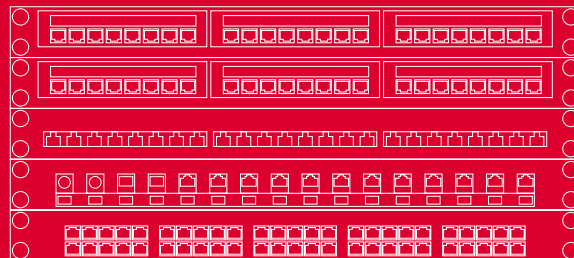


# Structured cabling and telecommunication accessories

[ 2009 ]

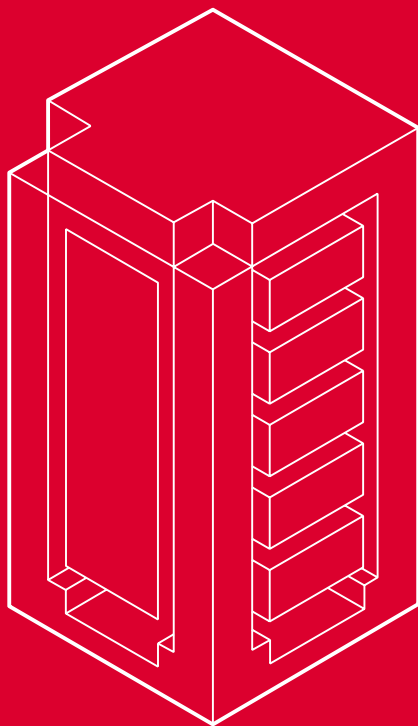


**ZPas**  
net

connections for you

# ZPAS

G R O U P



**35 YEARS  
OF EXPERIENCE  
1973-2008**

## ZPAS Group

The ZPAS Group, pursuing shared goals and business philosophy, integrates the product offer of ZPAS S.A. and ZPAS-NET sp. z o.o. The idea is reflected in our motto "solutions for connections", which refers to advantages of our products, benefits of using them, a superb system of communication with our customers, partnership, technical consulting and high level of customer service, from the moment of first contact until order fulfilment. The motto thus reflects our attitude to clients whose requirements we wish to satisfy, offering them top-quality services.

We have achieved a strong status in the industry over 35 years of our business activity. As a manufacturer, we operate in accordance with our well-established reputation as a reliable business partner providing customers with top-quality products, short lead times and very reasonable prices.

Electronic communication products (elements of IT, telecommunications and power systems) must demonstrate parameters and features capable of meeting rigorous high-tech requirements. Our primary goal is to supply such products.

Our capital is not limited to modern machines. We also boast of highly qualified staff. Our employees are young, creative and innovation-minded. They also make the best use of vast industry experience acquired over more than 30 years by specialists who have worked for our company ever since its beginnings. Advanced technologies and well-planned organisation of all manufacturing processes are supported by INFOR ERP LN, our IT system.



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ZPAS-NET

PowerLink structured cabling elements

NetLAN structured cabling elements

STRUCTURED CABLING AND TELECOMMUNICATION ACCESSORIES
Fibre optic distribution frames

ACTIVE AND POWER SUPPLY DEVICES

## ABOUT THE COMPANY



ZPAS-NET office building

### ZPAS-NET sp. z o.o.

Since the very beginning of its business activity in 1973, ZPAS in Przygórze has manufactured enclosures and equipment for the power sector and other industry branches. Initially, the Company operated as the Experimental Department of the Power System Automation Institute (IASE) in Wrocław, to become a part of the Research and Manufacturing Centre for Power System Automation (CNPAE). After 1989, the management of the Company undertook actions aimed at privatisation, which resulted in the establishment of a private joint-stock company at the end of 1991.

ZPAS-NET sp. z o.o. was established on 1 June 2004 as a result of spinning off departments specialising in network solutions and power sector equipment from the general structure of ZPAS S.A. The name of the new company features the "net" element that stands for the line of products necessary to develop the infrastructure of modern networks and supervision/control systems. Another, equally important, product group comprises dedicated elements for the electric power industry incorporating intelligent IT solutions.

The two companies making up the ZPAS Group (ZPAS S.A. and ZPAS-NET sp. z o.o.) offer complementary products, marketing a broad range of articles performing important functions in electronic communications. ZPAS products are widely used as an infrastructural base for telecom and IT networks, as well as enclosures for the telecommunications and power equipment.

ZPAS-NET has been developing very rapidly, recently opening a new plant in Nowa Ruda-Drogosław, within the subzone of the Wałbrzych Special Economic Zone. The plant was officially put into operation on 5 October 2007. The new ZPAS-NET facility has an office area of 800 m<sup>2</sup> and the production area of 2500 m<sup>2</sup>. Detailed information is available at [www.zpas.pl](http://www.zpas.pl).

### Quality and the environment

The ZPAS Group holds the ISO 9001:2000 Quality Assurance System Certificate and the ISO 14001:2004 Environmental Management System certificate.

### Sales agencies

The Company has around a dozen sales agencies all over Poland. A detailed list is available on the Company's website.

ZPAS products are also sold abroad through a distribution network in: Austria, Belarus, Belgium, Bosnia and Herzegovina, Cyprus, Denmark, France, Germany, Great Britain, Greece, Hungary, Iceland, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Morocco, the Netherlands, Norway, Portugal, Russia, Slovenia, Spain, Sweden, Switzerland and the Ukraine. Detailed information is available on request from the ZPAS Group Marketing Department.

## ABOUT THE COMPANY



ZPAS-NET production facility



Product assembly



Structured cabling warehouse

### ZPAS-NET offers:

- structured cabling systems
- fibre optic distribution frames and accessories
- telecommunications accessories
- ZPAS Control Oversee supervising system
- DataCenter integration of equipment and systems
- aluminium outdoor telecom cabinets
- dispatch and control desks
- mimic boards
- prefabrication of power supply, protection, control and automatics cabinets

### ZPAS offers:

- 19" and 21" data communication enclosures (including server cabinets, telecommunications cabinets, EMC enclosures and others – both in free-standing and wall-mounted versions)
- empty power cabinets (without electrical devices)
- customised cabinets
- universal control desks
- products made of stainless acid-resistant steel

ISO 9001, ISO 14001

ZPAS-NET



GUARANTEE



## ZPAS-NET 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 contractors of ZPAS-NET are the best installing companies. The company takes care of their appropriate qualifications; offering advanced training programs and technical support.

ZPAS-NET 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-NET 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-NET. The longest possible period of duration is "life time" guarantee, the shortest period is 5 years.

#### The Powerlink Structured Cabling system consist of 5 subsystems:

- PowerLink system UTP category 5e.
- PowerLink TX system UTP category 6.
- PowerSafe System STP category 5e
- PowerSafe TX System STP category 6.
- 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-NET 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 1 U height with 24 RJ45 ports and in 2 U 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-NET 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 1 U 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 disconnect 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.

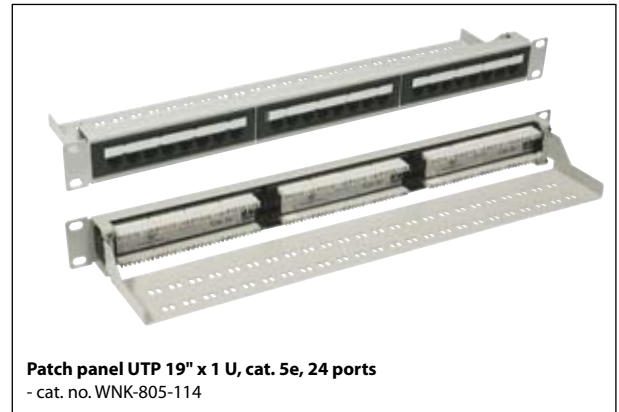
Wall-mounted rails for fixing terminal blocks and panels of terminal blocks in 19" standard supplement the offer.



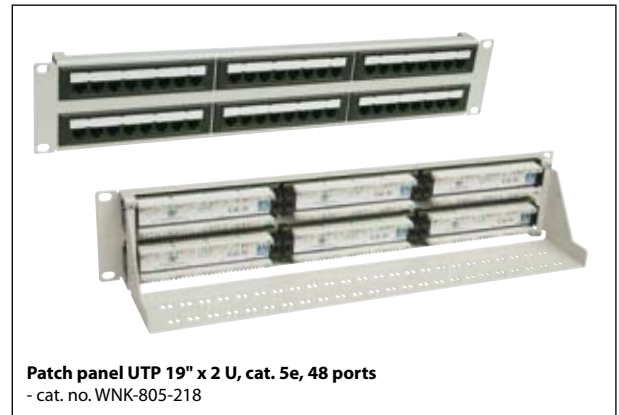
## 19" PANELS

### Patch panels category 5e and 6

- 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 1 U, cat. 5e, 24 ports  
- cat. no. WNK-805-114



Patch panel UTP 19" x 2 U, cat. 5e, 48 ports  
- cat. no. WNK-805-218

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
WNK-805-114	483	44	100	1.01
WNK-805-218	483	88	100	1.39
WNK-805-524	483	44	250	2.27
T-SO-806-114	483	44	30	0.62

**Material:** sheet steel 1.5 mm

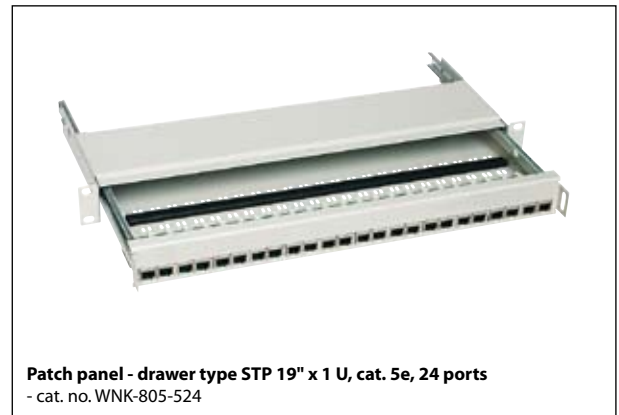
**Surface finish:** powder painting in RAL 7035 colour

#### 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



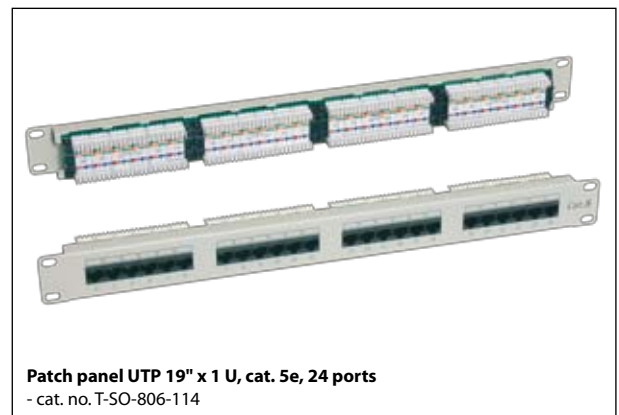
Patch panel - drawer type STP 19" x 1 U, cat. 5e, 24 ports  
- cat. no. WNK-805-524

#### 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 contact:

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



Patch panel UTP 19" x 1 U, cat. 5e, 24 ports  
- cat. no. T-SO-806-114

## 19" PANELS

### Cable organizer

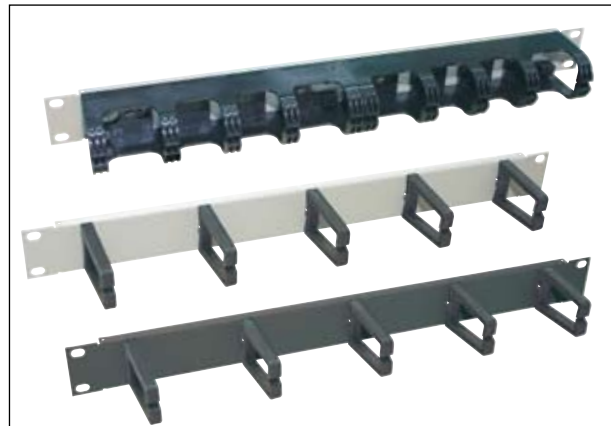
- 19" standard.
- Esthetical look.
- Convenient reconfiguration.
- Package contains set of assembly hardware.

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Colour	Weight [kg]
	Width	Height	Depth		
WNK-811-000	483	44	80	RAL 7035	0.53
WNK-811-100	483	44	70	RAL 7035	0.51
WNK-811-101	483	44	70	RAL 9005	0.51

**Material:** sheet steel 1.5 mm

**Surface finish:** powder painting.



**Cable organizer 19" x 1 U**

- cat. no. WNK-811-000
- cat. no. WNK-811-100
- cat. no. WNK-811-101

### Telephone patch panel

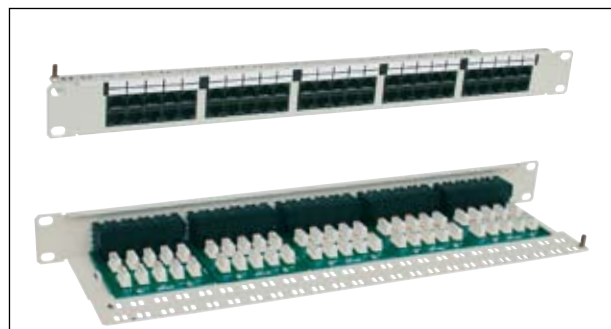
- 19" patch panel 50 x RJ45 is designed for termination of vertical cabling, accepts multi-pair unshielded telecom cables (25, 50 pairs), or 4 pairs twisted cable.
- For details please refer to the page 25.

