 port junction box complete with SC sockets	□ □ ■ ■	Bag 1 pcs	1
24120	ST hole cover	■ ■ ■ ■	Bag 25 pcs	25
24121	SC hole cover	■ ■ ■ ■	Bag 25 pcs	25
24124	SC "Duplex" hole cover	■ ■ ■ ■	Bag 25 pcs	25

2009  
2010

LIGHT SYSTEM



24110



24111



24100



24098



24102



24103



24105



24107



24108



## PIGTAILS - OPTICAL JUNCTION BOXES

### Pigtails

Code	Description	Length	Package	Pack Pcs
24141	ST 62,5/125 pigtail	2.0 m	Bag 1 pcs	1
24142	FC 62,5/125 pigtail	2.0 m	Bag 1 pcs	1
24143	LC 62,5/125 pigtail	2.0 m	Bag 1 pcs	1
24161	SC 62,5/125 pigtail	2.0 m	Bag 1 pcs	1
24146	ST 50/125 pigtail	2.0 m	Bag 1 pcs	1
24147	FC 50/125 pigtail	2.0 m	Bag 1 pcs	1
24148	LC 50/125 pigtail	2.0 m	Bag 1 pcs	1
24166	SC 50/125 pigtail	2.0 m	Bag 1 pcs	1
24151	ST 9/125 pigtail	2.0 m	Bag 1 pcs	1
24152	FC 9/125 pigtail	2.0 m	Bag 1 pcs	1
24153	LC 9/125 pigtail	2.0 m	Bag 1 pcs	1
24171	SC 9/125 pigtail	2.0 m	Bag 1 pcs	1

### Accessories

Code	Description	Package	Pack Pcs
24020	Card with 12 splice holders	Bag 1 pcs	1
24446	Splice protector L = 40 mm	Bag 1 pcs	100

### Optical junction boxes

#### GENERAL CHARACTERISTICS

Fibre optic junction boxes are used when a multi-fibre cable is run into an enclosure and the signals from the various fibres must be distributed to multiple devices. Given that backbones can be composed of cables with only 2 fibres or cables with 24 fibres, we offer boxes complete with sockets or empty boxes to which the required number of sockets can be mounted.

Code	Description	Depth	Units	Colour	Package	Pack Pcs
24000	Fibre optic junction box with 24 ST sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1
24005	Fibre optic junction box with 24 ST sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1
24001	Fibre optic junction box with 24 SC sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1
24006	Fibre optic junction box with 24 SC sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1
24003	ST fibre optic junction box with 24 hole caps	250 mm	1	■ ■ ■ ■ ■	Carton	1
24008	ST fibre optic junction box with 24 hole caps	250 mm	1	■ ■ ■ ■ ■	Carton	1
24004	SC fibre optic junction box with 24 hole caps	250 mm	1	■ ■ ■ ■ ■	Carton	1
24009	SC fibre optic junction box with 24 hole caps	250 mm	1	■ ■ ■ ■ ■	Carton	1
24010	ST fibre optic junction box complete with 8 hole caps, 10" rack	180 mm	1	■ ■ ■ ■ ■	Carton	1
24011	SC fibre optic junction box complete with 8 hole caps, 10" rack	180 mm	1	■ ■ ■ ■ ■	Carton	1
24012	SC fibre optic junction box, 112 ports, complete with 56 "duplex" hole caps	400 mm	3	■ ■ ■ ■ ■	Carton	1
24013	SC fibre optic junction box, 112 ports, complete with 56 SC "duplex" sockets	400 mm	3	■ ■ ■ ■ ■	Carton	1
24014	SC "duplex" fibre optic junction box, complete with 12 SC "duplex" sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1
24015	SC "duplex" fibre optic junction box, complete with 12 hole caps	250 mm	1	■ ■ ■ ■ ■	Carton	1
24016	SC "duplex" fibre optic junction box, complete with 12 "duplex" sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1
24017	SC "duplex" fibre optic junction box, complete with 12 hole caps	250 mm	1	■ ■ ■ ■ ■	Carton	1
24019	SC fibre optic junction box, 48 ports, complete with 24 Duplex sockets	250 mm	1	■ ■ ■ ■ ■	Carton	1



24020



24000



24001



24013

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LIGHT SYSTEM

## OPTICAL FIBRE PATCH CORDS

### ▼ GENERAL CHARACTERISTICS

The fibre optic patch cords listed in this catalogue are of the tight type, and are individually coated (monofibre optical fibre) with materials which ensure considerable flexibility combined with mechanical strength. The cords terminate with crimped connectors of various types depending on the intended application. The cords are double-fibre, in other words each patch cord is composed of two separate fibres, each of which is fitted with its own connectors at each end, constructed in LSOH materials. Toolless installation.

### ■ Multimode optical patch cords 62.5/125 - UPC Type

Code	Description	Ferrule	Length	Colour	Package	Pack Pcs
24301	Double-fibre patch cords ST/ST 62,5/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24302	Double-fibre patch cords ST/ST 62,5/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24303	Double-fibre patch cords ST/ST 62,5/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24305	Double-fibre patch cords ST/ST 62,5/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24311	Double-fibre patch cords SC/SC 62,5/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24312	Double-fibre patch cords SC/SC 62,5/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24313	Double-fibre patch cords SC/SC 62,5/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24315	Double-fibre patch cords SC/SC 62,5/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24331	Double-fibre patch cords ST/SC 62,5/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24332	Double-fibre patch cords ST/SC 62,5/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24333	Double-fibre patch cords ST/SC 62,5/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24335	Double-fibre patch cords ST/SC 62,5/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24261	Double-fibre patch cords LC/LC 62,5/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24262	Double-fibre patch cords LC/LC 62,5/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24263	Double-fibre patch cords LC/LC 62,5/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24264	Double-fibre patch cords LC/LC 62,5/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24265	Double-fibre patch cords LC/SC 62,5/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24266	Double-fibre patch cords LC/SC 62,5/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24341	Double-fibre patch cords LC/SC 62,5/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24268	Double-fibre patch cords LC/SC 62,5/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24334	Double-fibre patch cords LC/ST 62,5/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24343	Double-fibre patch cords LC/ST 62,5/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24340	Double-fibre patch cords LC/ST 62,5/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24314	Double-fibre patch cords LC/ST 62,5/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1

### ■ Multimode optical patch cords 50/125 - UPC Type

Code	Description	Ferrule	Length	Colour	Package	Pack Pcs
24306	Double-fibre patch cords ST/ST 50/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24307	Double-fibre patch cords ST/ST 50/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24308	Double-fibre patch cords ST/ST 50/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24309	Double-fibre patch cords ST/ST 50/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24316	Double-fibre patch cords SC/SC 50/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24317	Double-fibre patch cords SC/SC 50/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24318	Double-fibre patch cords SC/SC 50/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24319	Double-fibre patch cords SC/SC 50/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24336	Double-fibre patch cords ST/SC 50/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24337	Double-fibre patch cords ST/SC 50/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24338	Double-fibre patch cords ST/SC 50/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24339	Double-fibre patch cords ST/SC 50/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1



24303



24313



24333



## ■ Multimode optical patch cords 50/125 - UPC Type

Code	Description	Ferrule	Length	Colour	Package	Pack Pcs
24286	Double-fibre patch cords LC/LC 50/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24282	Double-fibre patch cords LC/LC 50/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24283	Double-fibre patch cords LC/LC 50/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24284	Double-fibre patch cords LC/LC 50/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24279	Double-fibre patch cords LC/SC 50/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24280	Double-fibre patch cords LC/SC 50/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24281	Double-fibre patch cords LC/SC 50/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24285	Double-fibre patch cords LC/SC 50/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24271	Double-fibre patch cords LC/ST 50/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24272	Double-fibre patch cords LC/ST 50/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24273	Double-fibre patch cords LC/ST 50/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24274	Double-fibre patch cords LC/ST 50/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1

## ■ Singlemode optical patch cords 9/125 - UPC Type

Code	Description	Ferrule	Length	Colour	Package	Pack Pcs
24351	Double-fibre patch cords ST/ST 9/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24352	Double-fibre patch cords ST/ST 9/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24353	Double-fibre patch cords ST/ST 9/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24355	Double-fibre patch cords ST/ST 9/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24356	Double-fibre patch cords SC/SC 9/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24357	Double-fibre patch cords SC/SC 9/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24358	Double-fibre patch cords SC/SC 9/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24359	Double-fibre patch cords SC/SC 9/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24366	Double-fibre patch cords ST/SC 9/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24367	Double-fibre patch cords ST/SC 9/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24368	Double-fibre patch cords ST/SC 9/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24369	Double-fibre patch cords ST/SC 9/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1
24361	Double-fibre patch cords LC/LC 9/125	PC	1.0 m	■ ■ ■ ■ ■	Bag	1
24362	Double-fibre patch cords LC/LC 9/125	PC	2.0 m	■ ■ ■ ■ ■	Bag	1
24363	Double-fibre patch cords LC/LC 9/125	PC	3.0 m	■ ■ ■ ■ ■	Bag	1
24365	Double-fibre patch cords LC/LC 9/125	PC	5.0 m	■ ■ ■ ■ ■	Bag	1

(\*) Other configurations are available as special orders (other lengths/connectors).



24343



24265



24263

2009  
2010

LIGHT SYSTEM

## OPTICAL FIBRE CONNECTION ACCESSORIES

### ■ "Light-crimp Easy" fibre optic kit

#### ▼ GENERAL CHARACTERISTICS

Optical fibre is the best choice whenever the connection must not only be of high quality, but also longer than 90 m, which is the limit for copper connections according to established regulations.

In order to use this particular technology, the user needs the crimping equipment required for hooking up fibre cables. To meet this need, we are offering a KIT for cold connections, without the use of glue or welding equipment, in any conditions, whether indoors or outdoors.

The kit includes:

- Tool bag
- Complete ST connector crimping tool
- ST connector crimping jaws
- Fibre cleaving tool
- Precision cleaning disks, in metal and plastic, for SC and ST connectors



24379

Code	Description	Package	Pack Pcs
24379	Optical fibre kit	Bag	1

### ■ Complete kit for normal "Light-crimp Professional" and pre-lapped "Light-crimp Plus" connectors

#### ▼ GENERAL CHARACTERISTICS

Optical fibre is the best choice whenever the connection must not only be of high quality, but also longer than 90 m, which is the limit for copper connections according to established regulations.

In order to use this particular technology, the user needs the crimping equipment required for hooking up fibre cables. To meet this need, we are offering two KIT for cold connections, without the use of glue or welding equipment, in any conditions, whether indoors or outdoors. These are composed of various articles, available while stocks last, such as connectors and polishing sheets, which can be renewed by resupplying, as well as the tools which make up the kits themselves.

