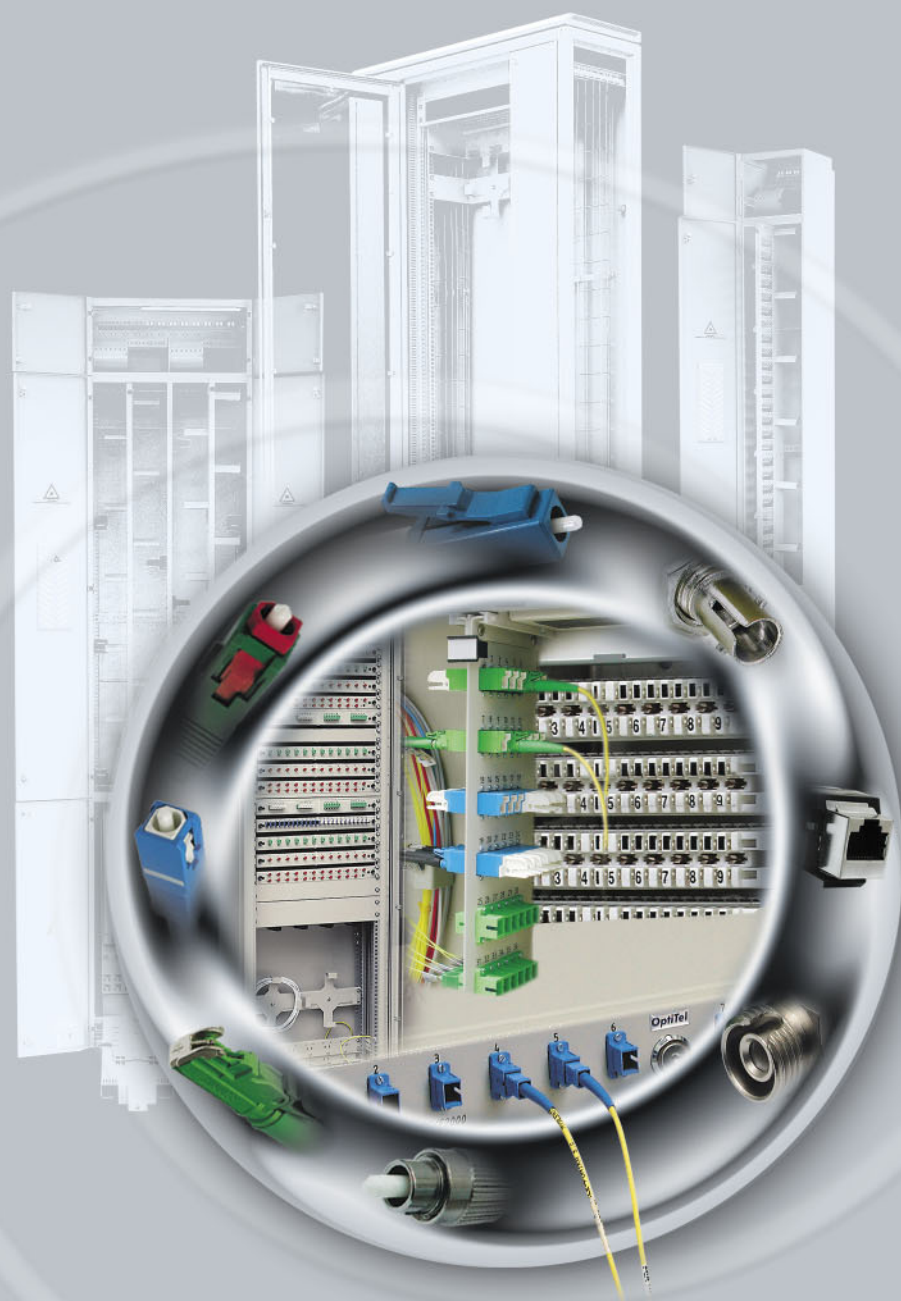# STRUCTURAL CABLING
TELECOMMUNICATION ACCESSORIES

CATALOGUE

2004

ZPAS

Table of contents

STRUCTURAL CABLING
TELECOMMUNICATION ACCESSORIES

Zakład Produkcji Automatyki Sieciowej S.A.

About the company

The company **Zakład Produkcji Automatyki Sieciowej (ZPAS)** was founded in 1973 initially as the Experimental Department of the Power System Automation Institute of Wrocław. At the beginning of 1980s it became the part of the Research and Manufacturing Centre for Power System Automation. In 1990 the company achieved full independence and in 1992 was transformed into a private stock company. Experience got in 30 years history, and mainly during political changes which started in 1989, enable us to keep steady development of the company, extension of infrastructure and forming modern process lines.

Modern and high-tech equipment, well-educated and selected personnel determine the guarantee of high quality and flexibility of company's offer. ZPAS S.A. has got both the Quality Assurance System certificate ISO 9001:2000 and Environmental Management System certificate ISO 14001:1996.

The product line-up of ZPAS S.A. mainly refers to needs of relatively young IT branch. Our products are frequently important part of teletechnical support of modern telecommunication, computing and power industry systems.

New technological solutions made by ZPAS S.A. created uniform and comprehensive product line-up. Due to these solutions, it was possible to join previously divided groups of products of computing and power industry branch.

We offer the following product line-up and services:
- 19", 21" and 10" cabinets for data and telecommunication networks (in floor-standing and wall-mounted versions),
- outdoor cabinets,
- cabinets in EMC standard,
- structural cabling system PowerLink,
- fibre optic distribution frames in OptiTel and OptiLAN series,
- power industry cabinets,
- mimic panels,
- dispatch and control desks,
- system of supervising climatic conditions ZPAS-CONTROL M-Bus,
- products made of stainless and acid-proof steel,
- other products on customers' request.

Gateway to the plant

Administration Building

Recently we introduced brand new products: OptiTel - system of module fibre optic distribution frames, PowerLink - structural cabling system, SZE2 - new series of power industry cabinets, SD and SJ - wall-mounted cabinets, KCS-1 - cassette of central signalling, ZPAS-CONTROL M-Bus - system of supervising climatic conditions. All detailed information about the product line-up are on our website: **http://www.zpas.com.**

View of the upper part of the plant

ZPAS S.A.

About the company

Road to the lower part of the plant
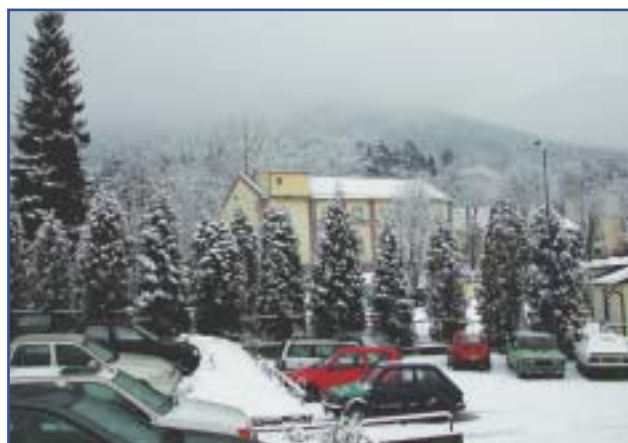
View from the company's car park

Marketing Department Building

Electrical Plant Building

The plant is located on the former coal mine grounds RUDOLF (after 1945 coal plant BOLESŁAW) and the former steelworks BARBARA. In 1948 the buildings of steelworks became property of the Central Repair Shop for Coal Industry. From 1964 to 1973 this was a foundry belonging to Świdnica Wagons Factory.

Historic buildings from the beginning of the second half of 19th century of the former steelworks BARBARA (presently ZPAS's Mechanical Plant) are registered as historic monuments. All remodelling and development must conform to preservation service directives.

Mechanical Plant

ZPAS S.A.

About the company

ZPAS S. A. Mechanical Plant: 1. - 3. numerically controlled machinery for sheet working, 4. - 5. welding robot.

About the company
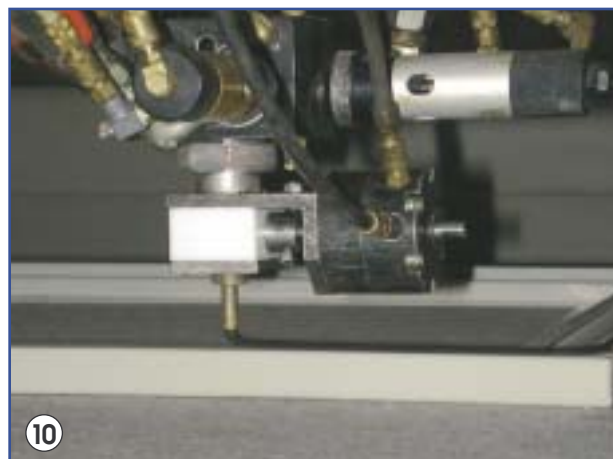
ZPAS S. A. Mechanical Plant: 6. - 8. automated powder paint shop, 9. - 10. cast gasket machinery.

Z P A S   S. A.

ISO 9001, ISO 14001

GUARANTEE

The guarantee period for products manufactured by ZPAS S.A. is 5 years.
The post-guarantee service period is provided life-long without deadline.
The details of PowerLink guarantee on the page 7.

Note: ZPAS S.A. reserves the rights to changes in construction of its products.

ZPAS S.A.

ZPAS telecommunication infrastructure

RELIABILITY, SECURITY, CONFIDENCE

In modern business environment, influenced by constant changes and modifications, it is very important to secure work of communication systems and reliability of cable and wire infrastructure. It can be achieved through choosing solutions, which belong to companies with huge trade experience, recognized on the market, offering high quality products legitimized by certificates issued by independent laboratories.

Full security of data and cable infrastructure can only be assured by a system installed by professional and authorized installers with highly developed skills confirmed by the producer.

The authorized partners of ZPAS S.A. are the best installing companies. The company takes care of their appropriate qualifications; offering advanced training programs and technical support.

ZPAS S.A. co-operates only with trusted, authorized partners. We are convinced that once you decide to order their services they will confirm their professionalism during installation works.

The warranty of safety for user of cable system includes not only high quality products and professional service but also warranty of the system. The procedure of obtaining ZPAS's S.A. warranty of the system is not complicated and it is the customer who decides on the period of guarantee duration. The guarantee embraces installations performed by companies authorized by ZPAS S.A. The longest possible period of duration is „life time" guarantee, the shortest period is 5 years.

The Powerlink Structural Cabling system consist of 4 subsystems:
- PowerLink system UTP category 5e.
- PowerLink TX system UTP category 6.
- PowerSafe System STP category 5e.
- PowerVS - telephone system.

PowerLink 5e system, 5e category, UTP

PowerLink 5e system, 5e category, UTP - this is a cable system compatible with trade standards defining all technical parameters for 5e category, that is EIA/TIA 568B.2, ISO11801, EN 50173.

The basis for the system is a universal IDC (insulation displacement contact) connection compatible with 110 and LSA connections. These connections are placed in distribution panels and telecommunication outlets.

Unshielded 5e category, UTP cable is of special construction providing increased resistance against mechanical damages. Accessible in PVC and LSOH coatings, telecommunication outlets are realized through universal modules. These are keystone RJ45 UTP, 5e category transmission modules placed in front plates 22.5 x 45 mm or 25 x 50 mm with anti-dust shutter. The offer includes also sockets in „Polish" standard of fixing. ZPAS S.A. also offers systems of frames and wall-mounted boxes as well as electrical sockets to be applied in dedicated supplying installations.

In smaller wall-mounted installations single and dual superficial sockets may turn out to be necessary. These are RJ45 UTP, 5e category with RJ connection without anti dust shutter.

Distribution panels in 1U height with 24 RJ45 ports and in 2U height with 48 RJ45 ports are constructed on the basis of specially designed printed circuits providing 5e category at maximal density of connections.

Patch cords are made of cable of „stranded type" at the section of 26 AWG what causes their flexibility and practically full resistance against mechanical damages. Smaller section of patch cords provides greater possibilities of them being placed in „ordering panels" in a distribution cabinet.

ZPAS telecommunication infrastructure

PowerLink TX system, 6 category, UTP

PowerLink TX system, 6 category, UTP - this is a cable system compatible with EIA/TIA 568B.2 norm, specifying parameters for 6 category, dedicated for application in transmission systems compliant with 1000 Base-TX protocol.

Unshielded UTP, 6 category cable has a special construction providing increased resistance against mechanical damages and improving transmission parameters. It is equipped with special plastic divider separating single pairs. Available in PVC and LSOH coatings.

Telecommunication sockets are realized on the basis of universal modules. These are keystone RJ45, UTP, 6 category placed in front plates 22.5 x 45 mm or 25 x 50 mm with anti-dust shutter. The offer also includes sockets in „Polish" standard of fixing.

Distribution panels in 1U height with 16 or 24 RJ45 ports realized on the basis of modular patch panels and RJ45 UTP, 6 category modules.

The characteristic feature of patch cords is application of special type RJ45 plugs fixed on the cable by means of molding technology. This solution improves transmission parameters of patch cords and protects cable's connection through modular pin.

PowerSafe system, 5e category, STP

PowerSafe system, 5e category, STP - this is a shielded cable system compatible with trade standards defining all the technical parameters for 5e category, that is EIA/TIA 568B.2, ISO11801, EN 50173. The offer includes two versions of shielding: fully shielded and with continuity of screening.

Shielded FTP cable, 5e category has an additional grounding wire parallel to conductor's pairs. It also has two layers of braid of artificial and aluminum foil. Available in PVC and LSOH coating.

Telecommunication outlets are realized on the basis on universal transmission modules. These are keystone RJ45 STP, 5e category fully shielded and continuous screen transmission modules, placed on front plates 22.5 x 45 mm or 25 x 50 mm with anti-dust shutter. The offer also includes „Polish" standard of fixing.

16 and 24 port distribution panels in 1U height are realized on the basis of modular blank patch panels and keystone RJ45 STP, 5e category modules fully shielded and with continuity of shielding.

Patch cords are made of stranded type cable at the section of 24 AWG with exceptional as for STP flexibility. Available in four colours.

Power VS - telephonic system

Power VS is a system of 10 pair telephonic terminal blocks based on ID connection of LSA type. The system includes disjoint modules in dry and gel version, connecting modules and accessories such as grounding elements, descriptive fields, single and multi-pair protections against overvoltage, test cables and mounting boxes.

Wall-mounted rails for fixing terminal blocks and panels of terminal blocks in 19" standard supplement the offer.

Structural cabling elements

- **19" panels**
- **Boxes and faceplates**
- **Keystones and sockets**
- **Power VS telephone system**
- **SKI 10" wall-mounted cabinet**
- **Tools for installers**
- **Testers**
- **Accessories for installers**
- **Patch cables**
- **MADEX cables**
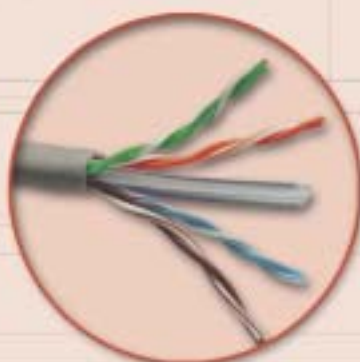
19" panels

PATCH PANELS CATEGORY 5e

- 19" standard.
- The basis of cat. 5e network system, designed for main and through distribution points of fast telecommunications systems.
- Panels are constructed on the basis of specially designed boards with compensation circuit.
- Equipped with universal IDC (Insulation Displacement Contact), compatible with 110 and Krone connectors in 568A/B standard.
- The drawer type STP patch panel is equipped with grounding strip providing connection of the cable shield to panel shield.
- Place for cable labels.
- Convenient use and reconfiguration.
- Dismountable shelf and cable ties providing easy cable management.
- Package contains set of assembly hardware and cable ties.

Patch panel UTP 19" x 1U, cat. 5e, 24 ports
- cat. no. 805-114

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
805-114	483	44	100	1.01
805-218	483	88	100	1.39
805-524	483	44	534	2.27
805-544	483	44	143	1.28

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
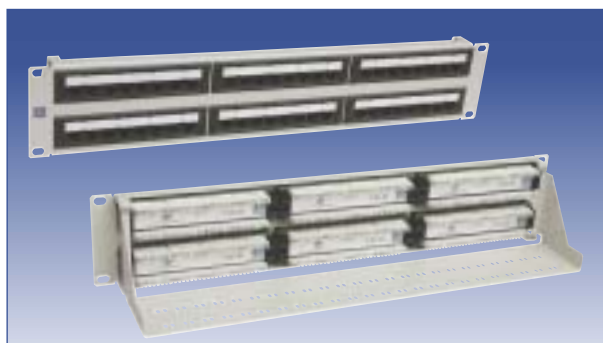
Patch panel UTP 19" x 2U, cat. 5e, 48 ports
- cat. no. 805-218

Electrical parameters:
- Contact resistance . . . . . < 20 mΩ
- Insulation resistance . . . > 500 MΩ

Transmission parameters:

Parameter	Frequency [MHz]		
	1	16	100
Attenuation [dB]	0.001	0.017	0.030
NEXT [dB]	80.010	63.000	43.300
Return Loss [dB]	40.000	35.000	20.000

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material . . . . . Phosphor bronze
- Contact plating . . . . 1.25 µm gold over 2.50 µm nickel
- Contact force . . . . > 100 g
- Plastic housing . . . . Thermoplastic UL94V0

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . . . . Phosphor bronze
- Contacts plating . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . . 22-26 AWG (solid/stranded)

Patch panel - drawer type STP 19" x 1U, cat. 5e, 24 ports
- cat. no. 805-524
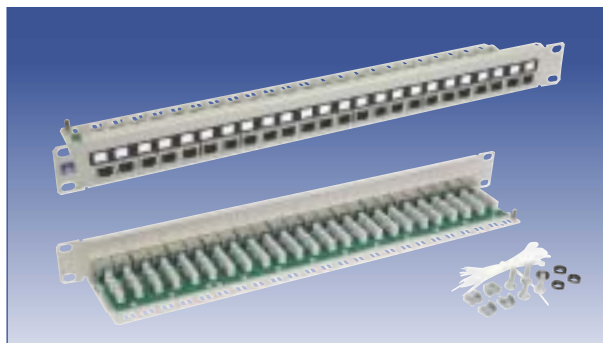
Patch panel FTP 19" x 1U, cat. 5e, 24 ports
- cat. no. 805-544

19" panels

UNIWERSAL PANELS

- 19" standard.
- Convenient use and reconfiguration.
- Possibility of access to multimedia networks (UTP cat. 5e, UTP cat. 6, FTP and STP, fibre).
- Package contains set of assembly hardware.
- For 19" patch panel please use universal patch panel 19" and appropriate number of keystone jacks for 16 and 24 ports panels, or 25 x 50 faceplates for 8 ports panel.
- For mounting of keystone jacks in panel 802-111 faceplates 828-040 should be used.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
805-611	483	44	50	0.51
805-411	483	44	50	0.45
802-111	483	44	50	0.52

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

SAMPLE CONFIGURATION:

19" Patch panel 1U 16 ports filled in with UTP RJ45 keystone jacks cat. 6

19" Patch panel 1U 16 ports filled in with STP RJ45 keystone jacks cat. 5e

Patch panel 19" x 1U, 16 ports for keystones
- cat. no. 805-611

Patch panel 19" x 1U, 24 ports for keystones
- cat. no. 805-411

Patch panel 19" x 1U, 8 ports 25 x 50 mm
- cat. no. 802-111
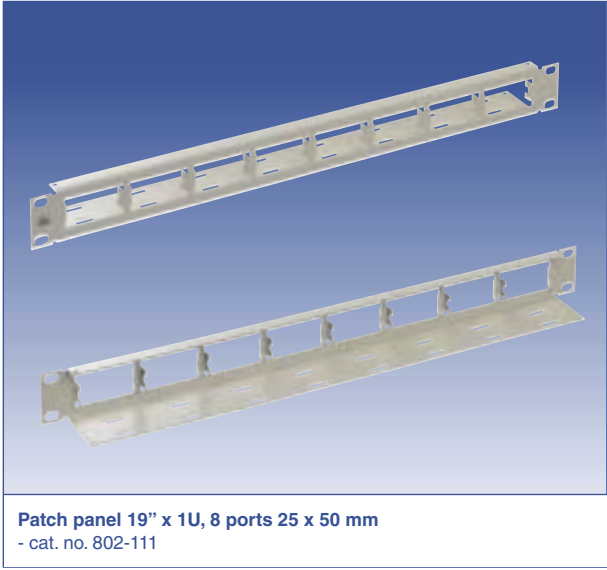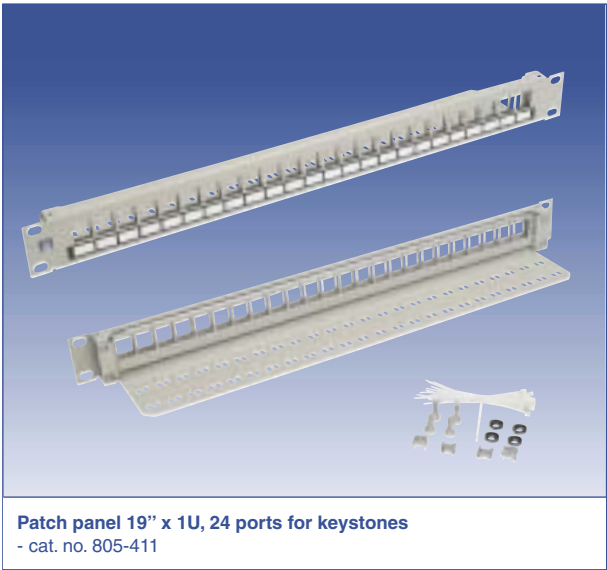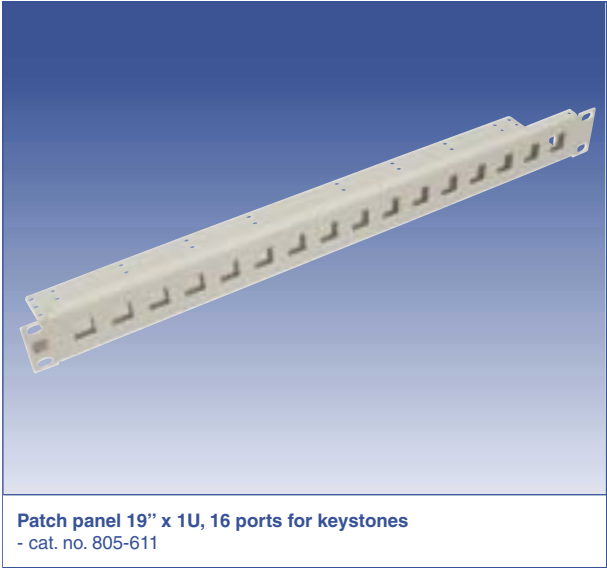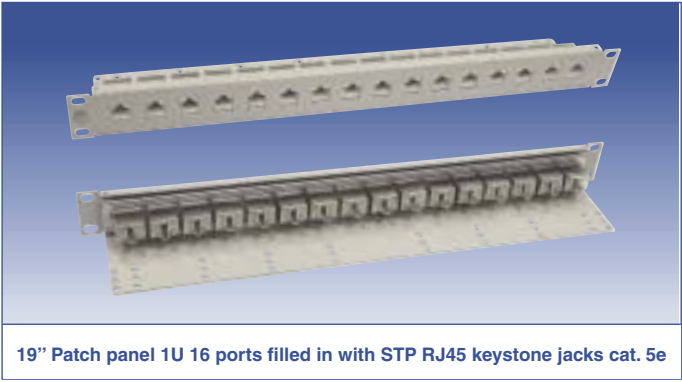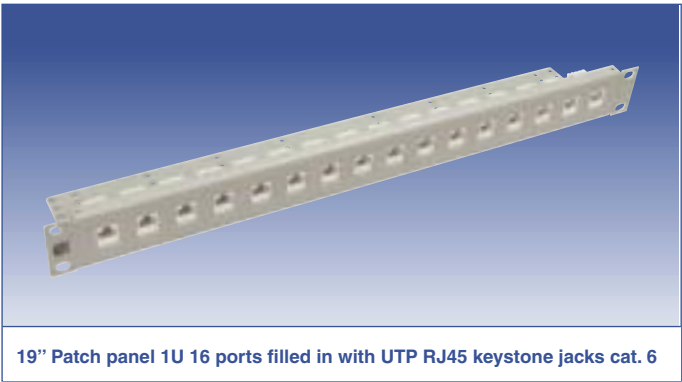
19" panels

CABLE ORGANIZER

- 19" standard.
- Esthetical look.
- Convenient reconfiguration.
- Package contains set of assembly hardware.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
811-000	483	44	80	0.53

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
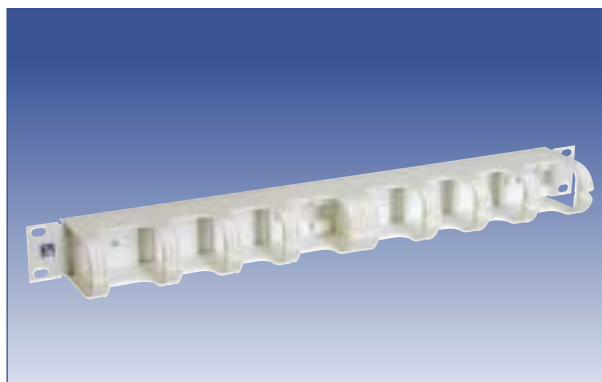
Cable organizer 19" x 1U
- cat. no. 811-000

TELEPHONE PATCH PANEL

- 19" patch panel 50 x RJ45 is designed for termination of vertical cabling, accepts multi-pair unshielded telecom cables (25, 50 pairs), or 4 pairs twisted cable.
- For details please refer to the page 29.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
807-155	483	44	110	1.28

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
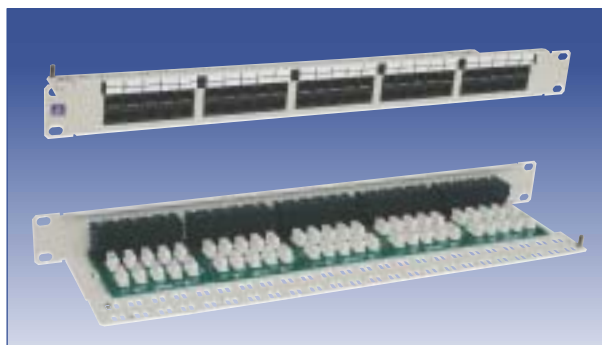
Telephone patch panel UTP 19" x 1U, cat. 3, 50 ports
- cat. no. 807-155

MOUNT FRAME FOR TELEPHONE MODULES

- Produced of stainless steel.
- Equipped with sockets for telephone modules.
- Available in two sizes:
    - 19" x 1U - 6 modules
    - 19" x 3U - 15 modules
- For details please refer the page 30.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
803-160	483	44	81	0.30
803-115	483	133	81	0.42

Material: sheet steel 0.75 mm

Surface finish: none
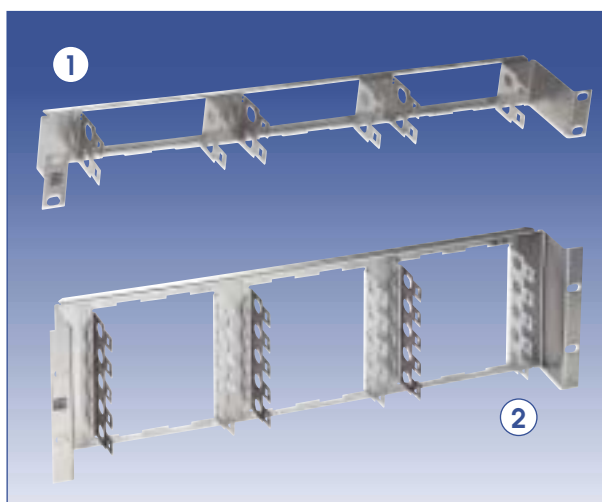
1) Mount frame 19" x 1U, 6 sockets - cat. no. 803-160
2) Mount frame 19" x 3U, 15 sockets - cat. no. 803-115

STRUCTURAL CABLING ELEMENTS

Boxes and faceplates

CONFIGURATION OF SUBSCRIBER POINTS

Subscriber point with 2 faceplates 25 x 50 mm

To configure complete subscriber point for 2 faceplates in 25 x 50 mm standard the following elements should be applied:
- Wall-mounted box for 2 faceplates, cat. no. 828-111 - 1 pc.
- Box cover for 2 sockets - cat. no. 828-211 -1 pc.
- Faceplate 25 x 50 mm with shutter for keystones - 2 pcs.
- Keystone module - 2 pcs.
- Instead of faceplate any 25 x 50 mm socket can be used.

Subscriber point with 2 mosaic - type faceplates

To configure complete subscriber point for 2 faceplates in 22.5 x 45 mm standard the following elements should be applied:
- Wall-mounted box for 2 faceplates, cat. no. 828-111 - 1 pc.
- Support for 2 faceplates cat. no. 828-711 - 1 pc.
- Box cover 45 x 45 mm for 2 faceplates, cat. no. 828-811 - 1 pc.
- Faceplate 22.5 x 45 with shutter for keystones cat. no. 828-050 - 2 pcs.
- Keystone module - 2 pcs.
- Instead of 2 faceplates electrical socket 45 x 45 mm can be used.

Subscriber point with 4 mosaic - type faceplates

To configure complete subscriber point for 4 faceplates in 22.5 x 45 mm standard the following elements should be applied:
- Wall-mount box for 4 faceplates, cat. no. 828-112 - 1 pc.
- Support for 4 faceplates cat. no. 828-712 - 1 pc.
- Box cover 90 x 45 mm for 2 faceplates cat. no. 828-812 - 1 pc.
- Faceplate 22.5 x 45 with shutter for keystones cat. no. 828-050 - 4 pcs.
- Keystone module - 4 pcs.
- Instead of 2 faceplates electrical socket 45 x 45 mm can be used.

Subscriber point with 6 mosaic - type faceplates

To configure complete subscriber point for 6 faceplates in 22.5 x 45 mm standard the following elements should be applied:
- Wall-mounted box for 6 faceplates, cat. no. 828-113 - 1 pc.
- Support for 6 faceplates cat. no. 828-713 - 1 pc.
- Box cover 135 x 45 mm for 2 faceplates cat. no. 828-813 - 1 pc.
- Faceplate 22,5 x 45 with shutter for keystones cat. no. 828-050 - 6 pcs.
- Keystone module - 6 pcs.
- Instead of 2 faceplates electrical socket 45 x 45 mm can be used.

Sample of subscriber point with two faceplates 25 x 50 mm

Sample of subscriber point with faceplate and blind faceplate

Sample of subscriber point with faceplate, blind faceplate and electrical socket

Sample of subscriber point with 3 faceplates, blind faceplate and electrical socket

STRUCTURAL CABLING ELEMENTS

Boxes and faceplates

FACEPLATES FOR KEYSTONES

- Possibility of configuration of complete subscriber points using keystone sockets: UTP RJ11, UTP and FTP RJ45 category 5e and UTP RJ45 category 6.
- Designed to fit places in boxes and universal panels.
- Faceplates are snap fastened (tools are not required).
- Faceplates 828-050, 828-100 and 828-101 are equipped with anti-dust shutter.

1) Faceplate 22.5 x 45 mm for keystone module
   - cat. no .828-050
2) Faceplate 25 x 50 mm for keystone module
   - cat. no. 828-100
3) Angled 25 x 50 mm faceplate for keystone module
   - cat. no. 828-101

BLIND FACEPLATES

- Designed for masking of unused fields in faceplates and universal panels.
- Possibility of fibre adapters mounting.
- Snap fastening (tools are not required).

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
828-010	25	50	7	0.004
828-011	25	50	7	0.004
828-012	25	50	7	0.004
828-013	25	50	7	0.004
828-030	22.5	45	7	0.004
828-040	25	50	10	0.003
828-050	22.5	45	10	0.004
828-100	25	50	10	0.005
828-101	25	50	10	0.005

Material: thermoplastic ULV94V0.
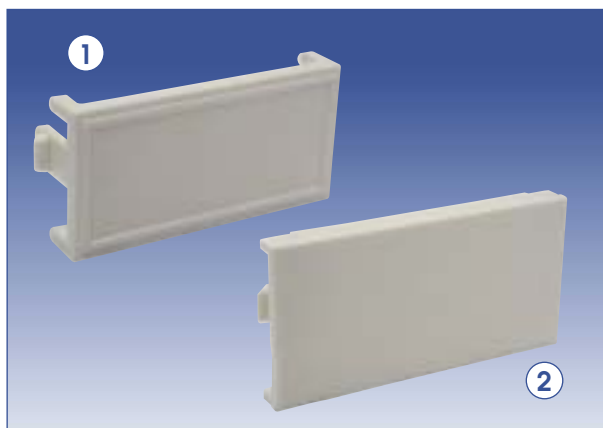
Blind faceplate 22.5 x 45 mm - cat. no. 828-030
Blind faceplate 25 x 50 mm - cat. no. 828-010
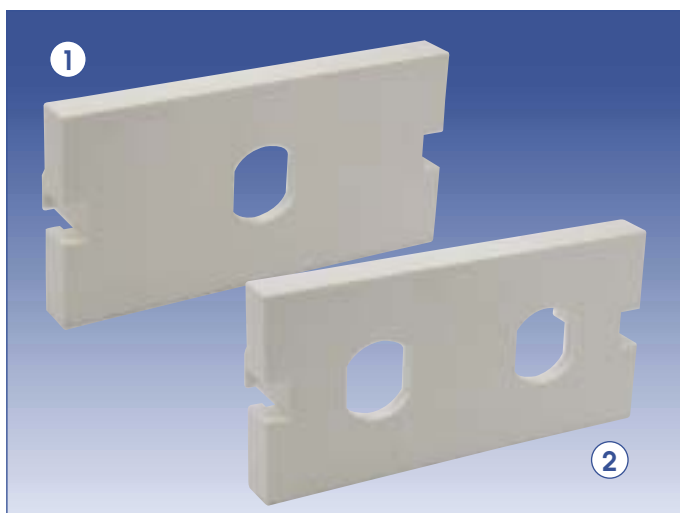
1) Faceplate 25 x 50 mm for 1 x ST adapter - cat. no. 828-011
2) Faceplate 25 x 50 mm for 2 x ST adapters - cat. no. 828-012
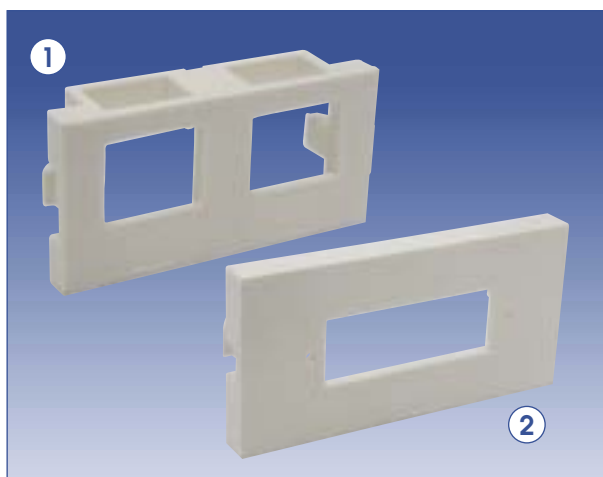
1) Faceplate 25 x 50 mm for 2 keystones
- cat. no. 828-040
2) Faceplate 25 x 50 mm for SC duplex adapter
- cat. no. 828-013

Boxes and faceplates

WALL MOUNTED BOXES

- Ideal for surface installation, possibility of right/left cable entry.
- 828-111 box accommodates 2 sockets.
- 828-112 box accommodates 4 sockets.
- 828-113 box accommodates 6 sockets.
- Esthetic look, easy fitting using 2 screws (not included).
- Delivery with mounting screws for cover or for support frame.

Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
828-111	2 sockets	81	81	40	0.040
828-112	4 sockets	148	81	40	0.065
828-113	6 sockets	203	81	40	0.100

Spacing of mounting screws:
- 828-111 box - 60 x 60 mm
- 828-112 box - 60 x 57 mm
- 828-113 box - 60 x 57 mm

Material: thermoplastic ABS.

Colour: white.
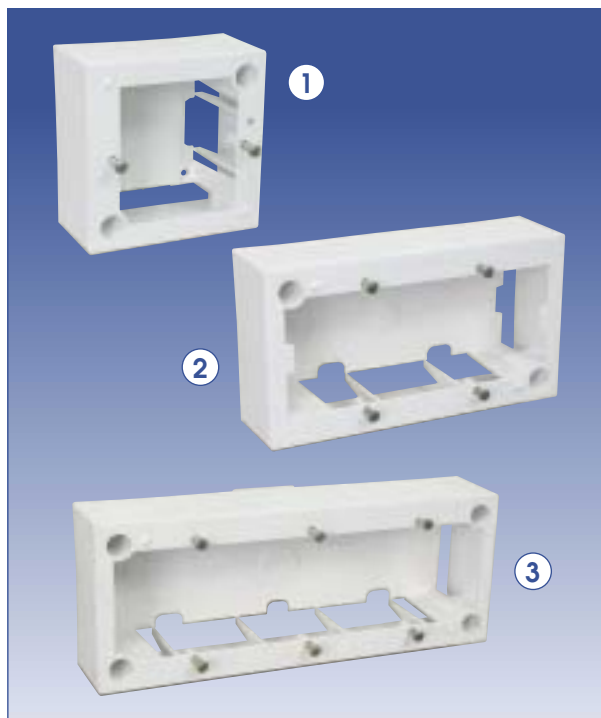
Wall mounted boxes
1) for 2 sockets - cat no. 828-111
2) for 4 sockets - cat no. 828-112
3) for 6 sockets - cat no. 828-113

UNDER SURFACE WALL BOXES

- Intended for empty gypsum walls.
- Reliable and quick fastening using screws with wide pitch.
- Delivery with screws for support mounting.

Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
828-411	2 sockets	65	65	40	0.030
828-412	4 sockets	121.8	65	40	0.045
828-413	6 sockets	178.6	65	40	0.060

Material: thermoplastic ULV94V0.

Colour: yellow.
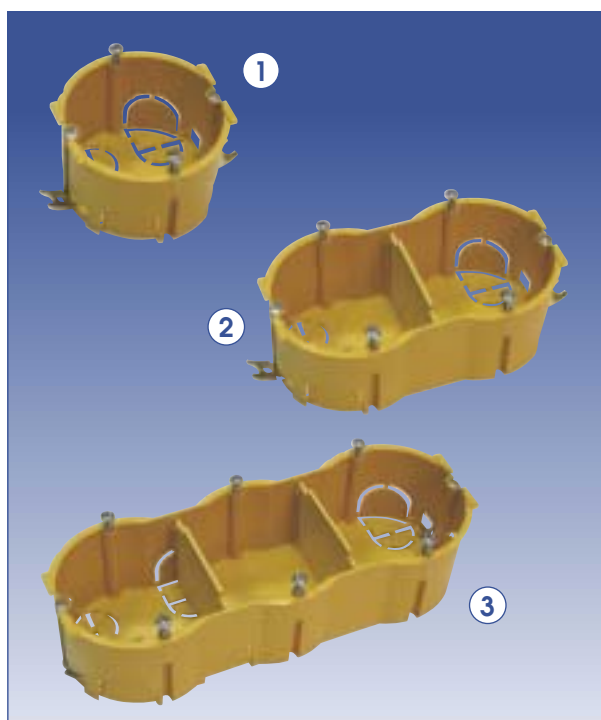
Under surface wall boxes
1) for 2 sockets - cat. no. 828-411
2) for 2 sockets - cat. no. 828-412
3) for 2 sockets - cat. no. 828-413

Boxes and faceplates

COVERS FOR BOXES

- Covers designed for universal wall-mounted boxes.
- Rounded look, without sharp edges.
- Fastening type:
  - Covers for 25 x 50 mm faceplates are fastened using 2 screws (included).
  - Covers for 22.5 x 45 mm faceplates are fastened using support frame.
- Intended for boxes: 828-111, 828-112, 828-113 and 828-411, 828-412, 828-413.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
828-211	81	81	9	0.015
828-811				0.015
828-812	148			0.022
828-813	203			0.029

Material: thermoplastic ULV94V0.