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
WNK-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 1 U, cat. 3, 50 ports**

- cat. no. WNK-807-155

### Mounting frame for telephone modules

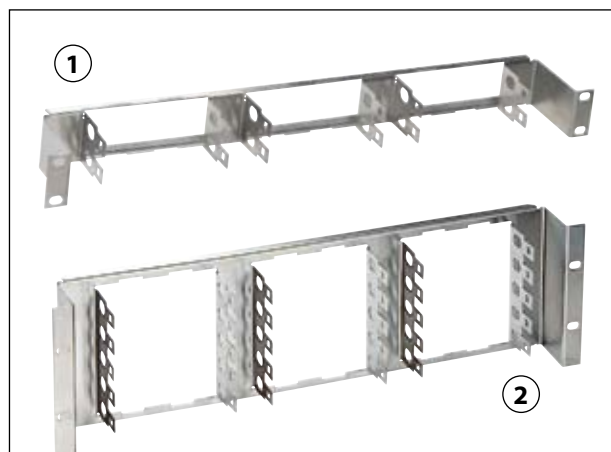
- Produced of stainless steel.
- Equipped with sockets for telephone modules.
- Available in two sizes:
  - 19" x 1 U - 6 modules
  - 19" x 3 U - 15 modules

#### Mechanical parameters:

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

**Material:** sheet steel 0.75 mm

**Surface finish:** none



**1) Mount frame 19" x 1 U, 6 modules** - cat. no. WNK-803-160

**2) Mount frame 19" x 3 U, 15 modules** - cat. no. WNK-803-115

## BOXES AND FACEPLATES

### Sample configuration of user outlet

#### User outlet with 2 faceplates 25 x 50 mm

To configure complete user outlet for 2 faceplates in 25 x 50 mm standard the following elements should be applied:

- Wall-mounted box for 2 faceplates, cat. no. T-SO-828-111 - 1 pc.
- Box cover for 2 sockets - cat. no. T-SO-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.



Sample of outlet with two faceplates 25 x 50 mm

#### Outlet 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. T-SO-828-111 - 1 pc.
- Support for 2 faceplates cat. no. T-SO-828-711 - 1 pcs.
- Box cover 45 x 45 mm for 2 faceplates, cat. no. T-SO-828-811 - 1 pc.
- Faceplate 22.5 x 45 with shutter for keystones cat. no. T-SO-828-050 - 2 pcs.
- Keystone module - 2 pcs.
- Instead of 2 faceplates electrical socket 45 x 45 mm can be used.



Sample of outlet with faceplate and blind faceplate

#### User outlet with 4 mosaic - type faceplates

To configure complete user outlet for 4 faceplates in 22.5 x 45 mm standard the following elements should be applied:

- Wall-mount box for 4 faceplates, cat. no. T-SO-828-112 - 1 pc.
- Support for 4 faceplates cat. no. T-SO-828-712 - 1 pc.
- Box cover 90 x 45 mm for 2 faceplates cat. no. T-SO-828-812 - 1 pc.
- Faceplate 22.5 x 45 with shutter for keystones cat. no. T-SO-828-050 - 4 pcs.
- Keystone module - 4 pcs.
- Instead of 2 faceplates electrical socket 45 x 45 mm can be used.

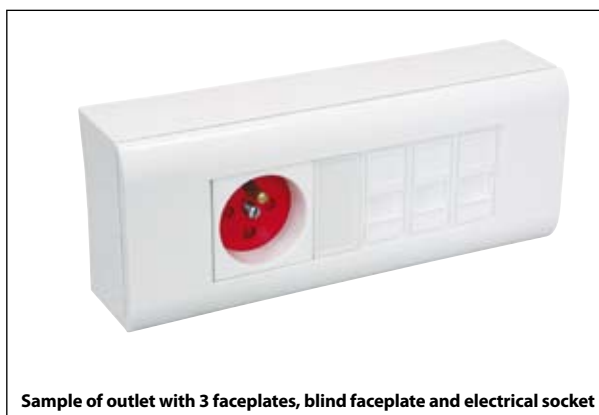


Sample of outlet with faceplate, blind faceplate and electrical socket

#### User outlet with 6 mosaic - type faceplates

To configure complete user outlet for 6 faceplates in 22.5 x 45 mm standard the following elements should be applied:

- Wall-mounted box for 6 faceplates, cat. no. T-SO-828-113 - 1 pc.
- Support for 6 faceplates cat. no. T-SO-828-713 - 1 pc.
- Box cover 135 x 45 mm for 2 faceplates cat. no. T-SO-828-813 - 1 pc.
- Faceplate 22,5 x 45 with shutter for keystones cat. no. T-SO-828-050 - 6 pcs.
- Keystone module - 6 pcs.
- Instead of 2 faceplates electrical socket 45 x 45 mm can be used.



Sample of outlet with 3 faceplates, blind faceplate and electrical socket

## BOXES AND FACEPLATES

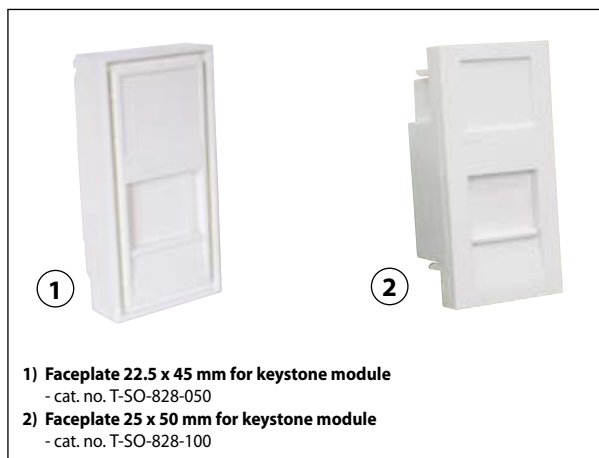
### Faceplates for keystones

- Possibility of configuration of complete user outlet 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 T-SO-828-050 and T-SO-828-100 are equipped with anti-dust shutter.

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-828-050	22.5	45	10	0.004
T-SO-828-100	25	50	10	0.005
T-SO-828-040	25	50	10	0.003

**Material:** thermoplastic ULV94V0



### 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	
T-SO-828-010	25	50	7	0.004
T-SO-828-030	22.5	45	7	0.004

**Material:** thermoplastic ULV94V00



## BOXES AND FACEPLATES

### Wall mounted boxes

- Ideal for surface installation, possibility of right/left cable entry.
- T-SO-828-111 box accommodates 2 sockets.
- T-SO-828-112 box accommodates 4 sockets.
- T-SO-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:

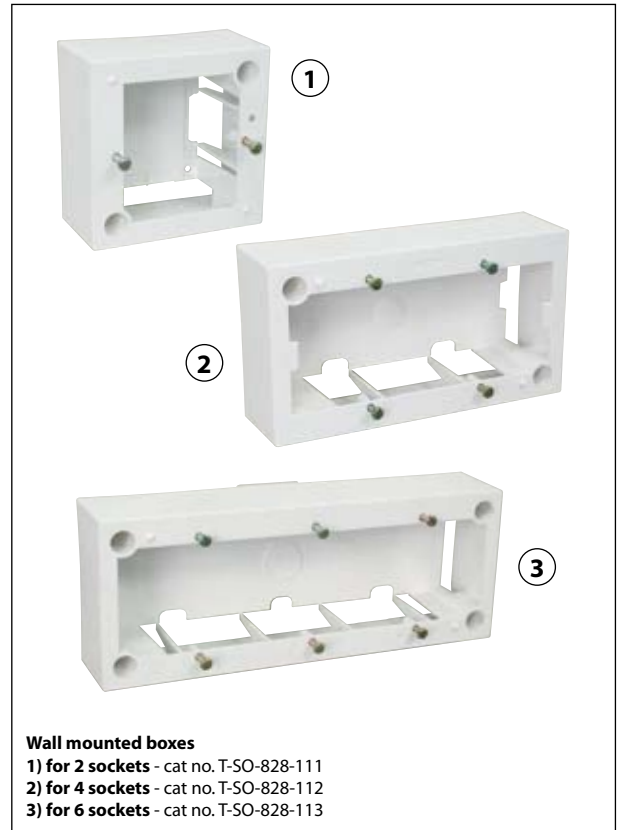
Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
T-SO-828-111	2 sockets	81	81	40	0.040
T-SO-828-112	4 sockets	148	81	40	0.065
T-SO-828-113	6 sockets	203	40	0.100	

#### Spacing of mounting screws:

- T-SO-828-111 box - 60 mm
- T-SO-828-112 box - 60 x 57 mm
- T-SO-828-113 box - 60 x 57 x 57 mm

**Material:** thermoplastic ABS

**Colour:** white



### 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:

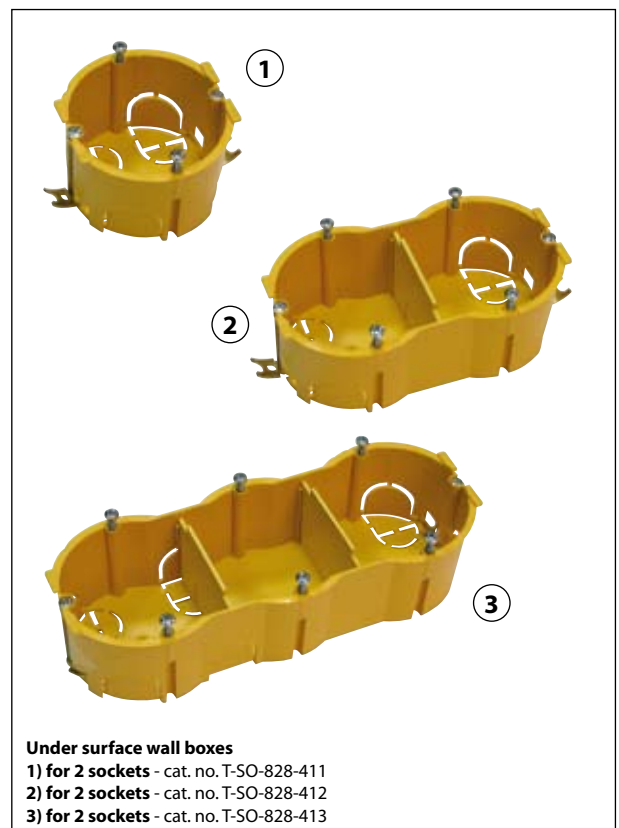
Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
T-SO-828-411	2 sockets	65	65	40	0.030
T-SO-828-412	4 sockets	121.8	65	40	0.045
T-SO-828-413	6 sockets	178.6	65	40	0.060

#### Spacing of mounting screws:

- T-SO-828-411 box - 60 mm
- T-SO-828-412 box - 60 x 57 mm
- T-SO-828-413 box - 60 x 57 x 57 mm

**Material:** thermoplastic ULV94V0

**Colour:** yellow



## BOXES AND FACEPLATES

### Covers for installations 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: T-SO-828-111, T-SO-828-112, T-SO-828-113 and T-SO-828-411, T-SO-828-412, T-SO-828-413.

#### Mechanical parameters:

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

**Material:** thermoplastic ULV94V0

**Colour:** white



1) Cover for 2 faceplates 25 x 50 mm - cat. no. T-SO-828-211  
 2) Cover for 2 faceplates 22.5 x 45 mm cat. no. T-SO-828-811

### 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	
T-SO-828-711	76,5	70,3	11,7	0.010
T-SO-828-712	138	71	11,7	0.020
T-SO-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. T-SO-828-711

#### Caution:

In our price list are available supports for 4 and 6 modules not shown on a pictures.

## KEYSTONES AND SOCKETS

### Transmission modules cat. 5e UTP, STP

- Keystone modules RJ45 cat. 5e are designed for user outlet, as well as commutation fields.
- 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.
- Modules T-SO-831-918 are built using monolithic construction from ABS.
- Restant modules are built using printed circuit board.
- List of mounting accessories available on page 12 (See configuration of user outlet).
- Available in versions: STP cat. 5e fully shielded (360°).

#### Mechanical parameters:

Catalogue number	Colour	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
T-SO-831-911	white	19.20	18 (20)*	32	0.0087
T-SO-831-918	white	14.80	19.00	19.90	0.007
T-SO-832-921	white	19.7	24	34 or 52**	0.014

\*) In brackets - width of modules with caps.

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

**Material of case:** socket - thermoplastic ABS and UL94V0.

#### Electrical parameters:

- Attenuation..... < 20 mΩ
- Return loss..... > 500 MΩ

#### Transmission parameters:

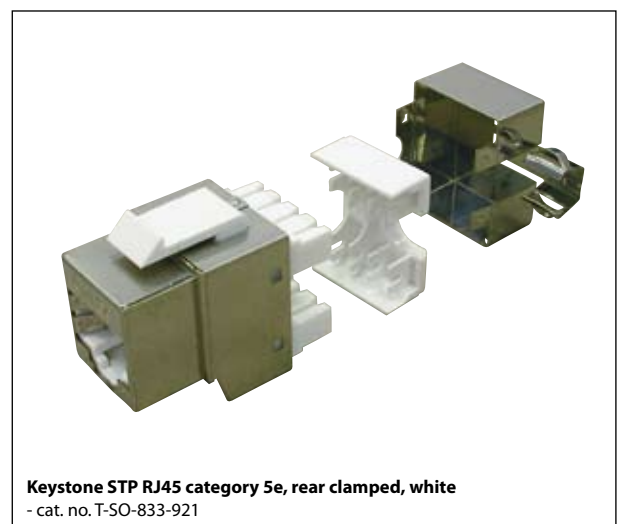
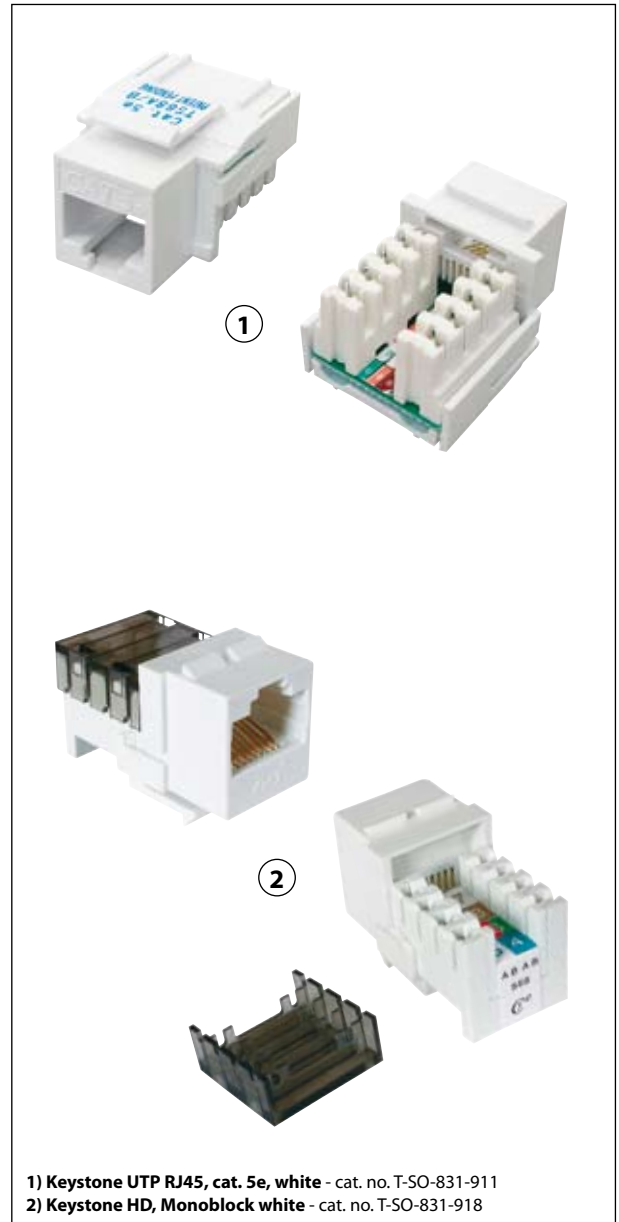
Parameter	Frequency			
	1 MHz	16 MHz	25 MHz	100 MHz
Attenuation [dB]	0.017	0.021	0.025	0.720
NEXT [dB]	86.97	66.31	62.75	52.20
Return loss [dB]	53.67	41.46	37.56	26.50

#### 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 connector:

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



## KEYSTONES AND SOCKETS

### Transmission modules cat. 6 UTP, STP

- Keystone modules RJ45 cat. 6 are designed for user outlet, 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.