Both kits include:

- Tool bag
- Complete ST connector crimping tool
- ST connector crimping jaws
- Set of American wrenches for disassembling the crimping jaws from the pliers
- Optical fibre stripping pliers
- Optical fibre coating removal pliers
- 100x universal SC-ST microscope
- Fibre identifier laser source
- Fibre cleaving tool
- Precision cleaning disks, in metal and plastic, for SC and ST connectors
- Flat velvet work bench
- Set of connector polishing sheets, 5 micron grain
- Set of connector polishing sheets, 0.5 micron grain

The "Light-crimp Plus" kit also includes:

- Cable crimping adapters for SC and ST pliers
- Precision optical fibre cleaving tool.



24380

Code	Description	Package	Pack Pcs
24380	LIGHT CRIMP "PROFESSIONAL" kit	Bag	1
24438	LIGHT CRIMP "PLUS" kit	Bag	1



## Optical fibre glue termination kit

### GENERAL CHARACTERISTICS

As an alternative to the optical fibre kits described above, intended for cold crimping connectors, we also offer the glue alternative. Instead of crimping pliers, this kit includes a set of glues and the cleaning equipment required for terminating the fibre with the connector. The connection method is as follows: Rather than being mechanically attached to the fibre, as in the Light-Crimp system, the connector is filled with glue using a syringe. The head lapping (polishing) criteria remain the same.

The kit includes:

- Fibre stripping pliers
- Pack of wipes
- Universal cleaving tool
- Multi-purpose cutters
- Tube cutter pliers and metal pliers
- Isopropyl alcohol
- Metal polishing disk
- Glass shelf
- Set of syringes
- Set of connector polishing sheets, 5 micron grain
- Set of connector polishing sheets, 0.3 micron grain

Code	Description	Package	Pack Pcs
24378	Optical fibre glue termination kit	Case	1

## Tools for COLD terminating and cleaning optical fibres

Code	Description	Package	Pack Pcs
24370	ST connector crimping tool (lightcrimp)	Carton	1
24371	SC connector crimping tool (lightcrimp)	Carton	1
24388	Fibre stripping pliers	Carton	1
24389	Clauss kevlar cutters	Carton	1
24372	Scribing tool	Carton	1
24375	Glass shelf 300x210 mm	Carton	1
24376	Polymer cleaning disk	Bag	1
24377	Metal cleaning disk	Bag	1
24383	100x universal ST-SC microscope	Carton	1
24384	Fibre identifier laser source	Carton	1
24385	5 micron polishing sheet	Bag 10 pcs	10
24386	0.3 micron polishing sheet	Bag 10 pcs	10

## Tools for GLUE terminating and cleaning optical fibres

Code	Description	Package	Pack Pcs
24441	Kit of standard spare parts for hot connecting optical fibres	Carton	1
24442	Fibre cleaning wipes, 100 pcs	Package	1 conf.
24443	Fast setting glue pack, Kit 24378	Package	1 conf.
24444	Isopropyl alcohol - 400 cc spray can	Canister	10
24445	Compressed air can	Canister	10

## Cable termination accessories

Code	Description	Colore	Package	Pack Pcs
24387	12 fibre microdeviator	■■■■■	Bag 1 pcs	1
24374	Dia. 0.9 sheath for optical fibres	□□□□	Bag 1 m	1





24182



24190



24184



MPO Cable

## MPO SYSTEM

### ▼ INTRODUCTIONS

Easy and quickly plug and play fibre optic connection system.

### ■ MPO System

Code	Description	Package	Pack Pcs
<b>Code on request</b>	MPO Cable 12 F. MM 50/125 Mt. Xx		
<b>Code on request</b>	MPO Cable 12 F. SM 9/125 Mt. Xx		
24182	MPO Fan-Out m MM 12 SC 50/125	Carton	1
24186	MPO Fan-Out m MM 12 FC 50/125	Carton	1
24184	MPO Fan-Out m MM 12 LC 50/125	Carton	1
24183	MPO Fan-Out m SM 12 SC 9/125	Carton	1
24187	MPO Fan-Out m SM 12 FC 9/125	Carton	1
24185	MPO Fan-Out m SM 12 LC 9/125	Carton	1
24190	MPO socket	Carton	1
24191	MPO Open frame 1 U. for tree box	Carton	1
24192	MPO Box MM 12 SC	Carton	1
24193	MPO Box MM 12 LC	Carton	1
24194	MPO Box MM 24 SC	Carton	1
24195	MPO Box SM 12 SC	Carton	1
24196	MPO Box SM 12 LC	Carton	1

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2010

MPO SYSTEM

### MAX ATTENUATION

St. ISO/IEC 11801	MULTIMODE		SINGLEMODE	
	850 nm	1300 nm	1310 nm	1550 nm
<b>Parameters</b>				
<b>Fibre <math>\alpha</math></b> Attenuation dB/km	3.5 max	1.5 max	1.0 max	1.0 max
<b>Connector <math>A_c</math></b> Insertion loss dB	0.75 max	0.75 max	0.75 max	0.75 max
<b>Splice <math>A_g</math></b> Loss dB	0.3 max	0.3 max	0.3 max	0.3 max

### Standard TIA 568B E ISO/IEC 11801 - 2<sup>a</sup> Ed.

OPTICAL LINK		ATTENUATION DB MAX			
Cabling Subsystem	Link Length max	MULTIMODE		SINGLEMODE	
		850 nm	1300 nm	1310 nm	1550 nm
<b>Horizontal</b>	100 m	2.5	2.2	2.2	2.2
<b>Building Backbone</b>	500 m	3.9	2.6	2.7	2.7
<b>Building OF 300</b>	300 m	2.55	1.95	1.8	1.8
<b>Campus Backbone</b>	15300 m	7.4	3.6	3.6	3.6
<b>OF 500 Campus</b>	500 m	3.25	2.25	2.0	2.0
<b>OF 2000 Campus</b>	2000 m	8.5	4.5	3.5	3.5



CABLING  
SYSTEM

# TOWER TECH SERIES

- Columns and towers
- Multi-sockets



## TOWERTECH

POWER AND DATA DISTRIBUTION TOWERS

The TOWER TECH series of towers provides a combined solution to two fundamental needs by distributing both power and data through a single product. With TOWER TECH, both sockets can be brought close to the user device, thus reducing loose cable to a minimum.

Their innovative design makes Tower Tech units an exclusive, attractive item in the furnishing of offices, shops, company premises, public authority buildings and the home.



### Data networks certifiable up to class 6A

The product has been optimised to provide housing for the power supply and data cables in separate raceways. This separation prevents the creation of electromagnetic interference. With this new development, data networks created with Tower Tech can be certified up to class 6A.





## TECHNICAL CHARACTERISTICS



**4 STANDARD SIZES**  
Vertical 45, 65 or 100 cm  
in height or horizontal (desktop)  
45 cm wide



**CONNECTION FITTING**  
to secure a tubular duct for the  
power supply or for stacking additional  
towers (up to 3 pieces) if required



**QUICK ASSEMBLY**  
Pre-cabled sockets  
and mating assembly system  
minimise the use of tools



**ALUMINIUM**  
Aluminium frame, module  
kit in high isolation, tough,  
long life thermoplastic



**RJ45 SOCKET UP TO CAT. 6A**  
RJ45 (8 pin) telecommunications  
sockets with cat. 5e screening  
in cabled version, category 6  
and 6A in installation version



**PLATE**  
in steel for use where greater  
stability is required



**CABLE REE**  
fitted on the side of the tower  
to house any excess cable



**STANDARDS**  
Supplied with Italian/German standard  
sockets, also available with English  
and French sockets, and RJ45  
telecommunications sockets



**CAVITY FLOORS**  
Ideal for cavity floors,  
since connections can be  
routed beneath the floor



**ALSO PRE-CABLED!**  
The entire series  
is also available pre-cabled  
and ready for use



**TWO CABLE OUTLET OPTIONS**  
Cable outlet on bottom  
of base or on rear  
of tower



## OPTIONAL ACCESSORIES

On request Tower Tech can be expanded with:



**CONNECTION FITTING**  
Code 40791  
Technopolymer quick fitting with  
hole Ø 20.5 mm for securing a ri-  
gid tubular duct for the power  
supply or for stacking additional  
towers (up to 3) by installing a  
connection fitting (e.g. rigid duct  
d. 20 mm) inside.



**CABLE REEL**  
Code 40790  
Fitted on the sides of the tower to  
house any excess cable leading  
from the users. It is in rubber-  
coated impact-resistant techno-  
polymer. Capacity up to 1.5/2 m  
of cable depending on type.



**PLATE**  
Code 40792  
Steel plate for use where greater  
stability is required.

## CUSTOMISATION

On request Tower Tech can be customised with:



1) Double-pitch Italian 10A/16A+E sockets;

2) Dedicated UPS line sockets;

3) Two-position lamp switch;

4) Overvoltage protection (two-position lamp switch);