Colour: white.

Cover for 2 faceplates 25 x 50 mm
- cat. no. 828-211

Cover for 2 faceplates 22.5 x 45 mm
- cat. no. 828-811

Cover for 4 faceplates 22.5 x 45 mm
- cat. no. 828-812

Cover for 6 faceplates 22.5 x 45 mm
- cat. no. 828-813

STRUCTURAL CABLING ELEMENTS

Boxes and faceplates

SUPPORT FRAMES FOR WALL BOXES

- Support frames makes possible mounting of 22.5 x 45 mm faceplates in universal wall boxes.
- Easy fastening in box using 2 or 4 screws (delivered with the box).

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
828-711	76.5	70.3	11.7	0.010
828-712	138	71	11.7	0.020
828-713	196	71	11.7	0.030

Material: thermoplastic ABS.

Colour: black.
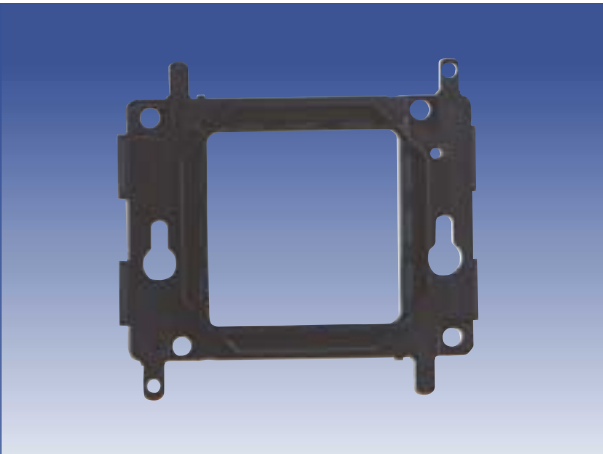
Support for 2 mosaic faceplates 22.5 x 45 mm
- cat. no. 828-711
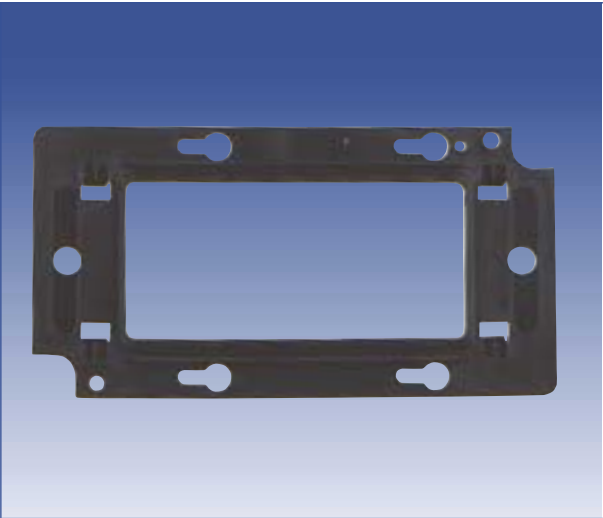
Support for 4 mosaic faceplates 22.5 x 45 mm
- cat. no. 828-712

Support for 6 mosaic faceplates 22.5 x 45 mm - cat. no. 828-713

S T R U C T U R A L   C A B L I N G   E L E M E N T S

Boxes and faceplates

ADAPTERS FOR DUCT SYSTEM

- Designed for wiring duct system (width 70 mm).
- Adapter 828-311 for 2 faceplates 22.5 x 45 mm.
- Adapter 828-312 for 4 faceplates 22.5 x 45 mm.
- Adapter 828-313 for 6 faceplates 22.5 x 45 mm.
- Rounded look, without sharp edges, aesthetic appearance, easy fastening.

Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
828-311	2 sockets	70	77	24	0.04
828-312	4 sockets	140	77	24	0.08
828-313	6 sockets	185	77	24	0.12

Material: thermoplastic ABS.

Colour: white.
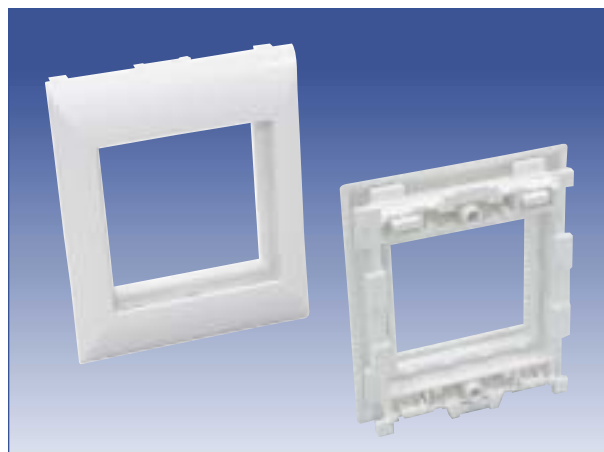
Adapter for duct system for 2 faceplates 22.5 x 45 mm - cat. no. 828-311
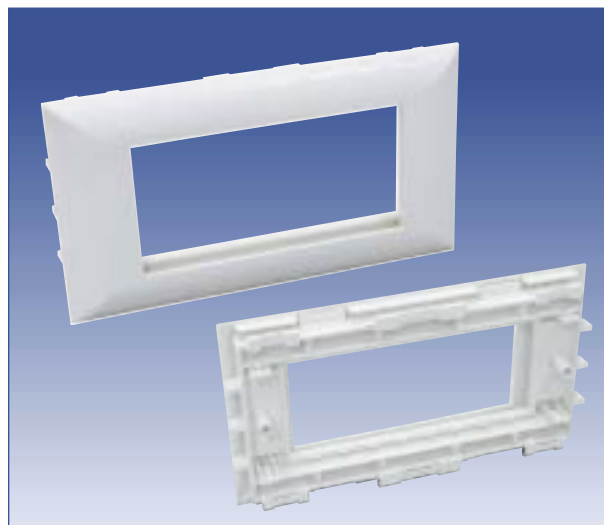
Adapter for duct system for 4 faceplates 22.5 x 45 mm - cat. no. 828-312
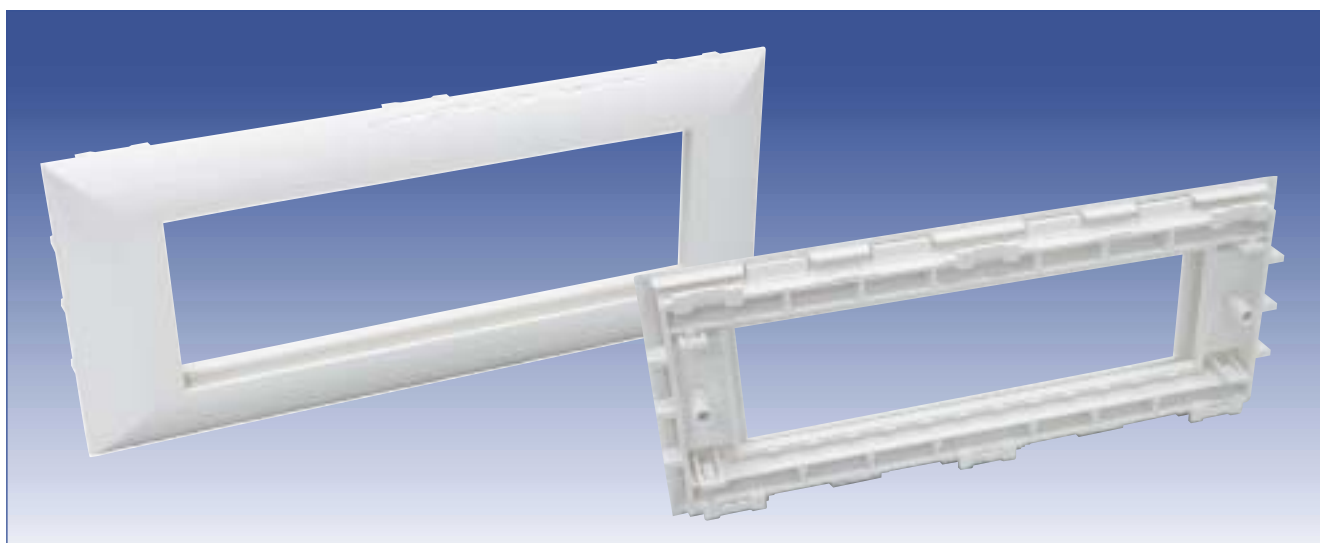
Adapter for duct system for 6 faceplates 22.5 x 45 mm - cat. no. 828-313

STRUCTURAL CABLING ELEMENTS

Boxes and faceplates

BOXES FOR KEYSTONE MODULES

- Intended for subscriber points.
- Possibility of configuration of complete subscriber point based at any keystone module.
- Convenient use and reconfiguration.
- Mounting to wall by means of self-adhesive tape or screws.

Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
828-171	1 socket	42.6	32.2	65.3	0.005
828-172	2 sockets	54.7	32.2	65.3	0.007

Material: thermoplastic ABS.

Mini box for 1 keystone - cat. no. 828-171
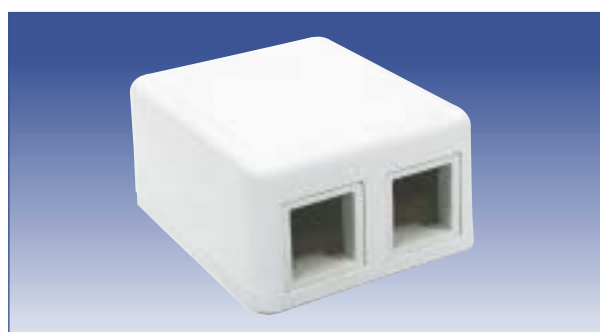
Mini box for 2 keystones - cat. no. 828-172

SOCKETS IN POLISH STANDARD OF FIXING

- Group of components making possible configuration of subscriber points in many variants in Polish standard of fixing.
- Designed for fixing of keystone modules.
- Delivery without modules.

Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
838-511	1 socket	69	69	15	0.042
838-512	2 sockets				0.040

Material: thermoplastic ABS.
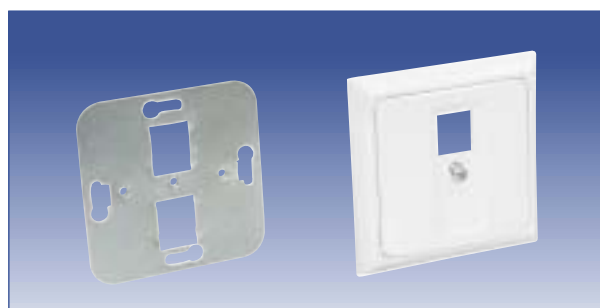
Subscriber socket, single, without keystone module, white - cat. no. 838-511

Subscriber socket, double, white (on picture with keystone modules) - cat. no. 838-512

STRUCTURAL CABLING ELEMENTS

Boxes and faceplates

INTEGRATED WALL-MOUNTED SOCKETS

- Sockets are designed for wall subscriber points.
- Fixed by means of screws or self adhesive tape.
- Equipped with RJ45 socket, and universal IDC.
- Available in: UTP cat. 5e and STP cat. 5e versions with continuing of shielding.
- Possibility of connecting cables in 568A and 568B standards.
- Possesses advantages of universal Insulation Displacement Contact.

Mechanical parameters:

Catalogue number	Socket type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
828-511	1 x RJ45 UTP	40	65	28	0.005
828-512	1 x RJ45 FTP	65	65	28	0.010
828-521	2 x RJ45 UTP	40	65	28	0.005
828-522	2 x RJ45 FTP	65	65	28	0.010

Material: thermoplastic ABS and UL94V0

Electrical parameters:
- Attenuation . . . . < 20 mΩ
- Return loss . . . . > 500 MΩ

Transmission parameters:

Parameter	Value
Attenuation [dB]	42.6
NEXT [dB]	43.0
Return loss [dB]	20.0

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material . . . . . Phosphor bronze
- Contact plating . . . . 1.25 μm gold over 2.50 μm nickel
- Contact force . . . . > 100 g
- Displacement force . . . . 15 kg

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . . . . Phosphor bronze
- Contacts plating . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . . 22-26 AWG (solid/stranded)

1 x RJ45 UTP socket
- cat. no. 828-511
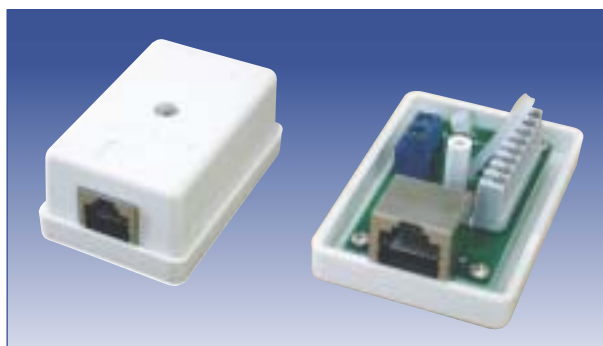
1 x RJ45 FTP socket
- cat. no. 828-512

2 x RJ45 UTP socket
- cat. no. 828-521

2 x RJ45 FTP socket
- cat. no. 828-522

STRUCTURAL CABLING ELEMENTS

Cable ducts

The offer is complemented by cable ducts. ZPAS SA offers full range of ducts in sizes from 10 x 30 mm to 60 x 230 mm, with full range of connectors, T-pipes, corners, etc.

Especially interested is cable duct „Rapid", with possibility of direct mounting of 45 mm modules without using additional adapters.

The offer is extended also by fast mounting pipes - „Quick-pipe". There is also possibility of buying metal pipes.

TECHNICAL DATA

Colour: RAL 9010

Material: PVC

Temperature range: -30 to + 65 °C,
short time + 75 °C

The ducts are available in 2 m sections.
For details, please contact ZPAS's marketing department.

„Rapid" cable duct with subscriber point and electrical sockets

WDK ducts

STRUCTURAL CABLING ELEMENTS

Keystones and sockets

TRANSMISSION MODULES UTP

- Keystone modules RJ45 cat. 5e are designed for subscriber sockets, as well as commutation fields. Special, universal fastening makes possible various application of the modules (cross panels, wall sockets).
- The connection match the TIA/EIA 568A/B norm and cat. 5e requirements.
- The keystones are terminated using universal IDC (Insulation Displacement Contact) with punch-down cap for quick installation.
- Monoblock modules are available in different colours.
- Modules 831-912...8 are built using monolithic construction from ABS.
- Restant modules are built using printed circuit board.

Keystone UTP RJ45, category 5e, white
- cat. no. 831-911

Mechanical parameters:

Catalogue number	Colour	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
831-911	white	19.20	18 (20)*	32	0.0087
831-912	red	14.80	19.00	19.90	0.007
831-913	blue				
831-914	yellow				
831-917	black				
831-918	white				
831-921	black	22	23	37	0.008

*) In brackets - width of modules with caps.

Material of case: socket - thermoplastic ABS and UL94V0.

Electrical parameters:
- Attenuation . . . . < 20 mΩ
- Return loss . . . . > 500 MΩ

Transmission parameters:

Parameter	Frequency			
	1 MHz	16 MHz	25 MHz	100 MHz
Attenuation [dB]	0.017	0.021	0.025	0.720
NEXT [dB]	86.97	66.31	62.75	52.20
Return loss [dB]	53.67	41.46	37.56	26.50

Keystone HD, monoblock
- **red** - cat. no. 831-912
- **blue** - cat. no. 831-913
- **yellow** - cat. no. 831-914
- **black** - cat. no. 831-917
- **white** - cat. no. 831-918

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material . . . . . Phosphor bronze
- Contact plating . . . . 1.25 µm gold over 2.50 µm nickel
- Contact force . . . . > 100 g
- Displacement force . . . . 15 kg

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . . . . Phosphor bronze
- Contacts material . . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . . 22-26 AWG (solid/stranded)

Keystone UTP RJ45, category 5e, rear clamped,
- cat. no. 831-921
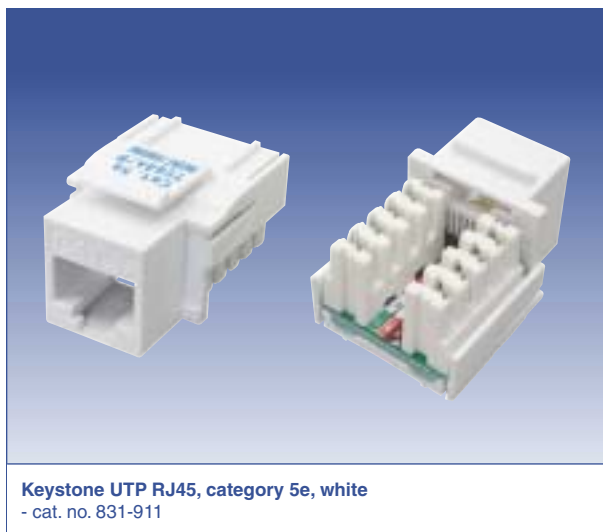
Keystones and sockets

TRANSMISSION MODULES FTP AND STP

- Keystone modules RJ45 cat. 5e are designed for subscriber sockets, as well as commucation fields. Special, universal fastening makes possible various application of the modules (cross panels, wall sockets).
- Available in versions: STP cat. 5e with continuity of shielding (180°), STP fully shielded (360°).
- Possibility of connecting cables in 568A and 568B standards.
- Possesses advantages of universal displacement connector.

Mechanical parameters:

Catalogue number	Colour	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
833-900	white	24.5	21.8	33.2	0.014
832-921	white	19.7	24	34 or 52*	0.014
832-927	black	22	23	37	0.015

*) Depended of the cable entry - 34 mm in case of side entry.

Material of case: thermoplastic ABS and UL94V0.

Electrical parameters:
- Attenuation . . . . < 20 mΩ
- Return loss . . . . > 500 MΩ

Transmission parameters:

Parameter	Frequency			
	1 MHz	16 MHz	25 MHz	100 MHz
Attenuation [dB]	0.017	0.021	0.025	0.720
NEXT [dB]	86.97	66.31	62.75	52.20
Return loss [dB]	53.67	41.46	37.56	26.50

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material . . . . . Phosphor bronze
- Contact plating . . . . 1.25 µm gold over 2.50 µm nickel
- Contact force . . . . > 100 g
- Displacement force . . . . 15 kg

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . . . . Phosphor bronze
- Contacts plating . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . . 22-26 AWG (solid/stranded)

Keystone STP RJ45 category 5e, top clamped, white
- cat. no. 832-900
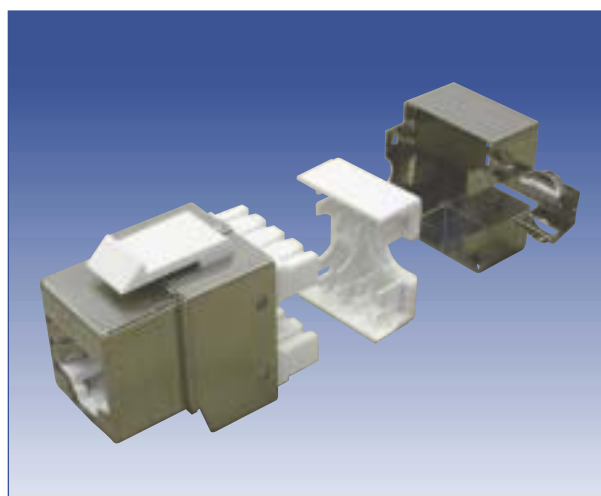
Keystone STP RJ45 category 5e, rear clamped, white
- cat. no. 833-921

Keystone STP RJ45 category 5e, rear clamped, black
- cat. no. 832-927

STRUCTURAL CABLING ELEMENTS

Keystones and sockets

TRANSMISSION MODULES CATEGORY 6

- Keystone modules RJ45 cat. 6 are designed for subscriber sockets, as well as commutation fields. Special, universal fastening makes possible various application of the modules (cross panels, wall sockets).
- Possibility of connecting cables in 568A and 568B standards.
- Possesses advantages of universal displacement contact.
- Available in white colour.
- Keystones 834-911 i 834-921 are intended for mounting in installation boxes.
- Keystones 834-912 i 834-922 are intended for mounting in universal patch panels.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
834-911	18	20	30	0.015
834-912	16	22	43	0.015
834-921	21	33	32	0.020
834-922	17	24	54	0.020

Material of case: thermoplastic ABS and UL94V0.

Electrical parameters:
- Attenuation   . . . . < 20 mΩ
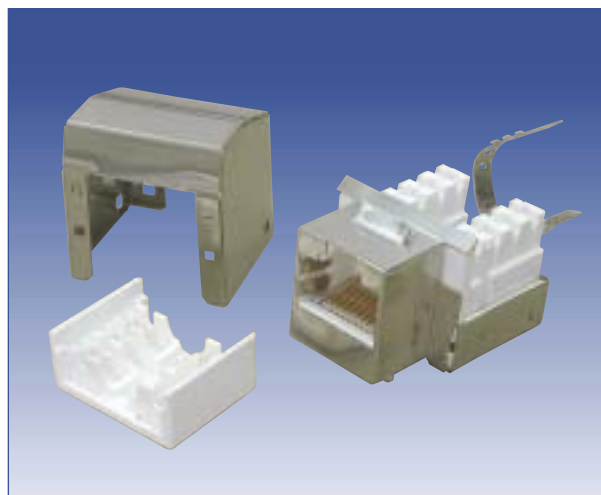- Return loss   . . . . > 500 MΩ

Transmission parameters:

| Parameter	Frequency [MHz]				
	1	25	100	200	250
Attenuation [dB]	0.02	0.04	0.05	0.05	0.10
NEXT [dB]	85.1	68.3	58.3	52.5	46.2
Return loss [dB]	53.0	59.4	33.2	21.0	17.8

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material   . . Phosphor bronze
- Contact plating   . . . . 1.25 µm gold over 2.50 µm nickel
- Contact force . . . . . . > 100 g
- Displacement force . 15 kg

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material   . . . . Phosphor bronze
- Contacts plating . . . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . 22-26 AWG (solid/stranded)
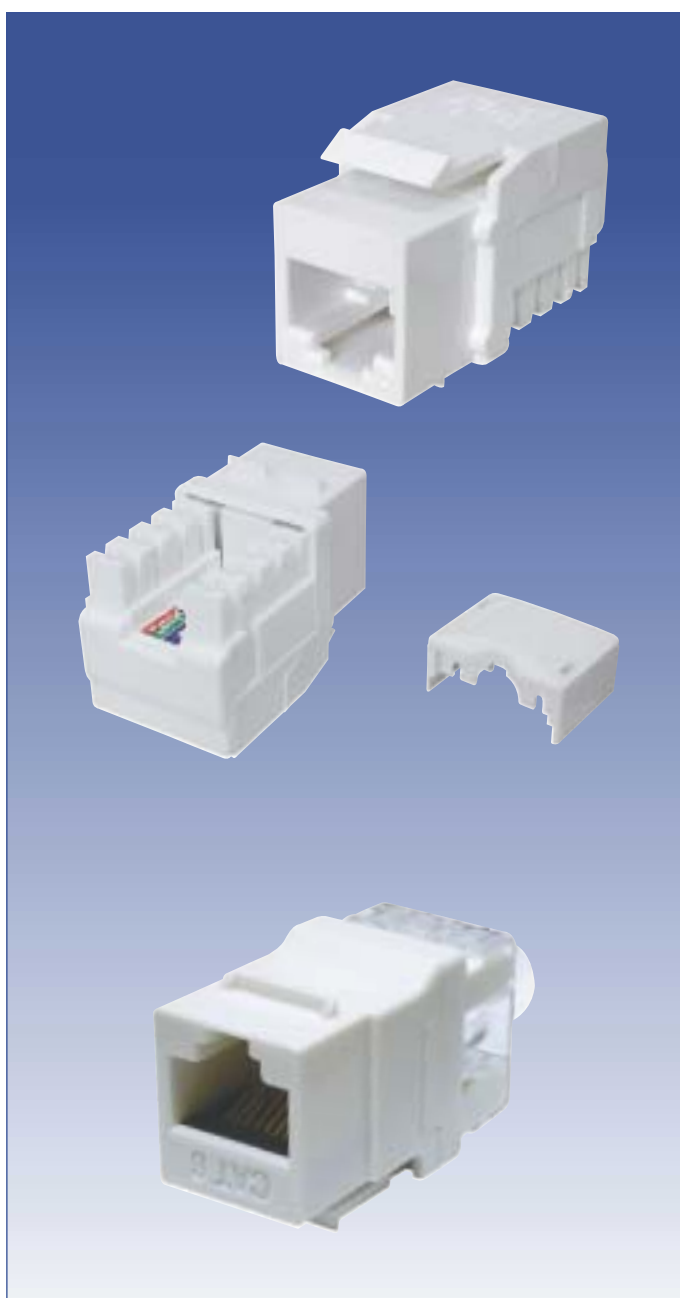
UTP keystones kategory 6:
- **top clamped** - cat. no. 834-911
- **rear clamped** - cat. no. 834-912

STP keystones kategory 6:
- **top clamped** - cat. no. 834-921
- **rear clamped** - cat. no. 834-922

Keystones and sockets

TRANSMISSION MODULES CATEGORY 3

- Keystone modules RJ11 cat. 3 are designed for subscriber sockets, as well as commutation fields.
- Special, universal fastening makes possible various application of the modules (cross panels, wall sockets).
- Available in different colours.

Mechanical parameters:

Catalogue number	Colour	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
831-931	white				
831-932	red				
831-933	blue	18	20	28	0,005
831-934	yellow				
831-937	black				

Material of case: thermoplastic ABS and UL94V0.

Electrical parameters:
- Attenuation . . . . < 20 mΩ
- Return loss . . . . > 500 MΩ

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material . . Phosphor bronze
- Contact plating . . . . 1.25 µm gold over 2.50 µm nickel
- Contact force . . . . . . > 100 g
- Displacement force . 15 kg

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . Phosphor bronze
- Contacts plating . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . 22-26 AWG (solid/stranded)

Keystone UTP RJ11 category 3
- **white** - cat. no. 831-931
- **red** - cat. no. 831-932
- **blue** - cat. no. 831-933
- **yellow** - cat. no. 831-934
- **black** - cat. no. 831-937

STRUCTURAL CABLING ELEMENTS

Keystones and sockets

RJ45 SOCKETS 25 x 50 mm

- RJ45 sockets 25 x 50 mm are designed for subscriber points.
- Available in versions UTP cat. 5e, UTP cat. 6.
- Posseses advantages of universal IDC.
- Possibility of cable connecting in 568A/B sequences.
- Equipped with anti-dust cover.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
831-811	25	50	18	0.0114
831-816				

Material of case: thermoplastic ABS and UL94V0.

Colour: white.

Electrical parameters:
- Attenuation . . . . < 20 mΩ
- Return loss . . . . > 500 MΩ

Transmission parameters:

Parameter	Frequency			
	1 MHz	16 MHz	25 MHz	100 MHz
Attenuation[dB]	0.017	0.021	0.025	0.720
NEXT[dB]	86.97	66.31	62.75	52.20
Return Loss[dB]	53.67	41.46	37.56	26.50

Socket:
- Insertion life . . . . > 750 cycles
- Contacts material . . . . . Phosphor bronze
- Contact plating . . . . 1.25 µm gold over 2.50 µm nickel
- Contact force . . . . > 100 g
- Displacement force . . . . 15 kg

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . . . . Phosphor bronze
- Contacts plating . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . . 22-26 AWG (solid/stranded)

RJ45 socket 25 x 50 mm, category 5e, UTP
- cat. no. 831-811
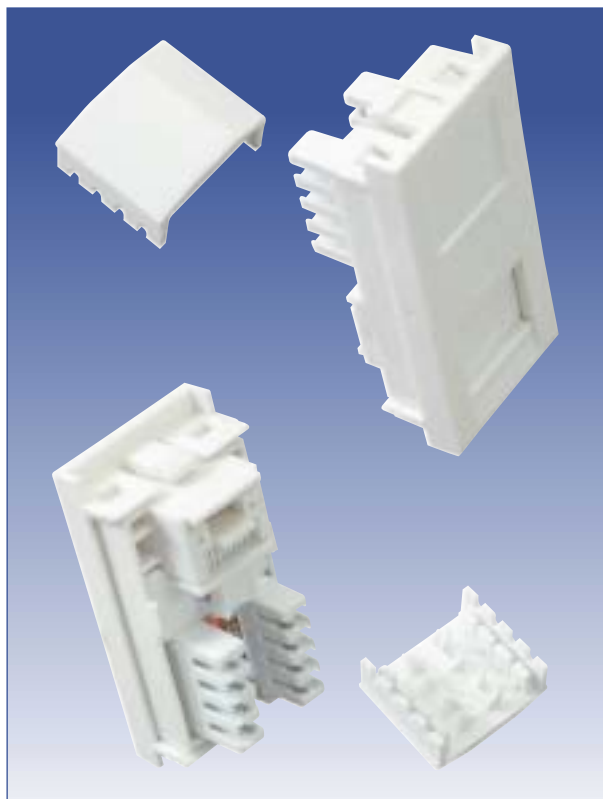
RJ45 socket 25 x 50 mm category 6, UTP
- cat. no. 831-816

STRUCTURAL CABLING ELEMENTS

Keystones and sockets

SOCKETS WITH FIBRE ADAPTERS

- Most used in LAN networks types of fibre connectors.
- Possibility of fixing in boxes and panels.
- High quality connectors SC, ST.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
835-213	25	50	30	0.018
835-214			27.5	0.020
835-223	20	20	30	0.015
835-224				0.018

Material of case: thermoplastic ABS and UL94V0.

Colour: white.

1 x SC MM keystone module, white
- cat. no. 835-224

25 x 50 mm socket with two ST MM adapters, white
- cat. no. 835-213

25 x 50 mm socket with SC MM duplex adapter, white
- cat. no. 835-214

1 x ST MM keystone module, white
- cat. no. 835-223

STRUCTURAL CABLING ELEMENTS
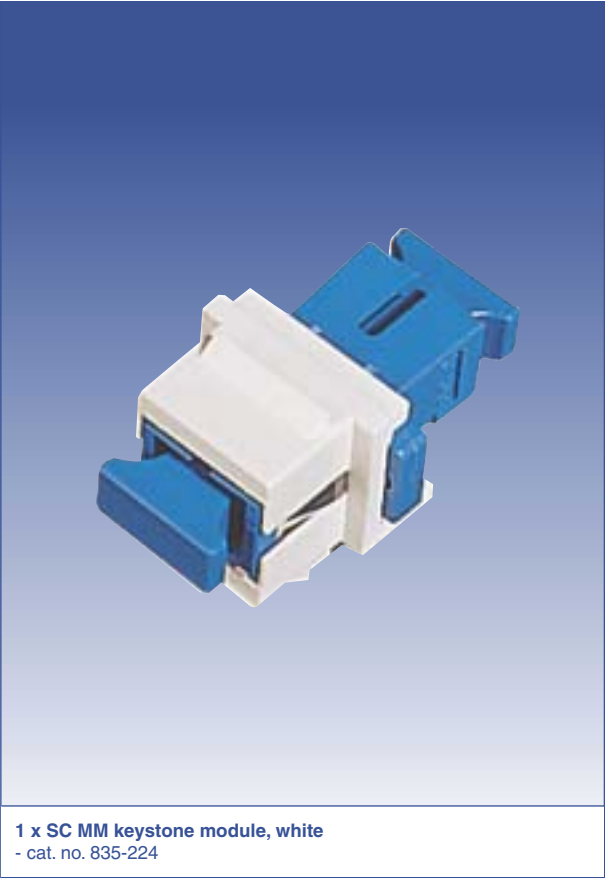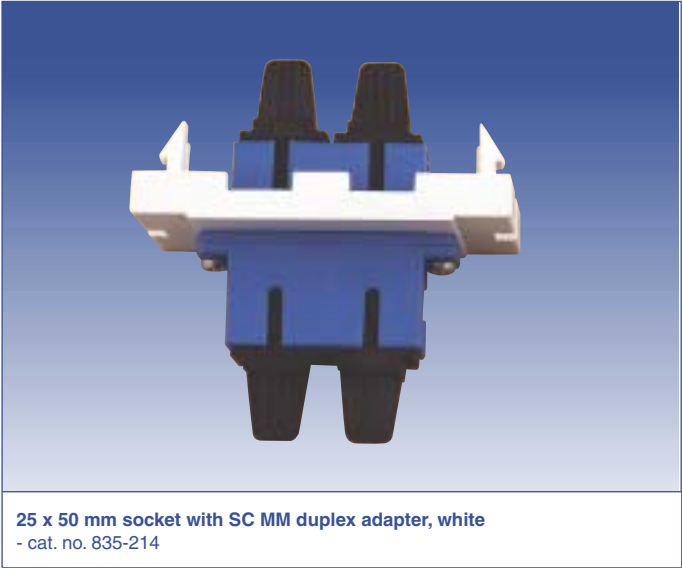
Keystones and sockets

ELECTRICAL SOCKETS 45 x 45 mm

- Electrical sockets in 45 x 45 mm standard are designed for electrical installation dedicated for telecommunications devices.
- Excellent integration with transmission sockets in 45 x 22.5 mm standard.
- Available in versions: with and without safety shutter, and in three colours.
- For wall boxes: 828-111, 828-112, 828-113 and adapters 828-711, 828-712, 828-713.
- It is also possible to mount the sockets in adapters 828-711, 828-712, 828-713.

Mechanical parameters:

Catalogue number	Colour	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
839-515	red				
839-517	white - red	45	45	32	0.010
839-501	white				
839-520	red	31	34	24	0.001

Material: thermoplastic ABS and UL94V0.

Electrical parameters:
- Max. current . . . . 16 A
- Voltage . . . . 250 V ~

Electrical socket 45 x 45 mm with safety shutter, white-red
- cat. no. 839-517
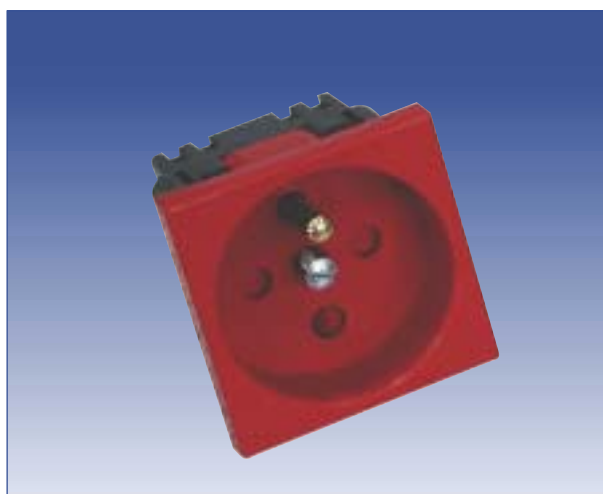
Electrical socket 45 x 45 mm with safety shutter, red
- cat. no. 839-515

Electrical socket 45 x 45 mm without safety shutter, white
- cat. no. 839-501

Safety shutter with self adhesive type
- cat. no. 839-520

Power VS telephone system

TELEPHONE PATCH PANEL

- 19" panel 50 x RJ45 is designed for termination of vertical cabling and accepts multi-pair unshielded telecom cables or 4 pairs twisted cable.
- Made on the basis of 10 ports unshielded boards and two pairs cat. 3 connectors for telephone applications.
- Ensures transmission parameters required for telephone applications, easy and convenient mounting, high durability of wires and easy cross connections.
- High density of cross connections (double pair modular RJ45 sockets).
- Package contains set of assembly hardware and cable ties.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	**Height**	**Depth**	
807-155	483	44	110	1.28

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Electrical parameters:
- Contact resistance . . . . . < 20 mΩ
- Insulation resistance . . . > 500 MΩ

IDC:
- Insertion life . . . . > 200 cycles
- Contacts material . . . . . Phosphor bronze
- Contacts plating . . . . Sn 60 % / Pb 40 %
- Wire acceptance . . . . . . 22-26 AWG (solid/stranded)

Printed board 10 x RJ45
- Contacts material . . . . . Phosphor bronze (0.35 mm)
- Contacts plating . . . . Ni/Pb
- Material of case . . . . Thermoplastic ULV94V0
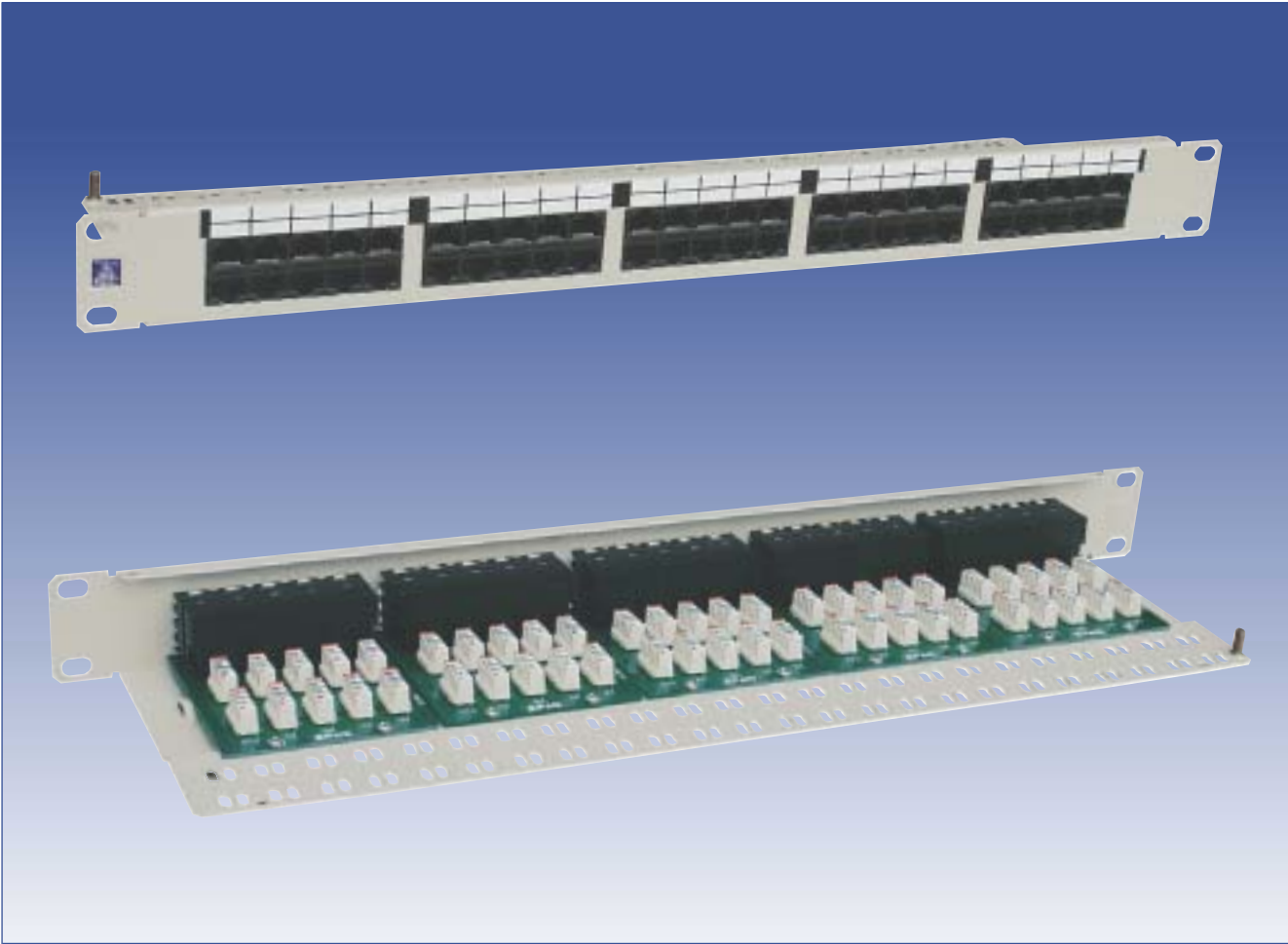
Telephone patch panel UTP 19" x 1U, category 3, 50 ports
- cat. no. 807-155

S T R U C T U R A L   C A B L I N G   E L E M E N T S

Power VS telephone system

MOUNT FRAME FOR TELEPHONE MODULES

- Made of stainless steel.
- Equipped with properly profiled sockets for telephone modules, without necessity of applying additional fitting elements.
- Available in two sizes:
  - 19" x 1U - 6 modules
  - 19" x 3U - 15 modules

Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
803-160	6 modules	483	44	81	0.300
803-115	15 modules		133		0.422

Material: stainless sheet steel 0.75 mm

Surface finish: none
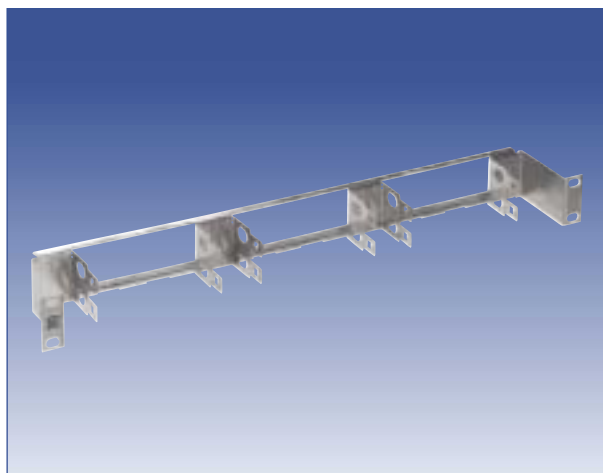
Mount frame for telephone modules 19" x 1U, for 6 modules - cat. no. 803-160
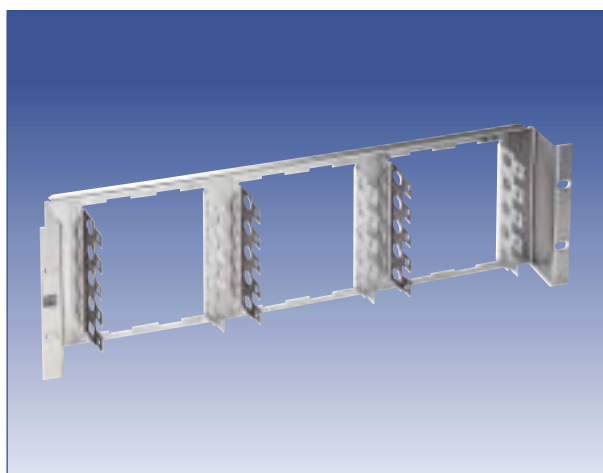
Mount frame for telephone modules 19" x 3U, for 15 modules - cat. no. 803-115

Sample of modules mounting

Power VS telephone system

TELEPHONE CONNECTORS

Disconnecting module

Disconnecting module is basis of telephone system. Module is placed on mount frame. Equipped with IDC contacts for termination of wires. There is also possibility of placing on them a set of magazine of gas surge arrestors. The module possesses shorted contacts. Application of insulation plug allows to disconnet any line.