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-834-912	16	22	43	0.015
T-SO-834-922	17	24	54	0.020

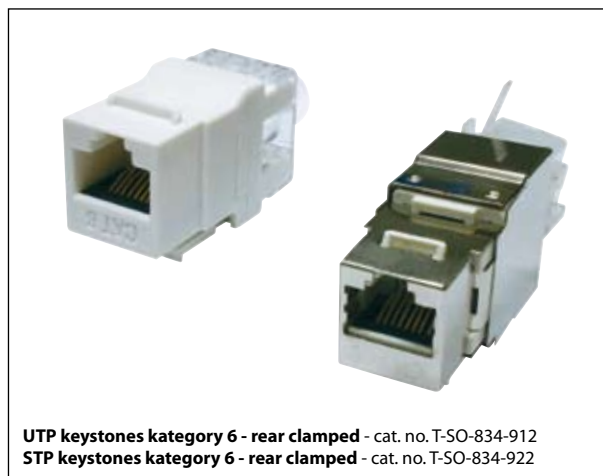
**Material of case:** thermoplastic ABS and UL94V0.

#### 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



UTP keystones category 6 - rear clamped - cat. no. T-SO-834-912  
STP keystones category 6 - rear clamped - cat. no. T-SO-834-922

#### 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 connector:

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

### 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.
- For wall boxes: T-SO-828-111, T-SO-828-112, T-SO-828-113 and adapters T-SO-828-711, T-SO-828-712, T-SO-828-713.
- It is also possible to mount the sockets in adapters T-SO-828-711, T-SO-828-712, T-SO-828-713.

#### Mechanical parameters:

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

**Material:** thermoplastic ABS and UL94V0

#### Electrical parameters:

- Max. current ..... 16 A
- Voltage ..... 250 V ~

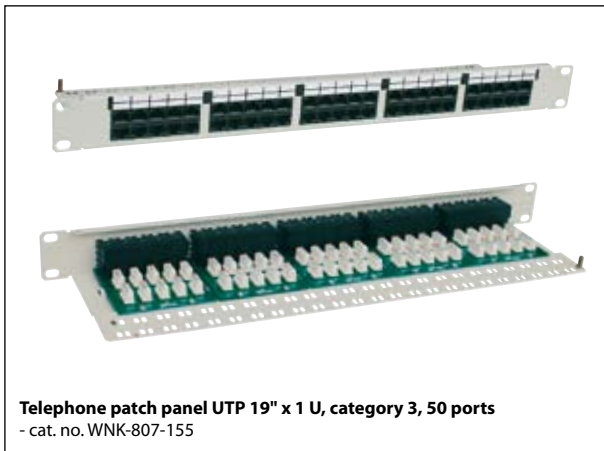


Safety shutter with self adhesive type - cat. no. T-SO-839-520  
Electrical socket 45 x 45 mm with safety shutter, red - cat. no. T-SO-839-5155

## 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.
- In the back of cat. 5e panel there is a shelf to provide easy cable management.



Telephone patch panel UTP 19" x 1 U, category 3, 50 ports  
- cat. no. WNK-807-155

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
WNK-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 connector:

- 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

### Mount frame for telephone modules

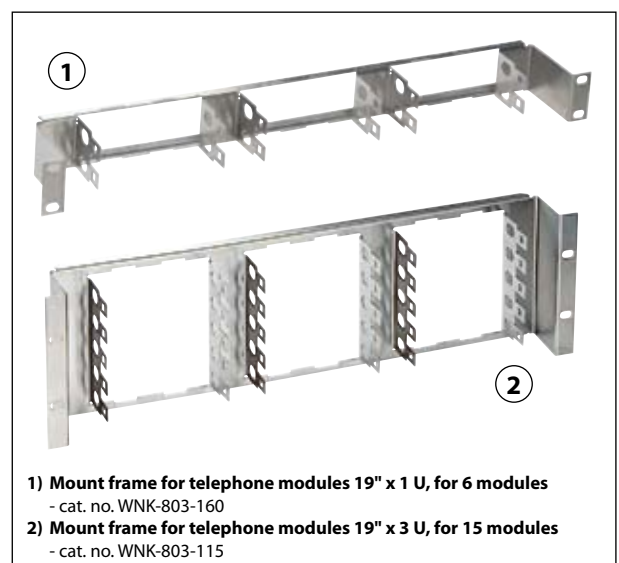
- Produced of stainless steel.
- Equipped with sockets for telephone modules.
- Available in two sizes:
  - 19" x 1 U - 6 modules
  - 19" x 3 U - 15 modules

#### Mechanical parameters:

Catalogue number	Capacity	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
WNK-803-160	6 modules	483	44 (1U)	81	0.300
WNK-803-115	15 modules		133 (3U)		0.422

**Material:** stainless sheet steel 0.75 mm

**Surface finish:** none



1) Mount frame for telephone modules 19" x 1 U, for 6 modules  
- cat. no. WNK-803-160  
2) Mount frame for telephone modules 19" x 3 U, for 15 modules  
- cat. no. WNK-803-115

## 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 disconnect any line.

#### Technical data

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



#### 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



#### 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<sup>10</sup> Ω  
 Capacity [a-e, b-e] ..... < 1.5 pF  
 Capacity [a-b] ..... < 1.0 pF  
 Weight..... 0.0024 kg



## POWER VS TELEPHONE SYSTEM

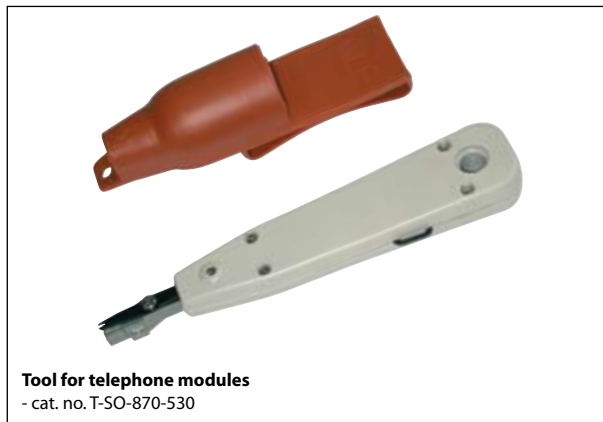
### Tool for telephone modules

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 tool possesses additional special endings which are used for taking out of telephone modules from frame.

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

**Case material:** thermoplastic UL94V0

**Ending material:** tooling steel

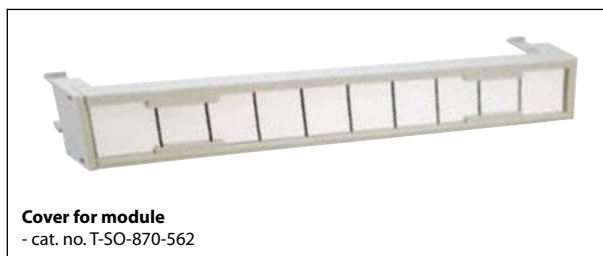


**Tool for telephone modules**  
- cat. no. T-SO-870-530

### Labels and covers

- The telephone system contains elements which simplify indication of particular connectors.
- Labels are equipped with paper labels, making it possible writing of description.

Catalogue number	Dimensions [mm]	Weight [kg]
T-SO-870-562	108 x 17 x 14	0.015



**Cover for module**  
- cat. no. T-SO-870-562

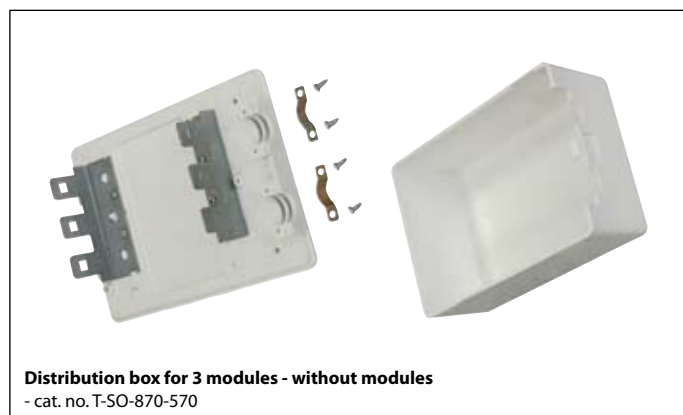
### Distribution boxes

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

#### Mechanical parameters:

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

**Material:** non-flammable ABS thermoplastic.



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



**Distribution box - for 5 modules without modules**  
- cat. no. T-SO-870-571  
**Distribution box for 10 modules - without modules**  
- cat. no. T-SO-870-572

## SKI2 10" WALL-MOUNTED CABINET

- Intended for small networks.
- Useful height of the cabinet is 7 U.
- The cabinet is based on body with steel or glass door. The cabinet includes two mounting angles for installation of 10" appliances. The mounting angles are fixed to the walls of the walls of the body.
- The cabinet does not have rear panel.

Catalogue number	Cabinet type	Weight [kg]
WZ-3661-01-01-011	SKI2 cabinet with steel door	5.00
WZ-3661-01-02-011	SKI2 cabinet with glass door	5.20

**Supply includes:** SKI2 cabinet is sold as an empty enclosure. SKI2 cabinet is sold as an empty enclosure. Additional equipment in 10" standard should be ordered separately (see below).

**Dimensions (width x height x depth):**

310 x 355 x 260 mm

**Material:**

- Body, steel door, mounting angles ..... 1.0 mm thick sheet steel
- Glass door ..... 4.0 mm thick safety glass

**Surface finishing:**

Powder painted in RAL 7035. Application of other colours on request.



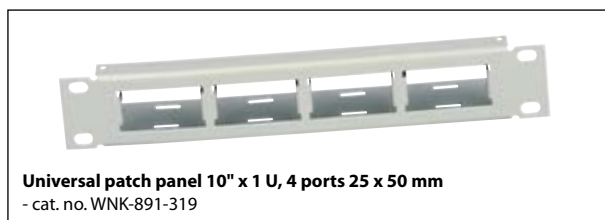
**SKI2 cabinet with steel door**  
- cat. no. WZ-3661-01-01-011



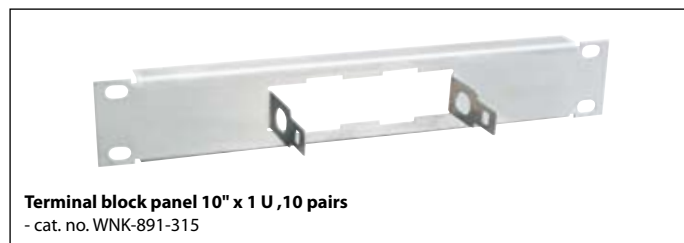
**SKI2 cabinet with glass door**  
- cat. no. WZ-3661-01-02-011

**Additional equipment in 10" standard:**

Catalogue number	Cabinet type	Weight [kg]
WNK-891-319	Universal patch panel 10" x 1 U, 4 ports 25 x 50 mm	0.20
WNK-891-315	Terminal block panel 10" x 1 U, 10 pairs	0.14
WNK-891-312	Patch panel 10" x 1 U for keystones, 8 ports	0.26
WNK-891-316	Patch panel 10" x 1 U, cat. 5e, 8 ports RJ45	0.35
WNK-891-311	Shelf 10" x 1 U	0.40



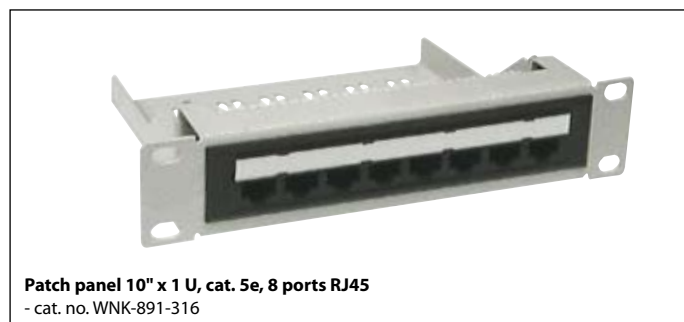
**Universal patch panel 10" x 1 U, 4 ports 25 x 50 mm**  
- cat. no. WNK-891-319