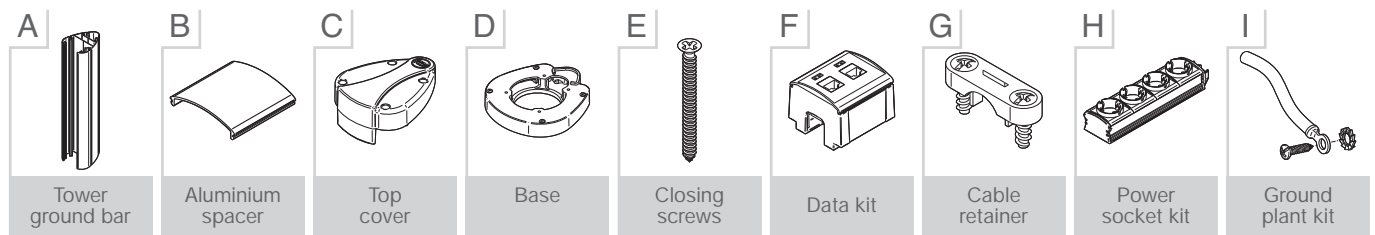
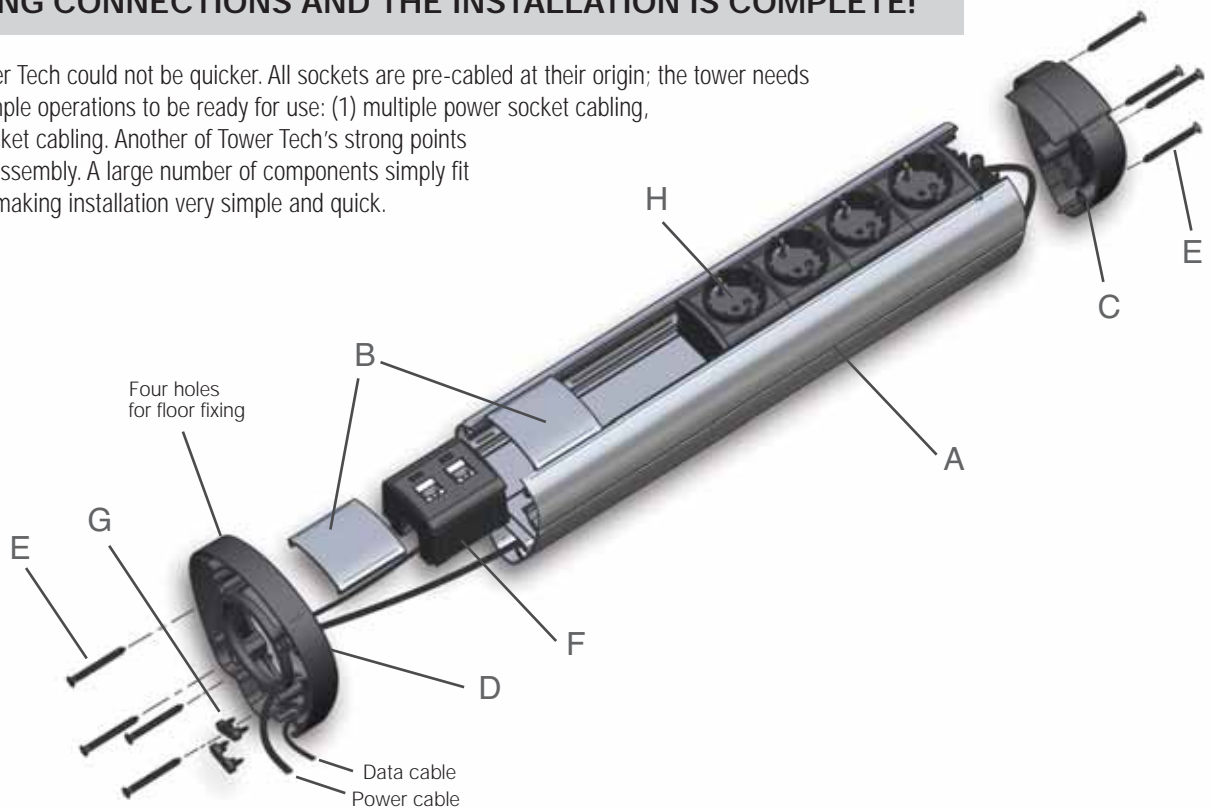
5) Thermal cutout with warning lamp;

6) Sat-TV reception sockets;

7) Cat. 3 RJ12 telecommunications sockets.

## 2 WIRING CONNECTIONS AND THE INSTALLATION IS COMPLETE!

Wiring Tower Tech could not be quicker. All sockets are pre-cabled at their origin; the tower needs just two simple operations to be ready for use: (1) multiple power socket cabling, (2) data socket cabling. Another of Tower Tech's strong points is its easy assembly. A large number of components simply fit into place, making installation very simple and quick.



## ASSEMBLY DIAGRAM



1 Route the cables through the base (D).



2 Cable the power socket power supply cable (H) and connect the tower ground bar to ground.



3 Fit the top cover and the spacer (B).



4 Cable the data sockets.



5 Fit the data kit (F).



6 Fit the spacer (B) and screw the base onto the tower. Fix the tower to the floor.

# "TOWER TECH" SERIES COLUMNS AND TOWERS

## ▼ GENERAL CHARACTERISTICS

- Columns/towers for data and power distribution, made with components certified to established regulations;
- Aluminium frame;
- Modula kit made in high isolation, tough, long life thermoplastic;
- Overall dimensions, mm: B=280 x P=280;
- Height options, mm: 450, 650, 1000.
- Each unit is supplied with a ground plant kit;
- Minimum storage/shipping temperature -25°C;
- Minimum installation/operating temperature -15°C
- Maximum operating temperature +60°C;
- Resistant to light impacts
- Ideal for installation in areas where floors are cleaned with liquid products;
- Intended for continuous duty

## ■ INSTALLATION version

(with components correctly sized and ready for cabling)

Code	Sizeura	Position	Italian 10A/German sockets	Data sockets	Package
45850	45 cm	Vertical	4	2	1
45860	65 cm	Vertical	6	4	1
45870	100 cm	Vertical	8	4	1
45880	45 cm	Horizontal	4	2	1

## ■ CABLED version

(supplied assembled and ready for use; complete with 2 adapters for 6/6 plugs to 8/6 sockets and 3 m power/data cable)

Code	Sizeura	Position	Italian 10A/German sockets	Data sockets	Package
40850	45 cm	Vertical	4	2	1
40860	65 cm	Vertical	6	4	1
40870	100 cm	Vertical	8	4	1
40880	45 cm	Horizontal	4	2	1

## ■ Accessories

Code	Description	Package	Pack Pcs
40889	Cable tray for article 40880 / 45880	None	1
40790	Cable reel	None	1
40791	Connection fitting	None	1
40792	Steel plate	None	1



45850

45 cm



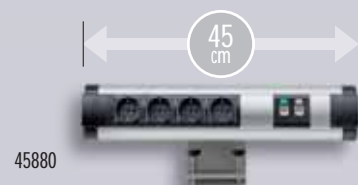
45860

65 cm



45870

100 cm



45880

45 cm



40790



40791



40792

2009  
2010

TOWER TECH MULTIPLE SOCKETS

## "TOWER TECH" SERIES MULTIPLE SOCKETS

### ▼ GENERAL CHARACTERISTICS

- Compliant with CEI 23-50.
- Ideal for household use, in shops, offices, and trade fairs.
- High mechanical strength polycarbonate housing.
- Sockets with openings protected against accidental/intentional contact.
- Wall mounting option with accessory brackets.

### ▼ CAUTION

- Do not install outdoors.
- Observe the maximum power draw indicated on each unit.
- Inspect the condition of the cables, sockets and plugs from time to time.

Code	Outputs	Description	Colour	Package	Pack Pcs
40800	3	2P+T 16A Italian/German standard with blind plug and wall mounting kit	■ ■ ■ ■	Bag and trestle	12
40830	4	2P+T 16A Italian/German standard with blind plug and wall mounting kit	■ ■ ■ ■	Bag and trestle	12
40840	5	2P+T 16A Italian/German standard with blind plug and wall mounting kit	■ ■ ■ ■	Bag and trestle	12

## ACCESSORIES

Code	Description	Colour	Package	Pack Pcs
40810	Kit with 2 data sockets, Cat. 5e, cabled with 2 m LAN UTP cable	■ ■ ■ ■	Bag and trestle	25
40815	Extension kit, including: Polarised and disassemblable 16 A plug/socket and locking retainer	■ ■ ■ ■	Bag	50
94090	2 m extension cable, 3x1.50 mm <sup>2</sup> 1 <sup>st</sup> end: polarised plug 2 <sup>nd</sup> end: polarised socket	■ ■ ■ ■	Bag and trestle	25
94091	2 m power cable, 3x1.50 mm <sup>2</sup> 1 <sup>st</sup> end: Italian/German plug 2 <sup>nd</sup> end: polarised connector	■ ■ ■ ■	Bag and trestle	25

2009  
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"TOWER TECH" SERIES MULTIPLE SOCKETS



40800



40830



40840



40810



40815



94090



94091

# Micronet<sup>®</sup>

Faster and Easier Networks



CABLING  
SYSTEM

NETWORKING

- Networking MICRONET

**Micronet**  
Faster and Easier Networks

## NETWORKING MICRONET

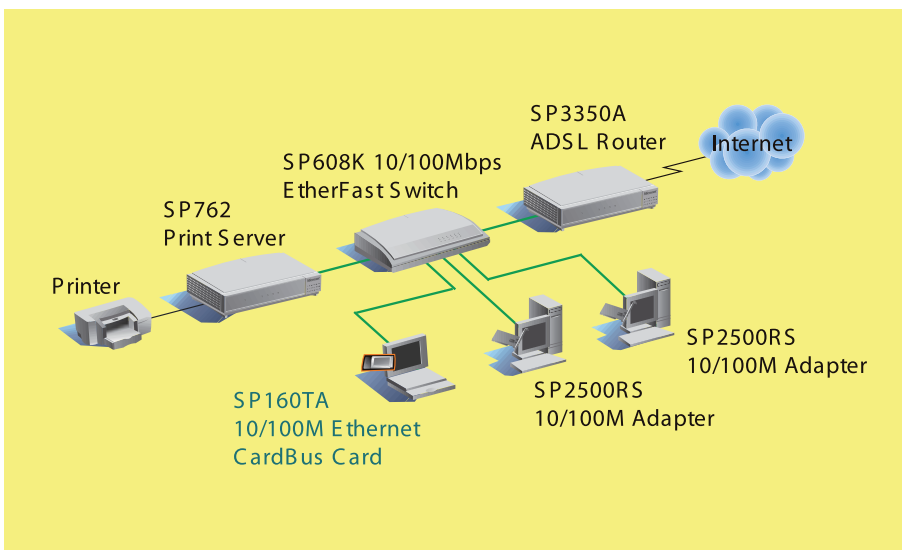
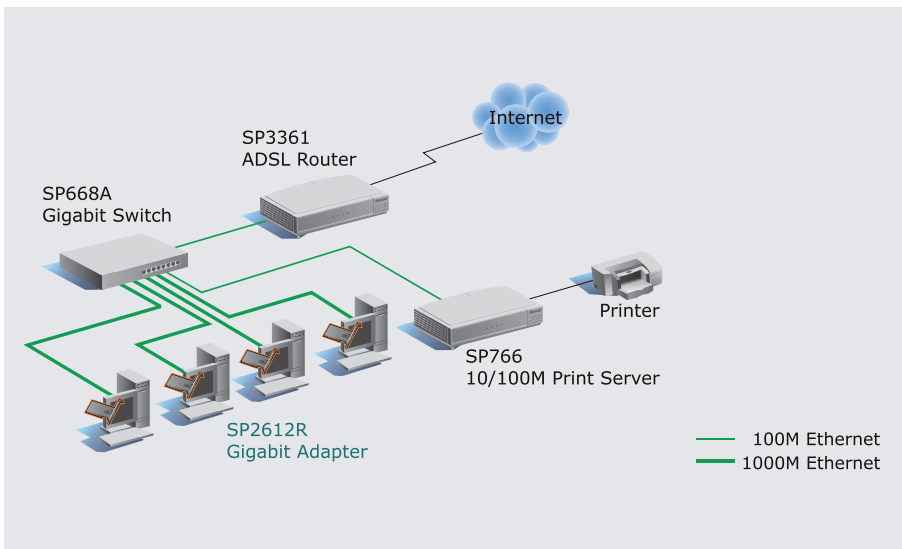
### ■ NIC 10/100/1000