Case material . . . . thermoplastic ULV94V0
Connector material . . . . . silver plated phosphor bronze
Wire acceptance . . . . 0.4 - 0.8 mm
Contact resistance . . . . . 5 mΩ
Accordance with norm . . DIN 41611
Category 3
Weight . . . . 0.060 kg
Dimensions . . . . 124.0 x 19.5 x 40.0 mm
Colour . . . . white
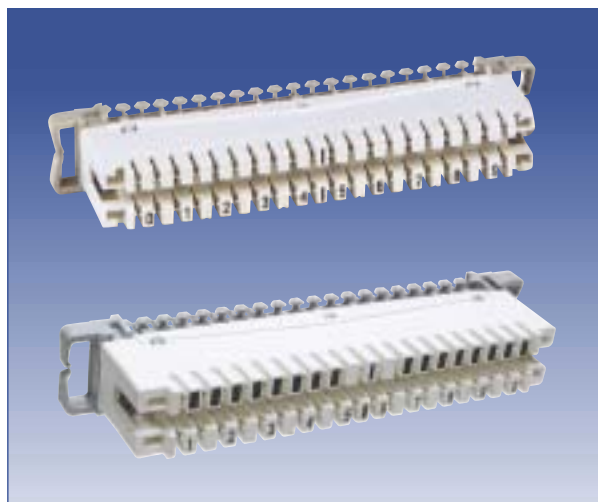
Disconnecting module, 10 pairs, 1-0, white
- cat. no. 870-500
Disconnecting module, 10 pairs, 0-9, white
- cat. no. 870-501

Connecting module

Connecting module is equipped with connected contacts providing permanent connection of it s both sides. It is fitted on mount frame.

Case material . . . . thermoplastic ULV94V0
Connector material . . . . . silver plated phosphor bronze
Wire acceptance . . . . 0.4 - 0.8 mm
Contact resistance . . . . . 3 mΩ
Accordance with norm . . DIN 41611
Category 3
Weight . . . . 0.060 kg
Dimensions . . . . 124.0 x 19.5 x 40.0 mm
Colour . . . . gray
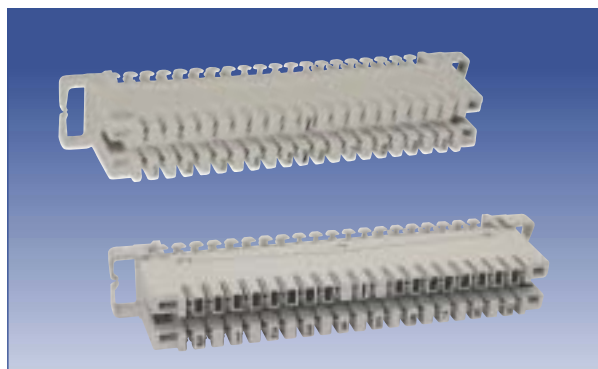
Connecting module, 10 pairs, 1-0, gray
- cat. no. 870-510
Connecting module, 10 pairs, 0-9, gray
- cat. no. 870-511

Grounding module

Grounding module allows rounding of shields of cables entering telecommunications distribution frame. It is fitted on frame.

Case material . . . . thermoplastic ULV94V0
Connector material . . . . . silver plated phosphor bronze
Wire acceptance . . . . 0.4 - 0.8 mm
Weight . . . . 0.060 kg
Dimensions . . . . 124.0 x 19.5 x 40.0 mm
Colour . . . . red
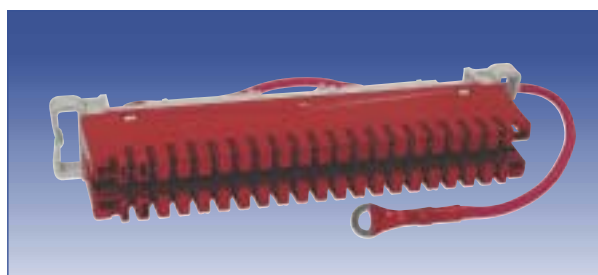
Grounding module, 10 pairs, red
- cat. no. 870-521

STRUCTURAL CABLING ELEMENTS

Power VS telephone system

MAGAZINE FOR TRI-POLE ARRESTORS

Equipping telephone module with gas surge arrestors with thermal protection allows to protect system against dangerous consequences of external overvoltage. At the moment of emergency destructed is only arrestor, providing protection of other elements from destruction. Special contacts fitted on both sides of the magazine provide automatic connection of middle strip with frame.

TECHNICAL DATA OF MAGAZINE

Case material . . . . thermoplastic ULV94V0

Contacts material . . . . silver plated phosphor bronze

Weight . . . . 0.080 kg

Dimensions . . . . 113.0 x 22.2 x 41.0 mm

Colour . . . . gray
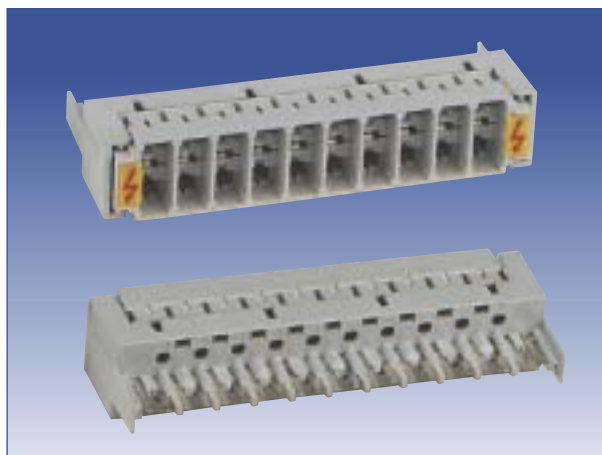
Magazine of arrestors (without arrestors)
- cat. no. 870-540

TECHNICAL DATA OF ARRESTORS

Rated voltage of ignition [a-e, b-e] . . . . 230 V 20 %

Maximum output voltage [1 kV/ms] . . . . < 450 V

Rated voltage [8/20 ms, a+b-e] . . . . 20 kA

Max. alternating current [a+b-e, 50 Hz, 1 s] . . . . 10 A

Insulation resistance [for 100 V] . . . . $10^{10}\ \Omega$

Capacity [a-e, b-e] . . . . < 1.5 pF

Capacity [a-b] . . . . < 1.0 pF

Weight . . . . 0.0024 kg
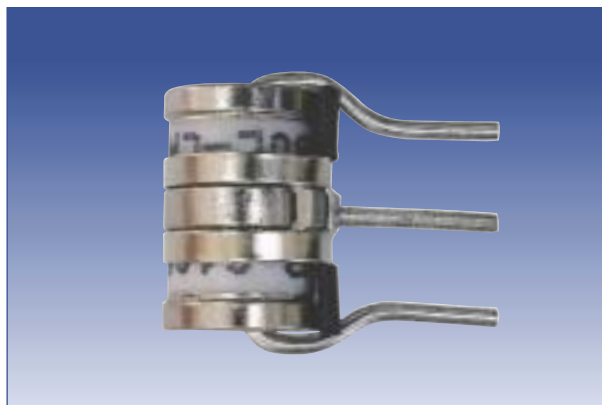
Tri pole surge gas arrestor 230 V
- cat. no. 870-542

DISCONNECTION PLUG

Application of disconnection plug in disconnecting module allows for disconnection of the line.

Material . . . . .thermoplastic ULV94V0

Weight . . . . .0.001 kg

Dimensions . . . . .9.5 x 6.5 x 28.0 mm

Colour . . . . .red
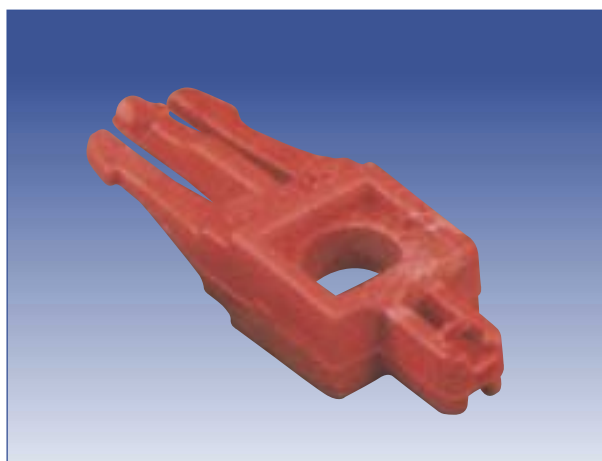
Disconnection plug for disconnecting module
- cat. no. 870-552

Power VS telephone system

TOOL FOR TELEPHONE MODULES

The tool for telephone modules allows to perform all operations concerning installation and applying changes on elements of telephone system. Built-in scissors trims protruding part of the conductor during its termination in connector. The tools posses-ses additional special endings which are used for taking out of telephone modules from frame.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
870-530	177.0	37.5	21.0	0.060

Case material: thermoplastic UL94V0

Ending material: tooling steel
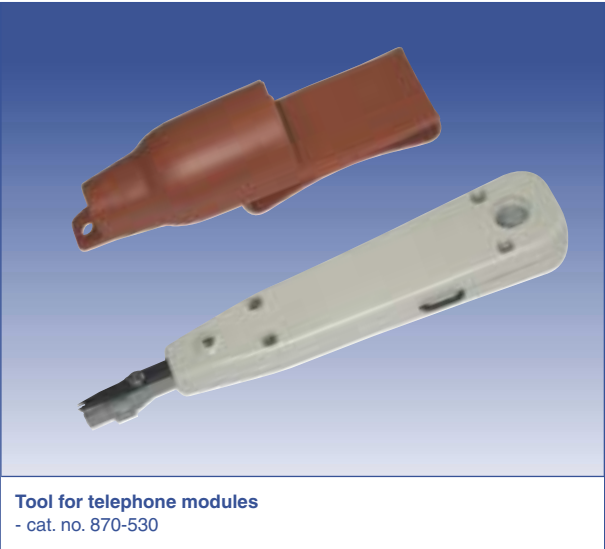
Tool for telephone modules
- cat. no. 870-530

LABELS AND COVERS

- The telephone system consist also of parts making possible easy labelling of commutation fields (label holder for frame), separate modules (cover for module) or pairs (set of labels).
- Sets of labels are available in two versions: 0 - 9 and 10 - 100. They are pushed into special place on module. Labels are equ-ipped with paper labels, making it possible writing of descrip-tion.

Catalogue number	Dimensions [mm] [mm]	Weight [kg]
873-561	109 x 21 x 24	0.020
870-562	108 x 17 x 14	0.015
870-565	Set: 82 x 9 x 9	0.015
	Label: 5 x 5 x 9	
870-566	Set: 82 x 9 x 9	
	Label: 5 x 5 x 9	
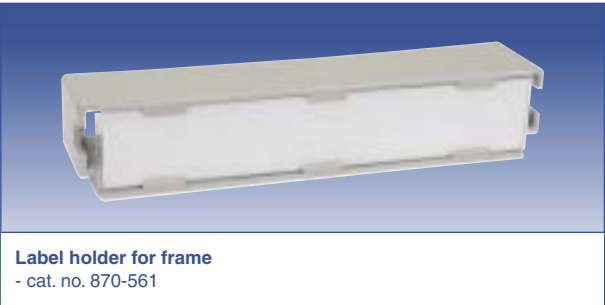
Label holder for frame
- cat. no. 870-561

Cover for module
- cat. no. 870-562
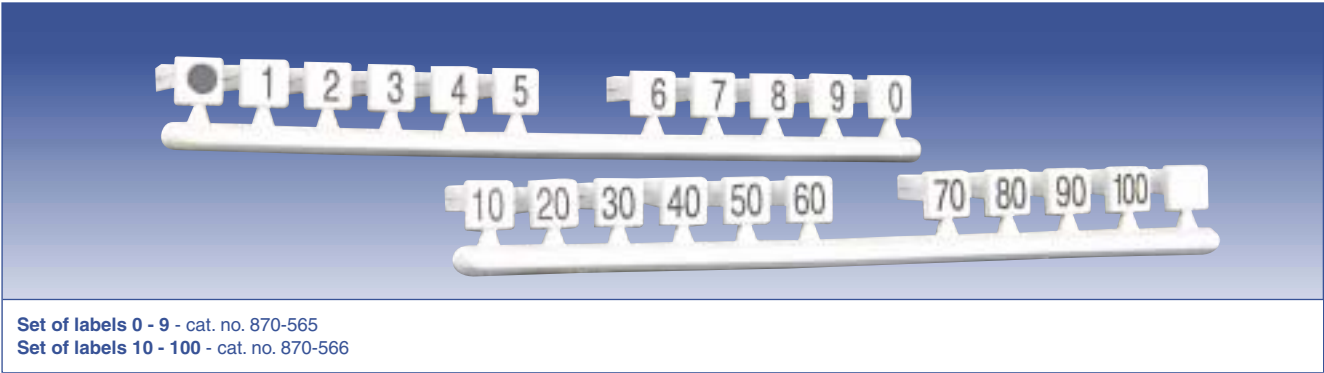
Set of labels 0 - 9 - cat. no. 870-565
Set of labels 10 - 100 - cat. no. 870-566

STRUCTURAL CABLING ELEMENTS

Power VS telephone system

GROUNDING STRIP

Grounding strip makes possible grounding of cables entering into telecommunication distribution frame. It is mounted on frame.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
870-520	109.0	10.0	40.0	0.060

Material: steel sheet, zinc covered
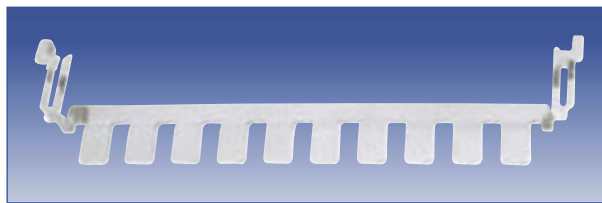
Grounding strip for telephone modules
- cat. no. 870-520

LINE PROTECTION UNIT

Line protection units are designed to protect single pairs of module against dangerous consequences of over voltage. In case of overvoltage destructed is only protection unit.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
870-580	50	20	10	0.010

Material: thermoplastic ULV 94V0.

Line protection unit
- cat. no. 870-580

TEST CABLES

Test cables are intended for diagnostic of telephone lines, sometimes the cables are used for connection of telephone cabling to structural cabling.

Catalogue number	Description	Weight [kg]
870-581	Test cable 1 pair - 2 m	0.020
870-582	Test cable 2 pairs -2 m	0.025

Test cable 1 pair, 2 m
- cat. no. 870-581

ANTI-DUST COVER

Anti-dust cover is intended for 10 modules (100 pairs). Protects from dust and pollution.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
871-121	120	240	80	0.200

Material: transparent UL94V0 thermoplastic

Anti-dust cover for 10 modules
- cat. no. 871-121

STRUCTURAL CABLING ELEMENTS

Power VS telephone system

TELECOMMUNICATIONS FRAMES

- A set of telecommunications frames offers alternative on-wall solution, very similar to distribution frame. Frames are metal channel bar elements, adjusted for assembly of telephone system modules.
- Available in four dimensions for 44, 33, 22 and 11 modules and two depths: 50 and 70 mm.
- Holes placed on both sides of the frame make appropriate grounding of wires.
- On the rear side of the panel there is screwed bolt for grounding.
- Bigger sizes telecommunication frames are specially advised for large installations.

Catalogue number	Dimensions [mm]			Amount of modules	Weight [kg]
	Width	Height	Depth		
871-445	105	970	50	44	1.15
871-335		763		33	0.86
871-225		493		22	0.57
871-115		245		11	0.29
871-447		970	70	44	1.35
871-337		763		33	1.00
871-227		493		22	0.67
871-117		245		11	0.33

Material: sheet steel 0.75 mm

Surface finish: none

Telecommunication frame for 11 modules, depth 70 mm

Sample of telephone frame equipped with modules and cover

STRUCTURAL CABLING ELEMENTS

35
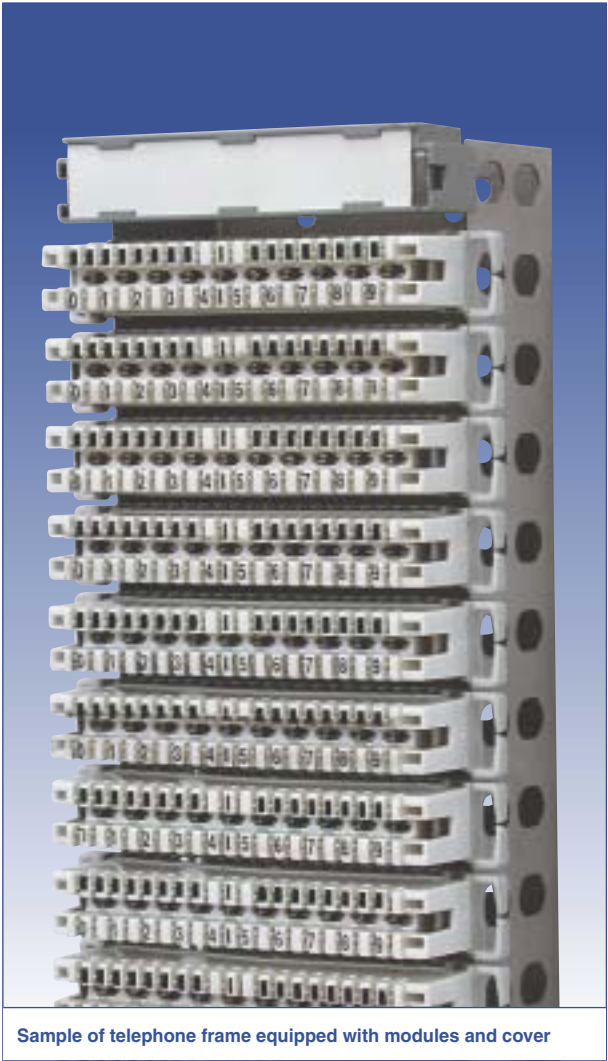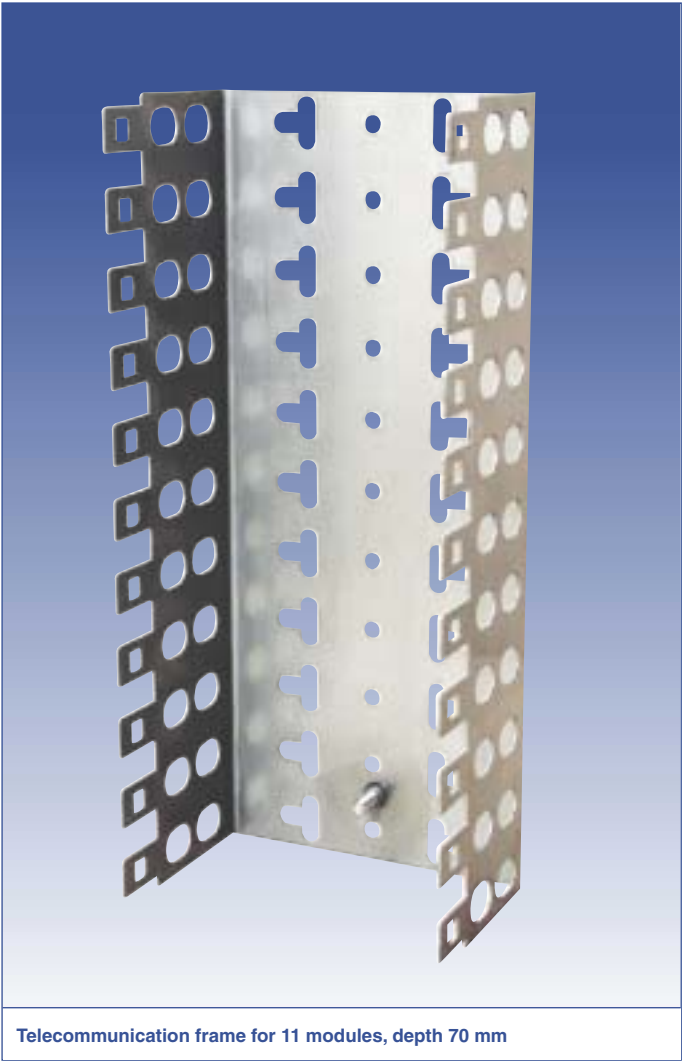
Power VS telephone system

DISTRIBUTION BOXES

Distribution boxes provide safe installation of telephone modules. Made from inflammable material, are necessary protection of installed equipment against casual mechanical damages.

Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
870-570	140	152	55	0.20
870-571	235	190	105	0.61
870-572	220	272	108	0.88

Material: uninflammable ABS thermoplastic.
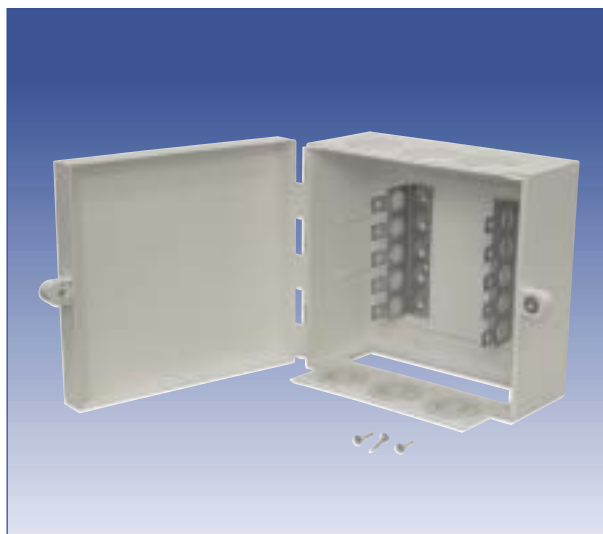
Distribution box - 5 modules for without modules
- cat. no. 870-571

Distribution box for 3 modules - without modules
- cat. no. 870-570

Distribution box for 10 modules - without modules
- cat. no. 870-572

STRUCTURAL CABLING ELEMENTS

SKI 10" wall-mounted cabinet

- Useful height 7U.
- 10" standard is made of two supporting angle bars fixed to the cabinet's side walls.
- On the rear wall there is threaded bolt for fastening fibre optic splice cassette - base for fibre optic welded joints.
- Brush openings in the top and bottom plate enable cable entry.
- In standard version the cabinet is equipped with shelf, brush panel and universal patch panel (see drawing).

Dimensions (width x height x depth): 310 x 355 x 360 mm

Weight: 7.5 kg

Material: sheet steel 1.0 mm thick

Surface finish: powder painted in RAL 7035

Protection degree: IP 20 in accordance with EN 60 529 / IEC 529

SCOPE OF DELIVERY

Standard cabinet equipped with shelf, brush panel and universal patch panel (see drawing on page 38).

Catalogue number:
- Standard cabinet with door with glass window
  - cat. no. 891-200
- Standard cabinet with solid door
  - cat. no. 891-201

S T R U C T U R A L   C A B L I N G   E L E M E N T S

SKI 10'' wall-mounted cabinet

STRUCTURAL CABLING ELEMENTS

Front view without door

310
254
A
355
311 (7U)
A

Section A-A

1
2
3
5
6
7
8
4
3
170
244
260

Top view

40
120
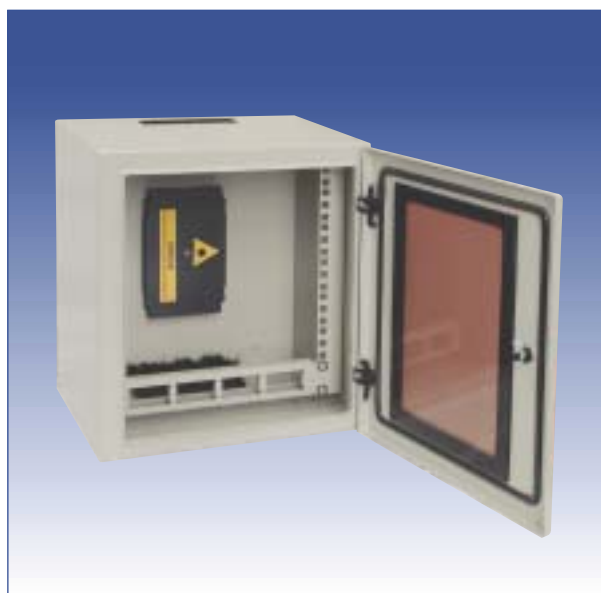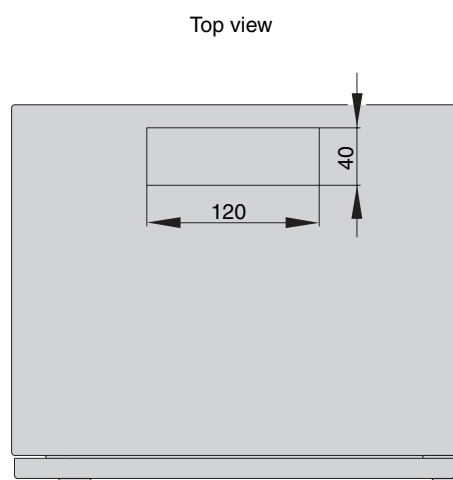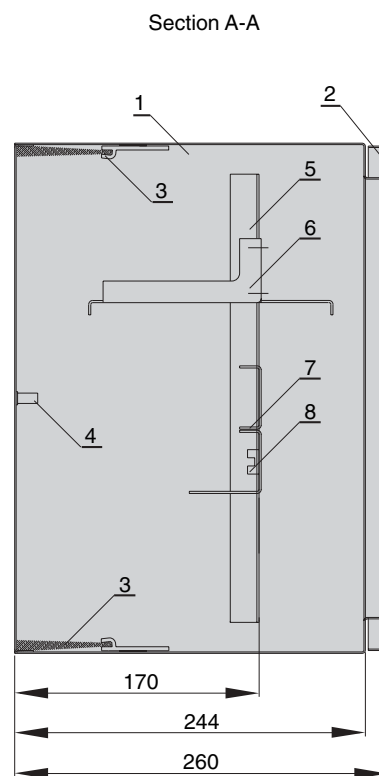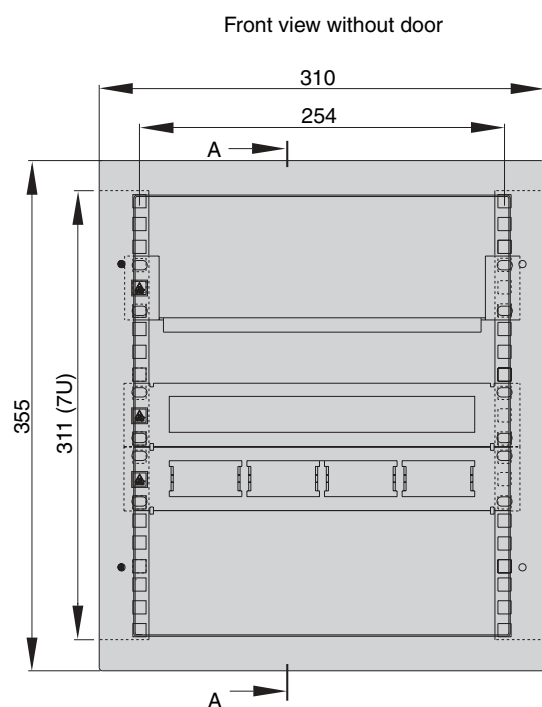
CONSTRUCTION

1. Cabinet's body
2. Solid or plexiglas window door
3. Brush opening
4. Threaded bolt M5 x 15
5. Supporting angle bar 7U
6. Shelf 10'' x 1U
7. Brush panel 10'' x 1U
8. Universal patch panel 10'' x 1U

SKI 10" wall-mounted cabinet

ADDITIONAL EQUIPMENT IN 10" STANDARD
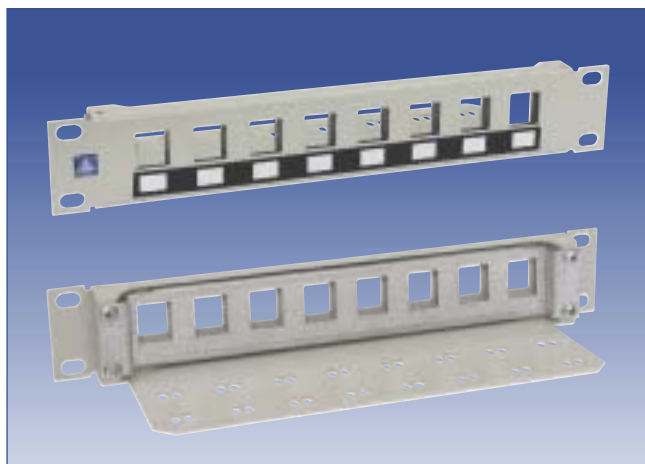
Patch panel 10" x 1U with 8 ports for keystones
- cat. no. 891-220
Weight: 0.26 kg
Dimensions (width x height x depth): 275 x 44 x 50 mm

Telephone patch panel UTP 10" x 1U, cat. 3, 20 ports
- cat. no. 891-220
Weight: 0.3 kg
Dimensions (width x height x depth): 275 x 44 x 55 mm
Electrical parameters as in panel 807-155 (page 29)
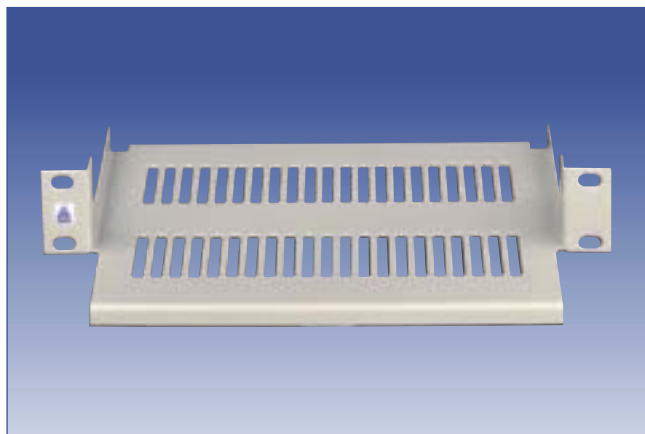
Shelf 10" x 1U
- cat. no. 891-233
Weight: 0.48 kg
Dimensions (width x height x depth): 275 x 44 x 170 mm
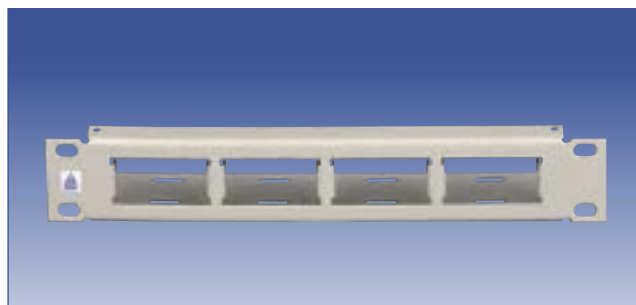
Universal patch panel 10" x 1U with 4 ports 25 x 50 mm
- cat. no. 891-234
Weight: 0.26 kg
Dimensions (width x height x depth): 275 x 44 x 50 mm

Cable organizer 10" x 1U
- cat. no. 891-235
Weight: 0.27 kg
Dimensions (width x height x depth): 275 x 44 x 83 mm
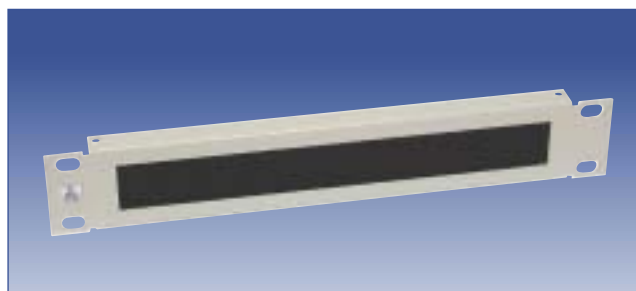
Brush panel 10" x 1U
- cat. no. 891-236
Weight: 0.20 kg
Dimensions (width x height x depth): 275 x 44 x 15 mm
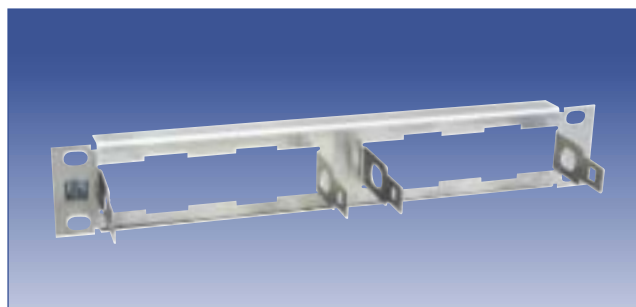
Terminal block panel 10" x 1U
- cat. no. 891-238
Weight: 0.11 kg
Dimensions (width x height x depth): 275 x 44 x 35 mm

STRUCTURAL CABLING ELEMENTS

Tools for installers

IMPACT TOOL FOR 110/KRONE CONNECTORS (WITH REMOVABLE KNIFE)

- Compatible with 110 and Krone system.
- Tool designed for termination of wires in IDC connectors and modular terminal blocks.
- Easiness of termination of wires in IDC connector.
- Removable knife improves functionality and reliability of tool.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
881-300	31	28	180	0.170

Case material: plastic

HANDLE OF TERMINATION TOOL

- Connector termination tool with fixed force.
- Delivered without knife.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
881-310	28	28	150	0.190

Case material: plastic

KRONE SPARE KNIFE

- Spare knife for handle 881-310.
- Another types of knives available at special order.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
881-311	7	6	57	0.010

Material: tooling steel
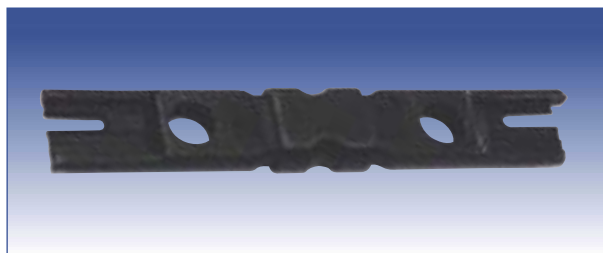
PUNCH DOWN TOOL FOR TELEPHONE CONNECTORS

- Tool for Krone system.
- Built-in scissors for cutting of wire.
- Additional endings for taking off telephone modules from fame and arrestors from magazine.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
881-302	35	20	180	0.120

Case material: plastic

STRUCTURAL CABLING ELEMENTS

Tools for installers

CRIMP TOOL FOR PLUGS WE8W, WE6W, WE4W

- Intended for modular plugs 8P8C (RJ45), 6P6C (RJ12), 6P4C (RJ11), 6P2C, 4P4C and DEC/OFF SET 6P6C.
- With cable stripper and cutter for flat cables.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
881-114	60	20	205	0.420

Handle material: plastic
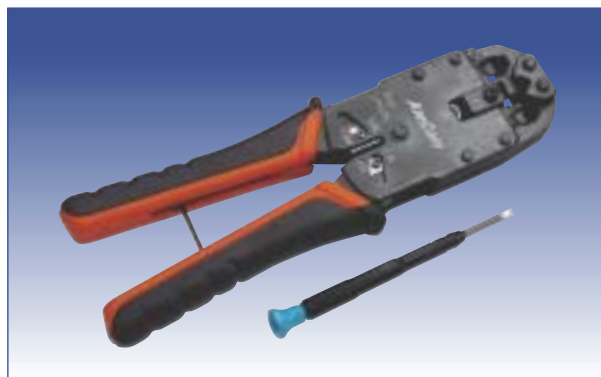
CRIMP TOOL FOR PLUGS WE8W, WE6W (FOR TWO PLUGS)

- Intended for modular plugs 8P8C (RJ45), 6P6C (RJ12), 6P4C (RJ11), 6P2C.
- With cable stripper and cutter for flat cables KP-8, KP-6.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
885-104	60	20	205	0.280

Handle material: plastic
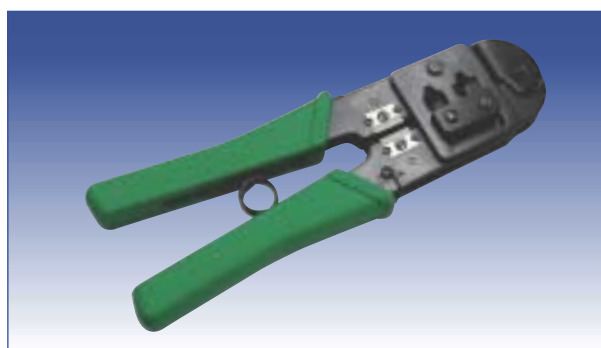
CRIMP TOOL FOR PLUGS WE8W

- Intended for modular plugs 8P8C (RJ45).
- With cable stripper and cutter for flat cables KP-8.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
885-102	70	17	190	0.210

Handle material: plastic

CRIMP TOOL FOR PLUGS WE8W, WE6W (FOR TWO PLUGS)

- Intended for modular plugs 8P8C (RJ45), 6P6C (RJ12), 6P4C (RJ11), 6P2C.
- With cable stripper and cutter for flat cables.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
885-103	75	20	187	0.200

Handle material: plastic

STRUCTURAL CABLING ELEMENTS

Tools for installers

CROSS CABLE STRIPPER

- Adjustable cable stripper and cutter with replaceable knife.
- Four UTP/STP cables, flat telephone cables 2C, 4C, 6C, 8C, and for 18-22 AWG wires.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
882-300	53	17	122	0.080

Case material: plastic

CROSS CABLE STRIPPER

- Multi function cable stripper for 12-20 AWG cables, for shielded multipairs wires.
- Possibility of external insulation stripping, and insulation from wires.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
882-301	60	12	178	0.120

Handle material: plastic

CABLE STRIPPER

- Economical, simple cable stripper for UTP/STP cables with diemeter of 5 - 6.2 mm

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
882-302	33	9	82	0.030

Material: plastic, steel knife

STRUCTURAL CABLING ELEMENTS

Testers

TESTER HC-45

Economical, portable cabling tester. Composed of two parts, en-sures sureness of testing. Both parts are equipped with shielded RJ45 and BNC jacks.
The tester makes possible testing of each pairs with help of 10 LEDs. The LED shows status of each pair (cross-connection, break, short).