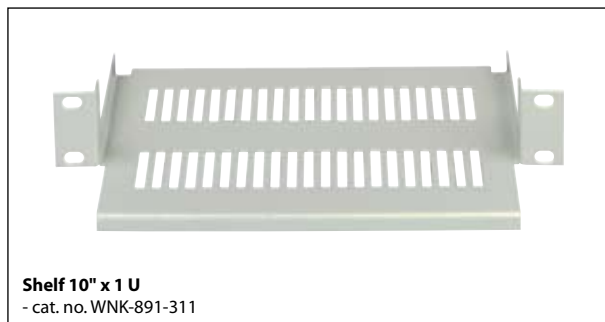
**Terminal block panel 10" x 1 U, 10 pairs**  
- cat. no. WNK-891-315



**Patch panel 10" x 1 U, for keystones, 8 ports**  
- cat. no. WNK-891-312



**Patch panel 10" x 1 U, cat. 5e, 8 ports RJ45**  
- cat. no. WNK-891-316



**Shelf 10" x 1 U**  
- cat. no. WNK-891-311

## TOOLS FOR INSTALLERS

### 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	Lenght	
T-SO-881-302	35	20	180	0.120

**Case 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 fl at cables KP-8, KP-6.

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

**Handle material:** plastic



### Cross cable stripper

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

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

**Case material:** plastic



## ACCESSORIES FOR INSTALLERS

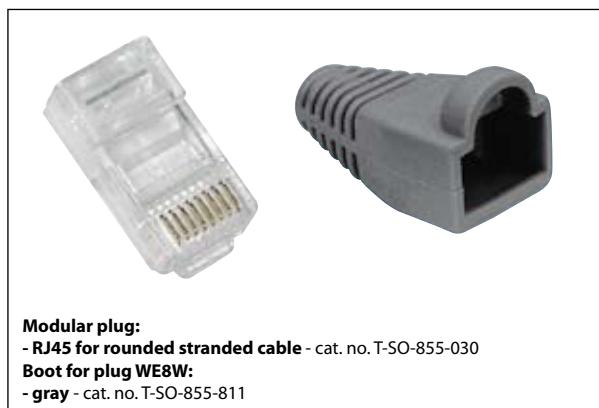
### Modular plug

- Effective protection of cable and plug against mechanical damages.
- Accordance with category 5e.
- Esthetical look.
- Durable fastening of cable in the plug.
- Flexible thermoplastic material ensures high durability and comfort usage.
- Various types of plugs.
- Package contains 100 pcs.

**Case material:** thermoplastic UL94V0

**Contacts material:** phosphor bronze

**Contacts plating:** 1.25 µm gold over 2.50 µm nickel



**Modular plug:**  
 - RJ45 for rounded stranded cable - cat. no. T-SO-855-030  
**Boot for plug WE8W:**  
 - gray - cat. no. T-SO-855-811

### Reference chart

Part	Colour / type	Catalogue number	Dimensions [mm]			Weight [kg]
			Width	Height	Depth	
Boot	gray	T-SO-885-811	10	12	22	0.003
Plug	RJ45 for rounded stranded UTP cable	T-SO-855-030	15	15	28	0.003
	RJ45 for rounded FTP solid	T-SO-855-130	11	15	23	

### UTP and FTP patch cables category 5e and category 6

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

#### 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 length, colours and category 6 available on customer's request.



Patch cable category 5e

### Reference chart

Catalogue number	Type of cable	Weight [kg]
T-SO-850-461	Patch cable RJ45, UTP, category 5e, 0.5 m	0.025
T-SO-850-411	Patch cable RJ45, UTP, category 5e, 1 m	0.043
T-SO-850-421	Patch cable RJ45, UTP, category 5e, 2 m	0.074
T-SO-850-431	Patch cable RJ45, UTP, category 5e, 3 m	0.104
T-SO-850-451	Patch cable RJ45, UTP, category 5e, 5 m	0.150
T-SO-850-561	Patch cable RJ45, FTP, category 5e, 0.5 m	0.065
T-SO-850-511	Patch cable RJ45, FTP, category 5e, 1 m	0.119
T-SO-850-521	Patch cable RJ45, FTP, category 5e, 2 m	0.230
T-SO-850-531	Patch cable RJ45, FTP, category 5e, 3 m	0.360
T-SO-850-761	Patch cable RJ45, UTP, category 6, 0.5 m	0.030
T-SO-850-711	Patch cable RJ45, UTP, category 6, 1 m	0.050
T-SO-850-721	Patch cable RJ45, UTP, category 6, 2 m	0.080
T-SO-850-731	Patch cable RJ45, UTP, category 6, 3 m	0.120

## ZPAS-NET LINE COPPER CABLES

### Indoor cable category 5e

- Fullfilness of category 5e requirements.
- Basic element of category 5e products line, designed for high speed networks.
- Recommended for vertical and horizontal cabling.
- Standard packing in 305 m cardboard boxes.
- 4 pairs UTP, each pair twisted in different skip (Norway twist).
- Small outer diameter, high elasticity and flexibility.
- Available in 305 m blocks in cartoon boxes comfortable for transportation and installation.

#### 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
- Sheath colour for stranded wire. .... gray

#### 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

#### Min. bending ratio:

- During the installation ..... 8 x outer cable diameter - After installation ..... 4 x outer cable diameter



Indoor copper cable category 5e PVC - cat. no. T-SO-841-000

## LINE COPPER 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, each pair twisted in different skip (Norway twist).
- 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 ..... unshielded
- 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:**

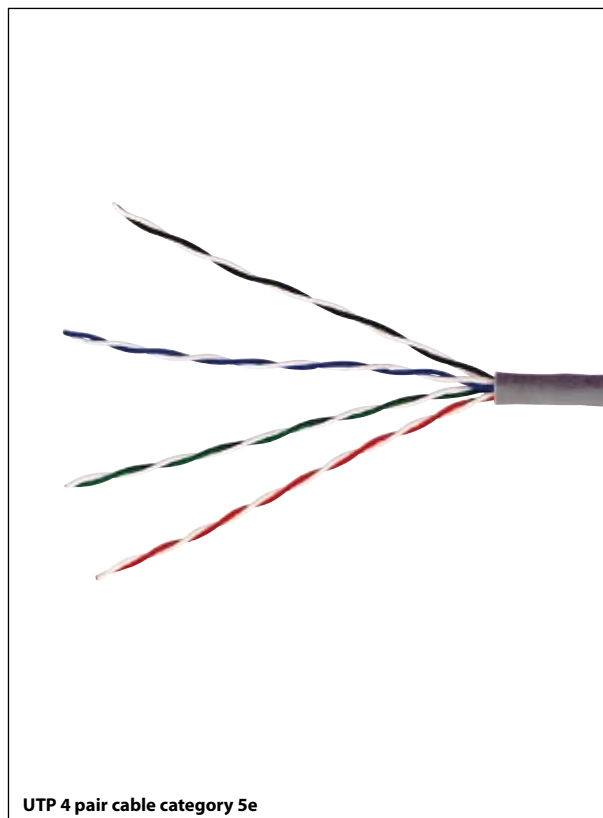
- During the installation ..... 8 x outer cable diameter
- After installation ..... 4 x outer cable diameter

**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



UTP 4 pair cable category 5e

**Solid and stranded cables**

Cat. no.	Type of cable
T-SO-841-161	Cable UTP 4 pairs, category 5e, PVC, MADEX, ultralink, 305 m
T-SO-841-160	Cable UTP 4 pairs, category 5e, PVC, MADEX, powernet, 305 m
T-SO-841-861	Cable UTP 4 pairs, gray, category 5e, PVC, MADEX, 305 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.



## LINE COPPER 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, each pair twisted in different skip (Norway twist).
- Small outer diameter, high elasticity and flexibility.

**Mechanical parameters:**

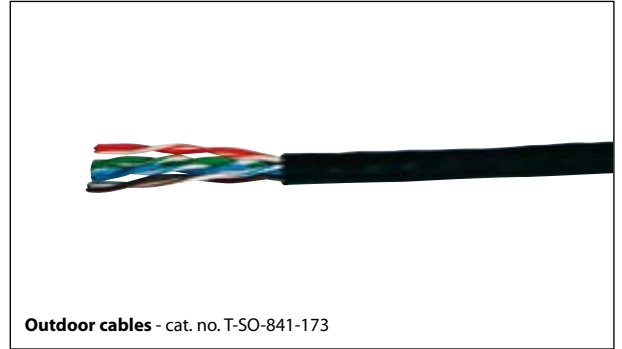
- Wire diameter .....24 AWG
- Number of pairs .....4
- Sheath .....black polyethylene
- Wire insulation .....solid polyethylene
- Length tolerance .....+/- 1%

**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



Outdoor cables - cat. no. T-SO-841-173

**Reference chart**

Cat. no.	Type of cable
T-SO-841-173	Cable UTP outdoor 4 pairs, cat. 5e, PE, MADEX, 305 m

**Colour code:**

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

### Cables category 6

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

**Mechanical parameters:**

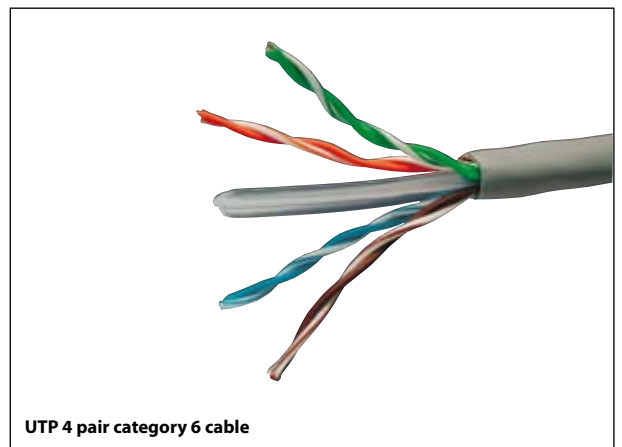
- Wire diameters ..... 24 AWG
- Insulated wire diameter ..... ≤ 1.0 mm
- Shield of single pair ..... unshielded
- Screen of cable core ..... unshielded
- Number of pairs ..... 4
- Sheath ..... PVC
- Length tolerance ..... +/- 1%

**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



UTP 4 pair category 6 cable

**Reference chart**

Cat no.	Type of cable
T-SO-841-663	Cable UTP 4 pairs, solid, category 6, PVC, MADEX, 305 m

**Colour code:**

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

19" PANELS

INSTALLATION BOXES · KEYSTONES

PATCH CABLES

TOOLS FOR INSTALLERS



## NetLAN ELEMENTS

### Patch panel 19", RJ45, UTP, 24 ports, 1 U, cat. 5e

- 19" standard.
- The basis of cat. 5e network system, designed for main and through distribution points.
- Panels are constructed on the basis of specially designed boards with compensation circuit.
- Equipped with universal IDC connectors in 568A/B standard.
- Simplification of connections between system and function sides and simplification of conservation of these connections.
- Convenient access.
- Package doesn't contain set of fixing elements adjusted to adopt 22-26 AWG cables.

**Mechanical parameters:**

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-024	483	44	30	0.77

**Surface finish:** powder painting in black colour



Patch panel 19", RJ45, UTP, 24 ports, 1 U, cat. 5e

### Telephone patch panel 19", RJ45, 50 ports, 1 U

- 19" panel 50 x RJ45 is intended for termination of vertical cabling made of multi-pair unshielded telecom cables (25, 50 pairs) or 4 pairs twisted cable.
- Made based on 10-ports unshielded harmonics, printed plate and 2-pairs slotted connector, assure transmission parameters required by telephone applications.
- High density of patch field: 50x RJ45 2-pairs modular sockets with 1 U height.
- Package doesn't contain set of fixing elements.
- Rear shelf allows for safe fixing of cable and its protection from accidental extraction from IDC sockets.

**Mechanical parameters:**

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-050	483	44	140	1.56

**Surface finish:** powder painting in black colour



Telephone patch panel

## NetLAN ELEMENTS

### Keystone UTP RJ45, cat. 5e, white

- Keystone modules RJ45 cat. 5e are designed for user outlet, as well as commutation fields.
- The connection match the TIA/EIA 568A/B norm and cat. 5e requirements.
- Restant modules are built using printed circuit board.

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-201	30	27	30	0.009



### Cover for 2 keystones

- Cover for use together with wall mounted box T-SO-900-236.
- Way of fixing to the box:
  - Cover is fixed by 2 screws (supplied with the cover) which thanks to cover construction is shielding the screws.
  - Possibility of fastening 1 or 2 keystons.
  - Direct assembly of keystones without fixing the fasten tile.

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-231	86	86	14	0.033



### Wall mounted box

- For surface installation, together with T-SO-900-231 cover.
- Easy assembly to the wall by 2 screws (not included).

#### Mechanical parameters:

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-236	86	86	37	0.040



## NetLAN ELEMENTS

### 19" Cable organizer

- 19" standard.
- Esthetical look.
- Convenient reconfiguration.
- Panel is not equipped with a fixing elements

**Mechanical parameters:**

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-001	483	44	82	0.55

**Surface finish:** powder painting in black colour

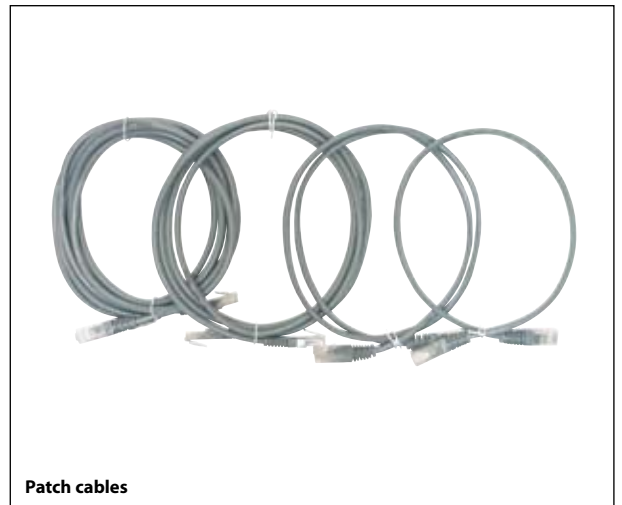


### Patch cables

- Designed for cross connections at distribution points as well as connections of terminals with user outlet.
- Compatible with category 5e.
- Sequence 568B.
- By standard offered in gray colour.
- Four standard length options: 0,5 m, 1 m, 2 m, 3 m
- Equipped with special type RJ45 plugs fixed on the cable by means of moulding technology.