24880



24884



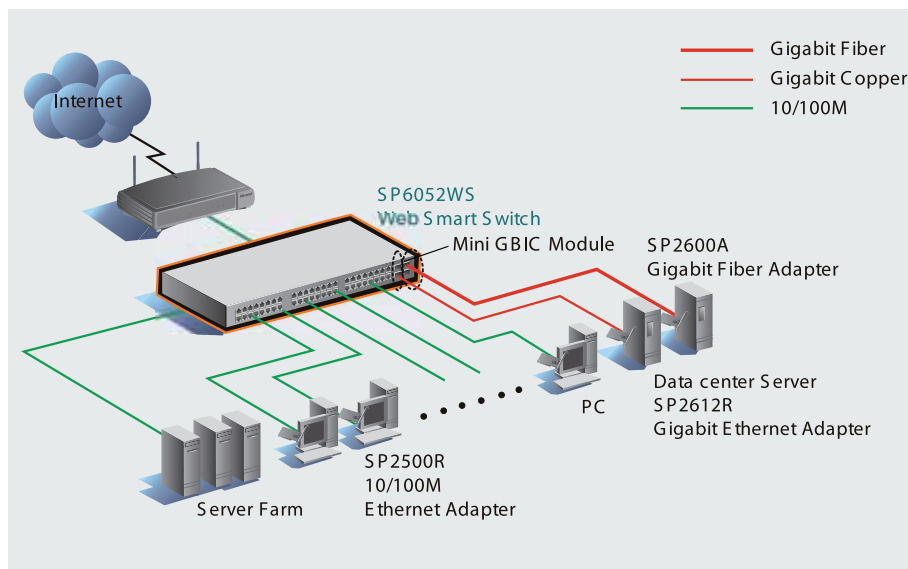
Code	Ident.	Description	Package	Pack pcs
24880	SP2612R	10/100/1000 MB Gigabit Adapter - PCI - 32 bit	Carton	1
24881	SP2612E	10/100/1000 MB Gigabit Adapter - PCI Express	Carton	1
24882	SP2600A	1000 MB Gigabit Adapter - PCI - Fibra Ottica	Carton	1
24883	SP2500RS	EtherFAST PCI 10/100 MB Autosensing chipset Realtek	Carton	1
24884	SP160TA	PC Card CardBus 10/100	Carton	1

2009  
2010

APPARATI ATTIVI



## 10/100 Mbps Switch



Code	Ident.	Description	Package	Pack pcs
24800	SP605K	5-Port 10/100M Switch, External Power.	Carton	1
24801	SP608K	8-Port 10/100M Switch, External Power.	Carton	1
24802	SP608EB	8-Port 10/100M Switch, Internal Power, Metallic Case.	Carton	1
24805	SP616B	16-Port 10/100M Switch, Desktop, External Power.	Carton	1
24806	SP616EB	16-Port 10/100M Switch, Desktop, Internal power.	Carton	1
24807	SP616R	16-Port 10/100M Switch, 19" Rack-Mount.	Carton	1
24808	SP624EA	24-Port 10/100M Switch, Desktop with 19" Rack-Mounting Kit, Internal Power	Carton	1
24809	SP624R	24-Port 10/100M Switch, 19" Rack-Mount.	Carton	1
24810	SP624	24-port 10/100M Smart Switch, Support VLAN and Port Trunk, Console and Web-Smart Management.	Carton	1
24811	SP6052WS	48-PORT 10/100M + 4-PORT GIGABIT WEB SMART SWITCH. - 48 100base-TX Ethernet Ports - 4 1000base-T Gigabit Ports and 2 Combo mini-GBIC Ports - All ports support auto MDI/MDIX - Support IEEE 802.1Q VLAN, IEEE 802.1p Priority Queues, Static Port Trunk, Po	Carton	1
24860	SP608P	8-Port 10/100M POE Switch with 4-Port POE, 802.3af Standard.	Carton	1

## 10/100 Mbps Switch with Gigabit Backbone

Code	Ident.	Description	Package	Pack pcs
24820	SP659B	24-Port 10/100M Web Smart Switch, with 2-Port RJ-45 10/100/1000M, Support VLAN and Port-Trunk, Web-based Management.	Carton	1
24821	SP659C	24-Port 10/100M Switch, with 2-Port RJ-45 10/100/1000M.	Carton	1



24800



24810



24811



24820

2009  
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24831



24834

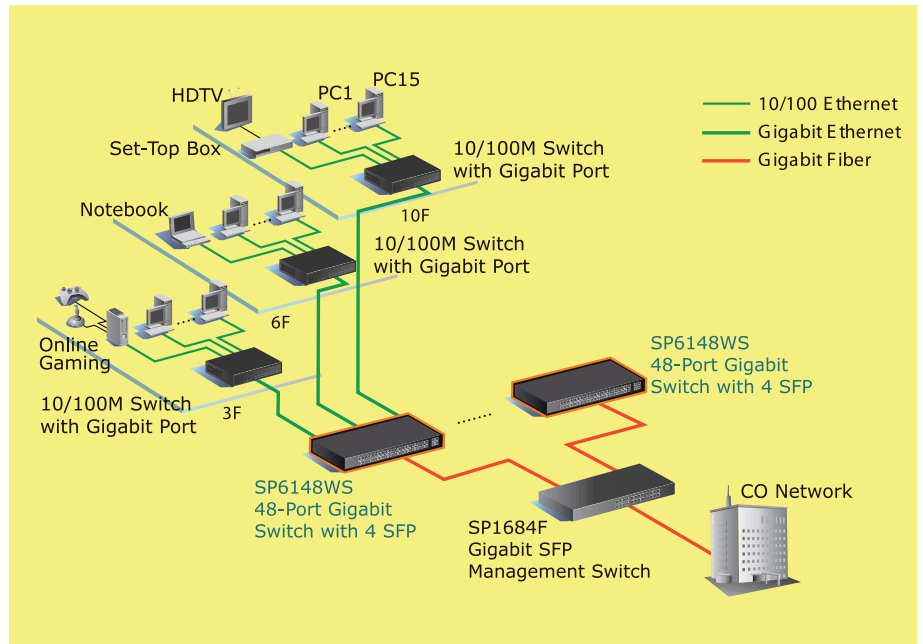


24835



24840

## 10/100/1000 Mbps Gigabit Ethernet Switch



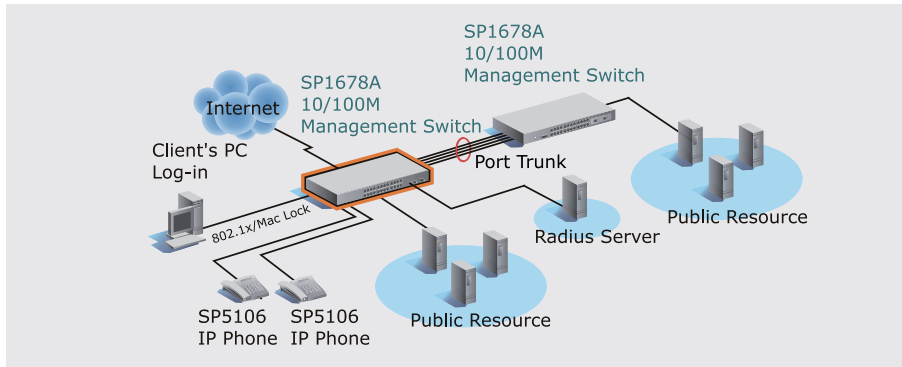
Code	Ident.	Description	Package	Pack pcs
24830	SP665C	5-Port 10/100/1000 Mbps Gigabit Switch, Auto-Uplink, Desktop Size, External Power, Metal.	Carton	1
24831	SP6108	8-PORT, Unmanaged 10/100/1000M SWITCH.	Carton	1
24832	SP676C	16-Port 10/100/1000 Mbps Gigabit Web Smart Switch with 4 Shared mini-GBIC Slots, Support 802,1q VLAN, Port Trunk, 802,1P QoS, and SNMPv1 Functions.	Carton	1
24834	SP684C	24-Port 10/100/1000 Mbps Gigabit Web Smart Switch with 4 Shared mini-GBIC Slots, Support 802,1q VLAN, Port Trunk, 802,1P QoS, and SNMP v1 Functions.	Carton	1
24835	SP6148WS	48-Port 10/100/1000 Gigabit Web Smart Switch and 4 Shared SFP Slots, Support 802,1q VLAN, 802,1P QoS, Port Trunk.	Carton	1

## 1000 Mbps mini-GBIC module

Code	Ident.	Description	Package	Pack pcs
24840	M363A	1000BASE-SX miniGBIC Module for SP676A/SP676C/SP676D/SP684A/SP684C/SP684D/SP1658B/SP1659P/SP1678A/SP1684A/SP1684F, LC Connector.	Carton	1
24841	M363B-10	1000BASE-LX miniGBIC Module, Single Mode, 10 KM, for SP676A/SP676C/SP676D/SP684A/SP684C/SP684D/SP1678A.	Carton	1

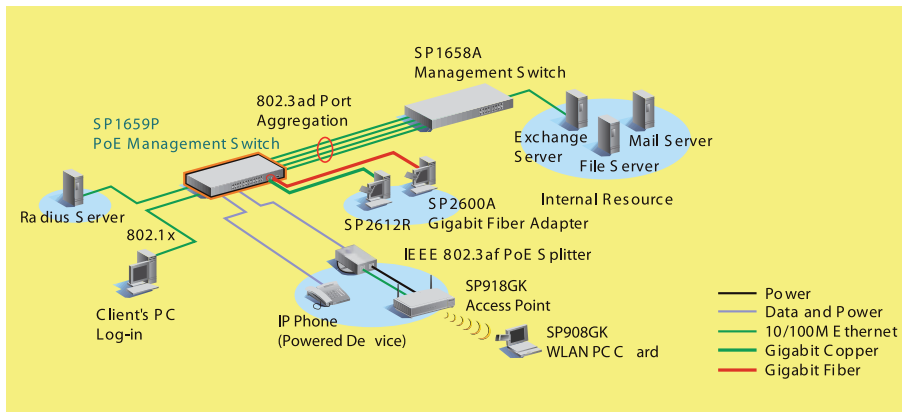
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## 10/100/1000 Mbps Manageable Stackable Ethernet Switch (SNMP/RMON/WEB/Telnet)