Application

Testing of shielded and unshielded patchcords RJ45 and structu-ral cabling according to standards:
- EIA/TIA - T568A/568B (AT&T 258A).
- Ethernet 10 BaseT-T & 10 Base-2.
- Fast Ethernet 100 Base-T.
- Token ring.
- ISDN.

Case material: plastic

Power: battery 9 V

Weight: 0.2 kg

Dimensions: - main unit: 27 x 63 x 112 mm

- remote unit: 27 x 34 x 100 mm

Tester HC 45
- cat. no. 883-201

TESTER FA 373

Universal, portable cabling tester. Ensures fast and exact testing of continuity of cable, short, break, and fail - connections and easy reading of correct pin's configuration for LAN, telecommu-nication, USB and coaxial cables. Delivered with set of connec-tors.

Application

Testing of structural cabling:
- UTP/STP cables, (10/100 Base T),
- telephone cables (4,6,8 wires),
- coaxial cables (BNC do BNC), 10 Base 2,
- patchcords USB (A-A, A-B),
- PS/2 cables (mini DIN, 6 or 8 pins).

Case material: thermoplastic ABS

Maximum distance: 3048 m

Power: battery 9 V

Weight: 0.2 kg

Dimensions: - main unit: 27 x 63 x 112 mm

- remote unit: 27 x 34 x 100 mm

Tester FA 373
- cat. no. 883-200

STRUCTURAL CABLING ELEMENTS

Accessories for installers

MODULAR PLUG

- Effective protection of cable and plug against mechanical damages.
- Accordance with category 5e norm.
- Esthetical look.
- Durable fastening of cable in the plug.
- Flexible thermoplastic material ensures high durability and comfort usage.
- Various types of plugs.

REFERENCE CHART

Part	Colour / type	Catalogue number	Dimensions [mm]			Weight [kg]
			Width	Height	Depth	
Cover	gray	885-811	10	12	22	0.003
	red	855-812				
	blue	855-813				
	green	855-815				
	black	855-817				
Connector	RJ11 for telephone cable	855-010	12	15	28	0.002
	RJ45 for rounded solid cable	855-020	15	15	28	0.003
	RJ45 for rounded stranded cable	855-030				
	RJ45 for flat solid cable	855-040				
	RJ45 for flat stranded cable	855-050				

Case material: thermoplastic UL94V0

Contacts material: phosphor bronze

Contacts plating: 1.25 µm gold over 2.50 µm nickel

Modular plug:
- **RJ11 for telephone cable** - cat. no. 855-010 (on picture)
- **RJ45 for rounded solid cable** - cat. no. 855-020
- **RJ45 for rounded strandedcable** - cat. no. 855-030 (on picture)
- **RJ45 for flat solidcable** - cat. no. 855-040
- **RJ45 for flat stranded cable** - cat. no. 855-050

Cover for plug WE8W:
- **grey** - cat. no. 855-811
- **red** - cat. no. 855-812 (on picture)
- **blue** - cat. no. 855-813 (on picture)
- **green** - cat. no. 855-815 (on picture)
- **black** - cat. no. 855-817

STRUCTURAL CABLING ELEMENTS

Patch cables

PATCH CABLES UTP AND FTP CATEGORY 5e

- Designed for cross connections at distribution points as well as connections of terminals with subscriber points.
- Compatible with category 5e, sequence 568B.
- By standard offered in grey colour.
- FTP cables are resistant from mechanical damages, providing continuity of shielding.
- Equipped with special type RJ45 plugs fixed on the cable by means of moulding technology.
- Five standard length options: 0.5 m, 1 m, 2 m, 3 m, 5 m.

Mechanical parameters:
- Cable insulation material . . . . . PVC
- Plug case UL94V2
- Plug contacts material . . . . phosphor bronze
- Plug contacts plating . . . . gold over nickel;
- Durability . . . . > 750 cycles
- Temperature range . . . . -40 to +60

Electrical parameters:
- Maximum voltage . . . . > 125 V
- Maximum current . . . . 1.5 A
- Insulation resistance . . . . > 500 MΩ

NOTE:
Patch cables in another lenghts, colours and category 6 avalaible on customer's request.
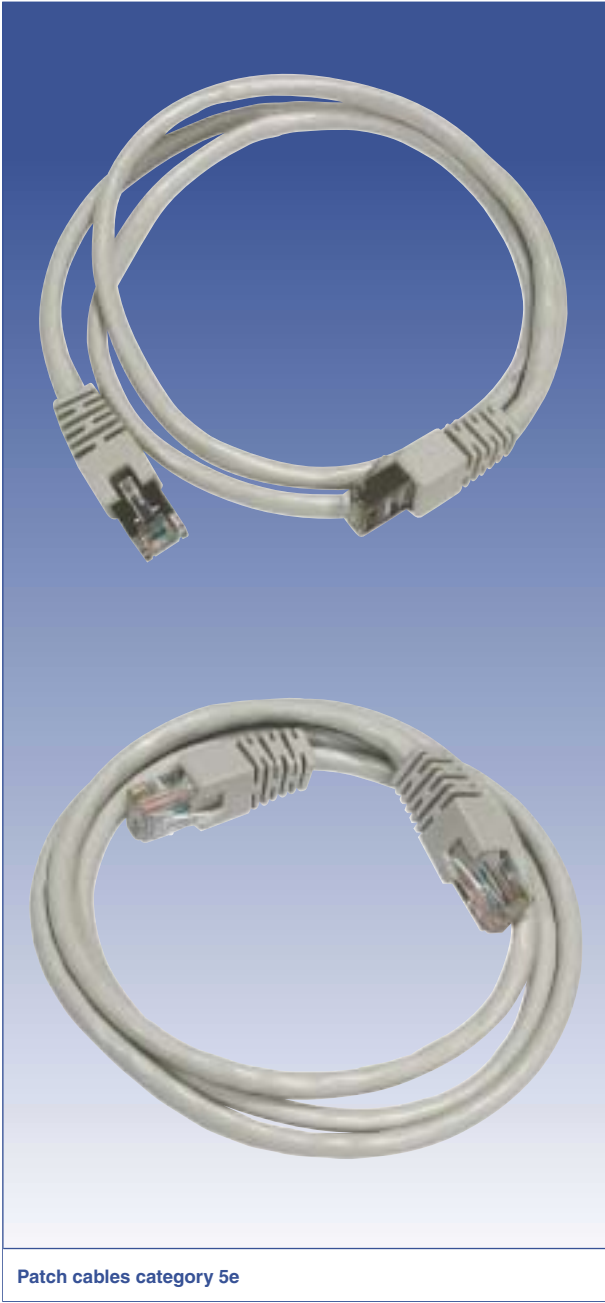
Patch cables category 5e

REFERENCE CHART

Catalogue number	Type of cable	Weight [kg]
850-461	Patch cable RJ45, UTP, cat. 5e, lenght 0.5 m, gray	0.025
850-411	Patch cable RJ45, UTP, cat. 5e, lenght 1 m, gray	0.043
850-421	Patch cable RJ45, UTP, cat. 5e, lenght 2 m, gray	0.074
850-431	Patch cable RJ45, UTP, cat. 5e, lenght 3 m, gray	0.104
850-451	Patch cable RJ45, UTP, cat. 5e, lenght 5 m, gray	0.150
850-561	Patch cable RJ45, FTP, cat. 5e, lenght 0.5 m, gray	0.065
850-511	Patch cable RJ45, FTP, cat. 5e, lenght 1 m, gray	0.119
850-521	Patch cable RJ45, FTP, cat. 5e, lenght 2 m, gray	0.230
850-531	Patch cable RJ45, FTP, cat. 5e, lenght 3 m, gray	0.360
850-551	Patch cable RJ45, FTP, cat. 5e, lenght 5 m, gray	0.450

STRUCTURAL CABLING ELEMENTS

Patch cables

PATCH CABLES CATEGORY 5

- Designed for cross connections at distribution points as well as connections of terminals with subscriber points.
- Compatible with category 5, sequence 568B.
- By standard offered in grey colour.
- FTP cables are resistant from mechanical damages, providing continuity of shielding.
- Equipped with special type RJ45 plugs fixed on the cable by means of moulding technology.
- Five standard length options: 0.5 m, 1 m, 2 m, 3 m, 5 m.

Mechanical parameters:
- Cable insulation material . . . . . PVC
- Plug case UL94V2
- Plug contacts material . . . . phosphor bronze
- Plug contacts plating . . . . gold over nickel;
- Durability . . . . > 750 cycles
- Temperature range . . . . -40 to +60

Electrical parameters:
- Maximum voltage . . . . > 125 V
- Maximum current . . . . 1.5 A
- Insulation resistance . . . . > 500 MΩ

Patch cables category 5

UTP CABLES

Cat. no.	Type of cable	Weight [kg]
850-261	Patch cable RJ45, UTP, category 5, lenght 0.5 m, gray	
850-262	Patch cable RJ45, UTP, category 5, lenght 0.5 m, red	
850-263	Patch cable RJ45, UTP, category 5, lenght 0.5 m, blue	0.025
850-265	Patch cable RJ45, UTP, category 5, lenght 0.5 m, green	
850-267	Patch cable RJ45, UTP, category 5, lenght 0.5 m, black	
850-211	Patch cable RJ45, UTP, category 5, lenght 1 m, gray	
850-212	Patch cable RJ45, UTP, category 5, lenght 1 m, red	
850-213	Patch cable RJ45, UTP, category 5, lenght 1 m, blue	0.043
850-215	Patch cable RJ45, UTP, category 5, lenght 1 m, green	
850-217	Patch cable RJ45, UTP, category 5, lenght 1 m, black	
850-221	Patch cable RJ45, UTP, category 5, lenght 2 m, gray	
850-222	Patch cable RJ45, UTP, category 5, lenght 2 m, red	
850-223	Patch cable RJ45, UTP, category 5, lenght 2 m, blue	0.074
850-225	Patch cable RJ45, UTP, category 5, lenght 2 m, green	
850-227	Patch cable RJ45, UTP, category 5, lenght 2 m, black	
850-231	Patch cable RJ45, UTP, category 5, lenght 3 m, gray	
850-232	Patch cable RJ45, UTP, category 5, lenght 3 m, red	
850-233	Patch cable RJ45, UTP, category 5, lenght 3 m, blue	0.104
850-235	Patch cable RJ45, UTP, category 5, lenght 3 m, green	
850-237	Patch cable RJ45, UTP, category 5, lenght 3 m, black	
850-251	Patch cable RJ45, UTP, category 5, lenght 3 m, gray	
850-252	Patch cable RJ45, UTP, category 5, lenght 3 m, red	
850-253	Patch cable RJ45, UTP, category 5, lenght 3 m, blue	0.164
850-255	Patch cable RJ45, UTP, category 5, lenght 3 m, green	
850-257	Patch cable RJ45, UTP, category 5, lenght 3 m, black	

FTP CABLES

Cat. no.	Type of cable	Weight [kg]
850-361	Patch cable RJ45, FTP, category 5, lenght 0.5 m, gray	
850-362	Patch cable RJ45, FTP, category 5, lenght 0.5 m, red	
850-363	Patch cable RJ45, FTP, category 5, lenght 0.5 m, blue	0.065
850-365	Patch cable RJ45, FTP, category 5, lenght 0.5 m, green	
850-367	Patch cable RJ45, FTP, category 5, lenght 0.5 m, black	
850-311	Patch cable RJ45, FTP, category 5, lenght 1 m, gray	
850-312	Patch cable RJ45, FTP, category 5, lenght 1 m, red	
850-313	Patch cable RJ45, FTP, category 5, lenght 1 m, blue	0.119
850-315	Patch cable RJ45, FTP, category 5, lenght 1 m, green	
850-317	Patch cable RJ45, FTP, category 5, lenght 1 m, black	
850-321	Patch cable RJ45, FTP, category 5, lenght 2 m, gray	
850-322	Patch cable RJ45, FTP, category 5, lenght 2 m, red	
850-323	Patch cable RJ45, FTP, category 5, lenght 2 m, blue	0.230
850-325	Patch cable RJ45, FTP, category 5, lenght 2 m, green	
850-327	Patch cable RJ45, FTP, category 5, lenght 2 m, black	
850-331	Patch cable RJ45, FTP, category 5, lenght 3 m, gray	
850-332	Patch cable RJ45, FTP, category 5, lenght 3 m, red	
850-333	Patch cable RJ45, FTP, category 5, lenght 3 m, blue	0.360
850-335	Patch cable RJ45, FTP, category 5, lenght 3 m, green	
850-337	Patch cable RJ45, FTP, category 5, lenght 3 m, black	
850-351	Patch cable RJ45, FTP, category 5, lenght 5 m, gray	
850-352	Patch cable RJ45, FTP, category 5, lenght 5 m, red	
850-353	Patch cable RJ45, FTP, category 5, lenght 5 m, blue	0.620
850-355	Patch cable RJ45, FTP, category 5, lenght 5 m, green	
850-357	Patch cable RJ45, FTP, category 5, lenght 5 m, black	

STRUCTURAL CABLING ELEMENTS

MADEX cables

INDOOR CABLES UTP AND FTP CATEGORY 5e

- Fullfilness of category 5e requirements.
- Basis element of category 5e products line, designed for high speed networks.
- Recommended for vertical and horizontal cabling.
- Small outer diameter, high elasticity and flexibility.
- Standard packing in 305 m cardboard boxes.
- 4 pairs.
- Available in PVC version, LSZH version (Low Smoke Zero Halogen).

Mechanical parameters:
- Wire diameters . . . . 24 AWG
  (Cables 26 AWG available at special order.)
- Shield of single pair . . . . unshielded
- Screen of cable core . . . . unscreened
- Number of pairs 4
- Sheath . . . . PVC, LSZH or PE
- Sheath colour for stranded wire . . gray, red, blue,
                                                           yellow, green
- Length tolerance . . . . +/- 1 %

Min. bending ratio:
- During the installation . . . . 8 x outer cable diameter
- After installation . . . . 4 x outer cable diameter

Temperature range:
- Installation . . . . 0 to 50 °C
- Working conditions . . . . -20 to +60 °C

Colour code:
- Pair 1 - white-blue/blue
- Pair 2 - white-orange/orange
- Pair 3 - white-green/ green
- Pair 4 - white brown/brown

> **NOTE:**
> FTP stranded cables in another colours available on customer's request.

UTP cable 4 pairs, category 5e

SOLID CABLES

Cat. no.	Type of cable
841-161	Cable UTP 4 pairs, category 5e, PVC, MADEX, ultralink, 305 m
841-160	Cable UTP 4 pairs, category 5e, PVC, MADEX, powernet, 305 m
844-162	Cable UTP 4 pairs, category 5e, LSZH, MADEX, 305 m
841-164	Cable UTP 4 pairs, category 5e, PVC, MADEX, yellow, 305 m
842-461	Cable FTP 4 pairs, category 5e, PVC, MADEX, 305 m
842-465	Cable FTP 4 pairs, category 5e, PVC, MADEX, 500 m
844-462	Cable FTP 4 pairs, category 5e, LSZH, MADEX, 305 m
845-654	Cable SFTP 4 pairs, category 5e, PVC, MADEX, 305 m

STRANDED CABLES

Cat. no.	Type of cable
841-861	Cable UTP 4 pairs, gray, category 5e, PVC, MADEX, 305 m
841-862	Cable UTP 4 pairs, red, category 5e, PVC, MADEX, 305 m
841-863	Cable UTP 4 pairs, blue, category 5e, PVC, MADEX, 305 m
841-864	Cable UTP 4 pairs, yellow, category 5e, PVC, MADEX, 305 m
841-865	Cable UTP 4 pairs, green, category 5e, PVC, MADEX, 305 m
841-811	Cable UTP 4 pairs, gray, category 5e, PVC, MADEX, 100 m
841-812	Cable UTP 4 pairs, red, category 5e, PVC, MADEX, 100 m
841-813	Cable UTP 4 pairs, blue, category 5e, PVC, MADEX, 100 m
841-814	Cable UTP 4 pairs, yellow, category 5e, PVC, MADEX, 100 m
841-815	Cable UTP 4 pairs, green, category 5e, PVC, MADEX, 100 m
842-861	Cable FTP 4 pairs, gray, category 5e, PVC, MADEX, 305 m
842-862	Cable FTP 4 pairs, red, category 5e, PVC, MADEX, 305 m
842-863	Cable FTP 4 pairs, blue, category 5e, PVC, MADEX, 305 m
842-864	Cable FTP 4 pairs, yellow, category 5e, PVC, MADEX, 305 m
842-865	Cable FTP 4 pairs, green, category 5e, PVC, MADEX, 305 m

STRUCTURAL CABLING ELEMENTS

MADEX cables

OUTDOOR CABLES CATEGORY 5e

- Basis element of category 5e products line, designed for high speed networks.
- Recommended for vertical and horizontal cabling.
- 4 pairs UTP.
- Small outer diameter, high elasticity and flexibility.
- Standard packing in 305 and 100 m.

Mechanical parameters:
- Wire diameter . . . . 24 AWG
- Number of pairs 4
- Sheath . . . . black polyethylene
- Wire insulation . . . . solid polyethylene
- Length tolerance . . . . +/- 1 %

Min. bending ratio:
- During the installation . . . . 8 x outer cable diameter
- After installation . . . . 4 x outer cable diameter

Temperature range:
- Installation . . . . -10 to +50 °C
- Working conditions . . . . -20 to +60 °C

Colour code:
- Pair 1 - blue / white-blue
- Pair 2 - orange / white-orange
- Pair 3 - green / white-green
- Pair 4 - brown / white-brown

Construction of gel-filled cable:
Gel-filled cable is designed for laying into drains, directly in ground, in terrains of small threat of mechanical damages or for hanging.
The spaces between construction parts of cable and moisture barrier are filled in with petroleum compound
Moisture barrier is made of both-side laminated aluminium tape.

REFERENCE CHART

Cat. no.	Type of cable
841-173	Cable UTP outdoor 4 pairs, cat. 5e, PE, MADEX, 305 m
841-175	Cable UTP outdoor 4 pairs, cat. 5e, PE, MADEX, 500 m
841-181	Cable UTP gel-filled 4 pairs, cat. 5e, PE, MADEX, 1 m
842-173	Cable UTP outdoor 4 pairs, cat. 5e, PE, MADEX, 305 m
842-175	Cable UTP outdoor 4 pairs, cat. 5e, PE, MADEX, 500 m
841-194	Cable UTP gel-filled 4 pairs, cat. 5e, PE, MADEX with supporting wire, 1 m
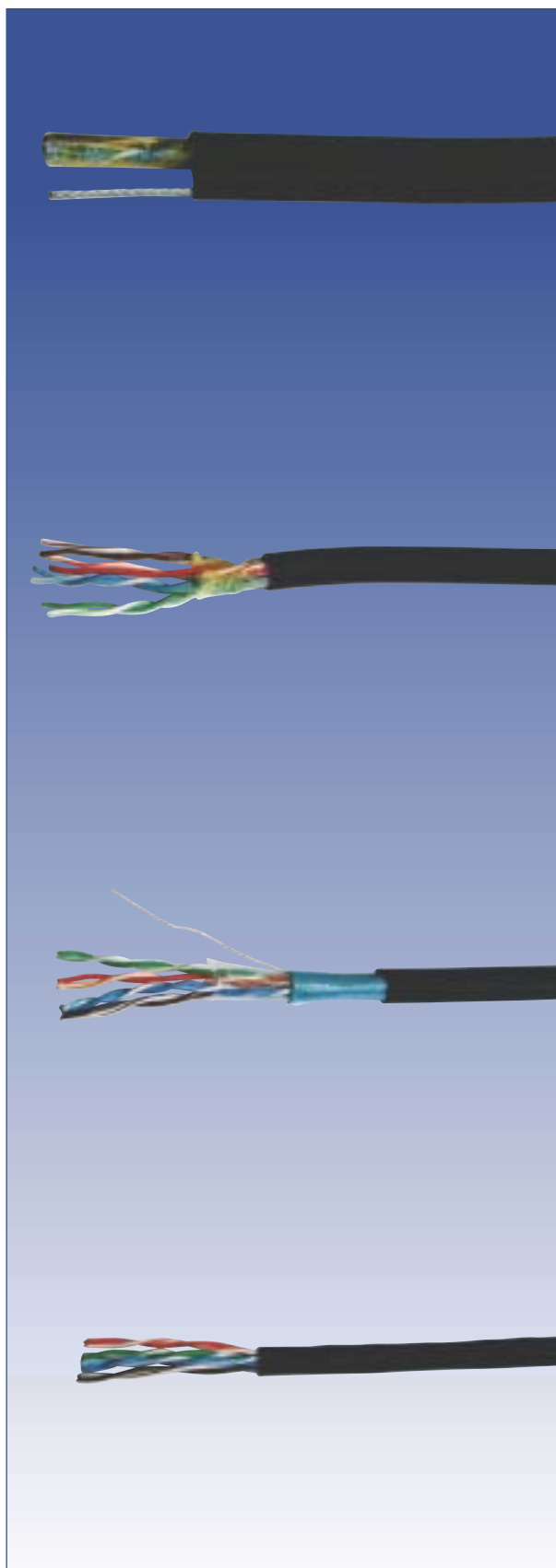
Outdoor cables

MADEX cables

CABLES CATEGORY 6 AND 7

- Fulfilment of category 6 and 7 requirements.
- 4 pairs UTP placed between the walls of cross web assures re-
duction of NEXT and ELFEXT parameters.
- Intended for horizontal and vertical cabling in fast telecommuni-
cation networks.
- Small outer diameter, high elasticity and flexibility.

Mechanical parameters:
- Wire diameters . . . . 24 AWG
- Insulated wire diameter . . . . ≤ 1,0 mm
- Shield of single pair . . . . unshielded
- Screen of cable core . . . . unscreened
- Number of pairs 4
- Sheath . . . . PVC
- Length tolerance . . . . +/- 1 %

Min bending ratio:
- During the installation . . . . 8 x outer cable diameter
- After installation . . . . 4 x outer cable diameter

Temperature range:
- Installation . . . . 0 to +50 °C
- Working conditions . . . . -20 to +60 °C

Colour code:
- Pair 1 - white-blue / blue
- Pair 2 - white-orange / orange
- Pair 3 - white-green / green
- Pair 4 - white brown / brown
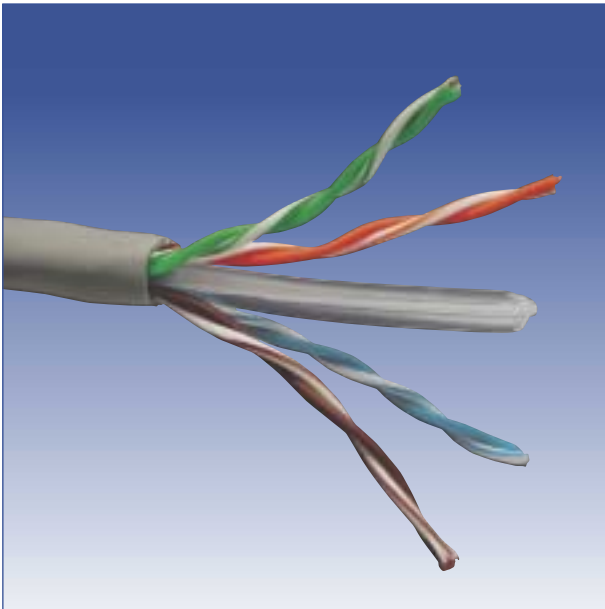
Category 6 UTP Cable

REFERENCE CHART

Cat no.	Type of cable
841-663	Cable UTP 4 pairs, solid, category 6, PVC, MADEX, 305 m
841-665	Cable UTP 4 pairs, solid, category 6, PVC, MADEX, 500 m
846-861	Cable UTP 4 pairs, stranded, category 6, PVC, MADEX, 305 m
845-664	Cable SSTP 4 pairs, solid, category 6, PVC, MADEX, 1 m
845-471	Cable SSTP 4 pairs, solid, category 7, PVC, MADEX, 1 m

MADEX CABLE PACKING

- Cable sections 100 m long are delivered in foil packaging.
- Cable sections 305 m long are packed into cardboard boxes.
- On customer's request it is possible to pack cables in sections.

MADEX cables

INTERNET CABLE

- Intended for indoor vertical and horizontal telecommunications installations.

Mechanical parameters:
- Wire arrangement . . . . 2 x 2 x 24 AWG
- Sheathing colour . . . . gray (other colours available on customer request).

Colouring code:
- Pair 1 - white-blue / blue
- Pair 2 - white-orange / orange

REFERENCE CHART

Cat. no.	Type of cable
841-225	Internet cable 2 x 2 x 24 AWG category 5, 500 m

Internet cable

MULTIPAIR CABLES CATEGORY 3

- Cable category 3 is basis element of core telephone networks and telephone vertical cabling.
- Recommended as basis product for vertical telephone cabling.
- Small outer diameter in proportion to pairs number.
- Sections packed according to customer requirements on wooden reels.
- Available in PVC version.
- Sheathing colour: gray.
- Amount of pairs: 25/50/100.

Mechanical parameters:
- Wire diameters . . . . 24 AWG
- Shield of single pair . . . . unshielded
- Screen of cable core . . . . unscreened
- Sheath . . . . PVC
- Length tolerance . . . . +/- 1 %
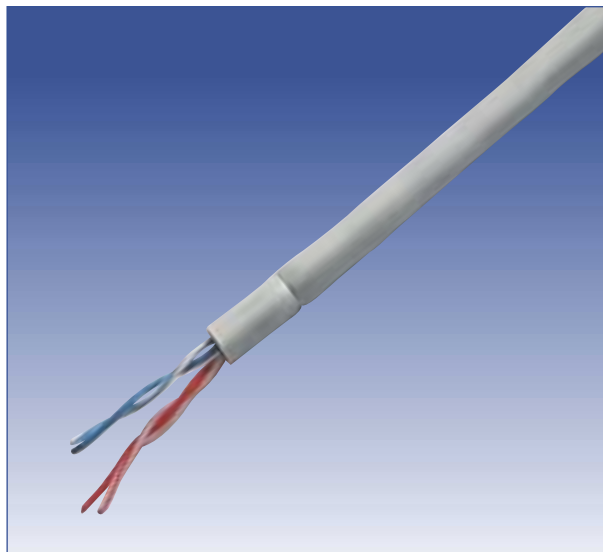
Min bending ratio:
- During the installation . . . . 8 x outer cable diameter
- After installation . . . . 4 x outer cable diameter

Temperature range:
- Installation . . . . 0 to +50 °C
- Working conditions . . . . -20 to +60 °C
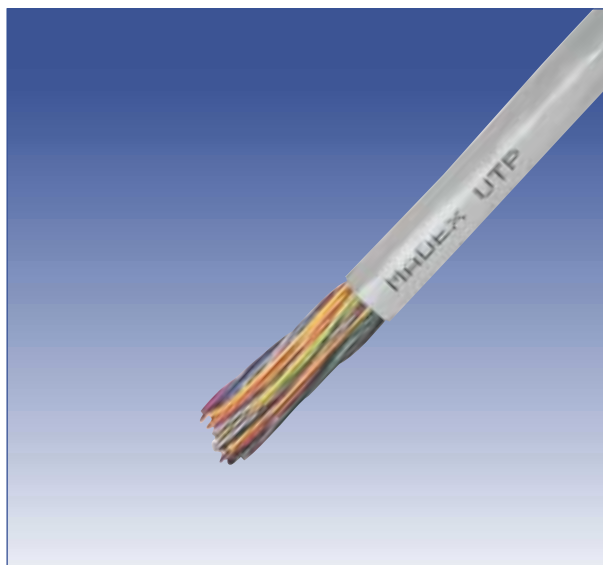
Multipair cables category 3

REFERENCE CHART

Cat. no.	Type of cable
847-255	Cable UTP 25 x 2 x 0.5 mm, category 3, 1 m
847-505	Cable UTP 50 x 2 x 0.5 mm, category 3, 1 m
847-995	Cable UTP 100 x 2 x 0.5 mm, category 3, 1 m

STRUCTURAL CABLING ELEMENTS

MADEX cables

COAXIAL CABLES YWD, XWD

- Coaxial wire (W), high frequency, with internal solid (D) or stranded (L) insulation from polyethylene (X), with internal wire from CU braid or AI/PET foil (ek) and with polyvinyl coating (Y) or Polyethylene (X), impedance 50 or 75 Ohm.
- Cables are intended for installations: RTV, SAT, CATV, TV, CB.
- For indoor and outdoor installations.
- Section packed on 100 m, 200 m, reels, or according to customer requirements.

Internal wire:
- Material . . . . Cu
- Number x diameter of wires . . . . 1 x 0.59 mm
                                         1 x 0.70 mm
                                         1 x 0.96 mm

Insulation:
- Material . . . . Polyethylene
- Diameter . . . . 3.7 mm

External wire:
- Material and construction . . . . Cu braid

Coating:
- Material . . . . PVC(Y), PE(X)

Maximum outer diameter: . . . . 5.9 mm

Norm: PN-91/T-90601

REFERENCE CHART

Cat. no.	Type of cable
840-174	Cable YWD 75 (0.59/3.7 mm), 1 m
840-274	Cable XWD 75 (0.59/3.7 mm), 1 m
840-124	Cable YWDek 75 (0.59/3.7 mm), 1 m
840-224	Cable XWDek 75 (0.59/3.7 mm), 1 m
840-164	Cable YWL 50 (RG 58) (0.96/2.95 mm), 1 m
840-154	Cable YWDX 50 (0.7/2.5 mm), 1 m
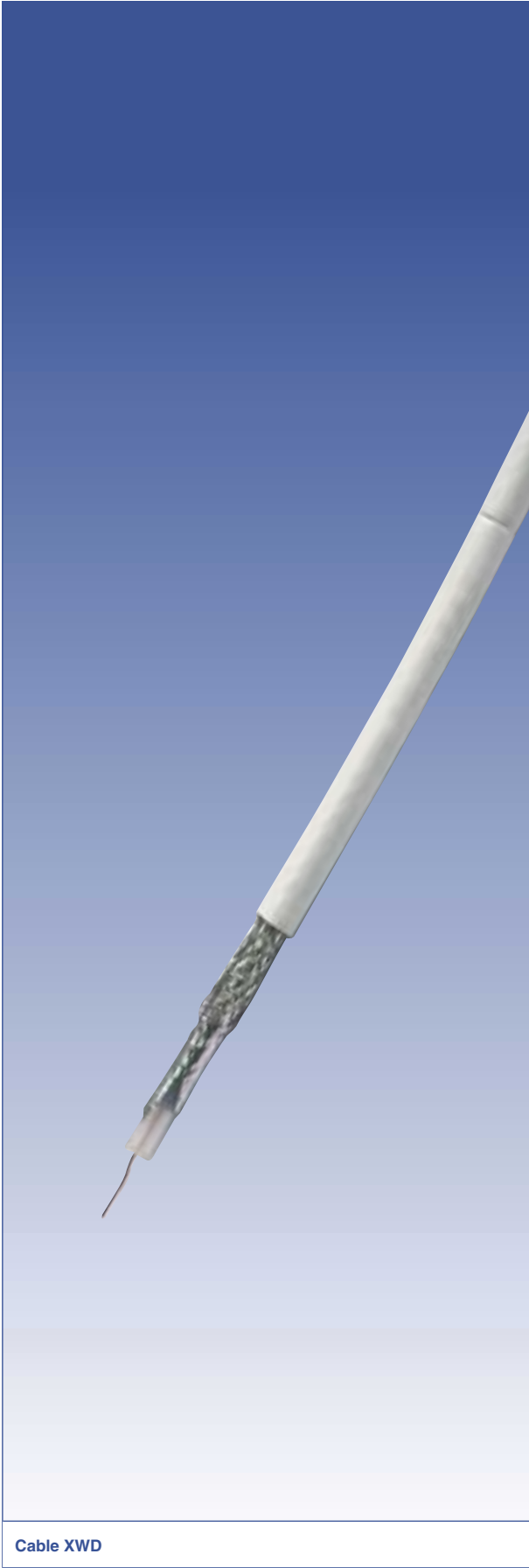
Cable XWD

MADEX cables

COAXIAL CABLES YWDXek / XWDXek

- Coaxial wire (W), high frequency, with internal solid (D) wire insulation from foam polyethylene (Xp), with internal wire from CU braider and Al/PET foil (ek) and with polyvinyl coating (Y) or Polyethylene (X), impedance 50 or 75 Ohm
- Cables are intended for installations: RTV, SAT, CATV, TV, CB.
- For indoor and outdoor installations.
- Section packed on 100 m, 200 m, reels, or according to customer requirements.

Internal wire:
- Material . . . . Cu
- Number x diameter of wires . . . . 1 x 0.59 mm

Insulation:
- Material . . . . Polyethylene

External wire:
- Material and construction . . . . Cu braid and Al/PET foil

Coating material . . . . PVC(Y), PE(X)

Maximum outer diameter . . . . 6.5 mm

Norm ZN-MADEX-11
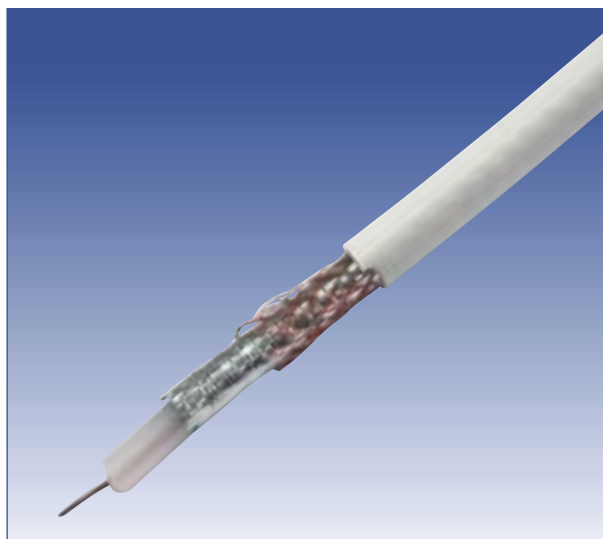
YWDXek Cable

REFERENCE CHART

Cat. no.	Type of cable
840-134	Kabel YWDXek 75 (0.59/3.7 mm), 1 m
840-234	Kabel XWDXek 75 (0.59/3.7 mm), 1 m

COAXIAL CABLES YWDXpek / XWDXpek

- Coaxial wire (W), high frequency, with internal solid (D) wire insulation from foam polyethylene (Xp), with internal wire from CUSn braid and Al/PET foil (ek) and with polyvinyl coating (Y) or Polyethylene (X), impedance 50 or 75 Ohm
- Cables are intended for installations: RTV, SAT, CATV, TV, CB.
- For indoor and outdoor installations.
- Section packed on 100 m, 200 m, reels, or according to customer requirements.

Internal wire:
- Material . . . . Cu
- Number x diameter of wires(mm) . . . 1 x 0.8 mm
  1 x 1.05 mm

Insulation:
- Material . . . . Polyethylene
- Diameter . . . . 3.7 or 4.8 mm

External wire:
- Material and construction . . . . CU braid and Al/PET foil

Coating material . . . . PVC(Y), PE(X)

Maximum outer diameter . . . . 6.5 or 7.5 mm

Norm ZN-MADEX-11
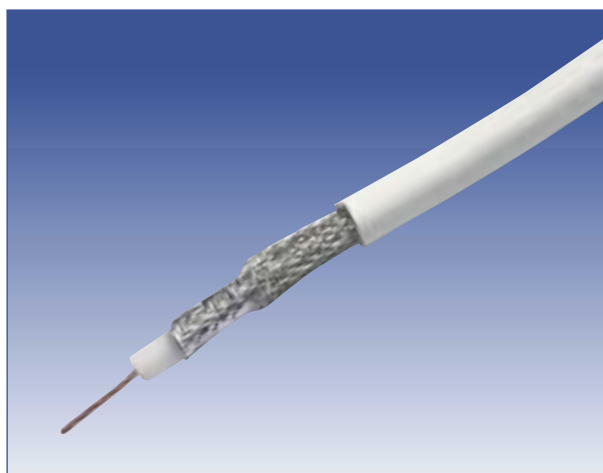
YWDXpek cable

REFERENCE CHART

Cat no.	Type of cable
840-114	Cable YWDXpek 75 (1.05/4.8 mm), 1 m
840-214	Cable XWDXpek 75 (1.05/4.8 mm), 1 m
840-144	Cable YWDXpek 75 (0.8/3.7 mm), 1 m
840-244	Cable XWDXpek 75 (0.8/3.7 mm), 1 m

STRUCTURAL CABLING ELEMENTS

Fibre optic distribution frames and accessories

- Telecommunication distribution frames
- LAN distribution frames
- Pigtails, patchcords and adapters
- Fibre optic cables

OptiTel fibre optic telecommunication distribution frames

Designed together by FCA Sp. z o.o. and ZPAS S.A. family of OptiTel distribution frames, is result of connection of experience of both companies, specializing for many years in supplying high quality devices for telecommunication and IT markets.

The fibre optic distribution frames family were designed according to newest solution used in telecommunications networks. During designing of new distribution frames, the attention was paid to functional adapting for new building access networks.

OptiTel is full range of distribution frames, with various number of commutation fields, starting from panel and wall mounted models, through rack panel to special case with cable accessories. OptiTel distribution frames make possible switching of optic lines between fibre lines and end terminals.
Using OptiTel ODF's it is possible to elastically configure fibre optic lines, switching reserve trunks, add new devices, and make exploitation and control measurements.