**Mechanical parameters:**

Catalogue number	Lenght [m]	Weight [kg]
T-SO-900-361	0.5	0.025
T-SO-900-311	1	0.043
T-SO-900-321	2	0.047
T-SO-900-331	3	0.104



### Punch down tool

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

**Mechanical parameters:**

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
T-SO-900-605	35	17	177	0.055



TELECOMMUNICATION DISTRIBUTION FRAMES OptiTel

LAN DISTRIBUTION FRAMES OptiLAN

PIGTAILS, PATCH CORDS AND ADAPTERS

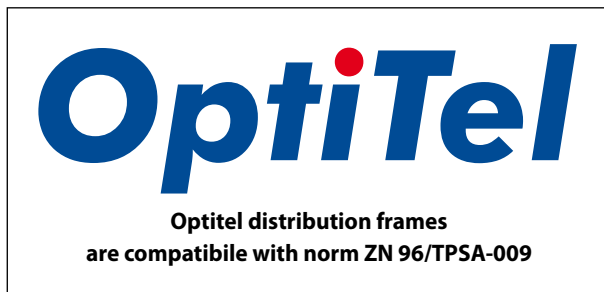
FIBRE OPTIC CABLES



## OptiTel FIBRE OPTIC TELECOMMUNICATION DISTRIBUTION FRAMES

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 flexible configure fibre optic lines, switching reserve trunks, add new devices, and make exploitation and control measurements.



## OptiTel SPS II 19/45U/800 FO DISTRIBUTION FRAME

### Technical data:

Max. amount of outdoor cables . . . . . 8  
 Useful height . . . . . 45 U  
 Dimensions (w. x h. x d.) . . . . . 800 x 200 x 600 mm  
 Weight . . . . . 128 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

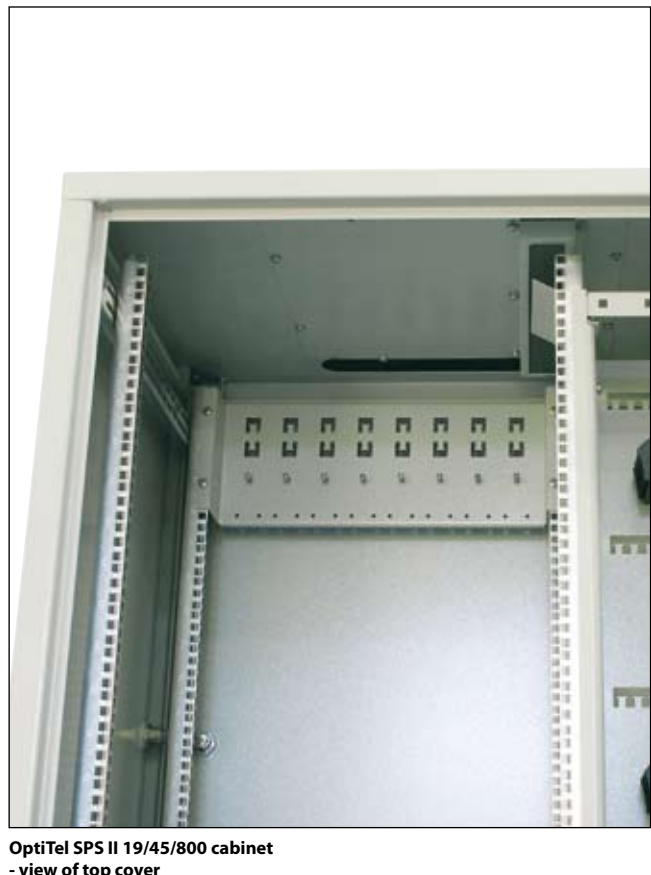
**Protection degree:** IP 20 in accordance with EN 60 529 / IEC 529

### Catalogue number:

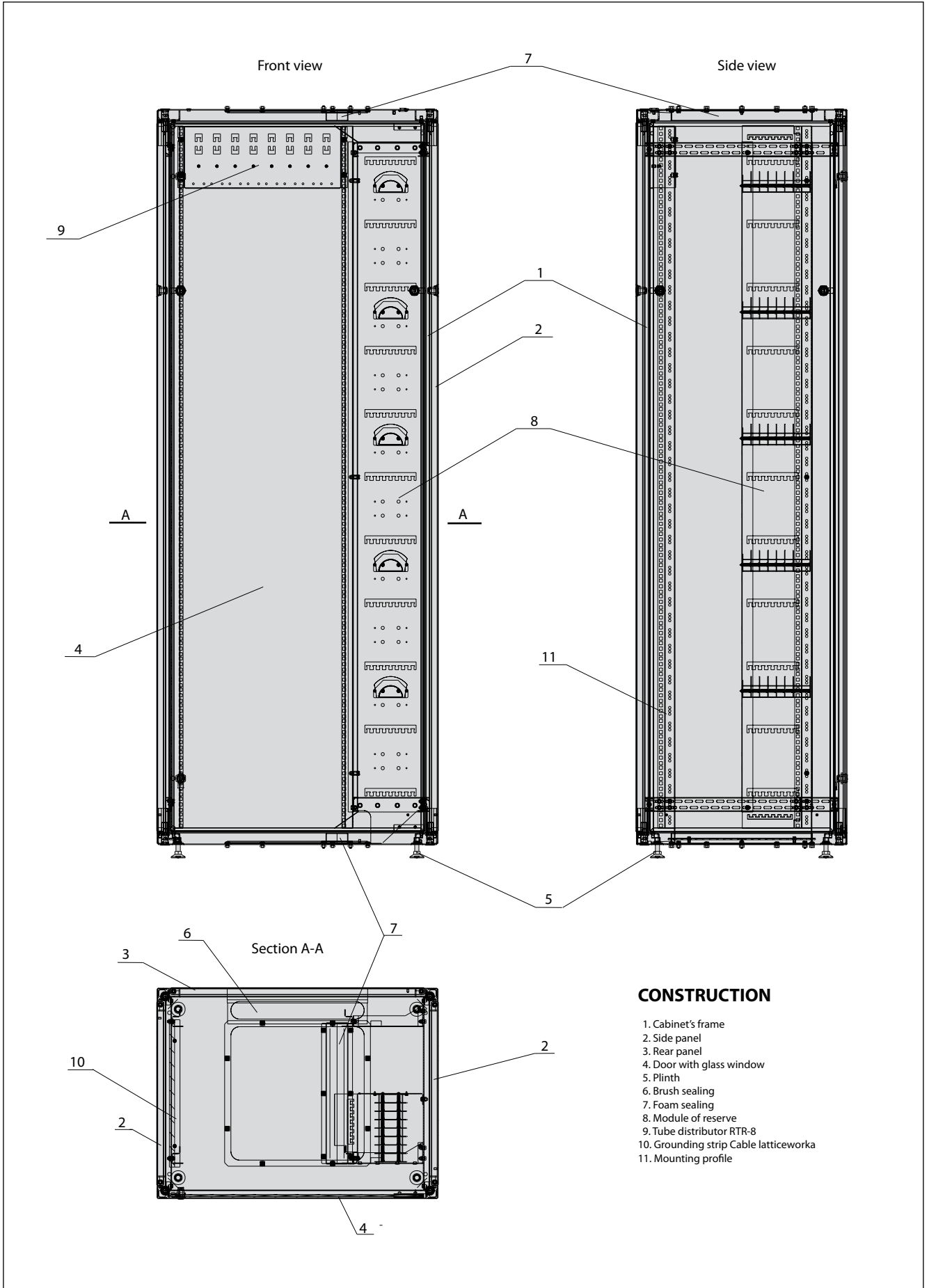
Optitel SPS 19/45U/800 cabinet with standard equipment  
 - **cat. no. WNK-405-123**

### Supply includes:

- frame of the cabinet,
- front door with glas window,
- removable panels (side and rear),
- separated compartment for cross cables 200 mm width
- 4 supporting bars in 19" standard,
- foam sealing in top and bottom plate of the frame,
- tube distributor RTR-8
- grounding strip and strands.



# OptiTel SPS II 19/45U/800 FO DISTRIBUTION FRAME



## CONSTRUCTION

- 1. Cabinet's frame
- 2. Side panel
- 3. Rear panel
- 4. Door with glass window
- 5. Plinth
- 6. Brush sealing
- 7. Foam sealing
- 8. Module of reserve
- 9. Tube distributor RTR-8
- 10. Grounding strip Cable latticework
- 11. Mounting profile

## ADDITIONAL ACCESSORIES FOR OptiTel SPS

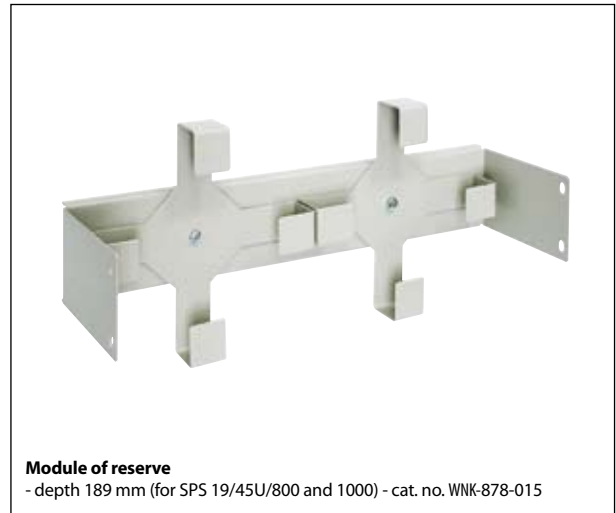
### OptiTel MZ - module of reserve

- 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	
WNK-878-015	465	215	189	2.05

**Material:** sheet steel 1.5 mm

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



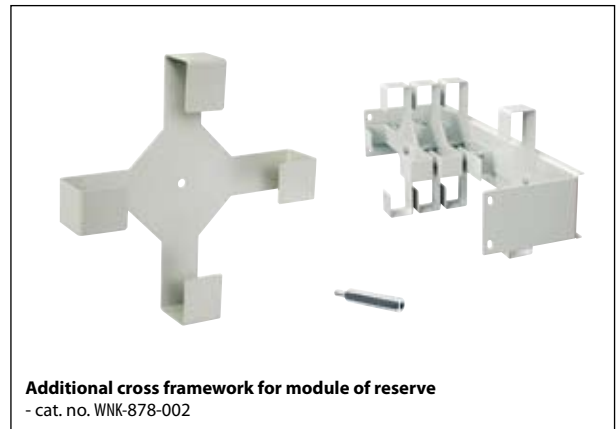
### OptiTel KZK - cross framework for module of reserve

- 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	
WNK-878-002	215	215	40	0.35

**Material:** sheet steel 1.5 mm

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



### Module of distributors OptiTel RTR-8

- 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	
WNK-878-025	465	170	70	2.41

**Material:** sheet steel 1.5 mm

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

**Capacity:** 8 cables



## ADDITIONAL ACCESSORIES FOR OptiTel SPS

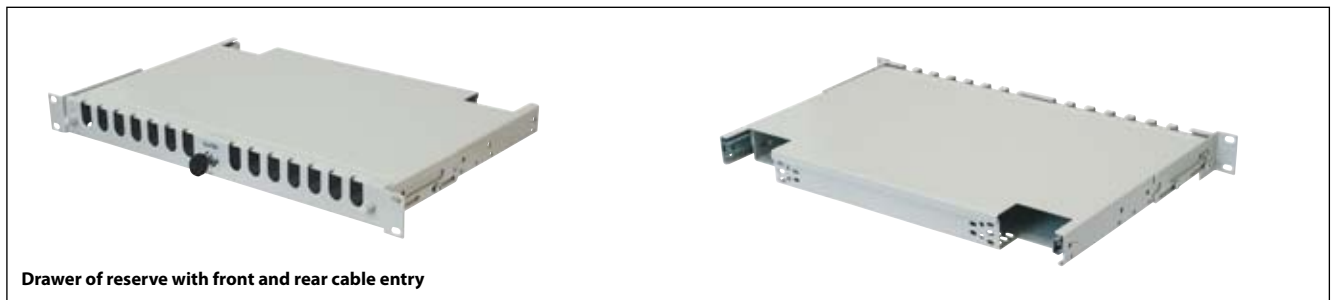
### OptiTel SZP - drawers of cable reserve

- Intended for managing indoor cable reserve (patch cords 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	
WNK-874-421	483 (19")	44 (1U)	200	1.63
WNK-874-431			280	2.74

**Material:** sheet steel 1.5 mm

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



## 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 extending drawer
  - 280 mm - version with fully extending drawer
- Available front panels for all types of adapters (E2000, SC or another, according to customer's request).
- Possibility of many cables terminating.
- Space inside allows for that the minimum bend radius is exceeded.
- Ergonomic storage for pigtails.
- Tube guiding units ensure the minimum bend radius exceeding
- Sliding drawer makes installation easy and comfortable.
- Flowing regulation of depth of panel installation in cabinet
- Delivered with set of assembly hardware.
- Brackets for 21" standard, should be ordered separately.



Catalogue number	Dimensions [mm]			Type of adapters	Weight [kg]
	Width	Height	Depth		
WNK-875-103	483 (19")	44 (1U)	200	SC/E2000	3.8
WNK-875-403			280	SC/E2000	4.2

**Material:** sheet steel 1.5 mm

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

## 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 extending drawer
  - 280 mm - version with fully extending drawer
- Available front panels for all types of adapters (E2000, SC or another, according to customer's request).
- Possibility of many cables terminating.
- Space inside allows for that the minimum bend radius is exceeded.
- Ergonomic storage for pigtails.
- Tube guiding units ensure the minimum bend radius exceeding
- Sliding drawer makes installation easy and comfortable.
- Flowing regulation of depth of panel installation in cabinet
- Delivered with set of assembly hardware.
- Brackets for 21" standard, should be ordered separately.