Code	Ident.	Description	Package	Pack pcs
24845	SP1678A	24-Port 10/100M Managed Switch, with 2-Port RJ-45 Gigabit and 2 Shared SFP slots, 802,1q VLAN, 802,3ad LACP, Port Mirror, 802,1d/w Spanning Tree, QoS, 802,1x Authentication, Virtual stacking, SNMP Management.	Carton	1
24842	M359B	1000BASE-SX Gigabit Fiber Module for SP1678/SP1678A/SP3516, SC Connector.	Carton	1
24843	M361	100BASE-FX Fiber Module for SP1678, SC Connector.	Carton	1

## 10/100/1000 Mbps Manageable Ethernet Switch (SNMP/RMON/Web/Telnet)



Code	Ident.	Description	Package	Pack pcs
24850	SP1658B	24-Port 10/100M Managed Switch, with 2-Port RJ-45 Gigabit and 2 Shared SFP Slots, Support VLAN, Link Aggregation, Port Mirror and IEEE 802,1d Spanning Tree, QoS/CoS, SNMP/RMON/Telnet/Console/Web Management.	Carton	1
24861	SP1659P	24-Port 10/100M Managed POE Switch, with 2-Port Shared RJ-45/SFP Gigabit, Support 802,3ad LACP, 802,1d/w Spanning Tree,802,1Q-in-Q VLAN, 802,1p QoS, 802,1x Security, and SNMP/Web/Console/Telnet Management.	Carton	1
24851	SP1684A	24-Port 10/100/1000M Gigabit Managed Switch, with 2 Shared Mini-GBIC, Support 802,1QVLAN, Link Aggregation, 802,1d/w Spanning Tree, 802,1x Security and SNMP/RMON/Telnet/Console/Web Management.	Carton	1
24852	SP1684F	24-Port 10/100/1000M Gigabit Managed Switch, 8-Port RJ-45 10/100/1000M and 16 Shared SFP Slots, Support 802,1q-in-q VLNA, 802,1d/w Spanning Tree, 802,1p QoS, SNMP/console/telnet/web management.	Carton	1
24840	M363A	1000BASE-SX miniGBIC Module for SP676A/SP676C/SP676D/SP684A/SP684C SP684D/SP1658B/SP1659P/SP1678A/SP1684A/SP1684F, LC Connector.	Carton	1



24845



24861

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24870



24875



24879



24905



24900



24920



24924



24940

## ■ 1000 & 10/100 MEDIA CONVERTER

Code	Ident.	Description	Package	Pack pcs
24870	SP373G	Converter 10/100 MB RJ/45 - Fibra ottica SC - Multi-Mode	Carton	1
24871	SP373F	Converter 10/100 MB RJ/45 - Fibra ottica ST - Multi-Mode	Carton	1
24872	SP373G-40	Converter 10/100 MB RJ/45 - Fibra ottica SC - Single-Mode 40 Km	Carton	1
24875	SP362C	Converter 1000 MB RJ/45 - Fibra ottica SC - Multi-Mode	Carton	1
24876	SP363C-10	1000 MB Media Converter RJ/45-SC-Single Mode - 10 Km	Carton	1
24877	SP363C-20	1000 MB Media Converter RJ/45-SC-Single Mode - 20 Km	Carton	1
24879	SP382A	Media converter chassis with 12 slots, redundant power	Carton	1

## ■ WIRELESS 2.4 GHz - 108 MB

Code	Ident.	Description	Package	Pack pcs
24901	SP908GL	PCMCIA CardBus Wireless LAN Adapter with built-in antenna 54/108 MB	Carton	1
24902	SP906GL	PCI Wireless LAN Adapter with external antenna 54/108 MB	Carton	1
24905	SP920K-7	Omni-direction Antenna 7 dBi per SP918GL - SP918GK indoor	Carton	1
24906	SP920LA-7	Directional Panel Antenna 7 dBi per SP918GL - SP918GK indoor	Carton	1
24900	SP3368/A	Access Point Wireless 108 MB + ADSL 2+ Router with Modem + Switch 4 p. 10/100 and Firewall	Carton	1

## ■ WIRELESS 2.4 GHz - 54 MB

Code	Ident.	Description	Package	Pack pcs
24920	SP918GK	RadioLink LAN Access Point 54 MB	Carton	1
24921	SP908GK	PCMCIA CardBus Wireless LAN Adapter with built-in antenna 54 MB	Carton	1
24922	SP906GK	PCI Wireless LAN Adapter with external antenna 54 MB	Carton	1
24923	SP907GK	USB 2.0 Wireless LAN Adapter 54 MB	Carton	1
24904	SP907GH	USB 2.0 Wireless LAN Adapter 54 MB Antenna 8dBi high gain	Carton	1
24905	SP920K-7	Omni-direction Antenna 7 dBi per SP918GL - SP918GK indoor	Carton	1
24906	SP920LA-7	Directional Panel Antenna 7 dBi per SP918GL - SP918GK indoor	Carton	1
24924	SP3367A/A	Access Point Wireless 54 MB + ADSL 2+ Router with Modem + Switch 4 p. 10/100 and Firewall	Carton	1
24940	SP916GK	Access Point Wireless 54 MB + DSL Router w/o Modem + Switch 4 p. 10/100 MB	Carton	1
24925	SP5601W/A	Access Point Wireless 54 MB + ADSL 2+ Router with Modem + VOIP + Switch 4 p. 10/100 MB and Firewall	Carton	1
99908	KitInfra54-Ver2	Kit(SP918GK+ SP907GK) (1 Access Point + 1 USB 2.0 Wireless Lan Adapter)	Carton	1

## ■ Electronic spectrun analyzer

Codice	Ident.	Descrizione	Confezione	Imb. pz.
24471	WI-SPY SMA	Wi-Spy electronic spectrum analyzer Wireless 2.4 GHz	Carton	1

2009  
2010

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### WIRELESS 2.4 GHz - 54 MB Antenne, Cable and Accessory

Code	Ident.	Description	Package	Pack pcs
24907	SP920LA-12	Directional Panel Antenna 12 dBi + cable 1 m + assembly Kit	Carton	1
24908	SP920FB	Uni-direction YAGI Antenna, 15 dBi + cable 1 m + assembly Kit	Carton	1
24909	SP920MA-8	Omni-direction Antenna, 8.0 dBi + cable 1 m + assembly Kit	Carton	1
24910	SP920MA-12	Omni-direction Antenna, 12.0 dBi + cable 1 m + assembly Kit	Carton	1
24915	C920C-10	Cable 10 m for SP920FB/PA/MA/LA-12 , from N-Plug to N-Jack	Carton	1
24916	C920C-5	Cable 5 m per SP920FB/PA/MA/LA-12 , from N-Plug to N-Jack	Carton	1
24917	C925	Lightning rod 2 KW 50 Ohm	Carton	1

### ADSL 2/2+

Code	Ident.	Description	Package	Pack pcs
24927	SP3361/A	ADSL 2+ Router with modem	Carton	1
24928	SP3364F/A	ADSL 2+ Router with modem + Switch 4 p. 10/100 and Firewall		
24926	SP5601/A	ADSL 2+ Router with Modem + VOIP + Switch 4 p. 10/100 and Firewall	Carton	1
24924	SP3367A/A	Access Point Wireless 54 MB + ADSL 2+ Router with Modem + Switch 4 p. 10/100 and Firewall	Carton	1
24925	SP5601W/A	Access Point Wireless 54 MB + ADSL 2+ Router with Modem + VOIP + Switch 4 p. 10/100 and Firewall	Carton	1
24900	SP3368/A	Access Point Wireless 108 MB + ADSL 2+ Router with Modem + Switch 4 . 10/100 and Firewall	Carton	1

### ADSL

Code	Ident.	Description	Package	Pack pcs
24865	SP3302A/A	USB ADSL Modem, PPPoverEthernet e PPPoverATM	Carton	1
24940	SP916GK	Access Point Wireless 54 MB + DSL Router w/o Modem + Switch 4 p. 10/100 MB	Carton	1
24941	SP888C	DSL Router w/o Modem + Switch 4 p. 10/100 MB	Carton	1
24942	SP880B	DSL VPN Router w/o Modem + Switch 4 p. 10/100 MB - IPSEC VPN 20 Tunnels	Carton	1
24943	SP883B	DSL VPN Router w/o Modem + Switch 4 p. 10/100 MB - IPSEC VPN 20 Tunnels - Bandwidth controller	Carton	1



24908



24910



24927



24926

2009  
2010

APPARATI ATTIVI

### INTERNET CAMERA

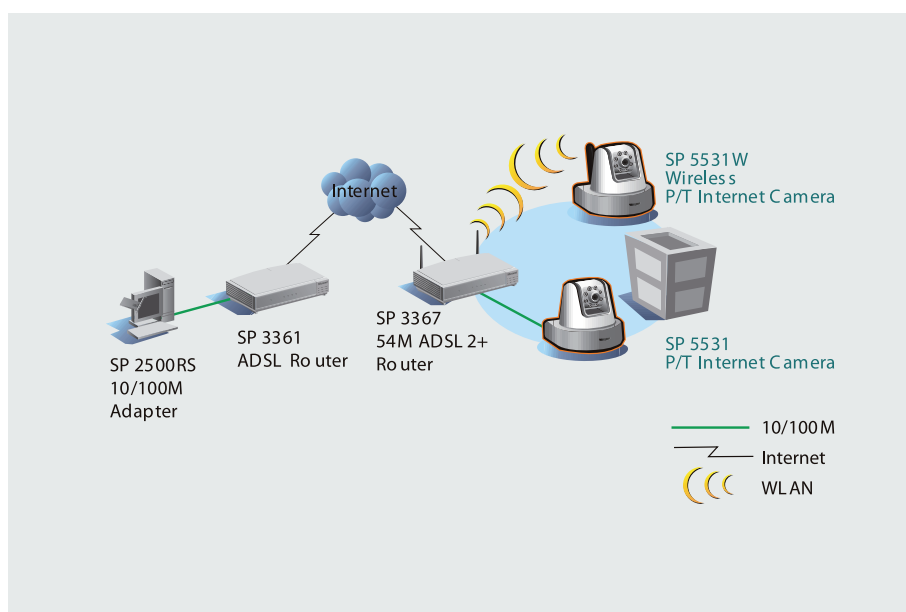
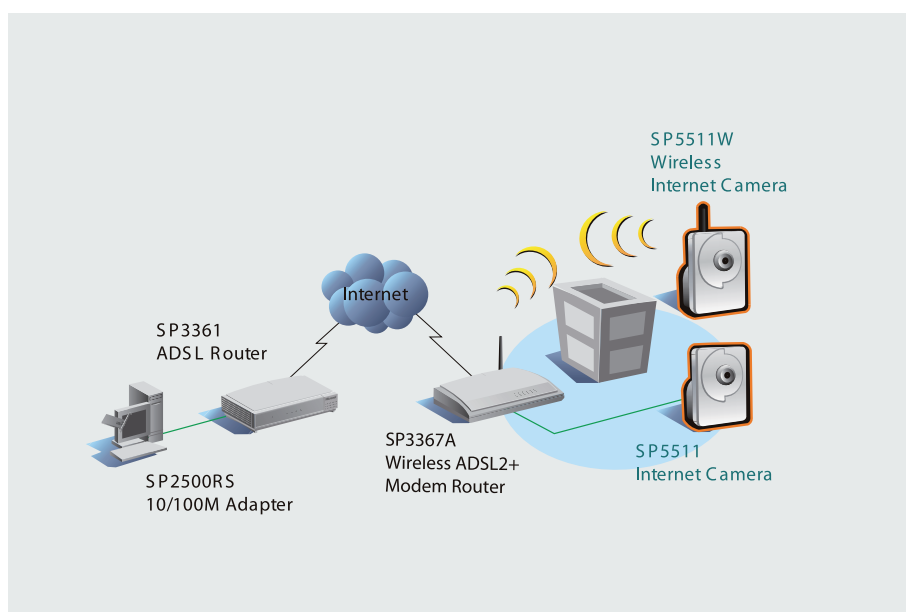
Code	Ident.	Description	Package	Pack pcs
24982	SP5511	Internet Camera, 1 P. Ethernet 10/100 Mbps	Carton	1
24983	SP5511W	Wireless 54MB Internet Camera, 1 P. Ethernet 10/100 Mbps	Carton	1
24980	SP5521	Internet Camera, 1 P. Ethernet 10/100 Mbps Dark enviroment	Carton	1
24981	SP5521W	Wireless 54MB Internet Camera, 1 P. Ethernet 10/100 Mbps Dark enviroment	Carton	1
24985	SP5531	Internet Camera with PAN/TILT/ZOOM	Carton	1
24986	SP5531W	Wireless 54MB Internet Camera with PAN/TILT/ZOOM	Carton	1