OptiTel SPS
Cabinet of fibre optic distribution frames

OptiTel SPS
Cabinet of fibre optic distribution frames

OptiTel SPM
Rack of fibre optic distribution frames

OptiTel fibre optic telecommunication distribution frames
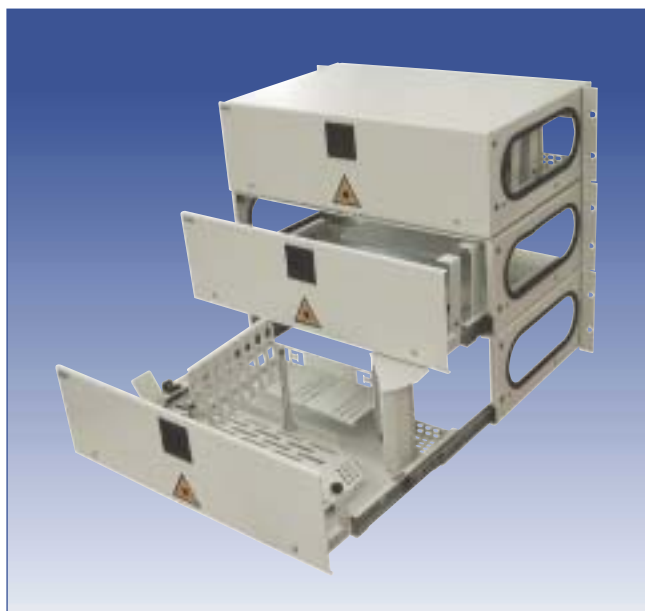
OptiTel PSM
Modular fibre optic distribution frames

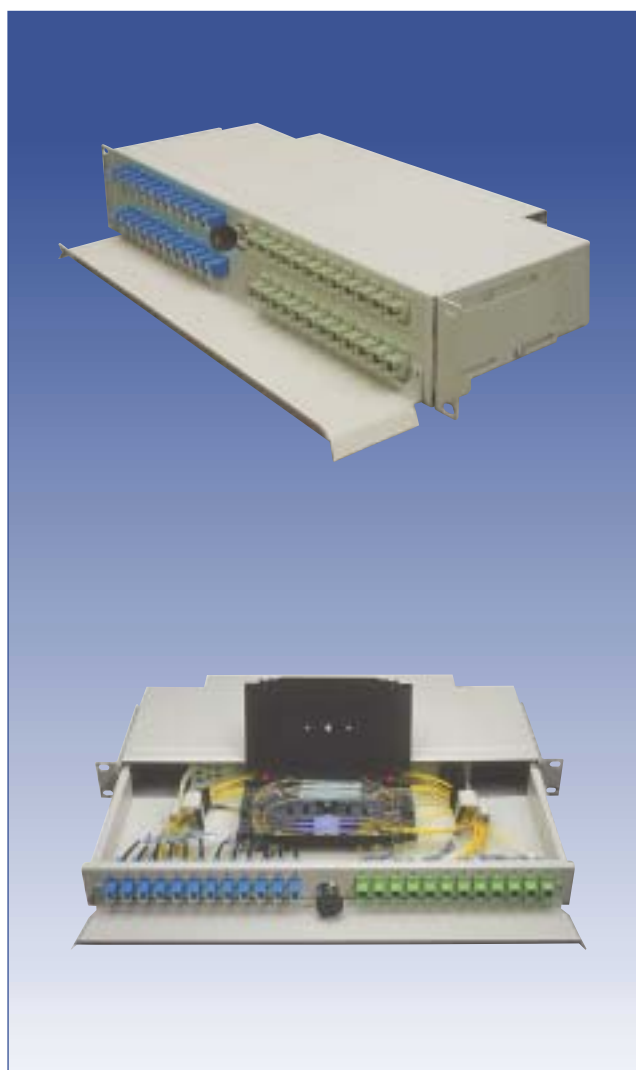**OptiTel PSN**
Wall-mounted fibre optic distribution frames

OptiTel PSS
Rack fibre optic distribution frames

OptiTel PSP
Panel fibre optic distribution frames

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Optitel SPS 19" cabinet of FO distribution frames

- Typical distribution cabinets in 19" standard.
- Height 42 U for easy configuration and possibility of further development.
- Outdoor cable entry at top or bottom.
- Side canal for organisation of the buffered fibres and patch-cords in 900 mm and 1000 mm cabinets.
- Grounding clamp.
- Door and side panel equipped with one-point locks.
- Suitable for 19" cable termination boxes PSP 19/1U and other 19" FO units.
- Wide range of additional accessories: patch guides, cable ho-ops, feeding panels, venting panels and other according to the client's wishes.
- By standard equipped with cable routing guides for cable storage.
- Possibility of additional development using OptiTel PSM distribution frames.

OptiTel SPS cabinet, 600 mm wide with supplementary accessories

OptTel SPS cabinet 800 mm wide

OptTel SPS cabinet 1000 mm wide

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel SPS 19/45U/600

TECHNICAL DATA:

Max. amount of outdoor cables 8
Useful height . . . . 45 U
Dimensions (width x height x depth) . . 600 x 2235 x 300 mm
Weight . . . . 101 kg

Material:
- profile, supporting bars . . . . steel 2.0 mm
- side panels, plinth, plinth's sides . . . . . steel 1.0 mm
- right front door . . . . steel 1.0 mm
- door with safety plexiglas window . . . . . steel 1.5 mm
- plinth's corners . . . . steel 2.5 mm

Surface finish: powder painting RAL 7035

Protection degree: IP 20 in accodance with EN 60 529 / IEC 529

Front view   Side view

Section A-A

CONSTRUCTION

1. Cabinet's frame
2. Door with plexiglas window
3. Side panel
4. Rear panel
5. Roof
6. Plinth
7. Foam sealing
8. Shelf of reserve
9. Supporting bar
10. Cable latticework
11. Module of distributors
12. Module of reserve
13. Shelf of reserve
14. Vertical masking cover
15. Horizontal masking cover
16. Grounding strip
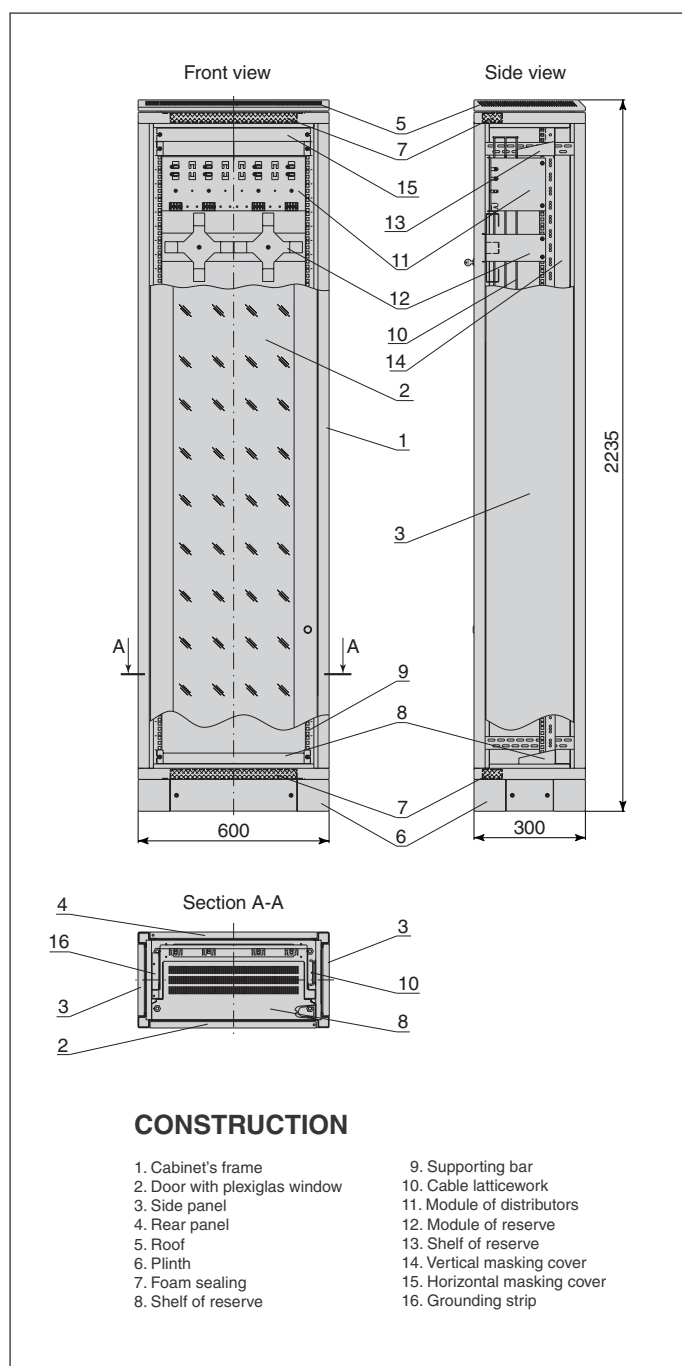
OptiTel SPS 19/45U/600 cabinet with supplementary accessories

CATALOGUE NUMBER:
Optitel SPS 19/45U/600 cabinet with standard equipment
- **cat. no. 405-124**

Supply includes:
- frame of the cabinet, roof, plinth 100 mm high,
- front door with plexiglas window,
- removable panels (side and rear),
- two supporting bars in 19" standard,
- foam sealing in top and bottom plate of the frame,
- lath of reserve with cross strips of reserve,
- cable framework,
- bottom shelf of entry and exit,
- top shelf of entry and exit,
- two vertical masking covers,
- one horizontal masking cover,
- assembly hardware kit,
- grounding strip and strands.

Note:
Delivery time: approx 3 weeks.

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel SPS 19/45U/800

TECHNICAL DATA:

Maximal amount of line cables: 8
Useful height: . . . . 45 U
Dimensions (width x height x depth): . 800 x 2235 x 350 mm
Weight: . . . . 128 kg

Material:
- frame, supporting bars . . . . sheet steel 2.0 mm
- panels, roof, plinth's sides . . . . sheet steel 1.0 mm
- right front door . . . . sheet steel 1.0 mm
- front door with plexiglas window . . . . . . sheet steel 1.5 mm
- plinth's corners. sheet steel 2.5 mm

Surface finish: powder painting in RAL 7035

Protection degree: IP 20 in accodance with EN 60 529 / IEC 529

CATALOGUE NUMBER:
OptiTel SPS 19/45U/800 with standard equipment
- cat no. 405-121

Supply includes:
- frame of the cabinet, roof, plinth 100 mm high,
- front door with plexiglas window,
- removable side and rear panels,
- compartment for patchcables 200 mm wide, equipped with ca-
   ble trough, framework, and cable reserve module
- two supporting bars in 19'' standard,
- foam sealing in top and bottom plate of the frame,
- lath of reserve with cross strips of reserve,
- cable framework,
- two shelves of fibre optic reserve,
- top shelf of entry and exit,
- two vertical masking covers,
- one horizontal masking cover,
- assembly hardware kit,
- grounding strip and strands.

OptiTel SPS 19/45U/800 cabinet with standard equipment
- cat. no. 405-121

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel SPS 19/45U/800
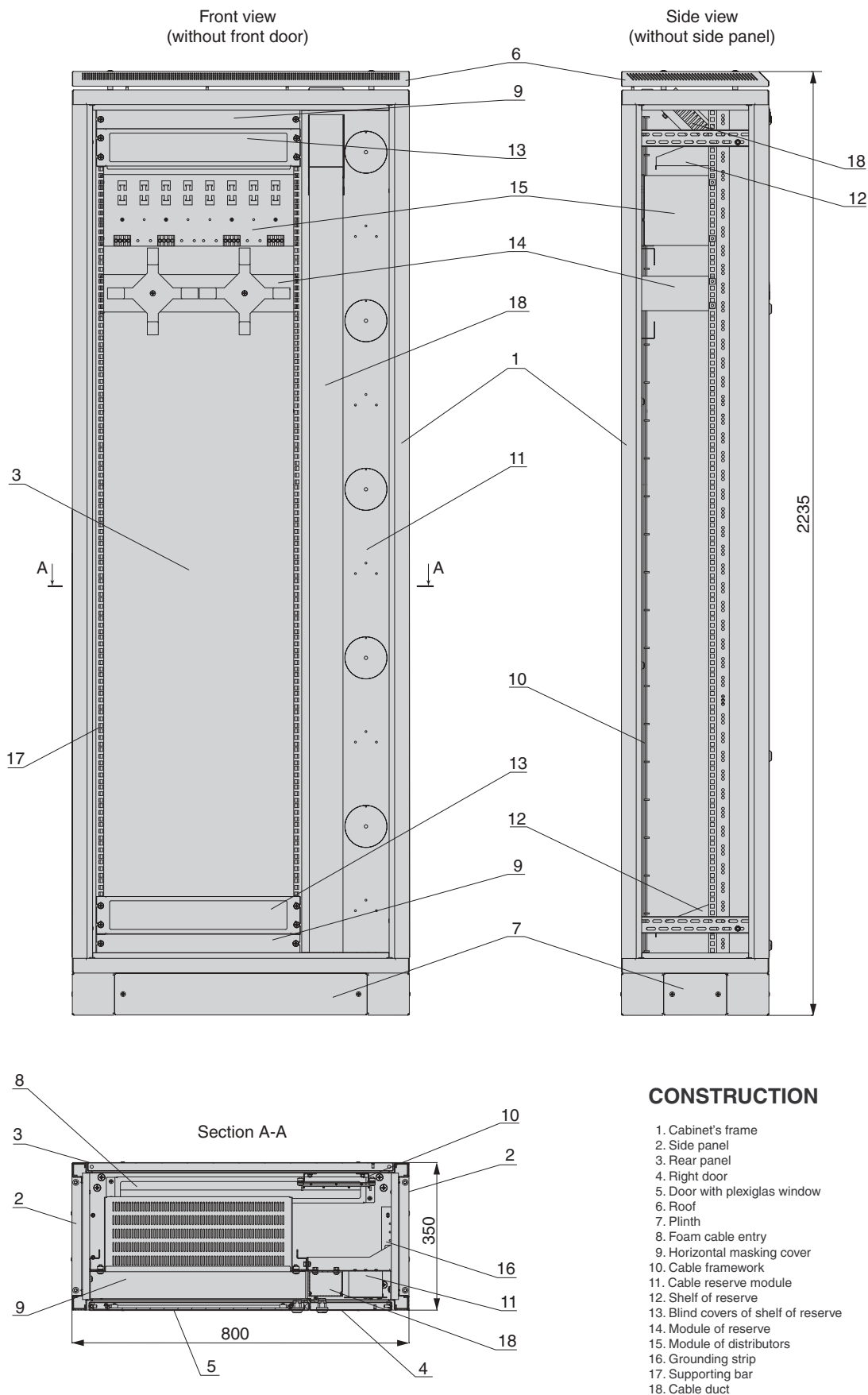**- front view**

OptiTel SPS 19/45U/800
- side view (without side panel)

OptiTel SPS 19/45U/800
- rear view (without rear panel)

OptiTel SPS 19/45U/800

Front view
(without front door)

Side view
(without side panel)

Section A-A

CONSTRUCTION

1. Cabinet's frame
2. Side panel
3. Rear panel
4. Right door
5. Door with plexiglas window
6. Roof
7. Plinth
8. Foam cable entry
9. Horizontal masking cover
10. Cable framework
11. Cable reserve module
12. Shelf of reserve
13. Blind covers of shelf of reserve
14. Module of reserve
15. Module of distributors
16. Grounding strip
17. Supporting bar
18. Cable duct

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel SPS 19/45U/1000

TECHNICAL DATA:

Maximal amount of line cables: 8
Useful height: 45U
Dimensions (width x height x depth): 1000 x 2235 x 350 mm
Weight: . . . . 137 kg

Material:
- frame, supporting bars . . . . sheet steel 2.0 mm
- panels, roof, plinth's sides . . . . sheet steel 1.0 mm
- right front door . . . . sheet steel 1.0 mm
- front door with plexiglas window . . . . . sheet steel 1.5 mm
- plinth's corners. . . . . sheet steel 2.5 mm

Surface finish: powder painting in RAL 7035

Protection degree: IP 20 in accodance with EN 60 529 / IEC 529

CATALOGUE NUMBER:
OptiTel SPS 19/45U/1000 cabinet with standard equipment
- cat. no. 405-122

Supply includes:
- frame of the cabinet, roof, plinth 100 mm high,
- front door with plexiglas window,
- removable side and rear panels,
- two compartments for patchcables 200 mm wide, equipped with cable trough, framework, and cable reserve module,
- two supporting bars in 19" standard,
- foam sealing in top and bottom plate of the frame,
- lath of reserve with cross strips of reserve,
- lath of distributors,
- two shelves of fibre optic reserve with blind cover with brush opening,
- two horizontal masking covers,
- one horizontal masking cover,
- assembly hardware kit,
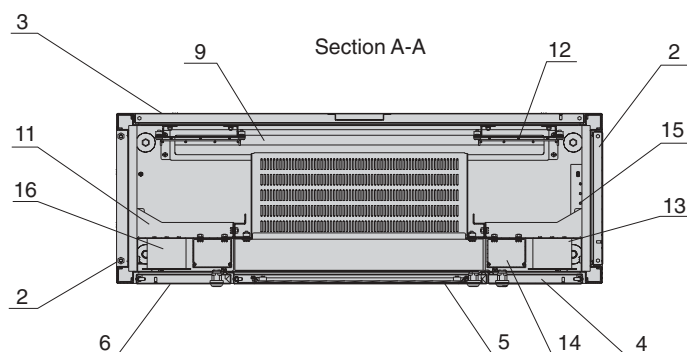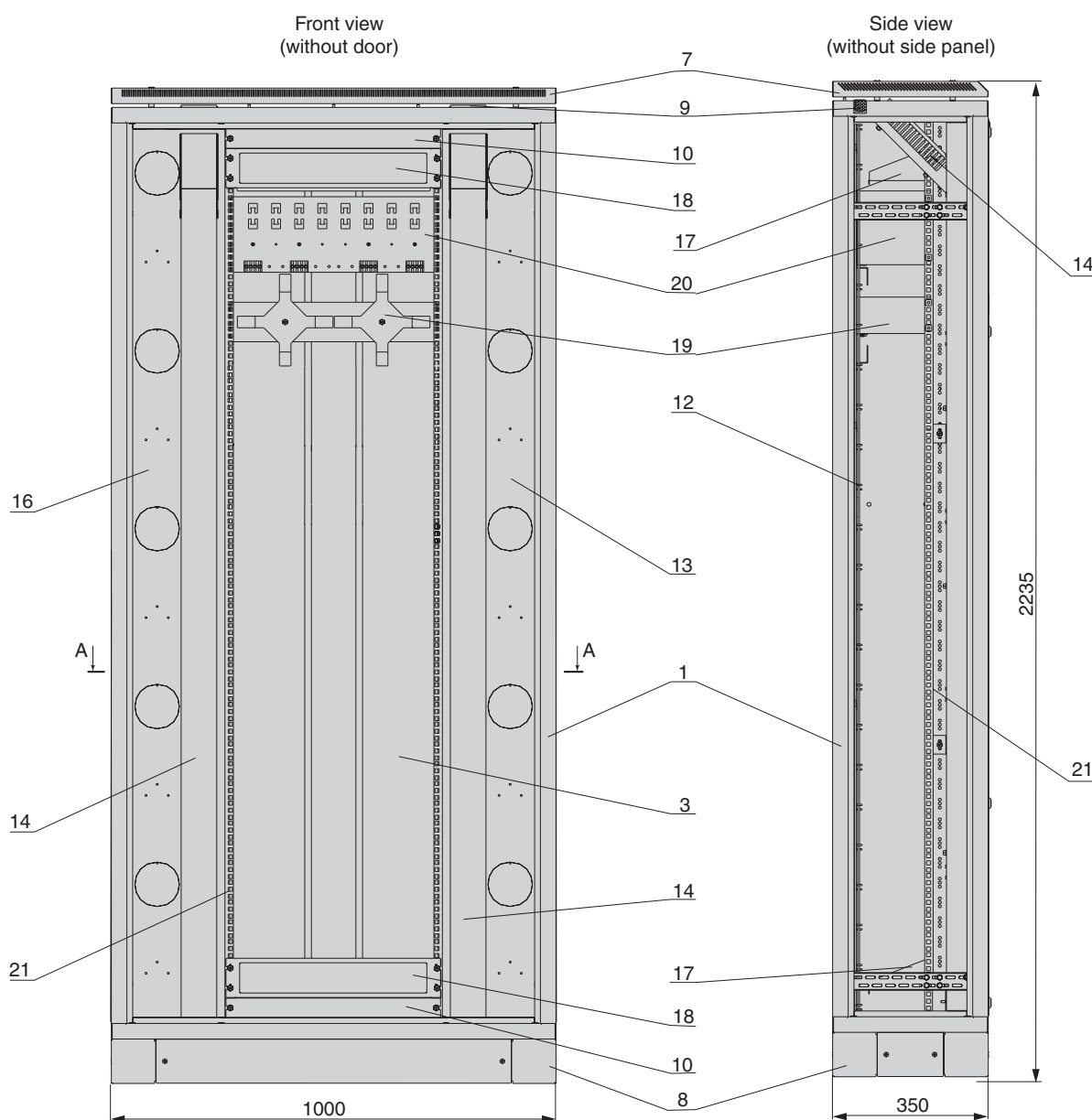- grounding strip and strands.

Opti Tel SPS 19/45U/1000 cabinet with standard equipment
- cat. no. 405-122

Opti Tel SPS 19/45U/1000
- front view

OptiTel SPS 19/45U/1000

Front view
(without door)

Side view
(without side panel)

Section A-A

CONSTRUCTION

1. Cabinet's frame	11. Supporting bar
2. Side panel	12. Cable framework
3. Rear panel	13. Cable reserve module right
4. Right door	14. Cable trough
5. Door with plexiglas window	15. Grounding strip
6. Left door	16. Cable reserve module left
7. Roof	17. Shelf of reserve
8. Plinth	18. Blind cover for shelf of reserve
9. Foam sealing	19. Module of reserve
10. Horizontal masking cover	20. Module of distributors
11. Bracket	21. Supporting slide

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Additional accessories for OptiTel SPS

OptiTel MZ - MODULE OF RESERVE

- Intended for storing reserve tubes of fibre optic cable.
- Standard version includes two cross frameworks; possibility to enlarge the set by four additional cross frameworks.
- Fitted to holes in side walls of supporting bars; the supply includes assembly elements.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-015	465	215	189	2.05

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
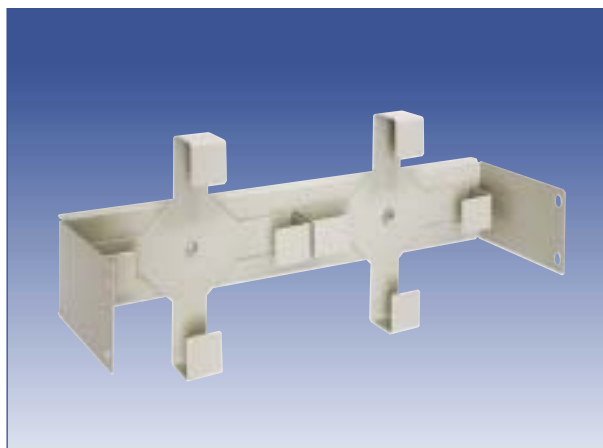
Module of reserve
- depth 189 mm (for SPS 19/45U/800 and 1000) - cat. no. 878-015

OptiTel KZK - CROSS FRAMEWORK FOR MODULE OF RESERVE

- Cross framework comprise additional equipment for module of reserve.
- Delivered with spacer for fitting on module of reserve.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-002	215	215	40	0.35

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
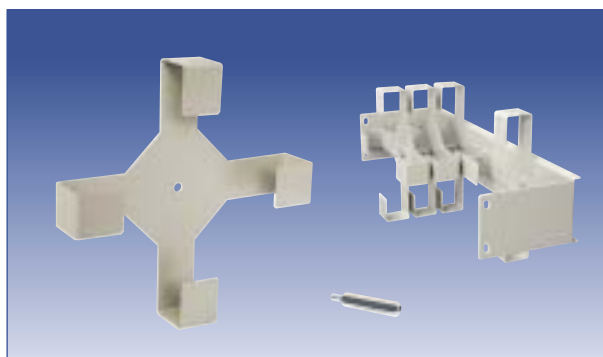
Additional cross framework for module of reserve
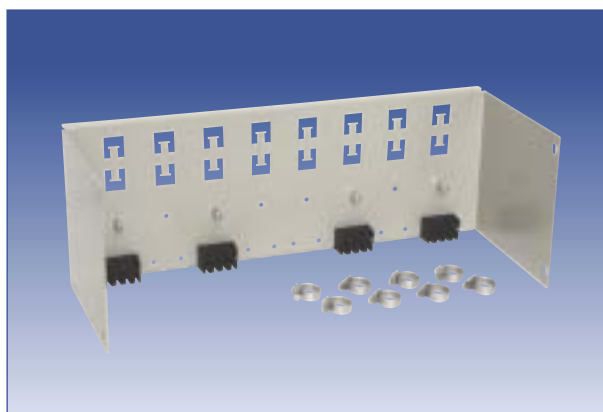- cat. no. 878-002

OptiTel MRK - MODULE OF DISTRIBUTORS

- Intended for mounting and fitting of fibre tubes entering into the case.
- Delivered with set of assembly hardware.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-025	465	170	172	2.41

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Capacity: 8 cables

Module of distributors
- depth 172 mm (for SPS 19/ 45U/ 800 and 1000) - cat. no. 878-025

Additional accessories for OptiTel SPS

OptiTel 19/2U - SHELF OF RESERVE

- Intended for storing of distribution cable reserve (pigtails and patchcords).
- Supplied with assembly hardware elements.
- Blind cover with brush opening can be ordered as additional equipment of the shelf.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-205	483	88	177	1.08

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
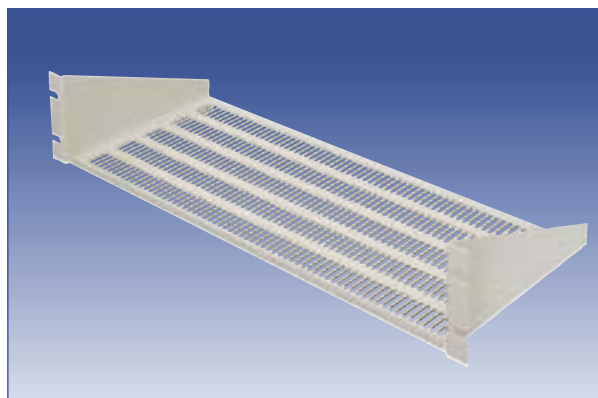
Shelf of cable reserve OptiTel PZP 19/2U
- 19" x 2U x 177 mm (for SPS 19/45U/ 800 and 1000) - cat. no. 878-205

OptiTel PRS 19/2U - BLIND COVER WITH BRUSH OPENING

- Intended for covering of patchcord's reserve, located on the shelf of reserve.
- Standard delivery does not include assembly hardware elements (they are supplied with shelf).

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-235	483	88	13	0.34

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
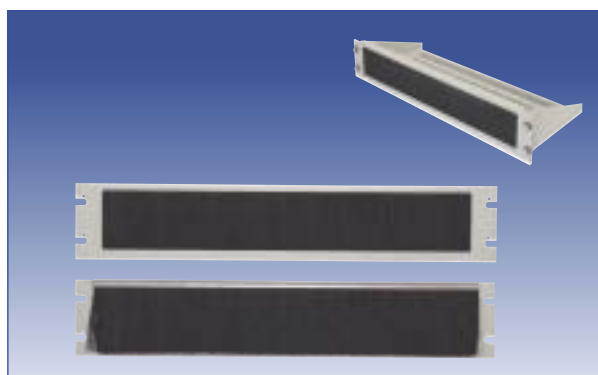
Blind cover with brush opening for shelf of reserve OptiTel PRS 19/2U - cat. no. 878-235

OptiTel PSZ - BRUSH PANEL

- Brush panel organizes patchcords in 19" cabinets.
- Supporting plate stores reserve the excess of patch cable.
- Delivered with assembly hardware elements.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
401-3275	483	44	50	0.58
401-3276			300	0.90

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
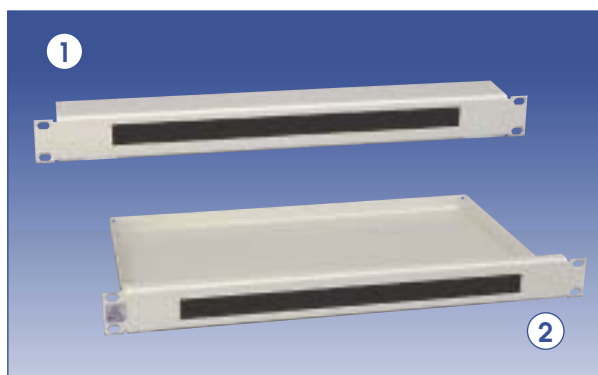
1) Brush panel without supporting plate
   - cat. no. 401-3275
2) Brush panel with supporting plate
   - cat. no. 401-3276

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Additional accessories for OptiTel SPS

Optitel SZP SZK - DRAWERS OF CABLE RESERVE

- Intended for managing indoor cable reserve (patchcords and pigtails).
- Available in front and rear cable entry versions.
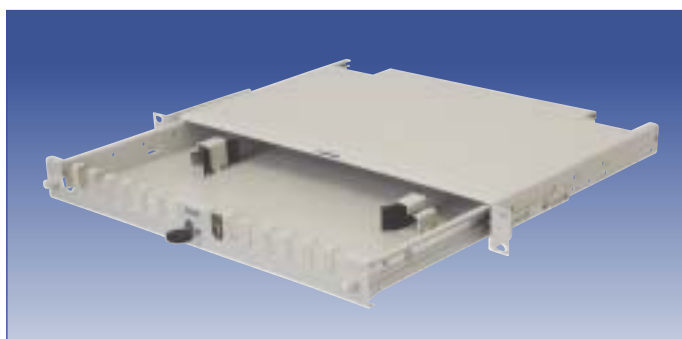- Delivered with set of assembly hardware.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
874-420	483	44	200	1.68
874-430			280	2.79
874-480			380	4.08
874-421			200	1.63
874-431			280	2.74
874-441			380	4.02

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
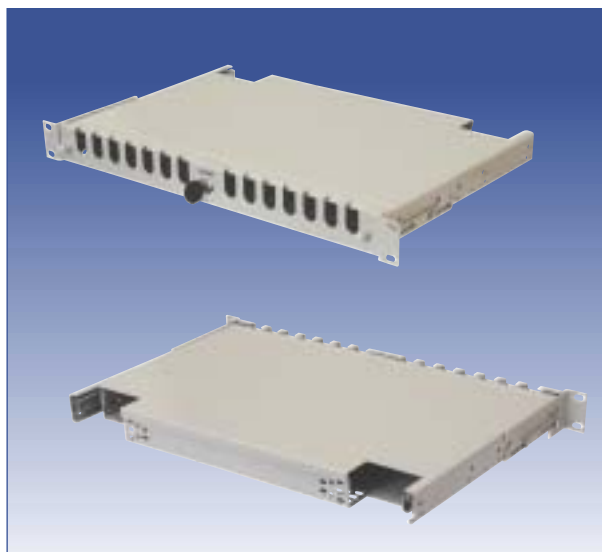
Drawer of reserve with front and rear cable entry

Drawer of reserve OptiTel SZP with front and rear cable entry
- 19" x 1U x 200 mm - cat. no. 874-421
- 19" x 1U x 280 mm - cat. no. 874-431
- 19" x 1U x 380 mm - cat. no. 874-441

Drawer of reserve OptiTel SZK with rear cable entry
- 19" x 1U x 200 mm - cat no. 874-420
- 19" x 1U x 280 mm - cat no. 874-430
- 19" x 1U x 380 mm - cat no. 874-480

OptiTel PRP 19" - PATCHCORDS ORGANIZER

- 19" standard.
- Esthetical look.
- Convenient reconfiguration.
- Delivered with set of assembly hardware.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
811-000	483	44	80	0.53

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
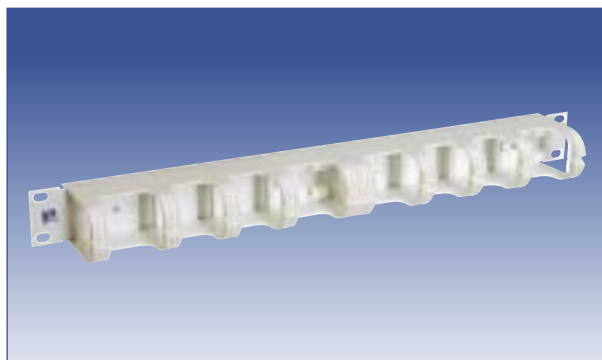
Patchcords organizer 19" x 1U for SPS/350 - cat. no. 811-000

OptiTel PSP 19/1U/12 panel-type distribution frames

- Intended for 19" and 21" cabinets and racks.
- Amount of communication fields: 12.
- Depth:
  - 200 mm - versions with half and fully extending drawer,
  - 280 mm - version with fully extending drawer,
  - 380 mm - version with half extending drawer,
- Available front panels for all types of adapters (E2000, SC, FC, ST, or another, according to customer's request).
- Possibility of cables terminating.
- The rest of fibre loose tube storage in housing.
- Ergonomic storage for pigtails.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Extending drawer makes installation easy and comfortable.
- Delivered with set of assembly hardware.
- Brackets for 21" standard, should be ordered separately.
- An optional patchcord shelf mounting to front panel, makes possible ergonomic cable management.

Dimensions, weight: see chart on page 68

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

OptiTel PSP G200 19/1U/12 with half extending drawer
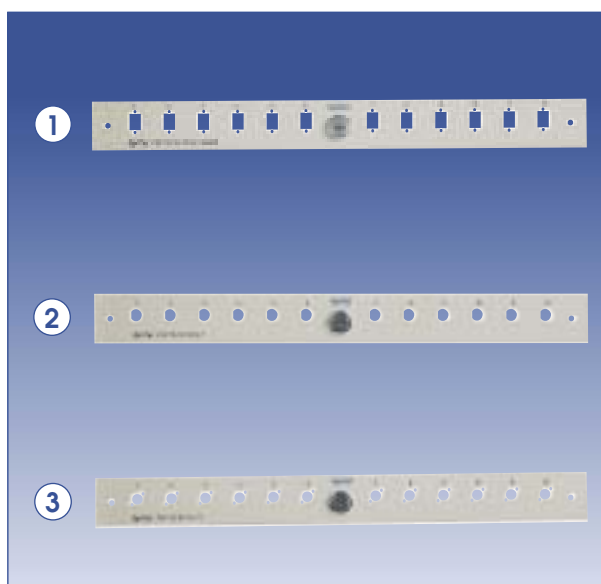
Front panels for OptiTel PSP distribution frames
1) 12 x SC or E2000 - cat. no. 875-103
2) 12 x ST - cat. no. 875-105
3) 12 x FC - cat. no. 875-107
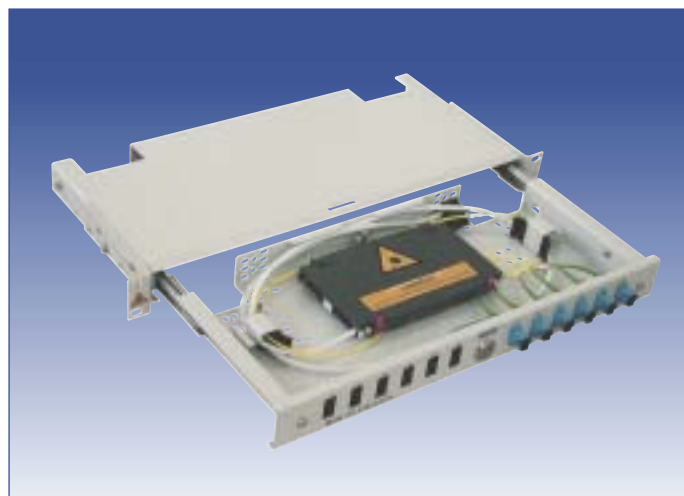
OptiTel PSP G200 19/1U/12 equipped with pigtails and SC adapters

OptiTel PSP G200 19/1U/12 with fully extending drawer
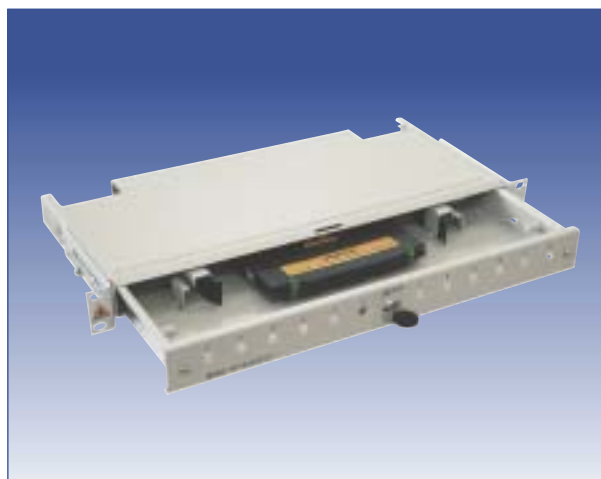
FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel PSP 19/1U/24 panel-type distribution frames

- Intended for 19" and 21" cabinets and racks.
- Amount of communication fields: 24.
- Depth:
  - 200 mm - versions with half and fully extending drawer,
  - 280 mm - version with fully extending drawer,
  - 380 mm - version with half extending drawer.
- Available front panels for all types of adapters (E2000, SC, FC,ST, or another, according to customer's request).
- Possibility of cables terminating.
- The rest of fibre loose tube storage in housing.
- Ergonomic storage for pigtails.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Extending drawer makes installation easy and comfortable.
- Delivery with set of assembly hardware.
- Brackets for 21" standard, should be ordered separately.
- An optional patchcord shelf mounting to front panel, makes possible ergonomic cable management.