Optitel PSP G280 19/1 U/24 with fully extending drawer

Catalogue number	Dimensions [mm]			Type of adapters	Weight [kg]
	Width	Height	Depth		
WNK-875-102	483 (19")	44 (1U)	200	SC/E2000	3.8
WNK-875-402			280	SC/E2000	4.2
WNK-875-404				ST	
WNK-875-406				FC	

**Material:** sheet steel 1.5 mm

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

## OptiTel PSP 19/2U/48 PANEL-TYPE DISTRIBUTION FRAMES

- Intended for 19" and 21" cabinets and racks.
- Amount of communication fields: 48.
- Depth:
  - 200 mm - versions with half extending drawer
  - 280 mm - version with fully extending drawer
- Available front panels for all types of adapters (E2000, SC or another, according to customer's request).
- Possibility of many cables terminating.
- Space inside allows for that the minimum bend radius is exceeded.
- Ergonomic storage for pigtails.
- Tube guiding units ensure the minimum bend radius exceeding
- Sliding drawer makes installation easy and comfortable.
- Flowing regulation of depth of panel installation in cabinet
- Delivered with set of assembly hardware.
- Brackets for 21" standard, should be ordered separately.



Optitel PSP G200 19/2 U/48 x SC/E|2000

Catalogue number	Dimensions [mm]			Type of adapters	Weight [kg]
	Width	Height	Depth		
WNK-875-211	483 (19")	88 (2U)	200	SC/E2000	5.5
WNK-875-221			280	SC/E2000	6.0

**Material:** sheet steel 1.5 mm

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

## 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 or another, according to customer's request).
- Possibility of many 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).

**Material:** sheet steel 1.5 mm

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



OptiTel PSN 4/48 equipped with pigtails and E2000 and SC adapters

### Reference chart of OptiTel PSN distribution frame

Type of distribution frame OptiTel PSN									
Catalogue number	Dimensions [mm]			Type					Weight [kg]
	Width	Height	Depth	Type of adapters	Amount of commutation fields (pcs)	Max. amount of cables (pcs)	Number of splice cassettes (pcs)	Pigtails' length [m]	
WNK-876-102	480	400	100	SC/E2000	24	4	2	2.5	7
WNK-876-101				SC/E2000	48		2		

## OptiTel SZK, STZK CABLE RESERVE BOXES AND RACKS

- Makes possible organization of cable reserve.
- Ensure optimal bend radius.
- Intended for telecommunication networks.

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

**Material** ..... sheet steel 1.5 mm

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

### Reference chart for OptiTel SZK, STZK cable reserve boxes and racks

Catalogue number	Type	Description	Dimensions [mm]	Weight [kg]
WNK-879-004	OptiTel SZK-1/4	box with four arms rack (wall mounted) with lockable cover	600 x 600 x 178	15.5
WNK-879-001	OptiTel STZK-2/4	four arms rack (wall mounted)	565 x 565 x 126	2.0



1) Box with four arms rack (wall mounted) with lockable cover  
OptiTel SZK-1/4 - cat. no. WNK-879-004  
2) Four arms rack (wall mounted)  
OptiTel STZK-2/4 - cat. no. WNK-879-001

## OptiTel PSS 9/96 AND PSS 12/144 RACK-TYPE DISTRIBUTION FRAMES

- Mounted directly on the room's wall, where the line cable is terminated.
- Number of commutation fields: 96 or 144
- Available panels for all types of adapters (E2000, SC 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.

**Material:** sheet steel 1.5 mm

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



OptiTel PSS 6/96/SC/E2000 rack-type optic distribution frame  
- cat. no. WNK-405-135

### Reference chart of OptiTel PSS distribution frame

Type of distribution frame OptiTel PSS									
Catalogue number	Dimensions [mm]			Type					Weight [kg]
	Width	Height	Depth	Type of adapters	Amount of commutation fields (pcs)	Max. amount of cables (pcs)	Number of splice cassettes (pcs)	Pigtails' length [m]	
WNK-405-131	240	2200	240	SC/E2000	96	6	4	6	35
WNK-405-135					144	6	6		37

## ADDITIONAL EQUIPMENT FOR OptiTel PSS 6/96

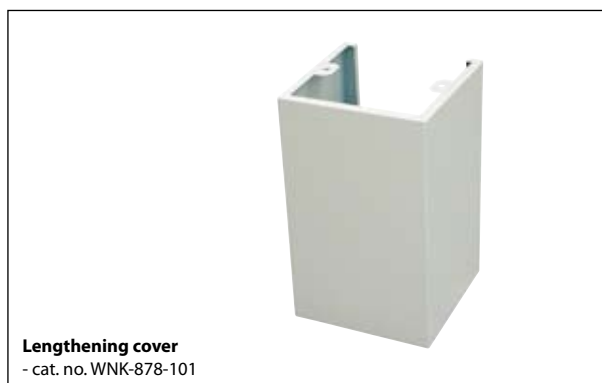
### Lengthening cover 400 mm

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

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

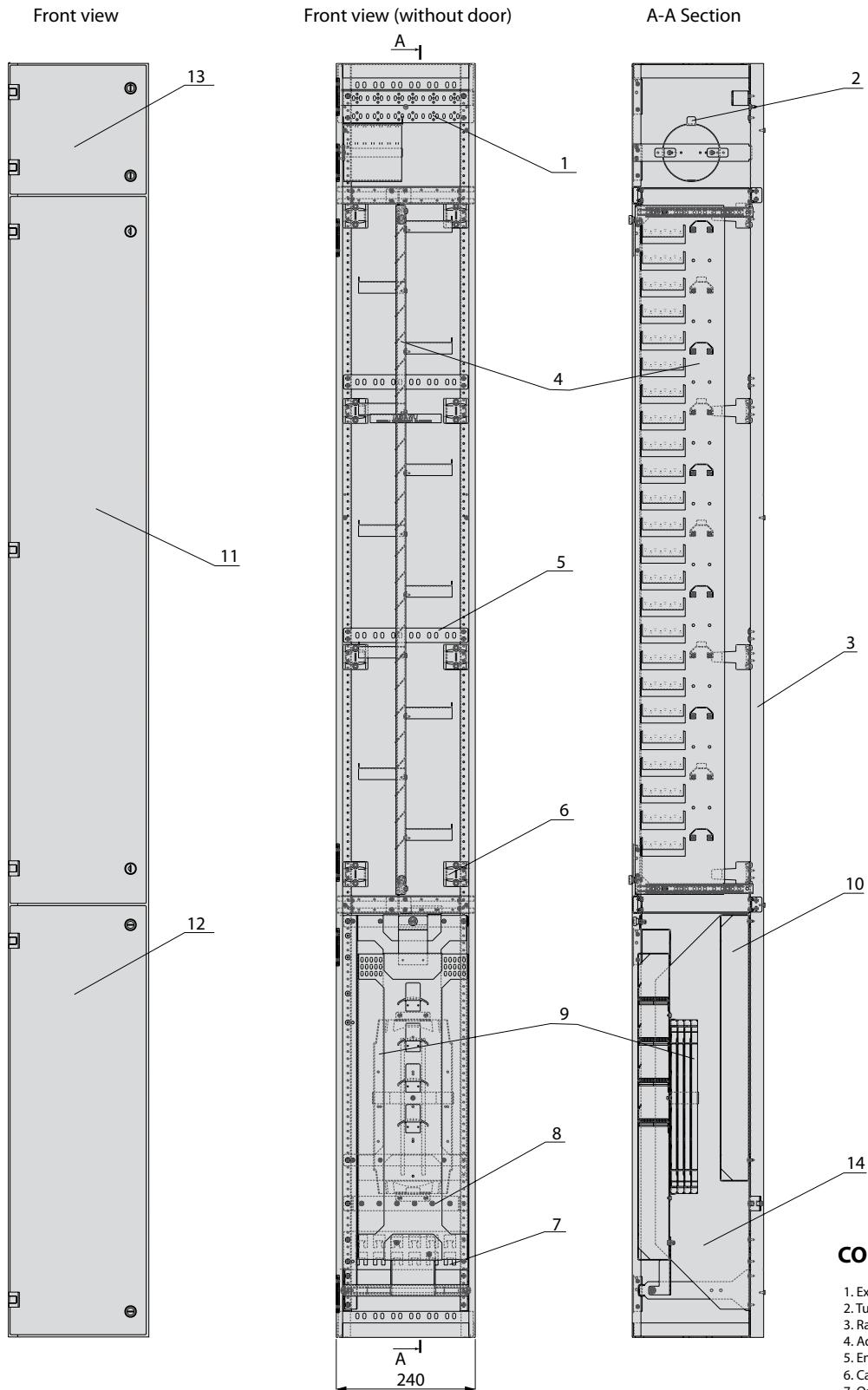
**Material:** sheet steel 1.0 mm

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



Lengthening cover  
- cat. no. WNK-878-101

# OptiTel PSS 6/96 AND PSS 12/144



**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
- 14. Pigtail's cover

## OptiTel PSS 12/192 AND PSS 12/288 RACK-TYPE DISTRIBUTION FRAMES

- Mounted directly on the room's wall where the line cable is terminated.
- Number of commutation fields: 192 or 288.
- Available panels for all types of adapters (E2000, SC 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.

**Material:** sheet steel 1.5 mm

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



### Reference chart of PSS distribution frame

Type of distribution frame OptiTel PSS									
Catalogue number	Dimensions [mm]			Type					Weight [kg]
	Width	Height	Depth	Type of adapters	Amount of commutation fields (pcs)	Max. amount of cables (pcs)	Number of splice cassettes (pcs)	Pigtails' length [m]	
WNK-405-133	480	2200	240	SC/E2000	192	12	8	6	65
WNK-405-136					288	12	12		70

## 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.

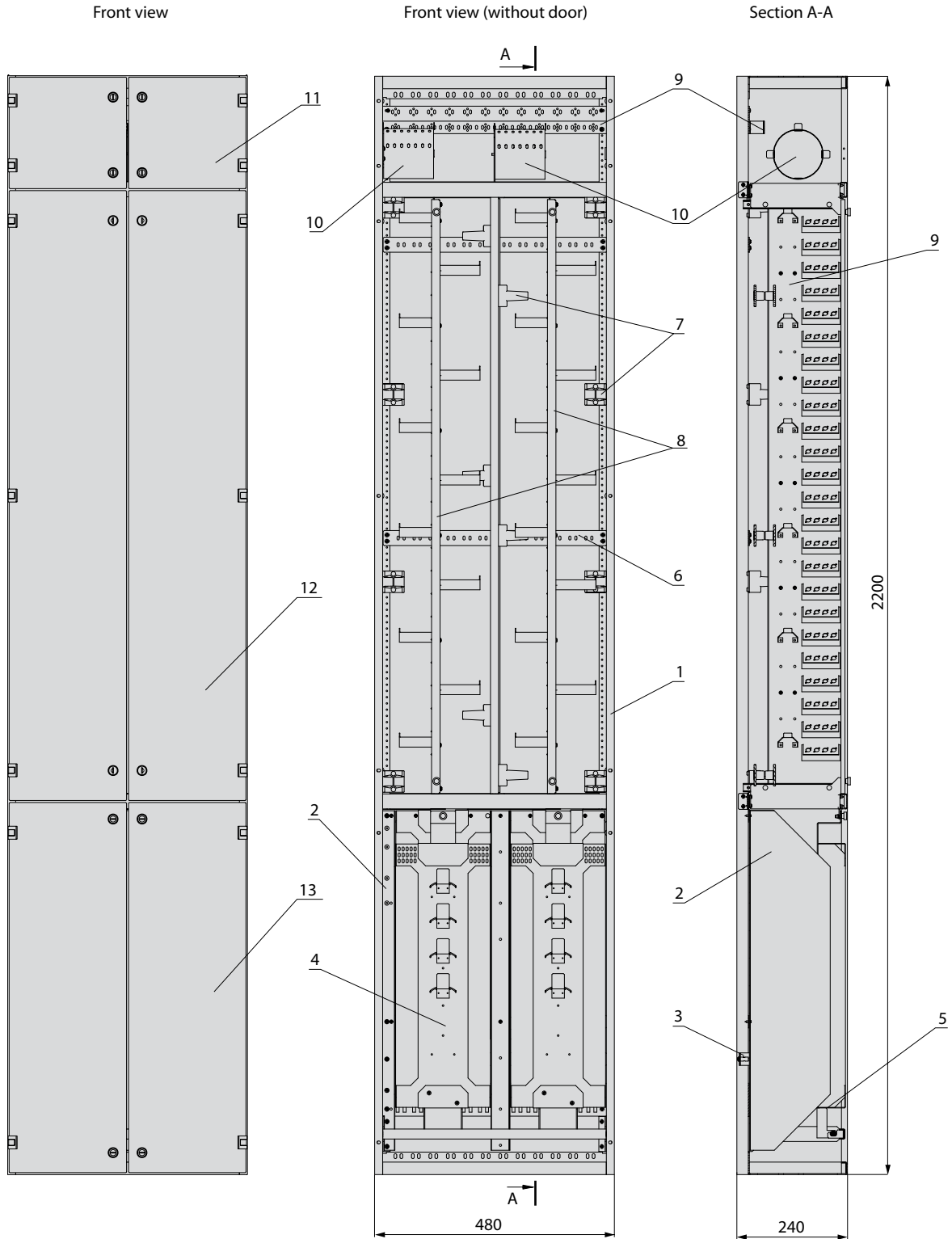
Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
WNK-878-102	480	400	240	3.65

**Material:** sheet steel 1.0 mm

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



# OptiTel PSS 12/192 AND PSS 12/288



## CONSTRUCTION

- |                              |                                     |
|------------------------------|-------------------------------------|
| 1. Rack's body               | 8. Adapter's plate                  |
| 2. Pigtail's cover           | 9. Exit lath                        |
| 3. Protecting lath           | 10. Patch cords hanger              |
| 4. Patch cord reserve module | 11. Door of entry compartment       |
| 5. Splice cassette frame     | 12. Door of commutation compartment |
| 6. Entering cable organizer  | 13. Door of reserve compartment     |
| 7. Cable organizer           |                                     |

## MODULAR-TYPE FIBRE OPTIC DISTRIBUTION FRAMES

### 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.
- Sliding 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 oneline and one-part organization in configurations: cable-cable, or cable-pigtail. Cassettes are adapted for passive elements mounting in standard cases.
- Expendability to four sets of fibre splices (6 cassetts SK-123 with holder).