24981



24985



2009  
2010

APPARATI ATTIVI



CABLING  
SYSTEM

# INSTRUMENTATION

- LAN cable tester
- Fusion splicer
- Mini OTDR
- Measurement instruments

## LAN CABLE TESTER

### ■ LAN Continuity Tester

#### ▼ GENERAL CHARACTERISTICS

The LAN Cable Tester – continuity check – is a handy, low cost device for checking the conditions and operation of networks. With its attractive design, it is equipped with a handy case to protect both the main and the remote units. It is specifically designed for fast testing of mapping, polarisation, and continuity of pairs as well as data cable screening (as per EIA/TIA 568A&B).

It is equipped with RJ45 inputs on both the main and remote units, for connecting the section of circuit being tested. It is powered with a normal 9 V battery. The LAN Cable Tester runs an automatic scan of any kind of cable equipped with RJ45 or RJ12 or RJ11 connectors. Furthermore, the remote terminal (separate from the central unit) makes it easy to test a channel which has already been installed: a considerable advantage for maintenance technicians.

#### THE TESTER DETECTS THE FOLLOWING FAULTS:

- Open circuit
- Short circuit
- Swapped wires of a given pair
- Crossed pairs
- Divided pairs, for cable runs from 0.5 to 200 metres
- Open cable screen

- **PAIRS LED (GREEN)** Indicates LAN cable twisted pairs. Pairs 1/2, 3/6, 4/5, 7/8 are all processed during the test.

- **SCREEN LED (GREEN)** Turns on when the screen of a cable is connected. Turns off when the cable is either not screened or the screen is open.

- **FAULT LED (RED)** Indicates a fault on the pair of the LAN cable being tested.

The following four faults are highlighted on the front of the tester:

**SHORT CIRCUIT :** One of the wires of the pair is shorted somewhere along the length of the cable or at the connector.

**SWAPPED:** The two wires of a twisted pair have been swapped (e.g. 1-2 and 2-1)

**CROSSED:** Two complete pairs have been swapped (e.g. pair 1/2 run to 4/5 and 4/5 to 1/2)

**DIVIDED PAIRS:** Wires belonging to two different pairs have been used to make a connection.

This fault means that the connection is not between pairs and the advantages of twisted connections are thereby lost.

- **BATTERY LOW LED (RED)** Turns on when the 9V battery charge is low.

- **TEST BUTTON** Press the button to test the LAN cable.

A RED LED indicates the type of fault detected on the pair being tested. If one of the GREEN LED's does not light up (it is skipped over during the test) this means that the pair in question has an OPEN wire. For a pair to pass the test, ALL GREEN LED's must light up, and NO RED LED may light up.

#### TESTING AND IDENTIFYING THE FAULT

Automatic quick test function – Press the test button for a moment to run an automatic test cycle. The result is displayed permanently. The result can be one of the following:

a) ALL GREEN LEDS ON, NO RED LEDS ON: the cable is OK

b) ONE GREEN LED OFF: One wire of the pair is OPEN

c) ONE GREEN LED OFF and ONE RED LED ON: The pair associated to the green led (off) has a fault and the red led indicates the type of fault

**IMPORTANT** - Do not connect the tester of the terminal while any end of the cable is still connected to any other device. This prevents damage to the equipment or tester itself.

**APPLICATION:**

- Data transmission cable continuity check
- RJ45 socket crimping check

**REFERENCE STANDARDS:**

- ISO 11801 2 edition (General systems)
- EN 50173-1 (Cabling systems)
- EIA/TIA 568B (Cat. 6 installations)
- 306-10 (Residential cabling guide)
- IEC 61935-1 (General systems)



24395

2009  
2010

INSTRUMENTATION

Code	Description	Package	Pack Pcs
24395	LAN Continuity Tester	Blister	1

# DATA NETWORK TESTER

## ■ SIGNALTEK™ cable qualifier

### ▼ GENERAL CHARACTERISTICS

SIGNALTEK™ is the most convenient Gigabit Ethernet tester presently available. To check whether a link is capable of supporting a specific application, it transmits Ethernet packets along the link and measures its capacity in accordance with the Gigabit Ethernet IEEE802.3ab standard – the best performance measure for any network.

- Exhaustively tests all data, video and audio applications.
- Runs tests including wiremaps and lengths of 1, 3 and 4 UTP/STP pairs and 6/59 series coaxial cable as per standards TIA-568 A/B and TIA-570
- Runs a complete test with Gigabit Ethernet packets in around 35 seconds with 97% certainty
- Includes a TDR (Time Domain Reflectometer) for accurate cable run length measurements and identifies faults in cable runs returning the distance to the open/short circuit
- The provided alligator clips are suited for testing household devices, loudspeakers, alarms, thermostats and many other control systems.

### ▼ TECHNICAL CHARACTERISTICS

- Qualifies Gigabit performance – as per IEEE802.3ab
- User selectable testing – test VoIP, Video IP and Data
- Gigabit Ethernet link testing in just 10 seconds
- Configurable monitoring duration to facilitate detection of intermittent faults
- AUTOTEST first detects what is connected to the far end of the cable, whether the SIGNALTEK remote unit, an active unit or an open link, and then launches a suitable test suite
- User friendly graphic interface for quick, intuitive operation
- Internal test data storage – memory capacity for up to 20,000 tests
- USB interface – download data and read test results.
- Clear, full qualification report printout.

### ▼ SPECIFIC CHARACTERISTICS

SIGNALTEK™ simplifies the storage and documentation of test data : the SIGNALTEK™ storage and documentation system is versatile and easy to use, and is specially designed for network installation and service technicians.

- Produces simple pass/fail reports as per IEEE 802.3ab
- Stores up to 20,000 tests in its on-board memory
- Can be connected to USB drives for increased storage
- Direct printout to supported USB printers
- No special software required; reports display on any web browser

#### TYPES OF CABLE

- Voice/telephony cable - USOC/RJ11/RJ12 interface
- Data cable - (STP/UTP) RJ45 for CAT3/5e/6/6a/ cabling systems
- Coaxial cable – via RJ45 F patch cord, series 58/59, cabling 6 (75 ohm)

#### CABLE RUN LENGTH MEASUREMENT

- Exceeds IEEE802.3 specifications

#### BATTERY LIFE: STANDARD AA ALKALINE BATTERIES

- Stand-by - 90 days
- Cable test - 30 hours
- Network monitoring - 4 hours

#### PORTS/CONNECTIONS

- RJ45 interface
- Mini-USB "A" port
- Standard USB "B" port
- CC input for network continuity monitoring

#### PHYSICAL DIMENSIONS

- Display unit: 201 mm x 91mm x 38 mm
- Remote unit :173 mm x 89 mm x 38 mm
- Display unit weight: 354 g without batteries
- Remote unit weight: 255 g without batteries.



24449

2009  
2010

INSTRUMENTATION

Code	Description	Package	Pack Pcs
24449	SIGNALTEK™ cable qualifier	Bag	1

## ■ Tester for certifying LANTEK 6A, LANTEK 6B & LANTEK 7GB installations

### ▼ GENERAL CHARACTERISTICS

**LANTEK® 7G 1 GHz** - The first Level IV LAN tester in the world which has been independently verified and is capable of certifying installations up to 1 GHz in excess of CAT 6/ISO-E, CAT 6a and ISO-F specifications. LANTEK® 7G combines the accuracy and bandwidth of a laboratory network analyser with the legendary quality and durability one expects from IDEAL INDUSTRIES, INC LAN certifiers.

**LANTEK® 6A 500 MHz** - Specially designed to support the new emerging 6A category, and thus certify networks for 10 Gbit signal transmission.

**LANTEK® 6 350 MHz** - A 350 MHz Level III LAN tester, capable of certifying CAT 6/ISO-E cabling systems. All LANTEK® 6, 6A and 7G testers employ the patented IDEAL measurement system which eliminates effects due to standard patch cords. It follows that the certification of channels and permanent links of CAT 6/ISO-E cabling is possible without changing adapters or reconfiguring the tester itself. This eliminates bulky, costly adapters and makes certification cost effective and convenient. The same technology enables your LANTEK® to operate in DUALmode with simultaneous testing of both channels and permanent links. Simply press the AUTOTEST button to combine the results of CAT 6 and ISO-E tests for quick, profitable testing.

**The only tester in the world capable of running DUALmode tests - unique time and cost savings.**

Save time and money by combining two tests with the LANTEK® 6/7G. For example, you can select a combination of measurements such as channel/permanent link or CAT 5e/6 or CAT 6/ISO-E and get the results of both tests in the same time required to run a single test.