Dimensions, weight: see chart on page 68

Material: sheet steel 1.5 mm

**Surface finish:** powder painting in RAL 7035 colour
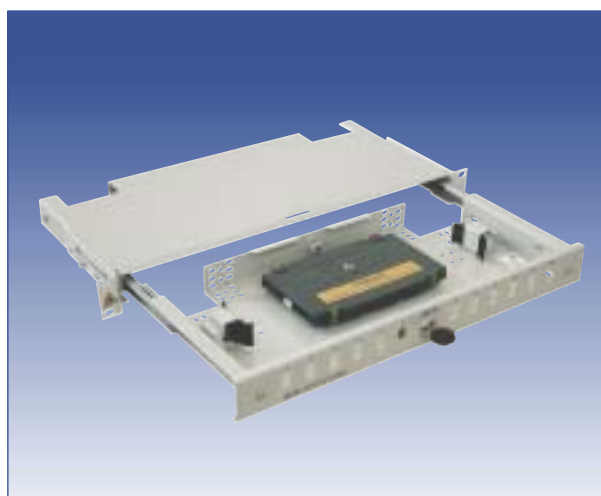

OptiTel PSP G200 19/1U/24 with half extending drawer
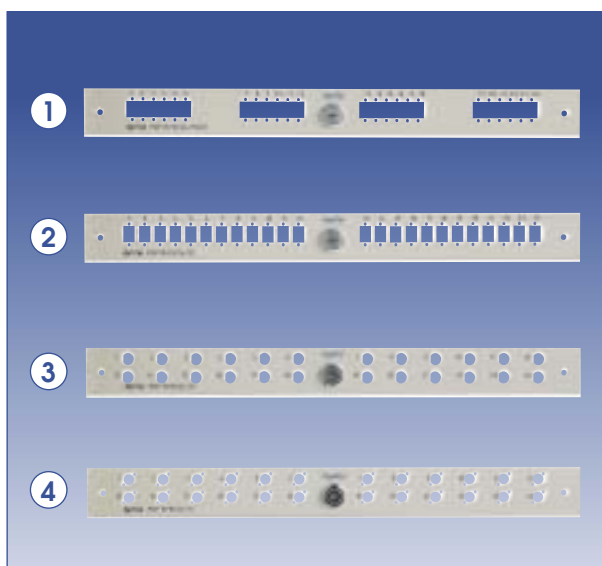
Front panels for OptiTel PSP distribution frames
1) 24 x E2000 - cat. no. 875-101
2) 24 x SC - cat. no. 875-102
3) 24 x ST - cat. no. 875-104
4) 24 x FC - cat. no. 875-106
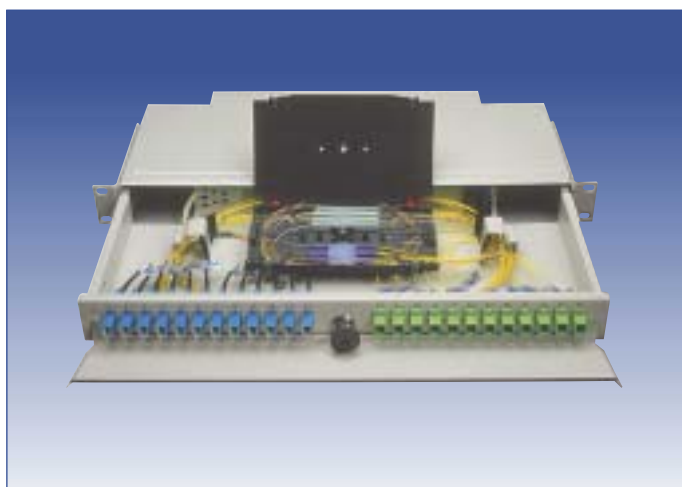
OptiTel PSP G200 19/1U/24 equipped with pigtails and SC adapters
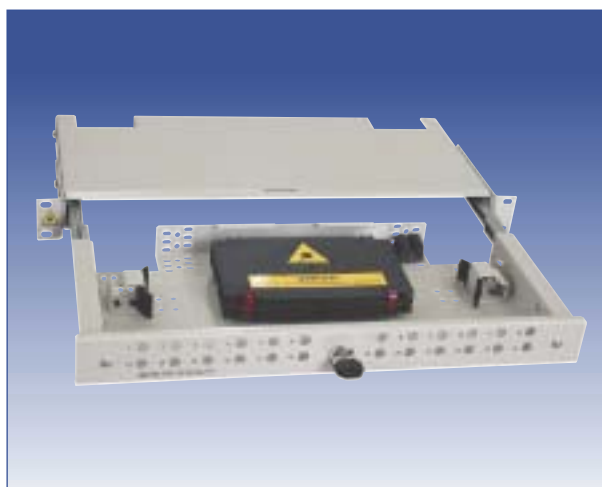
OptiTel PSP G200 19/1U/24 with fully extending drawer
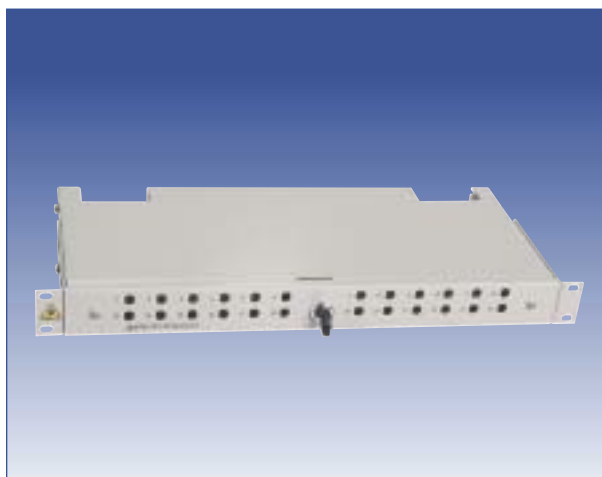
OptiTel PSP 19/2U/48 panel-type distribution frames

- Intended for 19" and 21" cabinets and racks.
- Amount of communication fields: 48.
- Height 2 U.
- Depth 200 mm.
- Available front panels for all types of adapters (E2000, SC, FC, ST, or another, according to customer's request).
- Possibility of cables terminating.
- The rest of fibre loose tube storage in housing.
- Ergonomic storage for pigtails.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Extending drawer makes installation easy and comfortable.
- Equipped with 4 splices cassettes.
- Delivery with set of assembly hardware.
- Brackets for 21" standard, should be ordered separately.
- An optional patchcord shelf mounting to front panel, makes possible ergonomic cable management.

Dimensions, weight: see chart on page 68

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
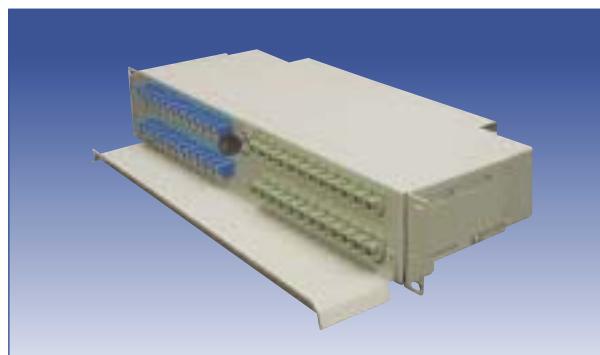
OptiTel PSP G200 19/2U/48 equipped with E2000 and SC adapters
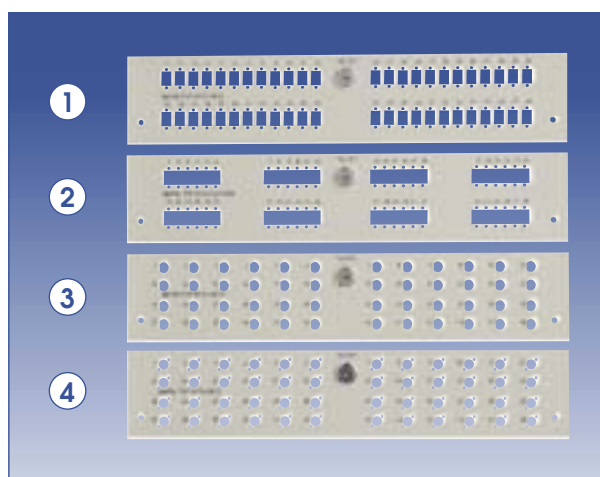
Front panels for 2U OptiTel PSP distribution frames:
1) 48 x SC 		- cat. no. 875-211
2) 48 x E2000 	- cat. no. 875-212
3) 48 x ST 		- cat. no.875-213
4) 48 x FC 		- cat. no. 875-214

Additional elements for OptiTel PSP
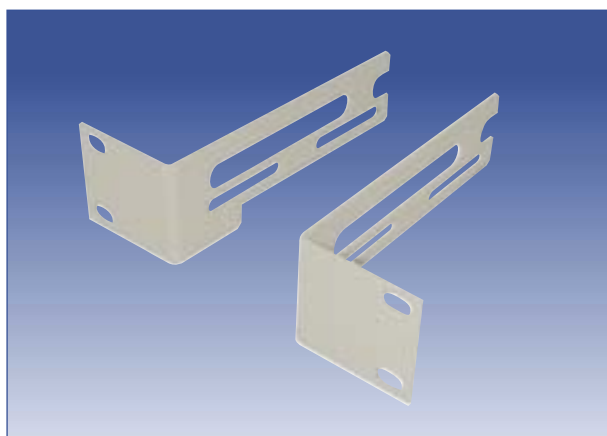
Set of assembly brackets for mounting of OptiTel PSP distribution frames on 21" bars - height 1U, weight 0.16 kg
- cat. no. 875-022
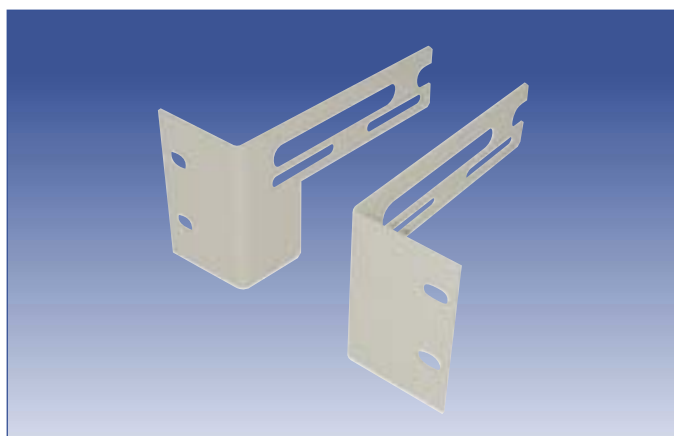
Set of assembly brackets for mounting of OptiTel PSP distribution frames on 21" bars - height 2U, weight 0.16 kg
- cat. no. 875-222

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel PSP panel-type distribution frames

REFERENCE CHART OF OptiTel PSP

Type of OptiTel PSP distribution frame G XXX-19/XU/XX-XX	G 200-19/1U/				G 280-19/1U/		G 380-19/1U/		G 200-19/2U/
	12/nw	12/pw	24/nw	24/pw	12/pw	24/pw	12/nw	24/nw	48/nw
Max. amount of cables	2		2		2		2	2	2
Number of splices cassettes	1		2		1		1	2	4
Dimensions [mm] - width	483		483		483		483		483
- height	44		44		44		44		88
- depth	200		200		280		380		200
Length of pigtails [m]	2		2		2		2		2
Weight [kg]	3.8		4.2		5.3		6.0		5.5

REFERENCE CHART OF FRONT PLATES FOR OptiTel PSP

Type of adapters	Amount of adapters (commutation fields)		
	12	24	48
	Catalogue number of front plate without adapters		
E2000	875-103	875-101	875-211
SC	875-103	875-102	875-212
ST	875-105	875-104	875-213
FC	875-107	875-104	875-214
FSMA	–	875-108	–

ORDERING INSTRUCTION FOR OptiTel PSP

Catalogue number of OptiTel PSP distribution frame in standard version

Total depth [mm]:

200 - depth 200 mm
280 - depth 280 mm
300 - depth 300 mm

Heigth:

1 - 1U
2 - 2U

Model:

nw - half extending
pw - fully extending

OptiTel PSP G XXX - XX / XU / XX - XX / XX

Width:

19 - standard 19"
21 - standard 21"

Type of front panel:

12 - SC/E2 - front plate for 12 adapters SC or E2000
12 - ST   - front plate for 12 adapters ST
12 - FC   - front plate for 12 adapters FC

24 - E2   - front plate for 24 adapters E2000
24 - SC   - front plate for 24 adapters SC
24 - ST   - front plate for 24 adapters ST
24 - FC   - front plate for 24 adapters FC
24 - FSMA - front plate for 24 adapters FSMA

48 - E2   - front plate for 48 adapters E2000
48 - SC   - front plate for 48 adapters SC
48 - ST   - front plate for 48 adapters ST
48 - FC   - front plate for 48 adapters FC

Notes:
- Distribution frames with depth 380 mm and height 1U are available only in version with half extending drawer
- Distribution frames with depth 280 mm and height 1U are available only in version with fully extending drawer
- Distribution frames with height 2U are available only in version with half extending drawer

Sample:
Catalogue number OptiTel PSP G200 -19 - 1U / 24-E-2 / nw - means optic distribution frame OptiTel with depth 200 mm, in 19'' standard 1U with front panel for 24 E2000 adapters, with half extending drawer.

OptiTel PSN wall-mounted distribution frames

- Mounted directly on the room's wall, where the line cable is terminated.
- Number of communication fields: 24 or 48.
- Available panel for all types of adapters (E2000, SC, FC, ST, or another, according to customer's request).
- Possibility of cables terminating.
- Equipped with 2 or 4 splice cassettes.
- Top and bottom cable entry.
- The rest of fibre loose tube storage in housing.
- Tube guiding units ensure that the minimum bend radius of pigtails is not exceeded.
- The case can be locked using lock, possibility of opening of the door upward and downward.
- It is possible to dismantle the housing for better access to splice cassettes.
- The distributor is equipped with delimitation lever so that the opened door can be used as montage table (when open downwards).
- The distribution frame can optionally be equipped with internal door. It is designed for additional protection of connection compartment.

Dimensions, weight: see chart

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

OptiITel PSN equipped with pigtails and E2000/SC adapters

Type of distribution frame	OptiTel PSN 4/24	OptiTel PSN 4/48
Max. amount of cables	4	4
Amount of commutation fields	24	48
Number of splices cassettes	2	4
Dimensions [mm] - width	480	480
- height	400	400
- depth	100	100
Max. lenght of pigtails [m]	2.5	2.5
Weight [kg]	7	7
Type of adapters plate	Catalogue number of distribution frame with adapters plate	
SC/E2000	876-102	876-101
ST	876-104	876-103
FC	876-106	876-105

OptiITel PSN with closed internal door (size of the door: 280 x 330 x 12 mm), weight of internal door 0.80 kg - cat. no. of door: 876-116
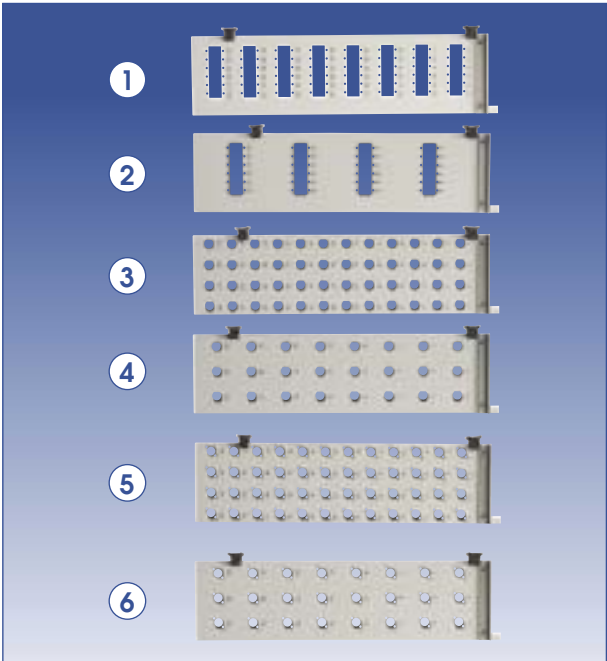
Plates of adapters for Optitel PSN frames:
1) 48 x SC or E2000 2) 24 x SC or E2000 3) 48 x ST 4) 24 x ST 5) 48 x FC 6) 24 x FC

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel PSS 9/96 rack-type distribution frames

- Mounted directly on the room's wall, where the line cable is terminated.
- Number of commutation fields: 96.
- Available panels for all types of adapters (E2000, SC, FC, ST, or another, according to customer's request).
- Possibility of cables terminating.
- Equipped with 4 splices cassettes.
- Top and bottom cable entry.
- Ergonomic storage for fibers.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Possibility of increasing of height of the frame using special lengthening cover. The height of the frame with cover is 2600 mm.

Type of distribution frame	OptiTel PSS 6/96
Max. amount of cables	6
Amount of commutation fields	96
Number of splices cassettes	4
Dimensions [mm] - width	240
- height	2200
- depth	240
Pigtails' length [m]	6
Weight [kg]	35
Type of adapters plate	Catalogue number of distribution frame with adapters plate
SC/E2000	405-135/1
ST	405-135/2
FC	405-135/3

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
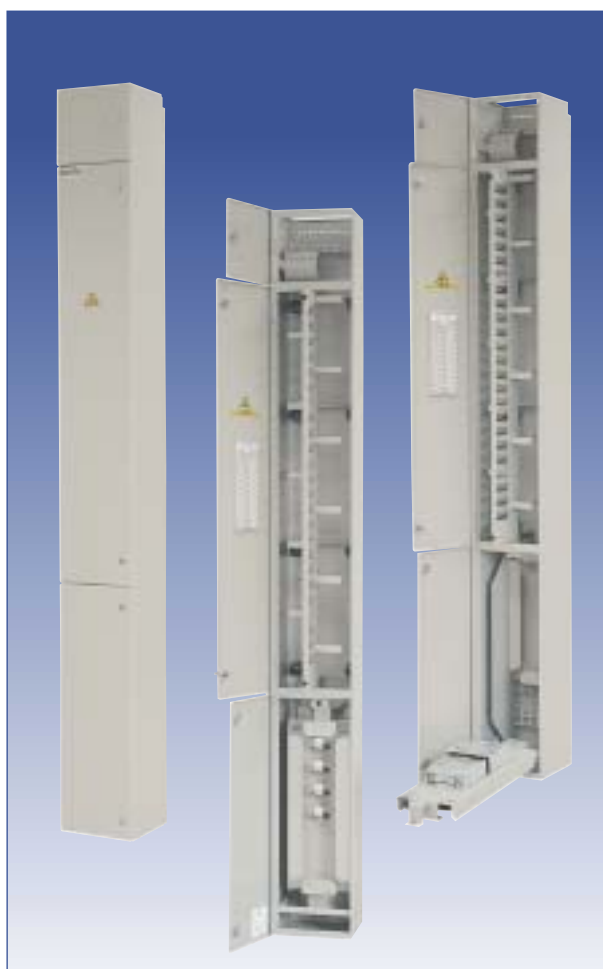
OptiTel PSS 6/96 rack-type optic distribution frame
- cat. no. 405-135/1

Additional equipment for OptiTel PSS 6/96

LENGTHENING COVER 400 mm

- Increases height of the rack for 400 mm.
- Delivered with set of assembly hardware.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-101	240	400	240	2.75

Material: sheet steel 1.0 mm

Surface finish: powder painting in RAL 7035 colour

Lengthening cover
- cat. no. 878-101

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel PSS 6/96

Front view   Front view (without door)   A-A Section

13

1

2

4

11

5

3

6

10

9

8

14

7

240

CONSTRUCTION

1. Exit strip
2. Tube bracket
3. Rack's body
4. Adapter's plate
5. Entering cable organizer
6. Cable bracket
7. Organizer lath
8. Protecting lath
9. Splices cassette
10. Entering cable reserve cassette
11. Door of commutation compartment
12. Door of reserve compartment
13. Door of entry compartment
13. Pigtail's cover

**FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES**

OptiTel PSS 12/192 rack-type distribution frames

- Mounted directly on the room's wall where the line cable is terminated.
- Number of commutation fields: 192.
- Available panels for all types of adapters (E2000, SC, FC, ST, or another, according to customer's request).
- Possibility of cables terminating.
- Equipped with 8 splices cassettes.
- Top and bottom cable entry.
- Ergonomic storage for fibers.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Possibility of increasing of height of the frame using special lengthening cover. The height of the frame with cover is 2600 mm.

Type of distribution frame	OptiTel PSS 12/192
Max. amount of cables	12
Amount of commutation fields	192
Number of splices cassettes	8
Dimensions [mm] - width	480
- height	2200
- depth	240
Pigtails' length [m]	6
Weight [kg]	65
Type of adapters plate	Catalogue number of distribution frame with adapters plate
SC/E2000	405-136/1
ST	405-136/2
FC	405-136/3

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

OptiTel PSS 12/192 rack-type optic distribution frame
- cat. no. 405-136/1
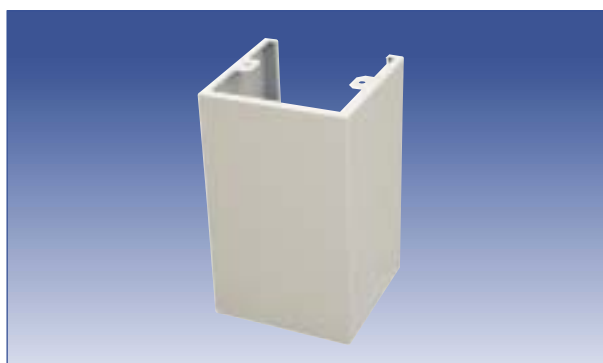
Additional equipment for OptiTel PSS 12/192

LENGTHENING COVER 400 mm

- Increases height of the rack for 400 mm.
- Delivered with set of assembly hardware.

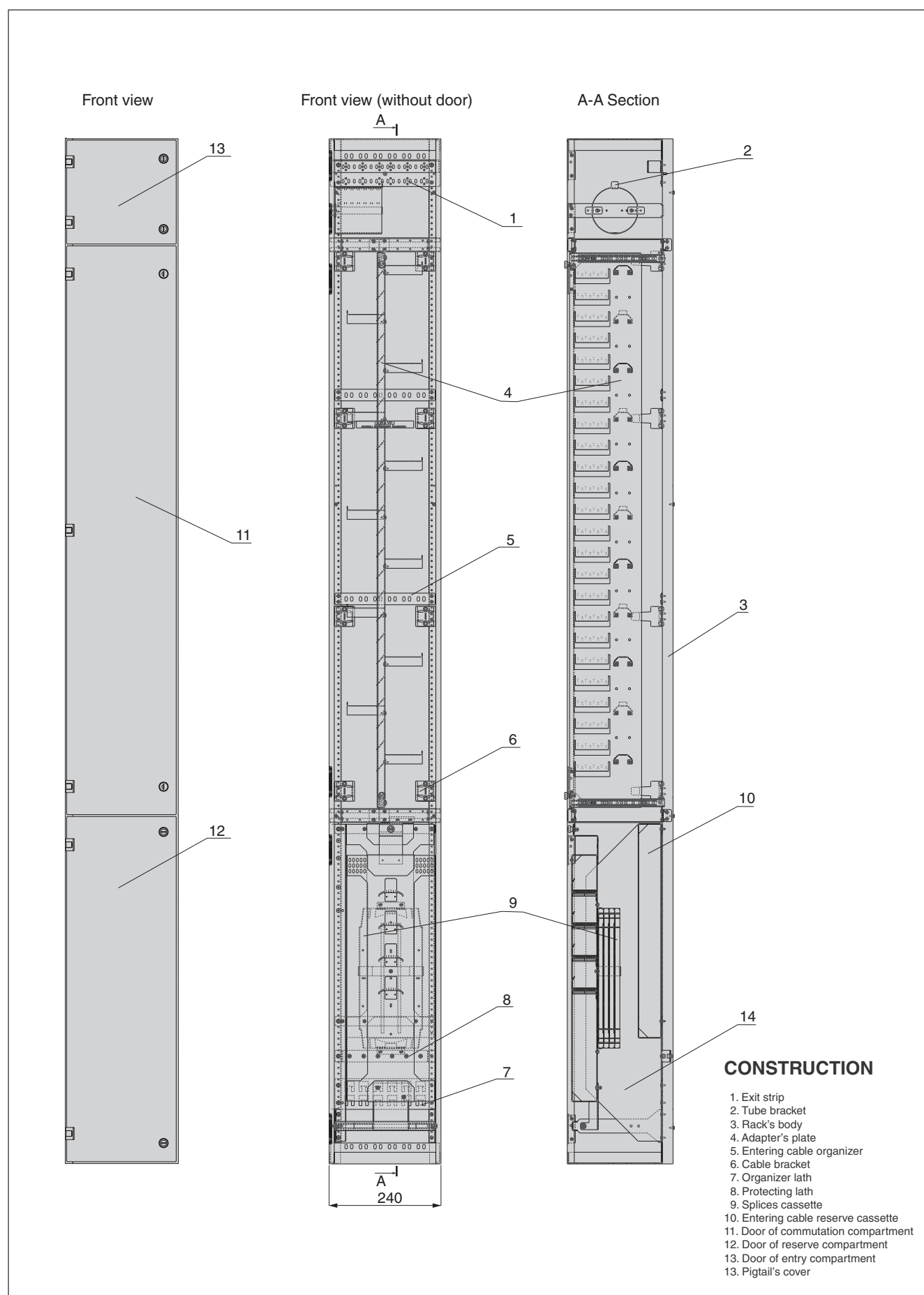| Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
878-102	480	400	240	3.65

Material: sheet steel 1.0 mm

Surface finish: powder painting in RAL 7035 colour

Lengthening cover
- cat. no. 878-102

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel PSS 12/192

Front view   Front view (without door)   Section A-A

480   240

2200
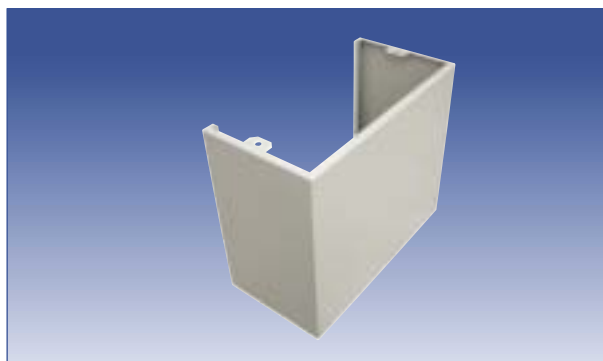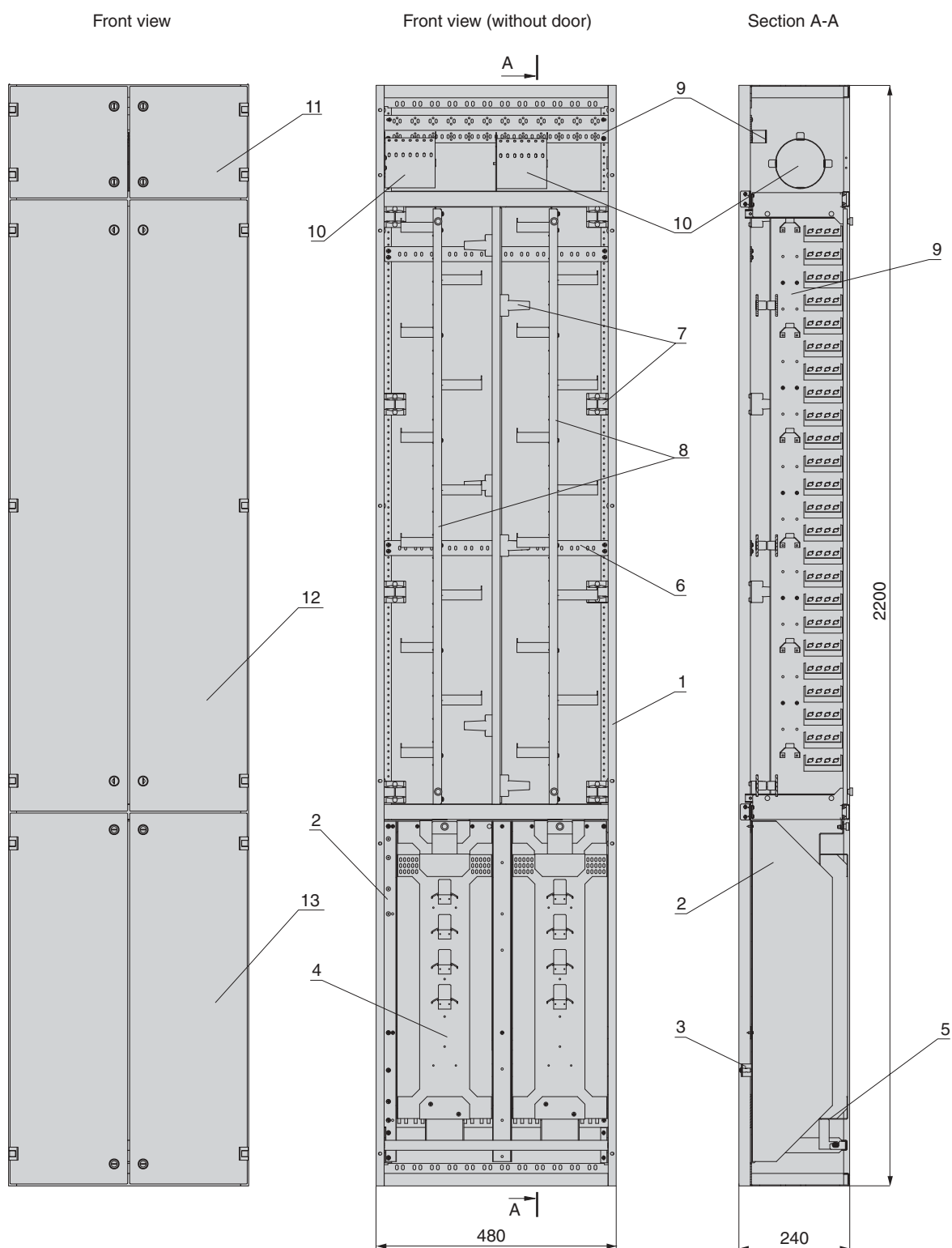
CONSTRUCTION

1. Rack's body
2. Pigtail's cover
3. Protecting lath
4. Patchcord reserve module
5. Splice cassette frame
6. Entering cable organizer
7. Cable organizer

8. Adapter's plate
9. Exit lath
10. Patchords hanger
11. Door of entry comparment
12. Door of commutation comparment
13. Door of reserve comparment

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel SPM 19" rack of modular distribution frames

- SPM rack consists of three compartments:
  - central compartment 19",
  - side compartment 150 mm,
  - side compartment 250 mm.
- Central compartment is designed for modules:
  - connectors module MP-19/3U,
  - commutation module MK-19/3U/72,
  - connecting/ commutation module MPK-19/3U/24.
- Using 1U brackets in central compartment enables mounting of any accessories in 19" standard (with depth not exceeding 280 mm).
- Side compartments are used for line cables management. The supplementary accessories of side panels and additional 19" accessories are designed for the line cable management.

Rack type	OptiTel SPM 19/45U
Dimensions [mm] - width	1000
- height	2200
- depth	350
Usefull height	45U
Usefull depth [mm]	280
Weight [kg]	137

Material:
- profile, supporting slide: . . . . steel 2.0 mm
- side panels, plinth: . . . . steel 1.0 mm
- front door: . . . . steel 1.5 mm
- plinth corners: . . . . steel 2.5 mm

Surface finish: powder painting in RAL 7035 colour

CATALOGUE NUMBER:
Modular distribution frames rack OptiTel SPM 19/45U with standard equipment **- cat. no. 405-126**

Supply includes:
- frame of rack with plinth,
- vertical cable management module MRV 150,
- vertical cable management module MRV 250,
- horizontal management module MRV 250.

Rack of modular distribution frames OptiTel SPM 19/45U equipped with doors, side panels, and modules MP, MK, MPK

OptiTel SPM 19/45U

Front view (without door)   Side view   B-B section

2200

1000   350

A-A section

"C" detail   "D" detail

CONSTRUCTION

1. Side panel
2. Rear panel
3. Door with plexiglas window
4. Cassette for documentation
5. MKH-19 module
6. SPM-19/45U rack
7. MKH-150 module
8. MKH-250 module
9. MRH-19/2U module
10. MRV-150 module
11. MRV-250 module
12. MRV module bracket
13. MBZ-12U/150 module
14. MBZ-12U/250 module
15. Door DP-150
16. Door DP-250
17. Plinth

Note:
Drawing shows maximum configuration of the rack.

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Additional equipment for OptiTel SPM 19/45U

DOOR FOR SPM RACK

- Equipped with two one-point locks.
- Door for central compartment in standard version is equipped with glass window.

DOOR'S TYPES:

1) Front door for 150 mm compartment
   - cat no. 878-881
2) Front door for central compartment
   - cat no. 878-883
3) Front door for 250 mm compartment
   - cat no. 878-882

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-881	DP-150	145			3.0
878-883	DP-520	522	2018	20	4.3
878-882	DP-250	245			3.5

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

SIDE PANELS FOR SPM RACK

- The side panels do not exceed rack sizes.
- Equipped with two one-point locks, gasket, and grounding belts.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-994	OSB-350	275			5.0
878-995	OST-1000	925	2018	20	7.0

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

1) Side panel - cat. no. 878-994
2) Rear panel - cat. no. 878-995
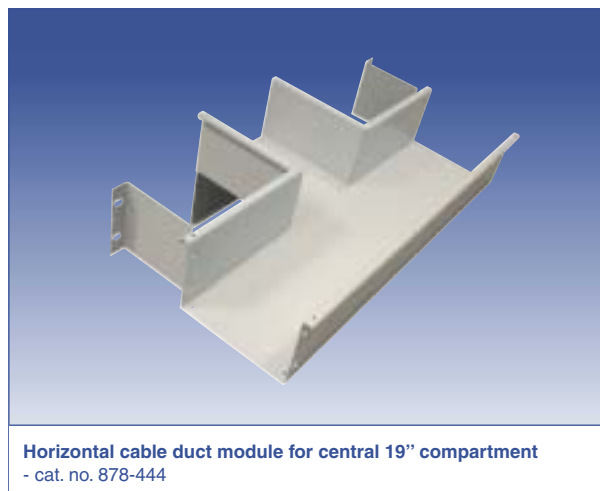
Additional equipment for OptiTel SPM 19/45U

HORIZONTAL CABLE DUCT MODULE MKH-19

- Cable duct of width 19" for horizontal cable management.
- Adapted for connecting with modules MKH-150 and MKH-250.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	**Height**	**Depth**	
878-444	MKH-19	483	88	277	2.1

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Horizontal cable duct module for central 19" compartment - cat. no. 878-444

HORIZONTAL CABLE DUCT MODULE MKH-150

- Cable duct of width 150 mm for horizontal cable management.
- Adapted for connecting with modules MKH-19.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	**Height**	**Depth**	
878-441	MKH-150	201	88	125	0.8

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Horizontal cable duct module for 150 mm compartment - cat. no. 878-441
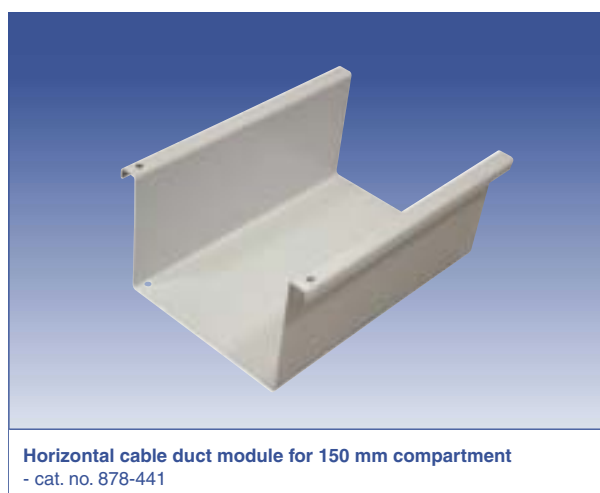
HORIZONTAL CABLE DUCT MODULE MKH-250

- Cable duct of width 250 mm for horizontal cable management.
- Adapted for connecting with modules MKH-19.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	**Height**	**Depth**	
878-442	MKH-250	301	88	125	1.2

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Horizontal cable duct module for 250 mm compartment - cat. no. 878-442

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES
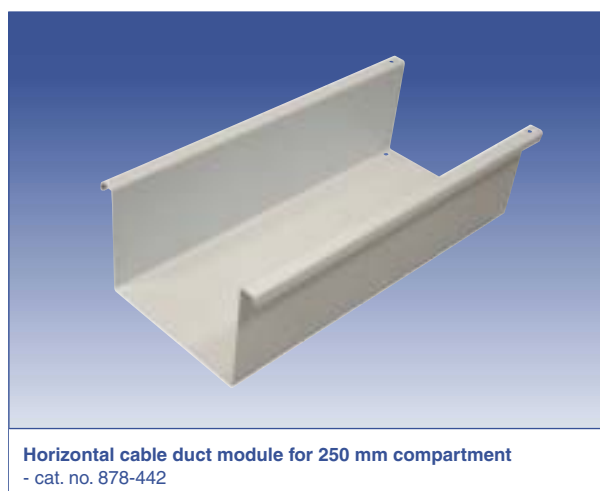
Additional equipment for OptiTel SPM 19/45U

HORIZONTAL CABLE MANAGEMENT MODULE MRH-19/2U

- Intended for management, distribution and grouping of cables.
- Designed for mounting in central compartment 19".

NOTE:
Standard delivery of SPM 19/45U rack consist MRH-19/2U module.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-673	MRH-19/2U	483	88	239	1.8

Material: sheet steel 1.5 mm

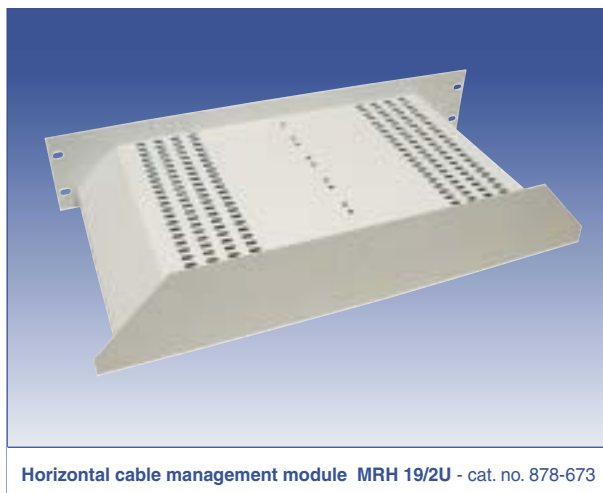**Surface finish:** powder painting in RAL 7035 colour

Horizontal cable management module MRH 19/2U - cat. no. 878-673

VERTICAL CABLE MANAGEMENT MODULE MRV-150

- Intended for management, distribution and grouping of cables. in 150 mm compartment.

NOTE:
Standard delivery of SPM 19/45U rack consist MRV-19/2U module.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-551	MRV-150	149	266	2.5	0.6

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
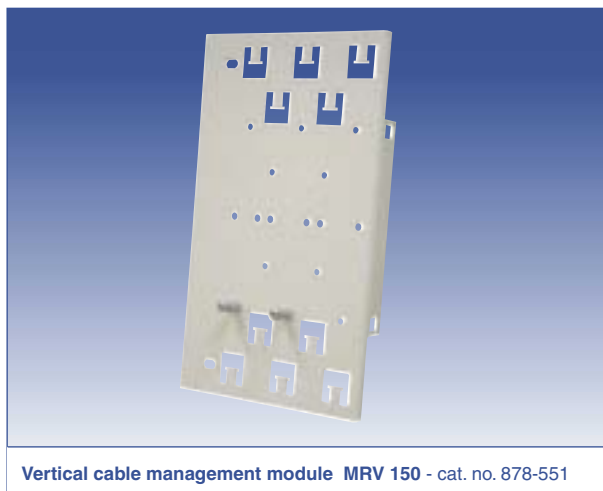
Vertical cable management module MRV 150 - cat. no. 878-551

VERTICAL CABLE MANAGEMENT MODULE MRV-250

- Intended for management, distribution and grouping of cables in 250 mm compartment.
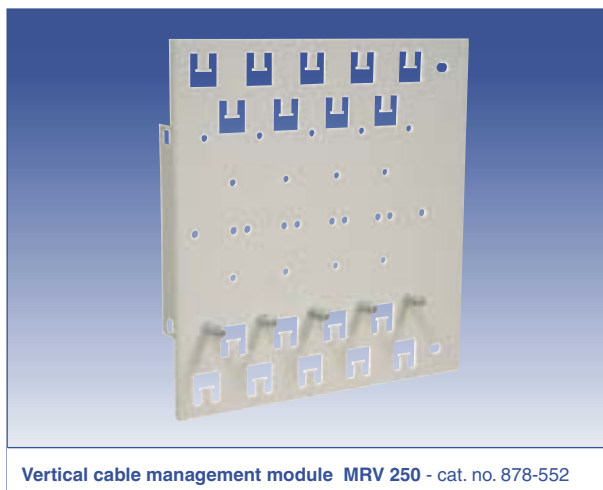
NOTE:
Standard delivery of SPM 19/45U rack consist MRV-250 module.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-552	MRV-250	249	266	26.5	0.8

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Vertical cable management module MRV 250 - cat. no. 878-552
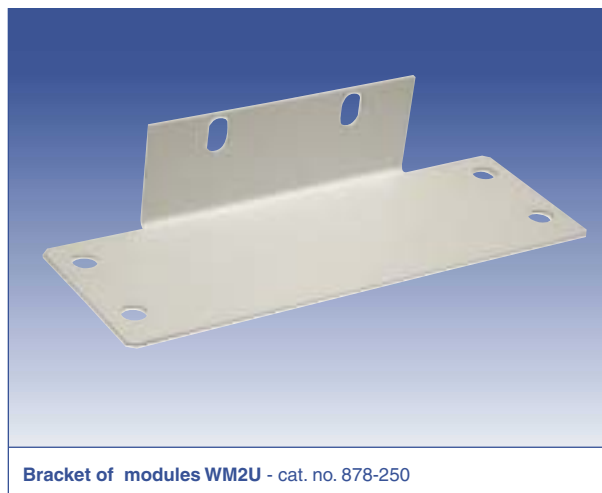
Additional equipment for OptiTel SPM 19/45U

BRACKET OF MODULES WM2U

- Intended for mounting of two additional cable management modules MRV -150 or MRV-250.