Connecting fibre module MP-19/3U without cassettes packet 6+1  
- cat. no. WNK-878-310

Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
WNK-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 3 U frame,
- extending drawer,
- bending basis,
- 1 packets of cassettes 6+1.

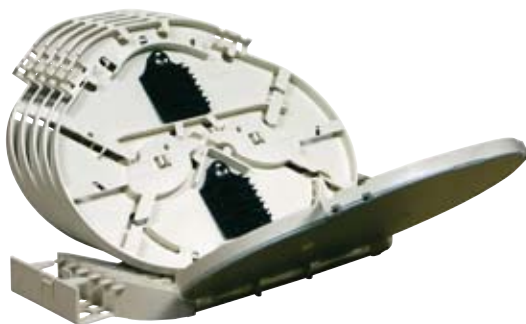


Connecting fibre module MP-19/3U, with accessories

**Module capacity:**

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

Cable-pigtail	Management	Cassettes	Fibres
Capacity of splices	one-part	24	144



Supplementary splice cassettes packet 6 cassettes SK123 with holder  
- cat. no. WNK-878-004

## MODULAR-TYPE FIBRE OPTIC DISTRIBUTION FRAMES

### 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.
- Sliding drawer is equipped with removable front plate, with lock, rear bracket, and extending commutation panel for 72 adapters SC or E2000.

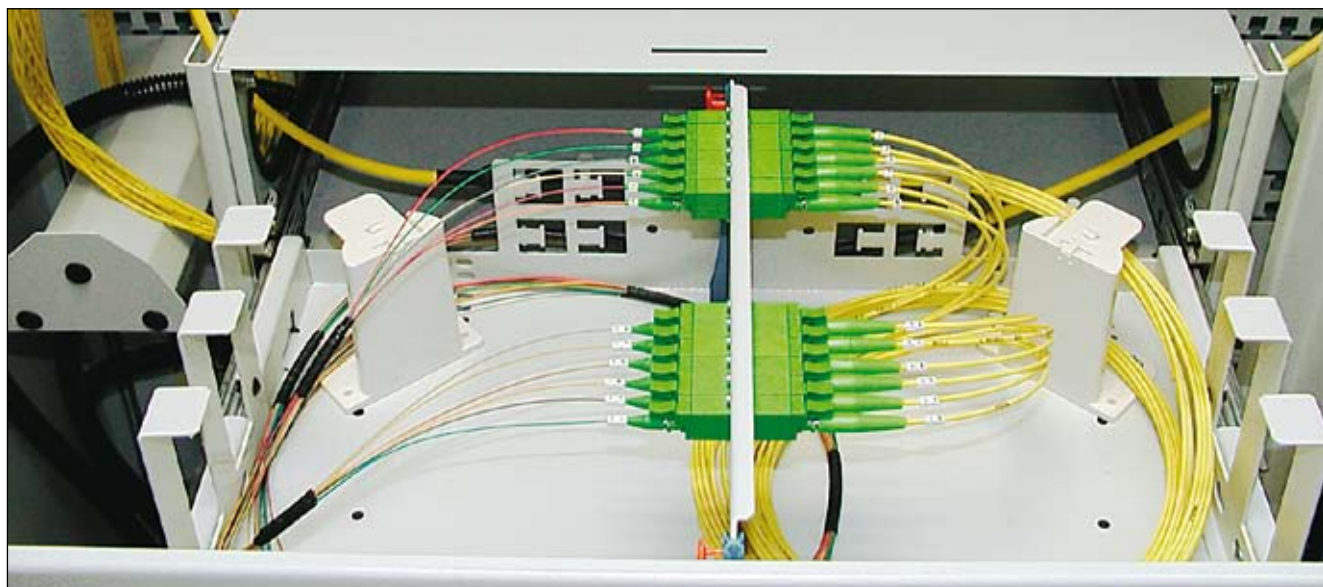
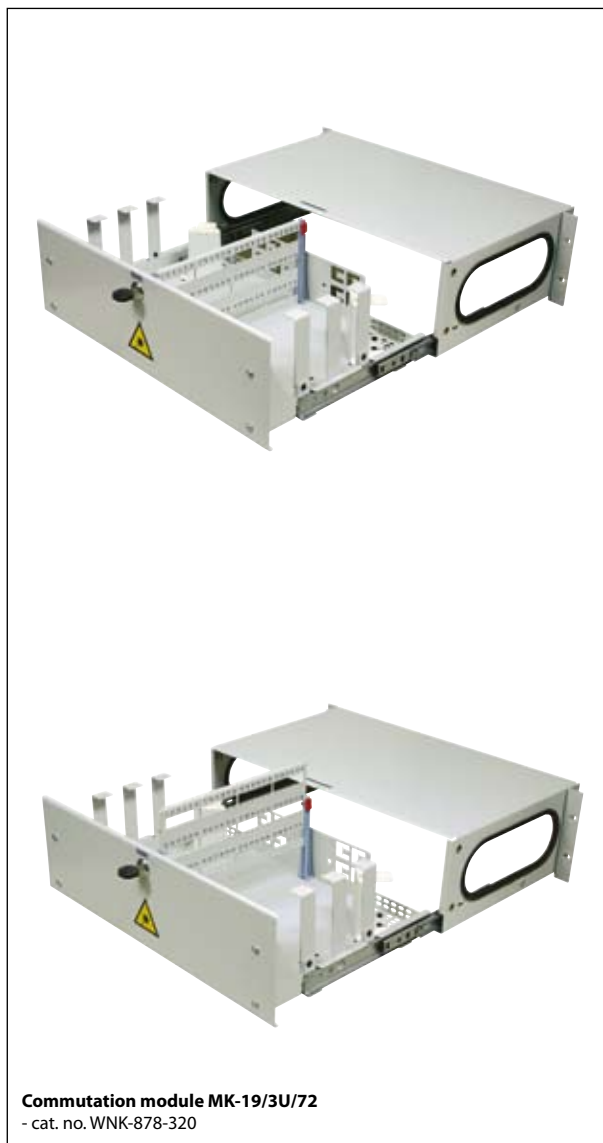
Catalogue number	Type	Dimensions [mm]			Weight [kg]
		Width	Height	Depth	
WNK-878-320	MK-19/3U/72	483	132	280	4.1

**Material:** sheet steel 1.5 mm

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

**Supply includes:**

- 19" x 3 U frame,
- extending drawer,
- extending commutation panel 72 x SC/E2000.



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

## MODULAR-TYPE FIBRE OPTIC DISTRIBUTION FRAMES

### 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	
WNK-878-330	MPK-19/3U/24	483	132	280	4.2

**Material:** sheet steel 1.5 mm

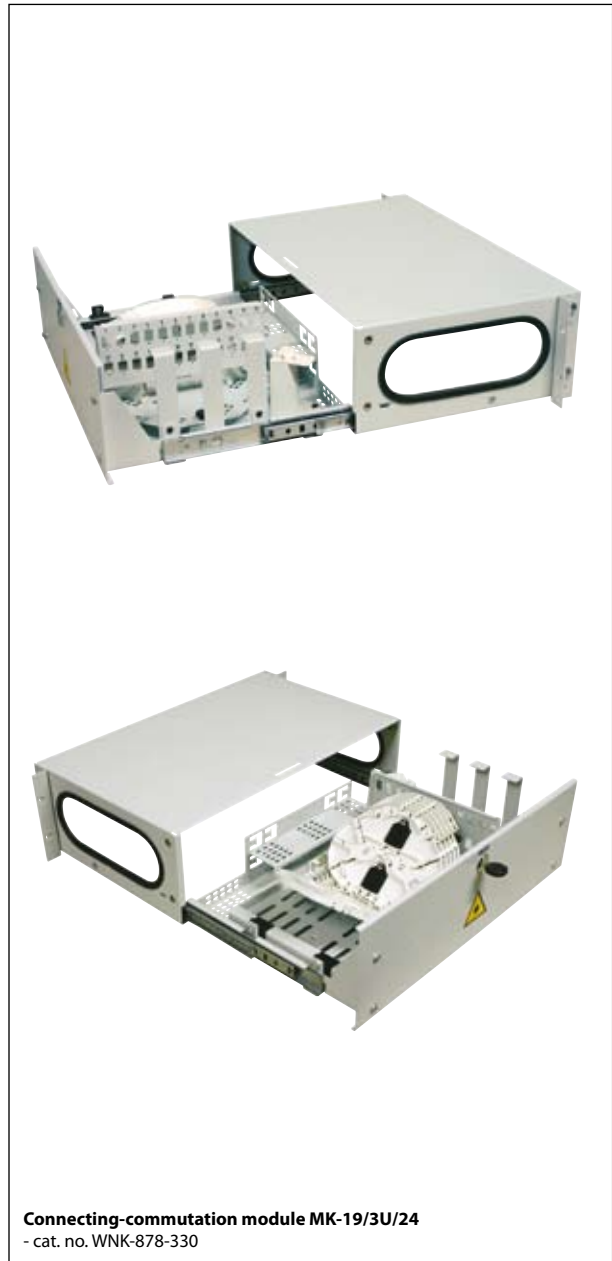
**Surface finish:** powder painting in RAL 7035 colour

**Supply includes:**

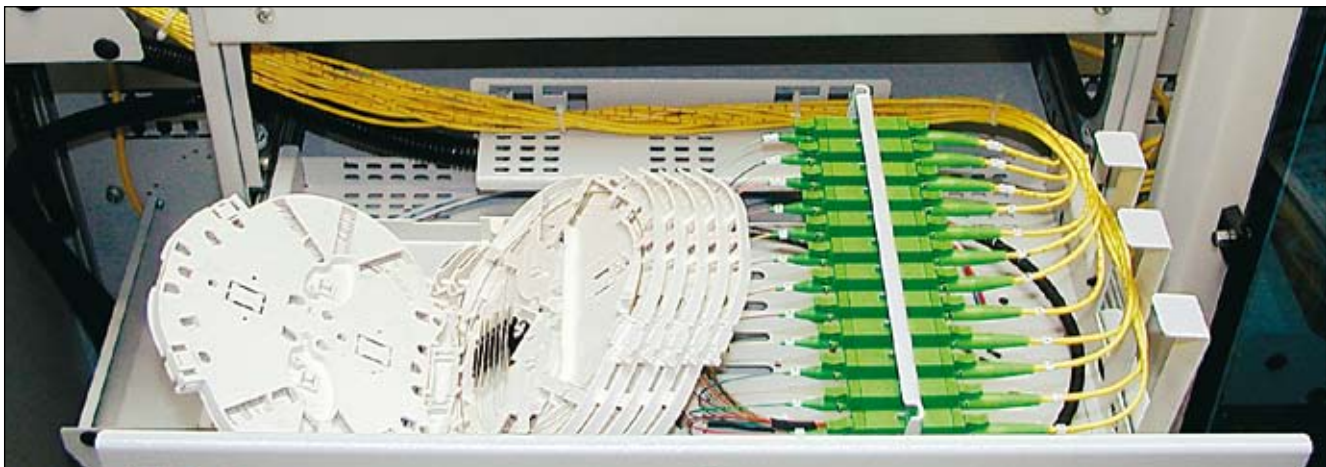
- 19" x 3U frame,
- extending drawer,
- bending drawer,
- extending commutation panel 24 x SC/E2000,
- 1 packet of splice cassettes 6+1.