### ▼ TECHNICAL CHARACTERISTICS

- LANTEK® 7G high performance unit – up to 1 GHz with test function for CAT 5e/ISO-D, CAT 6/ISO-E, CAT 6a, ISO-F (CAT 7) and higher
- Level IV accuracy – Independently verified by ETL for baseline, channel and permanent link testing
- DUALmode testing for time savings – Simultaneously runs two sets of tests
- Run tests with patch cords to save money – Use standard patch cords to run your tests and lower your running expenses
- Maximum on-board/external memory capacity – Simplifies data management
- Handy FIBERTEK™ accessory – Simultaneous testing with two fibres to check run length and attenuation
- Innovative FIBERTEK™ accessory – For precise troubleshooting and advanced optical fibre diagnostics

### ▼ ACCESSORIES

Package and accessories included with:

LANTEK® 6A Premium  
LANTEK® 7G Basic\*  
LANTEK® 7G Premium\*

- Soft carry case
- Batteries
- Shoulder straps (two)
- LANTEK® Reporter software
- USB & Serial cables
- PCMCIA adapter
- 64MB Compact Flash card
- Compact Flash reader for PC
- 2 LANTEK® CAT 6/5e channel adapters
- 2 LANTEK® CAT 6/5e reference patch cords
- 2 CA power supplies
- 2 pairs of headphones
- Desktop battery charger
- CD with manual
- Guarantee certificates

\*Updates for LANTEK® users can be downloaded from [www.idealindustries.com](http://www.idealindustries.com).

### PACKAGES AND ACCESSORIES

- FIBERTEK™ adapter - 850nm MM
- FIBERTEK™ adapter - 1300nm MM
- FIBERTEK™ adapter - 1310nm SM

### ▼ LANTEK® Reporter software

LANTEK® Reporter transfers test results and prints out reports for customer documentation. The software enables the user to transfer tests stored in the LANTEK® unit's memory or Compact Flash card. The application is designed to create three different test reports depending on the level of detail required:

- Single line report: One line per test;
- Summary report: Summarises the test results with a graph;
- Detailed report: Full results with graphs for all tests and pairs.

- FIBERTEK™ adapter - 1550nm SM
- TRACETEK™ adapter - 1300nm MM
- TRACETEK™ adapter - 1310nm SM
- Optical fibre cleaning accessories
- 62.5/50µm cable kit, MM, ST-ST
- 62.5/50µm cable kit, MM, FC-ST/FC-SC
- 9µm cable kit, SM, FC-ST
- 9µm cable kit, SM, FC-ST/FC-SC
- FIBERTEK MMB
- FIBERTEK MMP
- FIBERTEK SMB
- FIBERTEK SMP
- FIBERTEK ALLB
- FIBERTEK ALLP
- TRACETEK MM
- TRACETEK SM

### OTHER ACCESSORIES (SEPARATE PURCHASE)

- Soft carry case
- Deluxe hard case
- Batteries
- Serial cable
- PCMCIA Compact Flash adapter
- 64 MB Compact Flash card
- Compact Flash reader for PC
- 2 LANTEK® CAT 6/5e channel adapters
- 2 LANTEK® CAT 6/5e reference patch cords



24391





## ▼ TECHNICAL CHARACTERISTICS

Description	LANTEK® 6 Basic	LANTEK® 6A Premium	LANTEK® 7G Premium
Frequency range	350 MHz	500 MHz	1 GHz
CAT 3/5e/6 & ISO-C/D/E support	v	v	v
CAT 6a/7 & ISO-F support	Upgradable	Upgradable	v
Duration of CAT 5e test in ... incl. saved results	15 sec	15 sec	15 sec
Duration of CAT 6 test in ... incl. saved results	21 sec	21 sec	21 sec
Third party accuracy verification	ETL	ETL	ETL
DUALmode test for time savings	v	v	v
Test with standard patch cords	v	v	v
Display area	Better	Better	Better
CAT 6 storage without graphs	43000	43000	43000
CAT 6 test storage with graphs	500	500	500
Expansion slots	-	2 PCMCIA	2 PCMCIA
Standard external memory	-	64MB	64 MB
USB / serial port	v	v	v
TDR function	v	v	v
Distance to fault on optical fibre (TRACETEK™)	Optional	Optional	Optional
Batteries	2	4	4
External battery charger	Optional	v	v

## ▼ SPECIFICATIONS

Description	Range	Resolution	Accuracy
Length (cable 50 – 100 ohm)	0 - 605 m	0.3 m	± (3% + 1 m)
Delay	0 - 8000 ns	1 ns	± (3% + 1 ns)
Average impedance	35 - 180	0.1	± (3% + 1)
Capacitance (total) 0	0 - 328 pF/m	0.1 pF	± (2% + 1 pF)
Resistance in CC	0 - 200	0.1	± (1% + 2)
Attenuation	1 MHz - 1 GHz	0.1 db	Level III/IV
NEXT	1 MHz - 1 GHz	0.1 db	Level III/IV
Return Loss	1 MHz - 1 GHz	0.1 db	Level III/IV
ELFEXT	1 MHz - 1 GHz	0.1 db	Level III/IV
Background noise		< -90 db	
Dynamic range		> 90 db	
Test reference standards	ANSI/TIA/EIA 568B, Cat. 3/5e/6/6a, ISO C/D/E/F, AS/NZS 3080, IEEE 802.3 Ethernet, EN50173, EN50173.A1		
Types of cable	UTP/ScTP/FTP CAT 3/5e/6/7; ISO C/D/E/F (Channel and Permanent Link), Coaxial, 110/66/BIX blocks		
Dimensions	256mm x 127mm x 58mm (Display and Remote units)		
Weight	1050g - Display 914g - Remote 548g - Battery		
NiMH batteries (rechargeable)	NiMH (rechargeable)		
Battery life 8 hours	8 hours		
Operating temperature 0°C - 50°C	0°C - 50°C		
Storage temperature	-20°C to 70°C		
Humidity	5 - 90% non-condensing		

Code	Description	Package	Pack Pcs
24391	LAN LANTEK 7 GB cable tester	Hard case	1
24425	LAN LANTEK 6 B - 350 MHz cable tester	Soft bag	1
24454	LAN LANTEK 6 A - 500 MHz cable tester	Hard case	1

## ■ Fiberkit+ for optical fibre attenuation measurement on LANTEK 6 and LANTEK 7 testers

Code	Description	Package	Pack Pcs
24426	FiberKit+MM x LANTEK 6/7	Case	1
24427	FiberKit+SM x LANTEK 6/7	Case	1



2009  
2010

INSTRUMENTATION

## FURUKAWA S122 FUSION SPLICER



24492

2009  
2010

INSTRUMENTATION

### ▼ GENERAL CHARACTERISTICS

Furukawa series S122 splicers with their super-low profile and new generation construction guarantee superior handling and practicality in all conditions and with all types of plant. Principal features:

- **Exceptional handling and ease of use** - The super-low profile, only 47mm from the work bench to the splice, vastly increases ease of use in all conditions, whether stable (resting on a fixed bench) or mobile (secured to the operator);
- **Reinforced housing** - Both the housing and the cover are coated with a layer of magnesium oxide paint. All corners are protected with rubber parts. Its simple construction makes the S122 easy to use in the most challenging conditions;
- **Graphic screen and interface** - The non-reflective, backlit LCD screen makes the unit easy to operate in any lighting conditions, and the advanced graphic user interface greatly facilitates the operator's work;
- **Double splice inspection window** - The screen also permits viewing the splice on two axes (X and Y) to monitor splicing operations from start to finish;
- **Fast and accurate** - Only 13 seconds per splice. Fitting the heatshrink splice protector with the built in kiln takes no more than 37 seconds.

### ▼ STANDARD PACKAGE

Description	P/N	Description	P/N
Main body	S122-AA-0001	AC power supply complete with cable	S957B
Batteries	S943	Battery charger	S958B
Carry case strap	S122-XA-0003	Spare electrodes	S966 (pair)
Lightweight carry case	S122-XA 0002	Instruction manual	FTS-B291
Cooling tank	S122-XA 0006	Electrode sharpener	D5111
Adapters for 250 micron fibres	S709S-250 pair		

### ▼ OPTIONAL ACCESSORIES

Description	P/N	Description	P/N
Body	S122-XA-0004	Adapters for 250 micron fibres	S709S-250 pair
Hard case	S122-XA-0004	DC power supply complete with cable	S959U
Thermal stripper	S218R	High capacity battery	S945
Stripper	S210	Precision cutter	S325A
Adapters for 500 micron fibres	S709S-500 pair	2/12 track adapters for 250 micron fibres	S709S-002/12 pair
Adapters for 900 micron fibres	S709S-900 pair		

### ▼ TECHNICAL SPECIFICATIONS

Article	Specification
Type of fibre	SMF, MMF, DSF, NZDSF
Fibre dia.	125 micron
Coating dia.	250 and 900 micron
Maximum splice loss	SMF: 0.05 dB – MMF: 0.03 dB – DSF: 0.08 dB – NZDSF: 0.08 dB
Fusion time	13 seconds
Heatshrink time	37 seconds (40mm) / 51 seconds (60mm)
Force applied in traction test	1.96 N
Heatshrink splice protectors	40 / 60 mm
Programs	150 fibre splicing programs - 12 splice protector heatshrink programs
Memory	1500 records
Display	Simultaneous display of two axes, 120X enlargement
Dimensions	140 mm x 189 mm x 73 mm
Weight	800 g without battery (170 g)
AC power supply	100 to 240 V AC
DC power supply	S943 Li-ion batteries, 11.1 V, 2300 mAh
Battery capacity	50 splices including splice protector heatshrink cycle
Operating temperature	- 10° +50°
Storage temperature	- 40° +60°

Code	Description	Package	Pack Pcs
24492	Furukawa S122 fusion splicer	Bag	1

### ■ Accessories

Code	Description	Package	Pack Pcs
24.446	Splice protector L = 40 mm	Bag	1
24.439	Cleaning kit including carry case, isopropyl alcohol, compressed gas cylinder, cleaning tissues	Carton	1

# PALMTOP OTDR EXFO FTB-200

## ▼ GENERAL CHARACTERISTICS

- Test recording, data transmission
- Modules and interfaces can be replaced
- Accessory connector head inspection kit
- Lightweight
- Resistant to impacts, water, dust and solvents
- Quick, handy software
- Compliant with GR-196
- Battery life > 8 hours
- 4 second program startup time
- Quick data downloads
- Equipped with upgradable PC software and USB connection
- USB A and B and RJ45 ports
- Compact Flash memory

## ▼ SPECIFICATIONS

- Display: Touchscreen, colour, 640 x 480 TFT 163 mm (6.4 in)
- Interfaces: USB A Principle, USB B Remote, RJ-45 LAN 10/100 Mb/s, Compact Flash
- Data storage: 80 Mb internal (Flash), USB sticks 1 Gb and 2 Gb (optional), Compact Flash Cards (optional)
- Batteries Rechargeable Li-Ion, 8 hour life, TR-NWT-001138
- Power supply: AC/DC power supply, input 100-240 VAC, 50-60 Hz, 2A max, output: 24 VDC, 90 W