Catalogue number	Typ	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-250	WM-2U	53	150	32.5	0.5

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Bracket of modules WM2U - cat. no. 878-250

DRUMS MODULE MBZ-12U/150

- Intended for mounting in side compartment 150 mm..
- Plate of height 12U, for mounting of drums (hangers) for patchcords.

Catalogue number	Typ	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-701	MBZ-12U/150	149	533	30	2.8

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
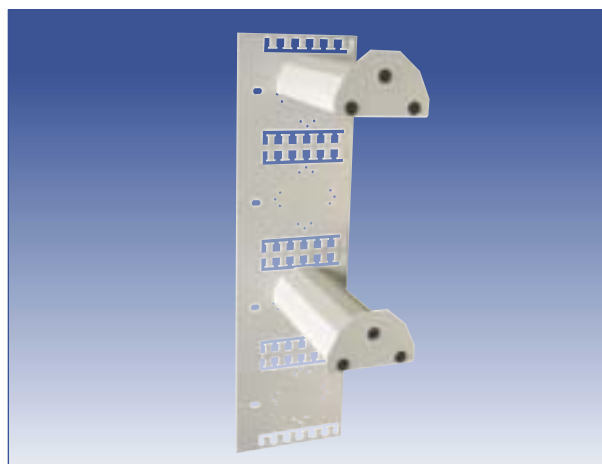
Drums module MBZ-12U/150 - cat. no. 878-701

DRUMS MODULE MBZ-12U/250

- Intended for mounting in side compartment 250 mm.
- Plate of height 12U, for mounting of drums (hangers) for patch-cords.

Catalogue number	Typ	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-702	MBZ-12U/250	249	533	30	3.3

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Drums module MBZ-12U/150 - cat. no. 878-702

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Additional equipment for OptiTel SPM 19/45U

CABLE RESERVE DRUM BZ-2

- Intended for module MBZ-12U/150 or MBZ-12U/250.
- For reel in of patchcord reserve.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-060	BZ-2	100	63	211	0.4

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
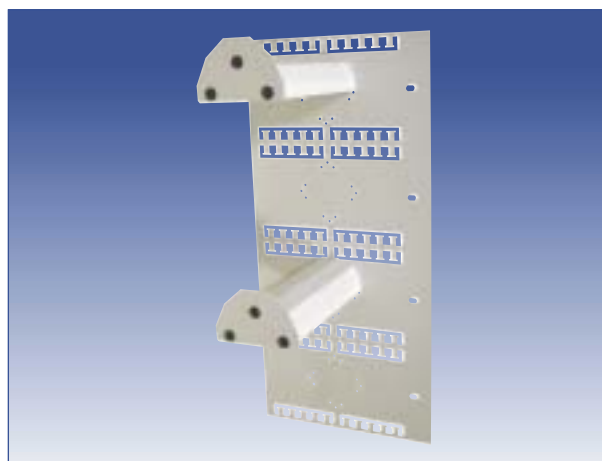

Cable reserve drum BZ-2 - cat. no. 878-060

ADJUSTABLE BRACKET WR-1U/280

- Makes possible front mounting of 19" accessories in SPM 19/45U rack.
- Maximum depth of elements 280 mm.
- Possibility of adjusting (till 80 mm).

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-353	MBZ-12U/250	30	44	170 ÷ 250	0.5

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
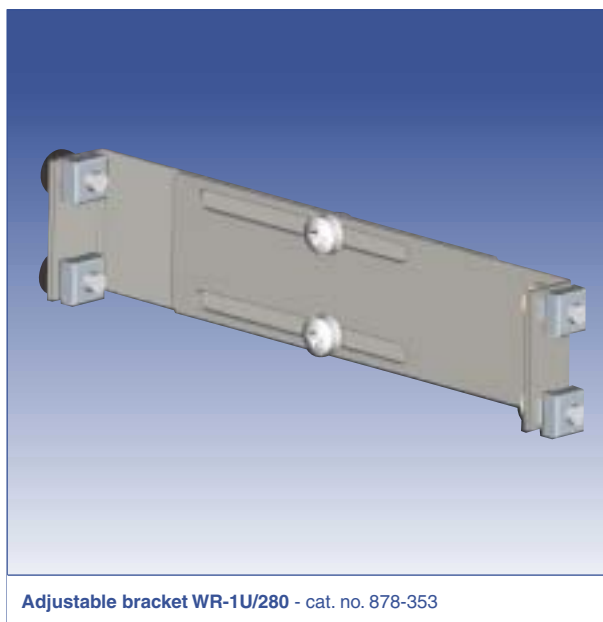
Adjustable bracket WR-1U/280 - cat. no. 878-353

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Additional equipment for OptiTel SPM 19/45U

CONNECTING MODULE MP-19/3U

- Frame of the module is prepared for rear mounting. The brackets can be mounted in the rear, making possible mounting in any 19" constructions (with front mounting).
- Sides of frame are equipped with openings, which make possible safe organization of cables.
- Extending drawer is equipped with removable front plate, with lock, rear bracket, and bending basis for splices cassettes There is possibility of storage of appropriate amount of tube reserve.
- Used system of cassettes allows elastic connection of one-line and one-part organization in configurations: cable-cable, or cable-pigtail. Cassettes are adapted for passive elements mounting in standard cases.
- Expendability to for packets of fibre splices 6+1.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	**Height**	**Depth**	
878-310	MP-19/3U	482	132	280	4.2

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Supply includes:
- 19" x 3U frame,
- extending drawer,
- bending basis,
- 1 packets of cassettes 6+1.

Module capacity:

Cable-cable	Management	Cassettes	Fibres
Capacity of splices	one-part	24	188

Cable-pigtail	Managment	Cassettes	Fibres
Capacity of splices	one-part	24	144
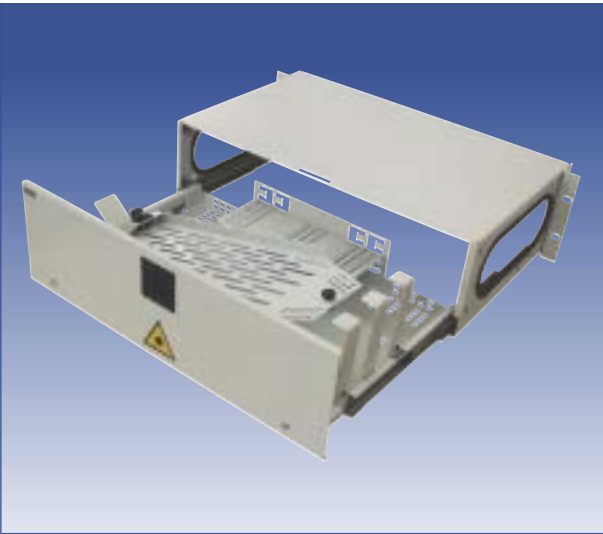
Connecting fibre module MP-19/3U
without cassettes packet 6+1 - cat. no. 878-310

Connecting fibre module MP-19/3U, with accessories
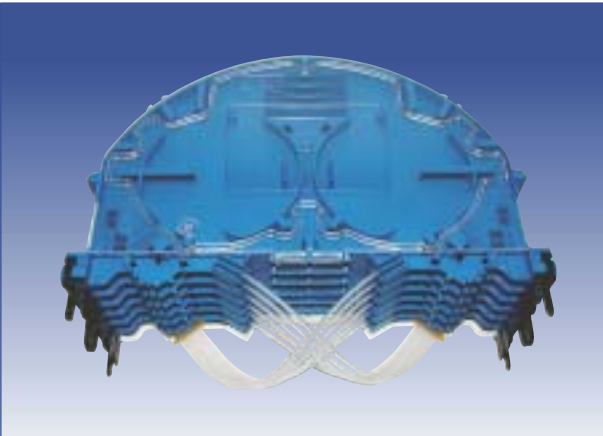
Supplementary splice cassettes packet 6+1 - cat. no. 878-004

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

Additional equipment for OptiTel SPM 19/45U

COMMUTATION MODULE MK-19/3U/72

- Frame of the module is prepared for rear mounting. The brackets can be mounted in the rear of the frame, making possible mounting in any 19" constructions (with front mounting).
- Sides of frame are equipped with openings, which make possible safe organization of cables.
- Extending drawer is equipped with removable front plate, with lock, rear bracket, and extending commutation panel for 72 adapters SC or E2000.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-320	MK-19/3U/72	483	132	280	4.1

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Supply includes:
- 19" x 3U frame,
- extending drawer,
- extending commutation panel 72 x SC/E2000.
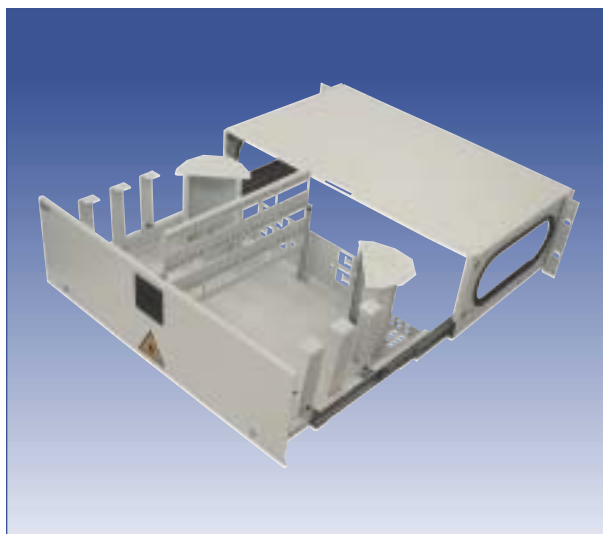
Commutation module MK-19/3U/72
- cat. no. 878-320
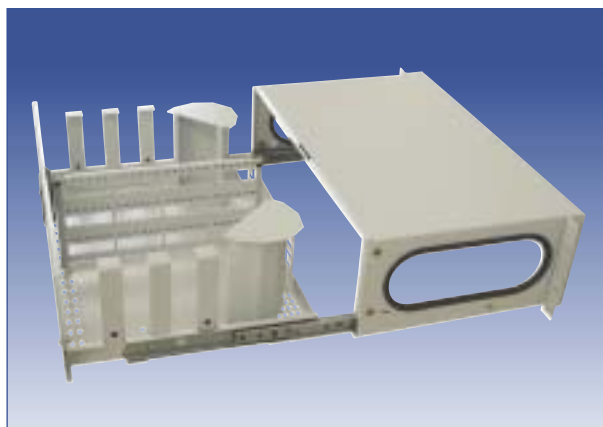
Commutation module MK-19/3U/72
- cat. no. 878-320

Commutation module MK-19/3U/72, with equipment

Commutation module MK-19/3U/72, with accessories

Additional equipment for OptiTel SPM 19/45U

CONNECTING- COMMUTATION MODULE MPK-19/3U/24

- Frame of the module is prepared for rear mounting. The brackets can be mounted in the rear of the frame, making possible mounting in any 19" constructions (with front mounting).
- Sides of frame are equipped with openings, which make possible safe organization of cables.
- Extending drawer is equipped with removable front plate, with lock, rear bracket, and extending commutation panel for 24 adapters SC or E2000.
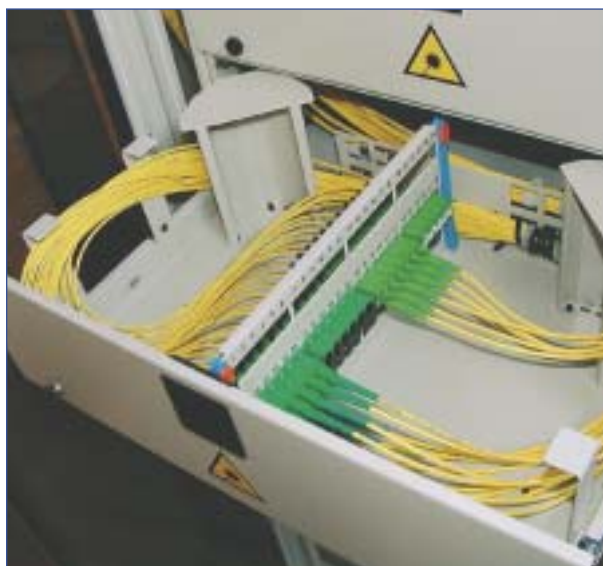- There is possibility of storage of appropriate length of tube reserve. Used cassettes system enables termination of 24 fibres. Cassettes are designed for mounting of passive parts in standard cases.

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
878-330	MPK-19/3U/24	483	132	280	4.2

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

Supply includes:
- 19" x 3U frame,
- extending drawer,
- bending drawer,
- extending commutation panel 24 x SC/E2000,
- 1 packet of splice cassettes 6+1.

Module capacity:

Cable-pigtail	Cassettes	Fibres
Splices capacity	12	24
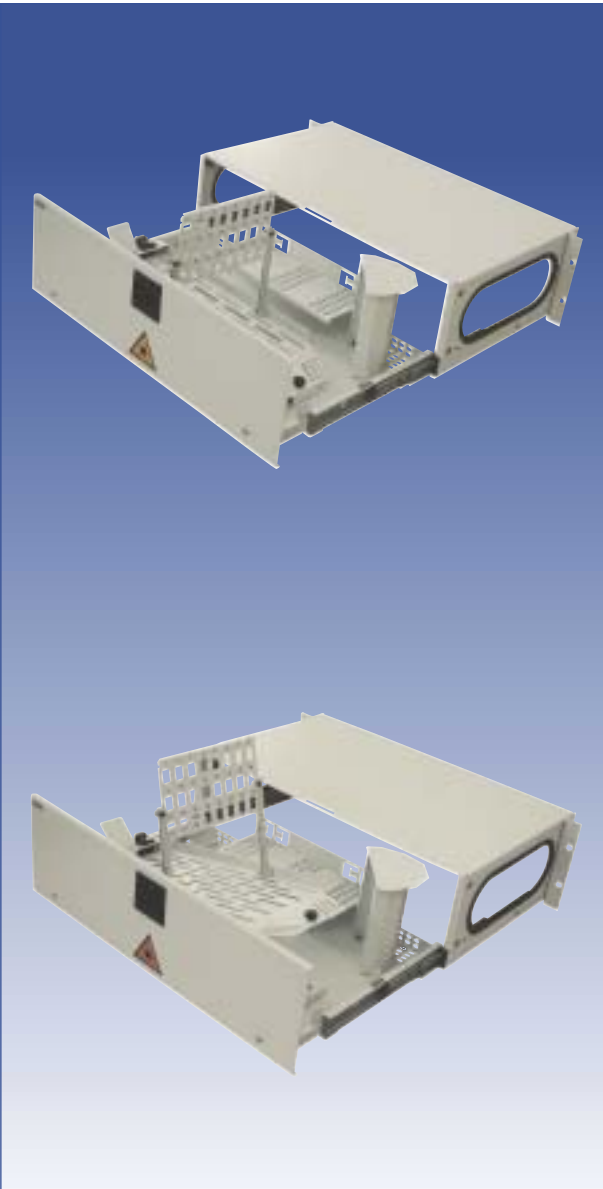
Connecting-commutation module MK-19/3U/72
- cat. no. 878-330

Connecting-commutation module MK-19/3U/72, with equipment

Connecting-commutation module MK-19/3U/72, with equipment

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiTel SZK, STZK cable reserve boxes and racks

- Makes possible organisation of cable reserve.
- Ensure optimal bend radius.
- Intended for telecommunication networks.
- Available in 8 versions.

Dimensions, weight: . . . . see chart

Max. storage of cable: . . . . 50 - 100 m

Material: . . . . sheet steel 1.5 mm

Surface finish: . . . . powder painting
in RAL 7035 colour
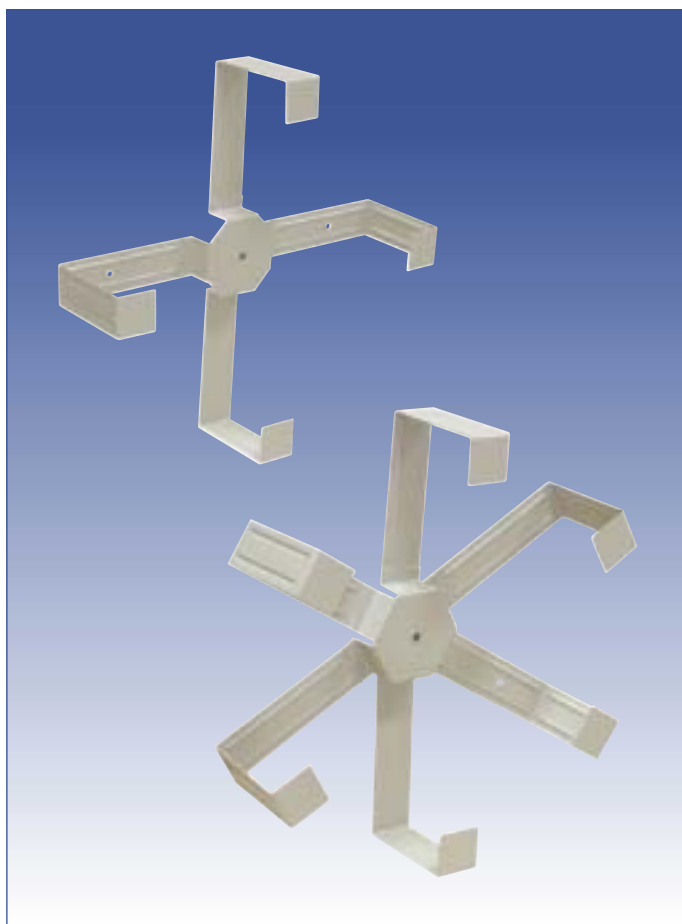
Catalogue number	Type	Description	Dimensions [mm]	Weight [kg]
879-004	OptiTel SZK-1/4	box with four arms rack (wall mounted) with lockable cover	600 x 600 x 178	15.5
879-008	OptiTel SZK-1/6	box with six arms rack (wall mounted) with lockable cover	600 x 600 x 178	16.5
879-003	OptiTel SZK-1A/4	box with four arms rack (wall mounted) without cover	600 x 600 x 160	11.5
879-007	OptiTel SZK-1A/6	box with six arms rack (wall mounted) without cover	600 x 600 x 178	12.5
879-001	OptiTel STZK-2/4	four arms rack (wall mounted)	565 x 565 x 126	2.0
879-005	OptiTel STZK-2/6	six arms rack (wall mounted)	565 x 519 x 126	3.0
879-002	OptiTel STZK-4/4	four arms rack (wall mounted) with cover	600 x 600 x 160	11.5
879-006	OptiTel STZK-4/6	six arms rack (wall mounted) with cover	600 x 600 x 160	12.5

OptiTel SZK, STZK cable reserve boxes and racks

OptiTel SZK 1/4
Cat. no. 879-004
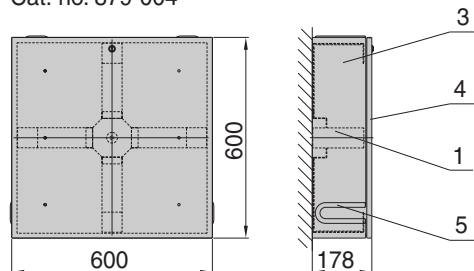
OptiTel SZK 1A/4
Cat. no. 879-003
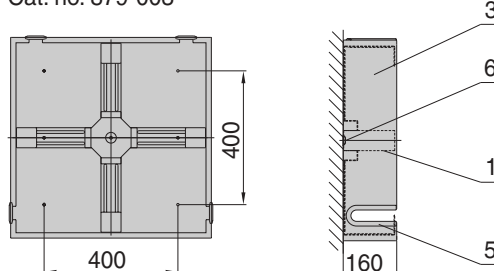
OptiTel SZK 1/6
Cat. no. 879-008
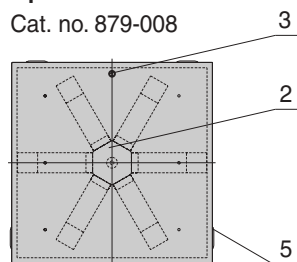
OptiTel SZK 1A/6
Cat. no. 879-007
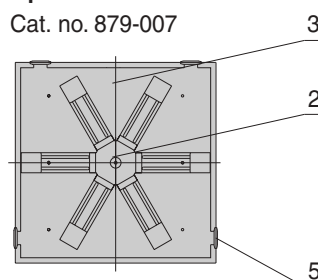
OptiTel STZK 4/4
Cat. no. 879-002
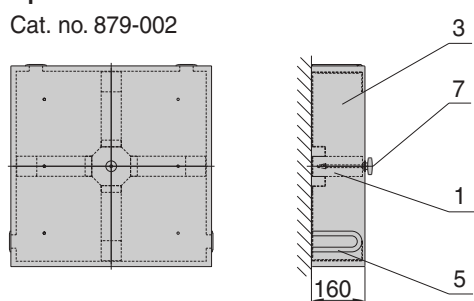
OptiTel STZK 2/4
Cat. no. 879-001
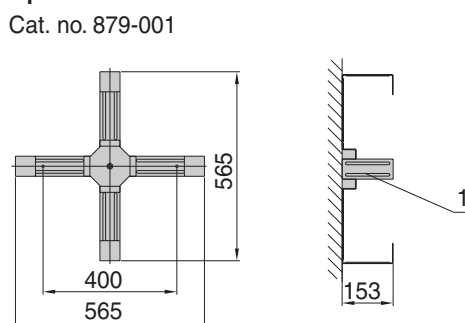
OptiTel STZK 4/6
Cat. no. 879-006
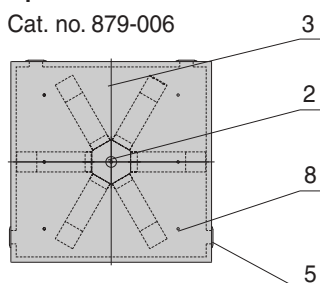
OptiTel STZK 2/6
Cat. no. 879-005
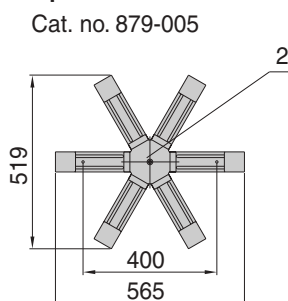
CONSTRUCTION

1. Four arms rack
2. Six arms rack
3. Side cover
4. Cover
5. Gasket
6. Screw
7. Screw
8. Rubber

FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

OptiLAN PSP panel-type distribution frames

OptiLAN PSP 19/1U/24

- Intended for mounting in 19" cabinets and racks.
- Amount of commutation fields: 24.
- Available front panel for all types of adapters (E2000, SC, FC, ST, or another according to customer's request).
- Possibility of cables terminating.
- The rest of fibre loose tube storage in housing.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Dismountable front cover.
- Delivery with set of assembly hardware.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
877-100	483	44	280	0.80

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

OptiLAN PSP 19/1U/24 distribution frame - cat. no. 877-100

Front panels for OptiLAN PSP distribution frames of height 1U
1) 24 x SC - cat. no. 877-101
2) 24 x ST - cat. no. 877-102
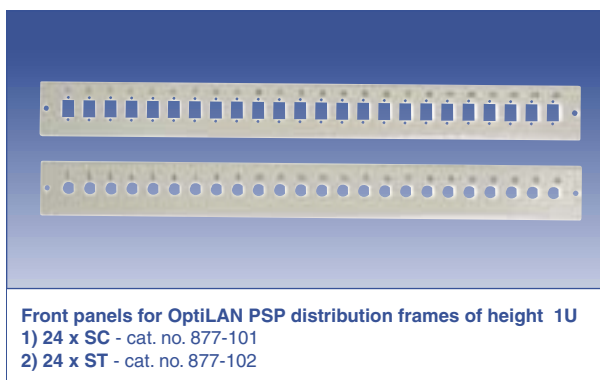
OptiLAN PSP 19/2U/48

- Intended for mounting in 19" cabinets and racks.
- Number of commutation fields: 48.
- Available front panel for all types of adapters (E2000, SC, FC, ST, or another according to customer's request).
- Possibility of cables terminating.
- The rest of fibre loose tube storage in housing.
- Tube guiding units ensure that the minimum bend radius is not exceeded.
- Dismountable front cover.
- Delivery with set of assembly hardware.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
877-200	483	88	280	1.60

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour

OptiLAN PSP 19/1U/48 distribution frame - cat. no. 877-200

Front panels for OptiLAN PSP distribution frames of height 1U
1) 48 x ST - cat. no. 877-226
2) 48 x SC - cat. no. 877-225

FIBRE OPTIC LAN DISTRIBUTION FRAMES
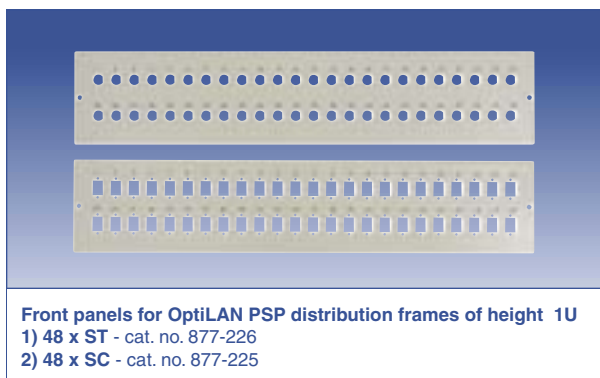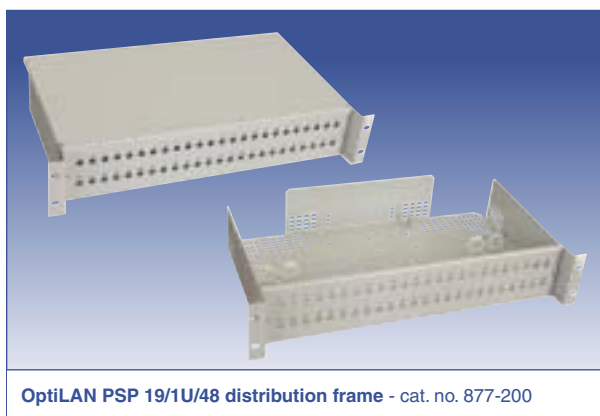
OptiLAN PSP panel-type distribution frames

REFERENCE CHART OF OptiLAN PSP FRAMES

Type of OptiLAN PSP distribution frame G XXX 19/1U/XX/XX	G 280 19/1U/XX	G 280 19/2U/XX
	24	48
Catalogue number of the panel	877-100	877-200
Max. amount of cables	2	2
Dimensions [mm] - width	483	483
- height	44	88
- depth	280	280
Pigtails' length [m]	2	2
Weight [kg]	0.8	1.1

REFERENCE CHART OF FRONT PLATES FOR OptiLAN PSP FRAMES

Type of adapters	Amount of adapters (commutation fields)	
	12	48
	Catalogue number of front plate without adapters	
E2000	877-111	877-255
SC	877-111	877-255
ST	877-112	877-226

ORDERING INSTRUCTION FOR OptiLAN PSP:

Catalogue number of PSP OptiLAN distribution frame in standard version

Type of front panel:

24 - E2/SC	- front plate for 24 adapters E2000 or SC	48 - E2/SC	- front plate for 48 adapters E2000 or SC
24 - ST	- front plate for 24 adapters ST	48 - ST	- front plate for 48 adapters ST
24 - XX	- another	48 - XX	- another

OptiLAN PSP G 280 - 19 / XU / XX - XX

Height:

1 - 1U
2 - 2U

Sample:
Catalogue number OptiLAN PSP G280 -19 1U/24-E-2 - means optic distribution frame OptiLAN, depth 280 mm, in 19" standard 1U with front panel for 24 E2000 adapters.

Supplementary accessories for OptiLAN PSP

SPLICES CASSETTE

- Intended for mounting in OptiLan PSP, OptiLAN PSN, distribution frames, as well as OptiLAN PSP, OptiTel PSN.
- Ergonomic planned field of fibre space.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
877-050	150	7	103	0.1
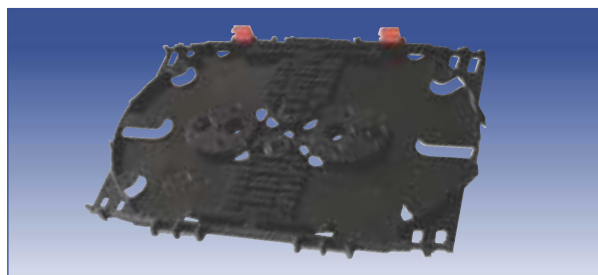
Splices cassette - cat. no. 877-050

FIBRE OPTIC LAN DISTRIBUTION FRAMES

OptiLAN PSN 2/16 wall-mounted distribution frames

- Intended for application in local networks.
- Mounted directly on the room's wall where the line cable is terminated.
- Small dimensions.
- Possibility to of top or bottom cable entry.
- Standard equipment includes plate for 16 adapters of ST-type and one splices cassette.
- Possibility to manufacture front plate in any standard on customer's request.
- Space inside of the distribution frame allows for accommodating loose tube of fibre optic cable.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
877-000	132	280	101	1.5

Material: sheet steel 1.0 mm

Surface finish: powder painting in RAL 7035 colour

OptiLAN PSN 2/16 wall-mounted fibre optic distribution frame - cat. no. 877-000

OptiLAN PSN 2/16 distribution frame - visible plate for 16 x ST adapters

OptiLAN PSN 2/16 distribution frame closed

FIBRE OPTIC LAN DISTRIBUTION FRAMES

OptiLAN PSN 2/24 wall-mounted distribution frames

- Mounted directly on the room's wall where the line cable is terminated.
- Number of commutation fields: 24.
- Possibility to enter the cable from top or bottom.
- Standard equipment includes plate for adapters of ST-type and one splices cassette.
- Possibility to manufacture adapter's plate in any standard on customer's request.
- Maximum number of splice cassettes: 2.
- Space inside of the distribution frame allows for accommodating loose tube of fiber optic cable.
- Locked front door.

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
877-300	344	285	80	2.8

Material: sheet steel 1.5 mm

Surface finish: powder painting in RAL 7035 colour
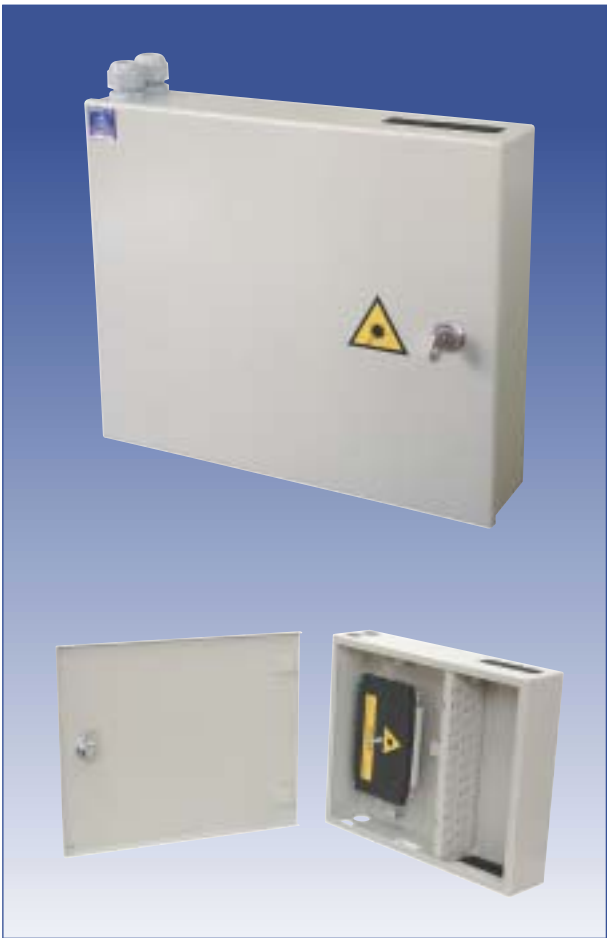
OptiLAN PSN 4/24 wall-mounted fibre optic distribution frame - cat. no. 877-300

OptiLAN PSN 4/24 distribution frame - equipped with adapters and pigtails
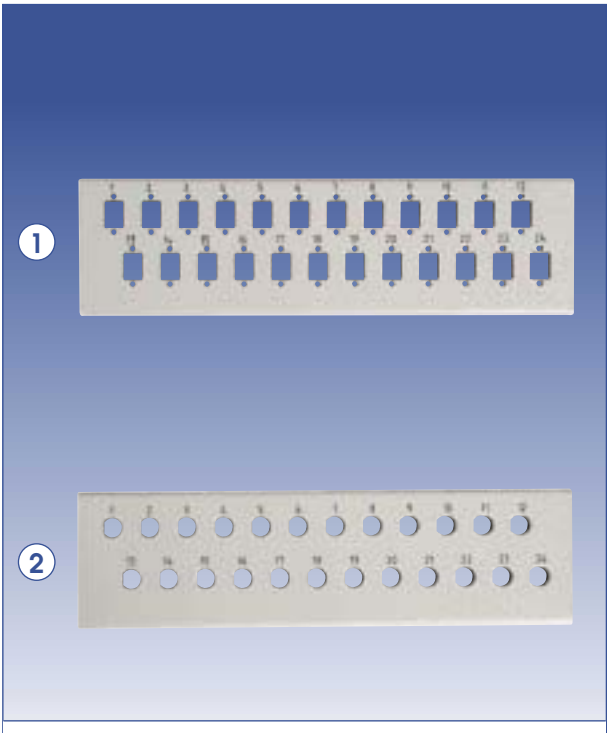
Front plates for OptiLAN PSN 4/24:
1) 24 x SC or E2000
2) 24 x ST

FIBRE OPTIC LAN DISTRIBUTION FRAMES

Fibre optic pigtails, patchcords and adapters

ST STANDARD

- Parts manufactured of high quality materials (metals and zirconium ceramics).
- Long term mechanical endurance.
- Stability of the transmission parameters.

Connectors
- Zirconium ferrule.
- Low insertion loss.
- Hole diameter tolerance from 0 to + 1 µm.
- Short boot ensures minimal bending radius.
- Machine polishing procedure ensures high quality of end face geometry and high repeatable performance.

Adapters
- Slotted zirconium ceramic sleeve ensures precise connection.
- High durability.
- Guarantee of the repeatable performance.

Connection type
- Twist-lock bayonet coupling with anti-rotation key.

Patchcords with ST connectors

Available versions
- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900 um tube or PVC cables with the following diameters: 1.7; 2.0; 2.4 and 2.8 mm.

Application
- Telecommunication.
- LAN/WAN networks.
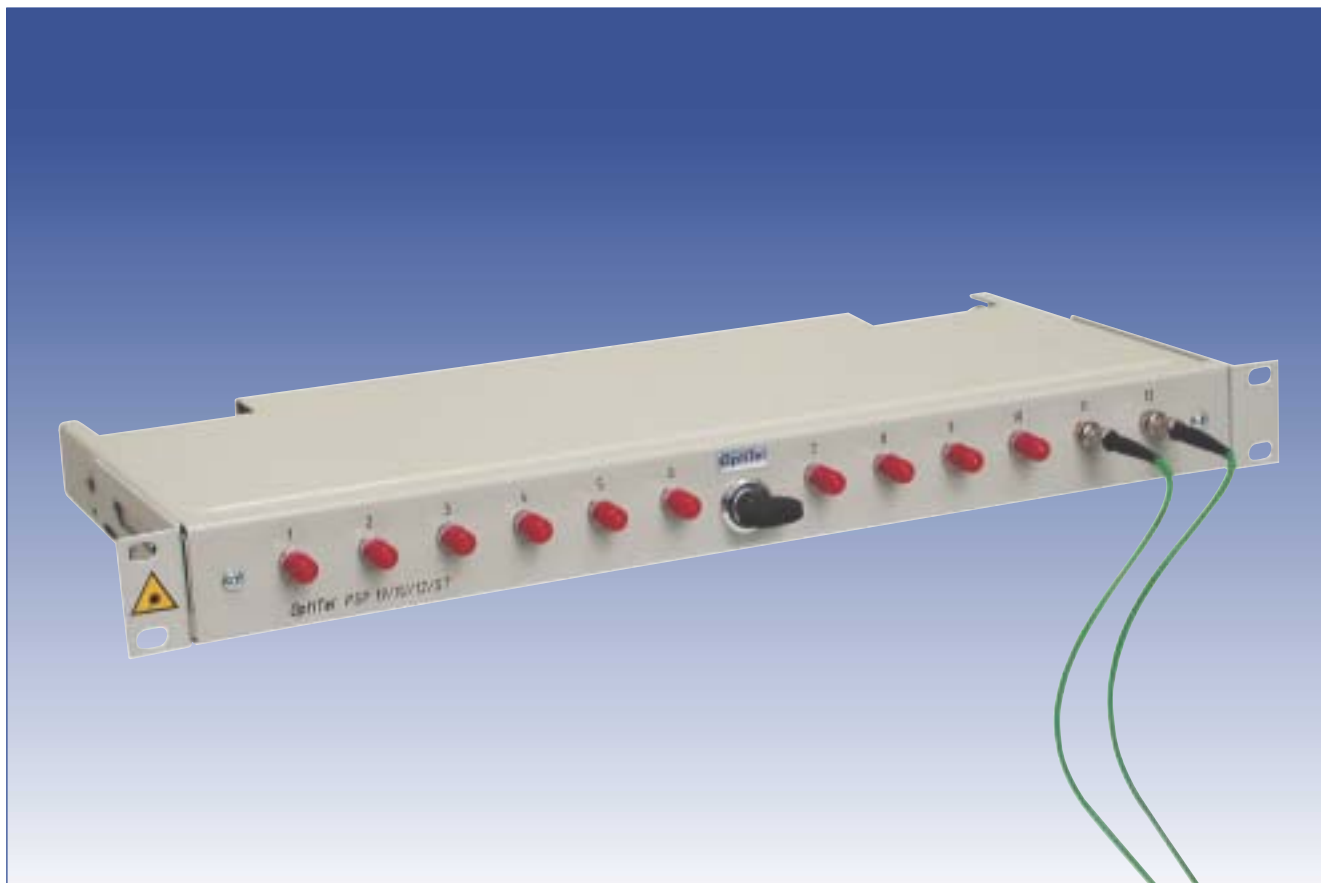
OptiTel PSP fibre optic distribution frame equipped with ST type adapters

F I B R E   O P T I C   A C C E S S O R I E S

Fibre optic pigtails, patchcords and adapters

Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	ST/PC	
Type of fibre	multimode	single mode
Ferrula type	ceramic	
	Ø126 µm (0 to +1 µm)	Ø125 µm (0 to +1 µm)
Adjustable	none	
Min. mating cycles	over 1000 cycles	
Operating temperature	-40 to +85 °C	

Transmission parameters

Type	ST/PC multimode		ST/PC single mode	
	typical	max.	typical	max.
Insertion loss	0.2 dB	0.4 dB	0.2 dB	0.35 dB
Return loss	-	-	> 45 dB	> 50 dB

ST adapters

Catalogue numbers of pigtails and patchords

Connector applied on the first end of the cable:
000 - pigtail
STP - patchcord terminated with ST/PC
        connector

Type of cable / fibre:
JT - single mode tube
JK - single mode cable
5T - multimode tube, fibre with diameter of the core 50 µm
5K - multimode cable, fibre with diameter of the core 50 µm
6T - multimode tube, fibre with diameter of the core 62.5 µm
6K - multimode cable, fibre with of the core 62.5 µm

☐ — ☐ — ☐ — ☐ — ☐

Type of the patchcord / pigtail:
S - simplex
D - duplex

Connector applied on the other end of the cable:
STP patchcord terminated with ST/PC connector

Length of the cable
- single mode pigtails: - single mode patchcords:
  2.5 - length 2.5 m   5.0 - length 5 m
  5.0 - length 5 m   10 - length 10 m
- multimode pigtails: - multimode patchcords
  1.5 - length 1.5 m   2.0 - length 2 m
  2.0 -length 2 m   3.0 - length 3 m
                                 4.0 - length 4 m

Adapters catalogue numbers:

A-STM-I - single mode standard ST/PC adapter
A-STSM - multimode standard ST/PC adapter

FIBRE OPTIC ACCESSORIES

Fibre optic pigtails, patchcords and adapters

E2000 STANDARD

- Connector with push - pull mechanism.
- Available in Premium version with typical insertion loss 0.09 dB.
- Standard connector in the transmission networks of the largest telecommunication operators.
- Standardised in accordance with IEC 61 754-15, CECC 86275-801/802.