## ▼ GENERAL SPECIFICATIONS

- Temperature: Operating - 5°C to 50°C (23°F to 122°F)  
Storage - 40°C to 70°C (- 40°F to 158°F)
- Relative humidity: 0% to 95% non-condensing
- Dimensions (HxLxW): 322 mm x 197 mm x 109 mm (12" 11/16 in x 7 3/4 in x 4 5/16 in)
- Weight: 2.5 kg (5.4 lb)
- Vibration: < 1,5 g at 10Hz to 500 Hz (three main axes)
- Mechanical shock: Drop up to 760 mm on any of six sides (according to GR-196-CORE)

## ▼ ACCESSORIES

FP1	200x microscope kit	GP-2017	Pair of extra batteries
FP5	400x microscope kit	GP-2019	USB drive, standard capacity
GP-10-069	Semirigid case	GP-2021	External AC power supply, specify country (A-E-I-J-S-U) A-North America, E-Europe, I-India, J-Japan, S-Australia and New Zealand, U-Britain
GP-302	USB mouse		
GP-308	DC car adapter/inverter		
GP-2001	USB keyboard	GP-2023	Neck strap
GP-2011	Compact Flash Ethernet WiFi card	GP-2024	Pair of extra straps
GP-2012	Compact Flash Bluetooth card WiFi card	GP-2025	Port for extra batteries
GP-2014	Compact Flash memory 1 GB card	GP-2027	Portable printer
GP-2015	Compact Flash memory 2 GB card	GP-2028	Safety kit
GP-2016	RJ5 patch cord = 3 m		

## ▼ INTERNAL SPECIFICATIONS

- Wavelength: 850, 1300, 1310, 1490, 1550, 1625, 1650
- Power range (dBm): 10 to -86 (InGaAs)  
26 to -64 (GeX)
- Accuracy (%): ±5 % ± 3 pW (InGaAs)  
±5 % ± 0.4 nW (GeX)
- Automatic zero: Max power to -63 dBm for InGaAs  
Max power to -40 dBm for GeX
- Tone detection (Hz): 270/1000/2000
- Display resolution (dB): InGaAs  
0.01 = max to -76 dBm  
0.1 = -76 dBm to -86 dBm  
1 = -86 dBm to min  
GeX  
0,01 = max to -54 dBm  
0.1 = -54 dBm to -64 dBm  
1 = -64 dBm to min



24474

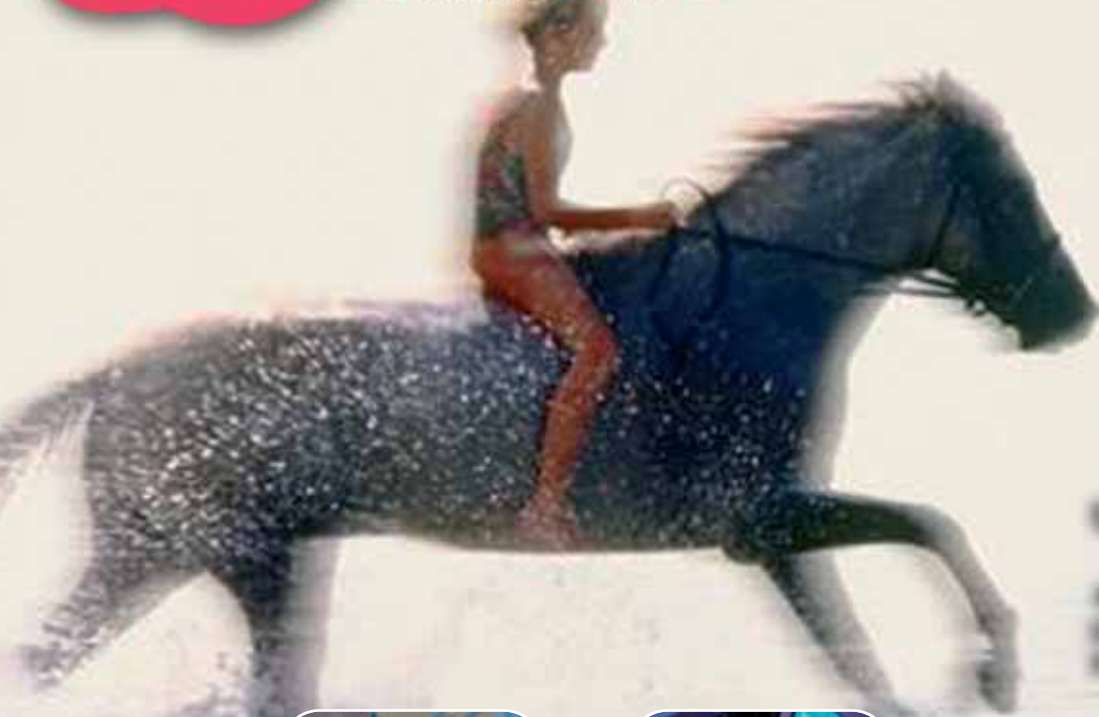
Code	Description	Package	Pack Pcs
24474	OTDR EXFO FTB-200 + MM module + pair of MM launch coils	Bag	1
24475	OTDR EXFO FTB-200 + SM module + SM launch coil	Bag	1
24476	OTDR EXFO FTB-200 + MM module + SM module + 3 launch coils	Bag	1
24434	FO launch coil 62.5/125 MM	Case	1
24435	FO launch coil 50/125 MM	Case	1
24436	FO launch coil 9/125 SM	Case	1

SM module - 7200D-23B (35/34dB)

MM module - 7200D-12CB (26/25dB)



**GREENET**  
**FREE**  
Customer Service



built for  
**freedom**



Free to  
choose  
the custom  
solution  
for your  
needs

As special order, **FANTONET** offers customisations of the enclosures listed in our catalogue; contact our technical department directly through the **FANTONET CUSTOMER SERVICE** +39 049.9597975 - [direct.net@fanton.com](mailto:direct.net@fanton.com)

#### "STANDARD" CUSTOMISATIONS

- Colour options for enclosure and external corners members
- Type of door lock
- Type of door (glass, blind, with ventilation holes)
- Type of side panels (blind with flanges of a given size, with ventilation slots)
- Number of doors (doors can be fitted on all four sides)
- Height of plinth
- Wheel diameter greater than 80mm

#### "SPECIAL" CUSTOMISATIONS

- Structure of enclosure
- Size of enclosure
- Other structural specifications



C A B L I N G  
S Y S T E M







# The **strength** of innovation

## Over 50 years of success

The Fanton story started in the Fifties, with Mario Fanton at the helm - a story of continual success. In 1975 Mario's son Renzo restructured the enterprise as a public limited company. It was Renzo Fanton who created the successful brand known today for the functionality, durability and quality of its products.



### From the idea to the finished product

Every successful product is the outcome of a rigorous design and fabrication process. Fanton S.p.A. controls this process from start to finish, with its own R&D department and production facilities.

### Quality and safety

This is the basic criterion for everything in the company. Every product is the result of careful design and testing for quality and safety – to standards beyond those required by established regulations.



the company

Fanton S.p.A. has a surface area of 30,000 m<sup>2</sup>, of which 20,000 are under cover. It has a highly professional, select workforce, with around 150 employees.



FABBRICA  
MATERIALE  
ELETRICO



CABLING  
SYSTEM



DIVISIONE  
CAVI  
SPECIALI

## Innovation

Fanton S.p.A. stands out from the competition for its continuous innovation and upgrading of its product line, thus staying ahead of the curve in this challenging market with its highly demanding clientele.

## Sales network

The FME, AMBRA 90 CAVI and FANTONET brands have grown together with a highly qualified network of agents, created a well-established presence in Italy, Europe, South America and North Africa, with commercial strategies finely tuned to meet the requirements of its local markets.

## Automated warehousing

This is a testimony to Fanton S.p.A.'s commitment to growth. The new warehouse, which boasts the latest warehousing technology, puts the customer first with fast order filling and stock turnover.

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# ...to products

Fanton S.p.A. offers a full range of products, from electrical supplies to special cables and cabling systems. The numerous new products introduced in this edition testify to our commitment to continuous improvement in line with the development of the market.



## Electrical supplies **FME Catalogue**

FME is Fanton S.p.A.'s historic brand. With our enormous experience and know-how, developed over many years of manufacturing, we are proud to present our new, expanded catalogue.

The catalogue contains a vast range of new products, covering the entire range from residential to industrial use. Printed in A4 for ease of filing, the catalogue is full of images and tables which clearly illustrate the products and their many variants.

It is divided into two sections: the first covers electrical supplies for the industrial market, the second materials for civil applications.

*INDUSTRIAL product line: Plugs, cable winders, extensions, «Golia Empty» winder, cable winder spares, junction panels, lighting.*

*CIVIL product line: Multiplugs, plugs, cable winders, self-retracting cable winders, extensions, self-service cables, telephony/TV accessories, Satv accessories, TV supplies, lighting products.*



## Cabling systems **FANTONET Catalogue**

The FANTONet catalogue has reached its fourth edition and aims to offer a complete range of products for constructing and installing quality cabling systems. The range of products is vast and includes installation products, work area accessories and instrumentation. The catalogue aims to provide everything needed to create the installation which best suits your customer's requirements. The catalogue not only lists our products, but also includes technical sheets which answer the questions most commonly asked by installation technicians about regulatory issues and installation methods.

*Contents: Concept System, Lan Cables, Optical Fibre Cables, «Greenet» Enclosures and Panels, Kit-Net, Enclosure Accessories, Work Area Accessories, Phone Systems, 5e Data Systems, 6e Data Systems, Light Systems, Get Net Active Equipment, C-Net Active Equipment, UPS, Instrumentation.*



## Special cables **AMBRA 90 CAVI Catalogue**

The AMBRA 90 CAVI catalogue lists a vast selection of special cables, and the new edition includes a variety of new products, including coaxial cables for digital terrestrial TV, Profibus cables, electronics cables, fire-retardant cables and Superflex cables. Ambra 90 Cavi adopts the most advanced production technology. In order to meet the requirements of an increasingly demanding and dynamic market, the catalogue also offers the option to order custom cables. Each cable listed in the catalogue is illustrated with photographs, technical data tables and commercial packaging options.

*Contents: DigiSatv cables, RG cables, LAN cables, Telecommunications cables, Burglar alarm and alarm cables, Fire-retardant cables, Hi-Fi cables, Extra-flex cables, Superflex cables, Multipole cables with copper braid screen, Data transmission cables, Electronics cables, Profibus cables and Custom cables*



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SPECIAL  
CABLES  
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