Connectors
- Remarkable eccentricity of the hole thanks to the precision by production of the ferrule. Hole diameter tolerance from 0 to + 1 um (Premium version from 0 to +0,5 µm).
- Zirconium ferrule ensures very good resistance at the changing temperatures (operating temperature range from -40 °C to +85 °C).
- Assembly of the ferrule with an adhesive protects the fibres against impact strength.
- Machine polishing procedure ensures high quality of end face geometry and high repeatable performance.
- Each connector is adjustable, what ensures outstanding transmission parameter.
- End face geometry is controlled with an interferometer.

Adapters
- Manufactured from high quality plastic.
- The sleeve, manufactured from zirconium dioxide, ensures high precision of the connection and repeatable performance.

Connection type
The push - pull mechanism features:
- Protection cap prevents soiling and scratching of the ferrule end face.
- An integrated protective cap provides eye protection from laser radiation.
- A cap protects the ferrule against damages by mating cycles.
- The push - pull mechanism protects the connector against rotation.

Connector type
- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900 um tube or PVC cables with the following diameters: 1.7; 2.0; 2.4 and 2.8 mm.
- Possible polishing procedures: SuperPC, UltraPC and Angle PC.

Application
- Telecommunication, external and access networks.
- WDM networks.
- LAN/WAN networks.
- CATV networks.
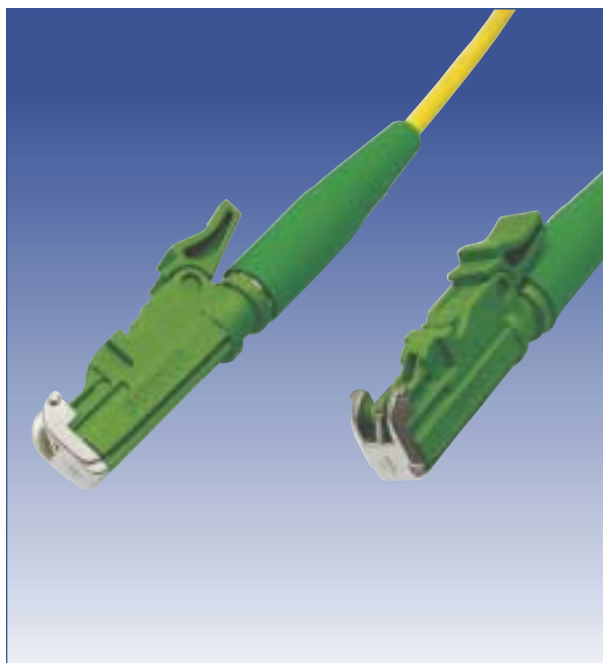
E2000 patchcords

E2000 adapters mounted in OptiTel PSN distribution frame

Fibre optic pigtails, patchcords and adapters

Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	E2000/PC	E2000/APC	E2000/APC Premium
Type of fibre	single mode		
Ferrula type	ceramic		
	Ø125 µm (0 to +1 µm)	Ø125 µm (0 to +0,5 µm)	
Adjustable	yes		
Min. mating cycles	over 1000 cycles		
Operating temperature	-40 to +85 °C		

Ferrule end face geometry

Polishing procedures	Radius	Fibre height	Fibre roughness
PC	10 - 25 mm	± 50 nm	< 5 µm
APC	8 - 15 mm		

E2000 adapters

Transmission parameters

Type	E2000/PC		E2000/APC		E2000/APC Premium	
	typical	max.	typical	max.	typical	max.
Insertion loss	0.12 dB	0.35 dB	0.12 dB	0.35 dB	0.09 dB	0.15 dB
Return loss	> 50 db	> 52 db	> 65 db	> 80 db	> 75 db	> 80 db

Catalogue numbers of pigtails and patchords

Connector applied on the first end of the cable:
000 - pigtail
E2000P - patchcord terminated with E2000/PC connector
E2000A - patchcord terminated with E2000/APC connector
E2000AP - patchcord with E2000/APC Premium connector

Type of cable / fibre:
JT- single mode tube
JK - single mode cable

☐ — ☐ — ☐ — ☐ — ☐

Type of the patchcord / pigtail:
S - simplex
D - duplex

Connector applied on the other end of the cable:
E2000P - patchcord terminated with E2000/PC connector
E2000A - patchcord terminated with E2000/APC connector
E2000AP - patchcord with E2000/APC Premium connector

Length of the cable in meters
- single mode pigtails:
  2.5 - length 2.5 m
  5.0 - length 5 m
- single mode patchcords:
  5.0 - length 5 m
  10 - length 10 m

Adapters catalogue numbers:

A-E2000/PC - E2000 single mode adapter
A-E2000/APC - E2000 single mode adapter, angled

FIBRE OPTIC ACCESSORIES

Fibre optic pigtails, patchcords and adapters

SC STANDARD

- Connector with push - pull mechanism.
- Available in the miniature version.
- Available in duplex version.
- For applications in the telecommunication networks.
- Standard connector in the transmission networks of the largest telecommunication operators.
- Standardised in accordance with JIS C5973, NNT, IEC, TIA, Bellcore.

Connectors
- Remarkable eccentricity of the hole thanks to the precision by production of the ferrule. Hole diameter tolerance from 0 to + 1 µm.
- Zirconium ferrule ensures very good resistance at the changing temperatures (operating temperature range from -40 °C to +85 °C).
- Assembly of the ferrule by using adhesive protects the fibres against impact strength.
- Machine polishing procedure ensures high quality of end face geometry and high repeatable performance.
- Each connector is adjustable; that ensures outstanding transmission parameter.
- End face geometry is controlled with an interferometer.

Adaptors
- Adapters have a zirconium sleeve for single-mode applications.
- Adapters have a zirconium sleeve for multi-mode applications.
- Adapter's sleeve is manufactured from zirconium dioxide, enabling high precision of the connection and high repeatable performance.

Connection type
- The Push - Pull mechanism protects the ferrule before twisting, which guarantees a full protection of the ferrule and connection stability.
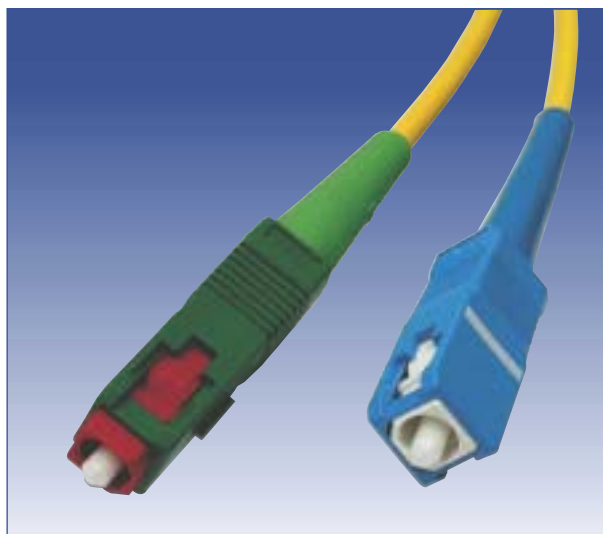
SC patchcords

Connector type
- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900 um tube or PVC cables with the following diameters: 1.7; 2.0; 2.4 and 2.8 mm.
- Possible polishing procedures: SuperPC, UltraPC and AnglePC.

Application
- Telecommunication, external and access networks.
- WDM networks.
- LAN/WAN networks.
- CATV networks.
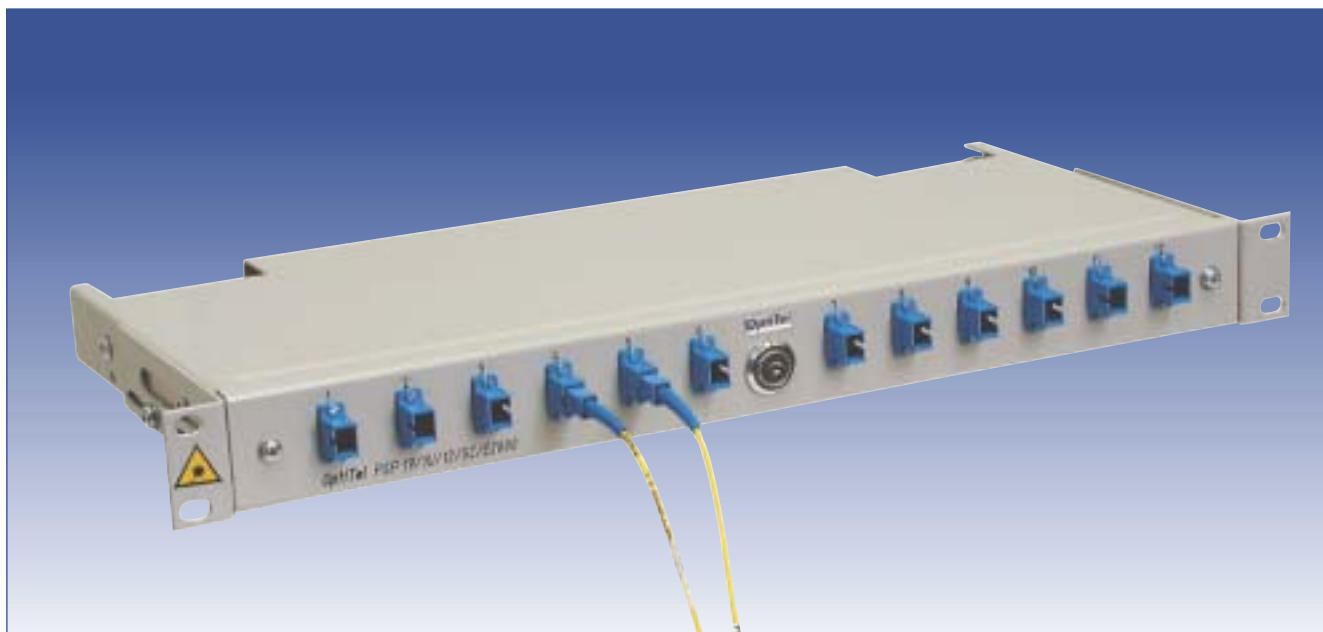
OptiTel PSP fiber optic distribution frame equipped with SC type adapters
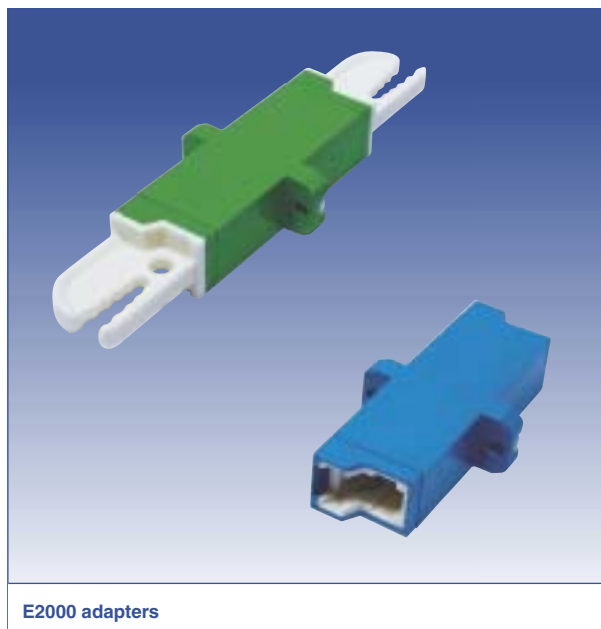
F I B R E   O P T I C   A C C E S S O R I E S

Fibre optic pigtails, patchcords and adapters

Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	SC/PC	SCAPC	SC/APC Premium
Type of fibre	multimode	single mode	
Ferrula type	ceramic		
	Ø126 µm (0 to +1 µm)	Ø125 µm (0 to +1 µm)	Ø125 µm (0 to +0,5 µm)
Adjustable	yes		
Min. mating cycles	over 1000 cycles		
Operating temperature	-40 to +85 °C		

Ferrule end face geometry

Polishing procedures	Radius	Fibre height	Fibre roughness
PC	10 - 25 mm	± 50 nm	< 5 µm
APC	8 - 15 mm		

SC adapters

Transmission parameters

Type	SC/PC multimode		SC/PC		SC/APC		SC/APC Premium	
	typical	max.	typical	max.	typical	max.	typical	max.
Insertion loss	0.2 dB	0.35 dB	0.12 dB	0.35 dB	0.12 dB	0.35 dB	0.09 dB	0.15 dB
Return loss	-	-	> 50 db	> 52 db	> 65 db	> 80 db	> 75 db	> 80 db

Catalogue numbers of pigtails and patchords

Connector applied on the first end of the cable:
000   - pigtail
SCP   - patchcord terminated with SC/PC connector
SCA   - patchcord terminated with SC/APC connector
SCAP   - patchcord with SC/APC Premium connector

Type of cable / fibre:
JT - single mode tube
JK - single mode cable
5T - multimode tube, fibre with diameter of the core 50 µm
5K - multimode cable, fibre with diameter of the core 50 µm
6T - multimode tube, fibre with diameter of the core 62.5 µm
6K - multimode cable, fibre with core's diameter 62.5 µm

☐ — ☐ — ☐ — ☐ — ☐

Type of the patchcord / pigtail:
S - simplex
D - duplex

Connector applied on the other end of the cable:
SCP   - patchcord terminated with SC/PC connector
SCA   - patchcord terminated with SC/APC connector
SCAP   - patchcord with SC/APC Premium connector

Length of the cable in meters
- single mode pigtails: - single mode patchcords:
  2.5 - length 2.5 m   5.0 - length 5 m
  5.0 - length 5 m   10 - length 10 m
- multimode pigtails: - multimode patchcords
  1.5 - length 1,.5 m   2.0 - length 2 m
  2.0 - length 2 m   3.0 - length 3 m
                     4.0 - length 4 m

Adapters catalogue numbers:

A-SCMM-I   - multimode SC adapter
A-SCSM-I   - single mode SC adapter
A-SCAPC-I - single mode SC adapter, angled
A-SCMM-II - SC duplex adapter

FIBRE OPTIC ACCESSORIES

Fibre optic pigtails, patchcords and adapters

FC STANDARD

- For applications in the largest telecommunication networks.
- Standard connector in the transmission networks of the largest telecommunication operators.
- Standardised in accordance with JIS C5970, NNT, IEC, TIA, Bellcore.

Connectors
- Remarkable eccentricity of the hole thanks to the hole diameter tolerance from 0 to + 1 µm.
- Zirconium ferrule ensures very good resistance at the changing temperatures (operating temperature range from -40 °C to +85 °C).
- Assembly of the ferrule with an adhesive protects the fibres against impact strength.
- Machine polishing procedure ensures high quality of end face geometry and high repeatable performance.
- Each connector is adjustable, what ensures outstanding transmission parameter.
- End face geometry is controlled with an interferometer.

Adapters
- Sleeve of the adapter is manufactured from zirconium dioxide, enabling high precision of the connection.
- High durability.
- Available in SQF and D-shape version.

Connection type
- With anti-rotation key as protection of the ferrule end face against scratching or rotation by mating cycles.
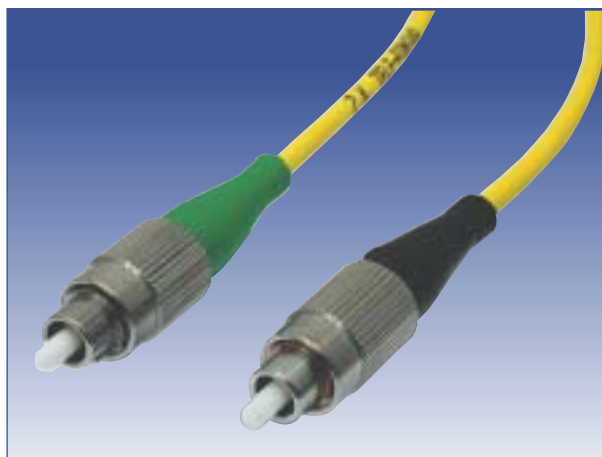
Patchords with FC connectors

Connector type
- Singlemode and multimode connectors.
- Following cables can be equipped with this connector type: 900 um tube or PVC cables with the following diameters: 1.7; 2.0; 2.4 and 2.8 mm.
- Possible polishing procedures: SuperPC, UltraPC and AnglePC.

Application
- Telecommunication, external and access networks.
- WDM networks.
- LAN/WAN networks.
- CATV networks.

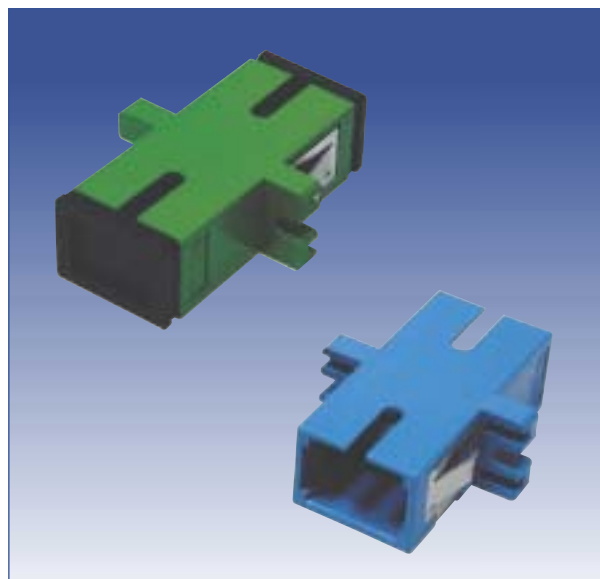**OptiTel PSP distribution frame equipped with FC adapters**

Fibre optic pigtails, patchcords and adapters

Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	FC/PC	FC/APC
Type of fibre	multimode	single mode
Ferrula type	ceramic	
	Ø126 µm (0 to +1 µm)	Ø125 µm (0 to +0,5 µm)
Adjustable	yes	
Min. mating cycles	over 1000 cycles	
Operating temperature	-40 to +85 °C	

Ferrule end face geometry

Polishing procedures	Radius	Fibre height	Fibre roughness
PC	10 - 25 mm	± 50 nm	< 5 µm
APC	8 - 15 mm		

FC adapters

Transmission parameters

Type	FC/PC multimode		FC/PC single mode		FC/APC single mode	
	typical	max.	typical	max.	typical	max.
Insertion loss	0.12 dB	< 0.35 dB	0,12 dB	< 0.35 dB	> 65 dB	0.35 dB
Return loss	-	-	> 50 db	> 52 db	> 0,12 db	> 80 db

Catalogue numbers of pigtails and patchords

Connector applied on the first end of the cable:
000 - pigtail
FCP - patchcord terminated with FC/PC connector
FCA - patchcord terminated with FC/APC connector

Type of cable / fibre:
JT - single mode tube
JK - single mode cable
5T - multimode tube, fibre with diameter of the core 50 µm
5K - multimode cable, fibre with diameter of the core 50 µm
6T - multimode tube, fibre with diameter of the core 62.5 µm
6K - multimode cable, fibre with core's diameter 62.5 µm

☐ – ☐ – ☐ – ☐ – ☐

Type of the patchcord / pigtail:
S - simplex
D - duplex

Connector applied on the other end of the cable:
FCP - patchcord terminated with FC/PC connector
FCA - patchcord terminated with FC/APC connector

Length of the cable in meters
- single mode pigtails: - single mode patchcords:
  2.5 - length 2.5 m   5.0 - length 5 m
  5.0 - length 5 m   10 - length 10 m
- multimode pigtails: - multimode patchcords
  1.5 - length 1,.5 m   2.0 - length 2 m
  2.0 - length 2 m   3.0 - length 3 m
                                   4.0 - length 4 m

Adapters catalogue numbers:

A-FC-I   - standard FC SQF adapter
A-FC-III - standard D-shape adapter
A-FCA-I   - FC/APC adapter

FIBRE OPTIC ACCESSORIES

Fibre optic pigtails, patchcords and adapters

LC STANDARD

- Miniature connector with push-pull mechanism.
- Zirconia miniature ferrule 1.25 mm.
- PC polishing procedures.
- Standard connector type meets the demands of units, used in the telecommunication networks.
- Standard connector in the transmission networks and active components of the largest telecommunication operators.
- Standardised in accordance with EIA/TIA 568A, FOCIS 10, IEC 11801, Bellcore.

Connector
- Twice smaller than SC or E2000 standard connector.
- Zirconia ferrule ensures very good resistance at the changing temperatures (operating temperature range from -40 °C to +85 °C).
- Machine polishing procedure ensures high quality of end face geometry and high repeatable performance.
- End face geometry is controlled with an interferometer.

Adapter
- Twice smaller than SC or E2000 standard adaptor.
- High packing density.

Connection type
- The Push - Pull coupling mechanism guarantees high protection and stability of the connection.

Pigtails with LC connectors

Connector type
- Singlemode and multimode connectors.
- Simplex and duplex connectors.
- Following cables can be equipped with this connector type: 900 um tube or PVC cables with the following diameters: 1.6 and 2.0 mm.

Application
- Telecommunication, external and access networks.
- WDM networks.
- LAN/WAN networks, Fibre to the Desk - solution.
- CATV networks.
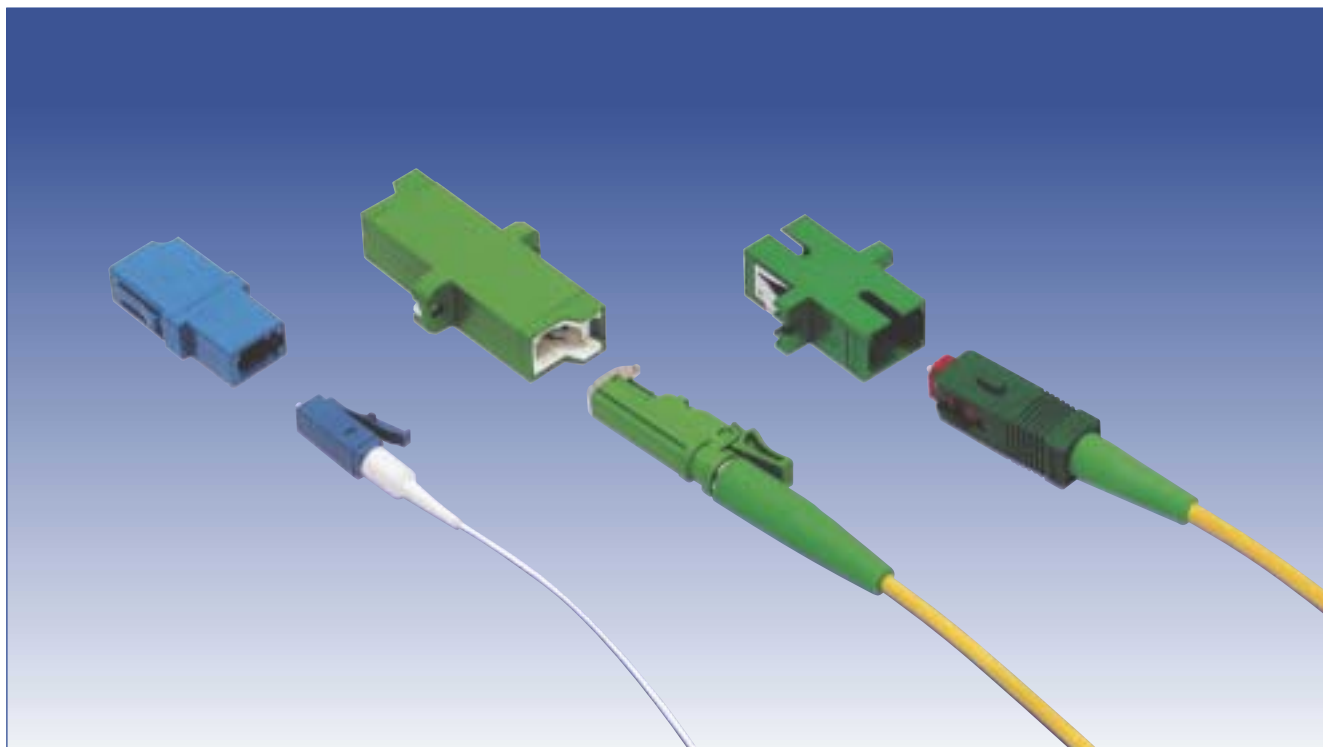
Compare of sizes of mini LC connector with E2000 and SC connectors

Fibre optic pigtails, patchcords and adapters

Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	LC/PC	
Type of fibre	multimode	single mode
Ferrula type	ceramic	
	Ø126 μm (0 to +1 μm)	Ø125 μm (0 to +1 μm)
Adjustable	yes	
Min. mating cycles	over 1000 cycles	
Operating temperature	-40 to +85 °C	

Transmission parameters

Type	LC/PC multimodey		LC/PC single mode	
	typical	max.	typical	max.
Insertion loss	0.12 dB	0.35 dB	0.2 dB	0.4 dB
Return loss	-	-	> 50 dB	> 55 dB
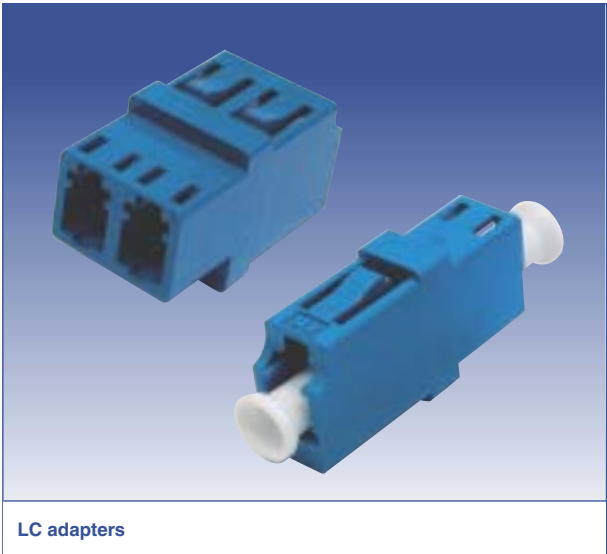
LC adapters

Catalogue numbers of pigtails and patchords

Connector applied on the first end of the cable:
000 - pigtail
LCP - patchcord terminated with LC/PC connector

Type of cable / fibre:
JT - single mode tube
JK - single mode cable
5T - multimode tube, fibre with diameter of the core 50 μm
5K - multimode cable, fibre with diameter of the core 50 μm
6T - multimode tube, fibre with diameter of the core 62.5 μm
6K - multimode cable, fibre with core's diameter 62.5 μm

☐ – ☐ – ☐ – ☐ – ☐

Type of the patchcord / pigtail:
S - simplex
D - duplex

Connector applied on the other end of the cable:
LCP -patchcord terminated with ST/PC connector

Length of the cable in meters
- single mode pigtails: - single mode patchcords:
  2.5 - length 2.5 m   5.0 - length 5 m
  5.0 - length 5 m   10 - length 10 m
- multimode pigtails: - multimode patchcords
  1.5 - length 1.5 m   2.0 - length 2 m
  2.0 -length 2 m   3.0 - length 3 m
                      4.0 - length 4 m

Adapters catalogue numbers:

A-LC-I   - LC/PC standard adapter
A-LC-II   - duplex adapter

FIBRE OPTIC ACCESSORIES

Telecommunication fibre optic cables

Fibre optical cables make up additional offer of ZPAS S. A. in the scope of structural cabling elements.
When ordering cable sort and number of fibres with their length should be given, all according to the scheme given on page 101.

Telecommunication fibre optic cables

MARKING SYSTEM FOR DATA AND TELECOMMUNICATION CABLES

Ordering instruction for FO cables:

Application

Z   - outdoor
ZKS   - outdoor, application in drainage system
W   - indoor
ZW   - universal (indoor - outdoor)
S   - self supporting (profile 8)
ADSS   - self -supporting (round)

Type of material for outer jacket

X   - polyethylene
Y   - PVC
V   - polyamyde
Xz   - polyethylene with moisture barrier
Xn   - pflame retardant polyethylene
Yn   - flame retardant PVC
N   - non-halogen flame retardant compound (FRLSOH)
In case od double layer outer jacket, types of both materials are placed in brackets, for example (VX)

Type of material for inner sheath:

X   - polyethylene
Y   - PCV
Xn   - flame retardant polyethylene
Yn   - flame retardant PVC
N   - non-halogen flame retardant compound (FRLSOH)
Al   - aluminium

Fibre optic marking

OTK   - telecommunication fibre optic cable

Cable core construction

ts   - loose tube with non-gel seal
tc   - central tube
S   - tight buffer and semi-tight buffer
tm   - microtube

Dielectric cable coding

d   - dielectric cable

Circuit amplification coding

D   - dielectric circuit amplification

Cable armour coating

Ff   - corrugated steel tape
Fo   -round steel wires

Flat cable coating

p   - flat cable

Optical fibre number and type

x J   - match cladding type without dispersion shifting
x Jp   - single mode, dispersion shifted fibre
x Jn   - single mode, non-zero dispersion shifted fibre
x G50   - multimode [50 / 125 µm]
x G62,5 - multimode [62.5 / 125 µm]
„*x*" means amount of fibres.
In case of cables with different types of fibres particular symbols are separated with „+ „ sign, for example 8G50+8J.

Allowable pulling force (for self-carrying cables)

for example 8kN

Sample: **Z-XOTKtsdD**

Z	–	X		OTK	ts	d	D				16G50		

Z - outdoor, X - outer jacket - polyethylene, OTK - telecommunications cable, ts - loose tube with non gel seal, d - dielectric, D - dielectric tube amplification, 16G50 - 16 multimode fibres G50/125 µm

COLOUR CODING FOR CABLES' CONSTRUCTION ELEMENTS

1. Optical fibre coding inside the tube

In case that where tube contains more than one optical fibre, primary coating of fibre is coloured according to the following (compliant with IEC 304):

- red
- green
- blue
- white
- violet
- orange
- gray
- yellow
- brown
- pink
- black
- strawberry

2. Line cable tube coding

In order to distinct tubes within the cable, they are coloured as follows:

- counter tube   - red
- direction tube   - blue

Remaining tubes and filling elements are in natural colours.

3. Indoor cable coding

- yellow - for single mode optical fibre J
- red - for single mode optical fibre Jp
- brown - for single mode optical fibre Jn
- orange - for multimode optical fibre G50
- green - for multimode optical fibre G62,5

FIBRE OPTIC ACCESSORIES

System of supervising climatic conditions

ZPAS-CONTROL M-Bus

ZPAS-CONTROL M-Bus system is a software based on elements digital system of automatics, which allows designing effective, cheap and reliable regulating and measuring systems. It is designed for application in professional systems of supervising climatic conditions in outdoor cabinets, data and telecommunication cabinets, power industry cabinets, mimic panels and in industrial buildings. Possibility of different configurations of ZPAS-CONTROL M-Bus enables to use the system in e. g. intelligent buildings, heat engineering, water and sewage disposal, calculating individual usage of heat in municipal housing estates and others.

Designing systems of automatics based on ZPAS-CONTROL M-Bus is easy thanks to application of universal hardware elements and software modules designed for controlling and regulating by typical controlling equipment. The system comprises of central units, data transmission converters, facility modules, hardware modules and sensors of temperature, humidity, smokiness, movement vibrations, access. Communication between central unit and other modules is based on standard M-Bus enlarged by operation possibilities.
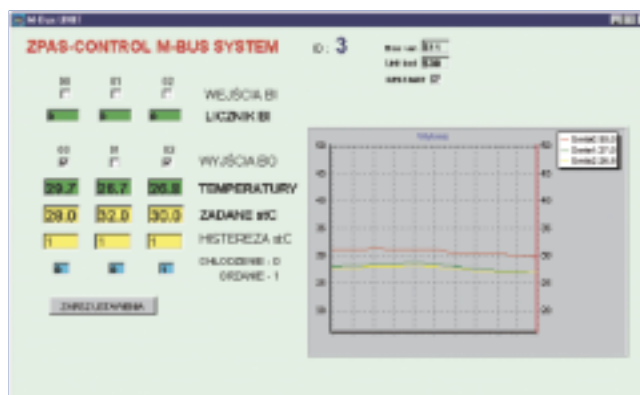
Basic parameters of M-Bus data transmission bus:
- optional topology of cabling (the medium is two-wires spiral),
- connection of up to 250 appliances in one exchange,
- protection data bus from change of poles,
- power supply of end appliances directly from M-Bus

ZPAS-CONTROL M-Bus system is accompanied by attractive software for graphic visualisation working in Windows operating system. It is compatible with superordinated systems SCADA type. Moreover, ZPAS-CONTROL M-Bus system allows to create individual, adjusted to specific needs operating panels.
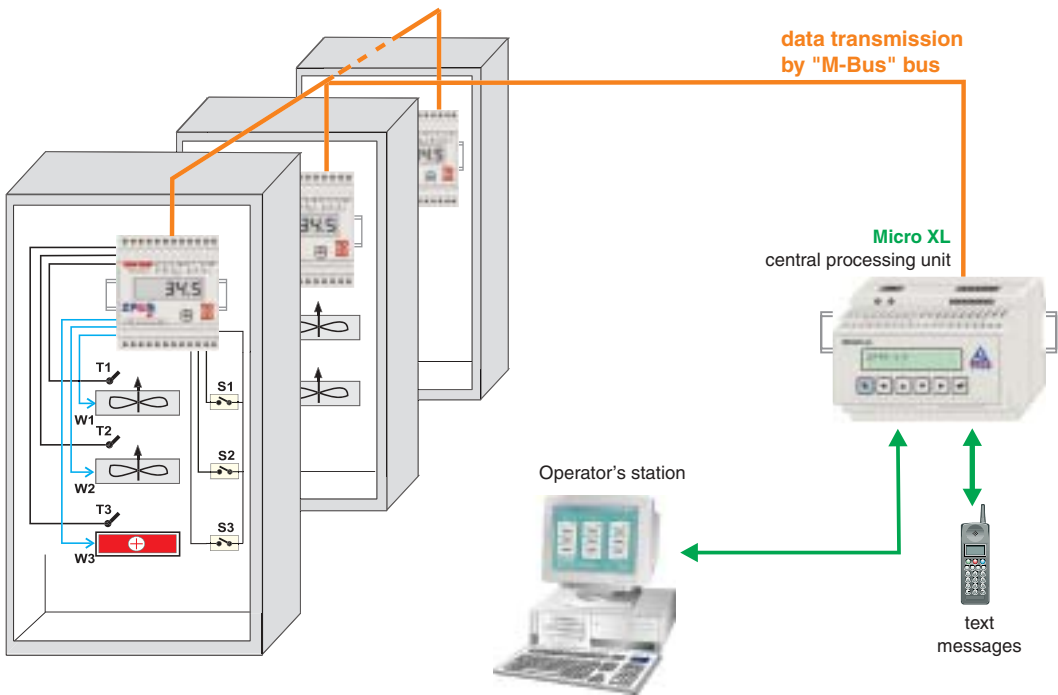

ZPAS-CONTROL M-Bus

CONFIGURATION WITH PROGRAMMER AND GSM DATA TRANSMISSION
ZPAS-CONTROL M-Bus system in basic configuration enables constant measurement of three temperatures in the range from -55 to +125 °C by means of DST temperature sensors (the lenght of conduct 10m), which are connected to temperature controller TIO 333. Programming of temperature controller TIO 333 (setting up the value of temperature and histeresis with precision of regulation up to 1 °C) for this configuration of the system is provided by the producer.

Hardware controller (P2 relay or TRIAC 2 power module) designed to control elements like fans, heaters or others on customer's request can be connected to two-state outputs of the TIO 333 temperature controller (three outputs - transistored keys, max. 30 V, 500 mA). The controller is supplied by 15 - 30 V DC power feeder (in accordance with instruction). Configuration of the system in its basic version enables to enlarge the construction of the system by adding modules according to the catalogue or project prepared on customer's request.

System of supervising climatic conditions

Configuration of the system with the programmer and GSM data transmission

data transmission by "M-Bus" bus

Micro XL central processing unit

Operator's station

text messages

T1
W1 T2
W2
T3
W3
S1
S2
S3

T1 - temperature sensor 1

T2 - temperature sensor 2

T3 - temperature sensor 3

W1 - controlling output 1

W2 - controlling output 2

W3 - controlling output 3

S1 - signalling device of door open

S2 - signalling device of smokiness

S3 - signalling devices of vibrations and humidity

Configuration	Quantity
MICRO-XL programmer	1
TIO 333 temperature controller	1
DST temperature sensor	3
Triac 2	1
24 V DC power supplier	1
GSM modem	1
LMC Logic Master Control software	1

Enlarging basic configuration by:

- MICRO-XL programmer,
- GSM data transmission modem and
- LMC Logic Master Control software,

we additionally achieve:

- possibility of multiple programming of the demanded temperature values as well as hysteresis (precision of regulation - 1 °C) by means of attached PC computer or directly from MICRO-XL programmer,
- possibility of connecting up to three two-state signalling devices (for example microswitch, smokiness sensor, movement sensor, humidity sensor, vibration sensor and others) with registration of their activity on a graphic panel,
- possibility of graphic visualisation of the appliances at work (the states of inlets and outlets) as well as registration of the temperatures on the charts,
- possibility of storing data - long term registration of the parameters with possibility of importing them into the data base on PC computer,

- possibility to get connected to the facilities from any place on earth via GSM cell phone or stationary telephone connection. It allows for monitoring and remote supervising of the facilities,
- previewer of registered charts allowing for mathematical working and creating new channels on the basis of already existing records,
- possibility of configuration archive data from different periods which allows to analyse changes in technological lines in the long run,
- software, providing graphic representation in Windows environment, adjusted to co-operation with different superordinated systems. It allows to create own operator's panels adjusted to particular needs.

Configuration of the system in such version allows its further enlargement by adding modules according to the catalogue or to the project prepared on customer's request.

More info about the system and available elements of the system can be found in the separate catalogue, Marketing Department of ZPAS or web site **www.zpas.com**.

ZPAS - CONTROL M - Bus

Notes

Notes

POLAND

WALBRZYCH
Walim
GŁUSZYCA
Przygórze
BROUMOV
Wolibórz
NOWA RUDA
CZECH REPUBLIC
Tłumaczów
RADKÓW
KŁODZKO