**Module capacity:**

Cable-pigtail	Cassettes	Fibres
Splices capacity	12	24



Connecting-commutation module MK-19/3U/24  
- cat. no. WNK-878-330



Connecting-commutation module MK-19/3U/24, with equipment Connecting-commutation module MK-19/3U/72, with equipment

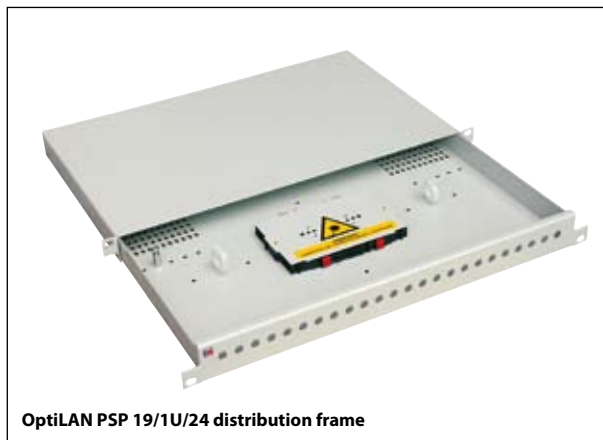
## OptiLAN PSP - PANEL-TYPE FIBRE OPTIC DISTRIBUTION FRAMES

### 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.

**Material:** sheet steel 1.5 mm

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



OptiLAN PSP 19/1U/24 distribution frame

### Reference chart of optiLAN PSP frames

OptiLAN PSP distribution frame									
Catalogue number	Dimensions [mm]			Type					Weight [kg]
	Width	Height	Depth	Type of adapters	Amount of commutation fields (pcs)	Max. amount of cables (pcs)	Number of splice cassettes (pcs)	Pigtails' length [m]	
WNK-877-401	483 (19")	44 (1U)	280	SC/E2000	24	2	2	2.5	3.5
WNK-877-402				ST					

## SUPPLEMENTARY ACCESSORIES FOR OptiLAN

### Splices cassette

- Intended for mounting in OptiLAN, PSP, PSN, applied as well in OptiTel PSP, OpiTel PSN.
- Ergonomic design

Catalogue number	Dimensions [mm]			Weight [kg]
	Width	Height	Depth	
WNK-877-050	150	7	103	0.1



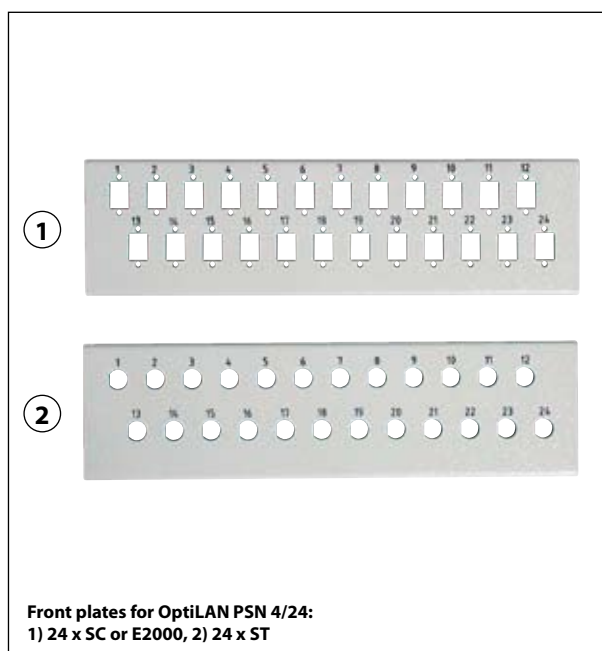
Splice Cassette for 12 splices with 4 holders for cascade mounting of cassettes - cat. no. WNK-877-050

## OptiLAN PSN 2/24 - WALL-MOUNTED FIBRE OPTIC 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.

**Material:** sheet steel 1.5 mm

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



### Reference chart of optiLAN PSN frames

OptiLAN PSN distribution frame									
Catalogue number	Dimensions [mm]			Type					Weight [kg]
	Width	Height	Depth	Type of adapters	Amount of commutation fields (pcs)	Max. amount of cables (pcs)	Number of splice cassettes (pcs)	Pigtails' length [m]	
WNK-877-301	344	285	80	SC/E2000	24	2	2	2.5	3.2
WNK-877-302				ST					

## FIBRE OPTIC PIGTAILS, PATCH CORDS 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.
- According to norm 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  $\mu\text{m}$  (Premium version from 0 to +0,5  $\mu\text{m}$ ).
- 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:

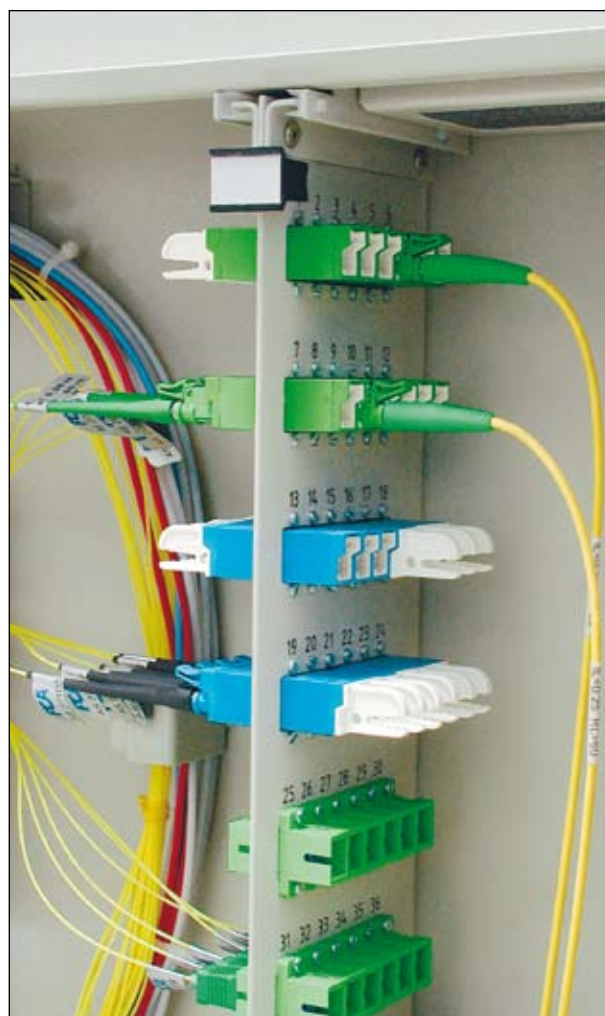
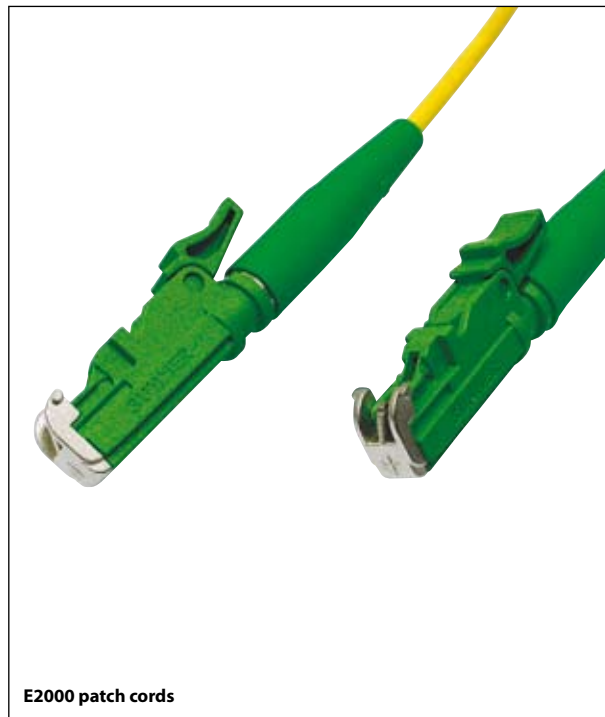
- Protection cap prevents soiling and scratching of the ferrule end face.
- An integrated protective cap provides eye protection from laser radiation.
- A cap protects the ferrule against damages by mating cycles.
- The push - pull mechanism protects the connector against rotation.

#### Connector type

- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900  $\mu\text{m}$  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.



## FIBRE OPTIC PIGTAILS, PATCH CORDS AND ADAPTERS

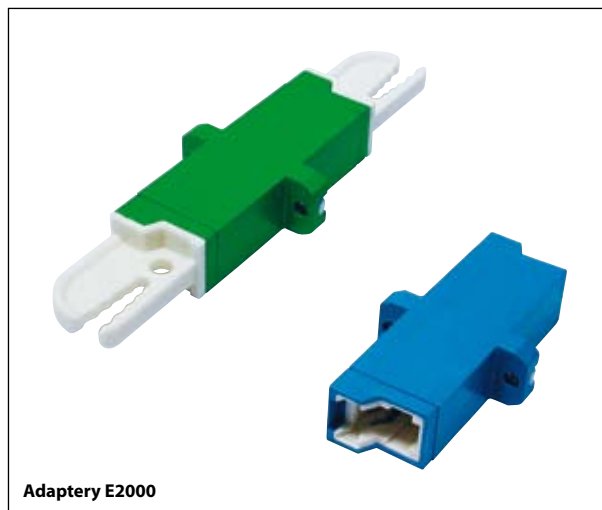
### E2000 standard

#### Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	E2000/PC	E2000/APC	E2000/APC Premium
Type of fibre	single mode		
Ferrule 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		



#### Transmission Parameters

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

#### Catalogue numbers of pigtails and patch cords

Type	Type of the patch cord / pigtail	Type of connector on first end	Type of connector on second end	Type of cable	Length in meters
<b>T-SO-</b>					
	D - duplex	000 - pigtail	E2A - E2000/APC	JT - buffer SM	XXX - length in meters
	S - simplex	E2A - E2000/APC	E2P - E2000/AC	JK - cable SM	
		E2P - E2000/PC	SCA - SC/APC	5T - buffer MM 50/125	
		SCA - SC/APC	SCP - SC/PC	6T - buffer MM 62.5/125	
		SCP - SC/PC	STP - ST/PC	5K - cable MM 50/125	
		STP - ST/PC	LCP - LC/PC	6K - cable MM 62.5/125	
		LCP - LC/PC	MTRJ - MTRJ		
		MTRJ - MTRJ	FCP - FC/PC		
		FCP - FC/PC			

Write appropriate position number to gray cell. Bellow you can see examples of:

- Duplex multimode **patchcord** type ST/PC-LC/PC on cable 62.5/125.2 m length – **T-SO-D/STP/SCP/6K/2**
- Simplex multimode **pigtail** type ST/PC on tube 50/125 1.5 m length – **T-SO-S/000/STP/5T/1.5**

## FIBRE OPTIC PIGTAILS, PATCH CORDS 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  $\mu\text{m}$ .
- 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.

#### Application

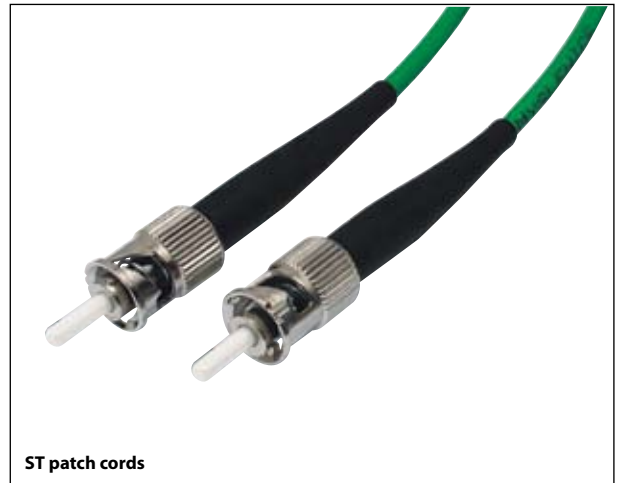
- Telecommunication.
- LAN/WAN networks.

### Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	ST/PC	
Type of fibre	multimode	single mode
Ferrule type	ceramic	
	$\varnothing 126 \mu\text{m}$ (0 to +1 $\mu\text{m}$ )	$\varnothing 125 \mu\text{m}$ (0 to +1 $\mu\text{m}$ )
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 patch cords

#### Available versions

- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900  $\mu\text{m}$  tube or PVC cables with the following diameters: 1.7; 2.0; 2.4 and 2.8 mm.



ST adapters

## FIBRE OPTIC PIGTAILS, PATCH CORDS 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.
- According to norm JIS C5973, NNT, IEC, TIA, Bellcore.

#### Connectors

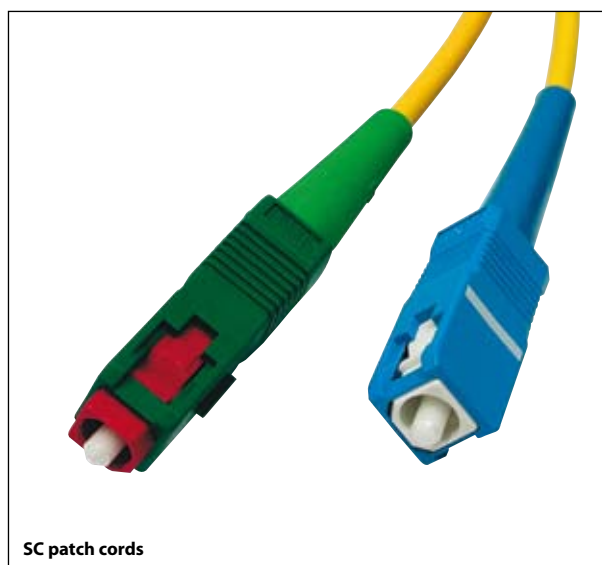
- Remarkable eccentricity of the hole thanks to the precision by production of the ferrule. Hole diameter tolerance from 0 to +1 µm.
- Zirconium ferrule ensures very good resistance at the changing temperatures (operating temperature range from -40°C to +85°C).
- Assembly of the ferrule by using adhesive 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

- Adaptors have a zirconium sleeve for single-mode applications.
- Adaptors 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 patch cords

#### Connector type

- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900 µm 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

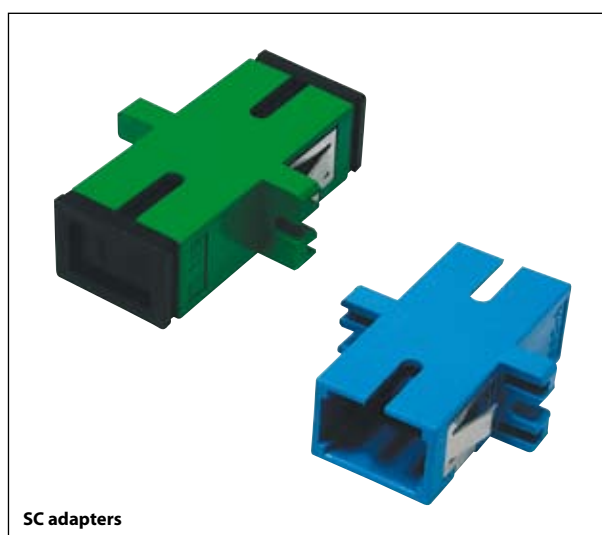
- Telecommunication, external and access networks.
- WDM networks.
- LAN/WAN networks.
- CATV networks.

### Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	SC/PC	SCAPC	SC/APC Premium
Type of fibre	multimode	single mode	
Ferrule 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.	typowa	maksymalna
Insertion loss IL	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 ORL	-	-	> 50 db	> 52 db	> 65 db	> 80 db	> 75 db	> 80 db

## FIBRE OPTIC PIGTAILS, PATCH CORDS AND ADAPTERS

### FC standard

- For applications in the largest telecommunication networks.
- Standard connector in the transmission networks of the largest telecommunication operators.
- According to norm JIS C5970, NNT, IEC, TIA, Bellcore.

#### Connectors

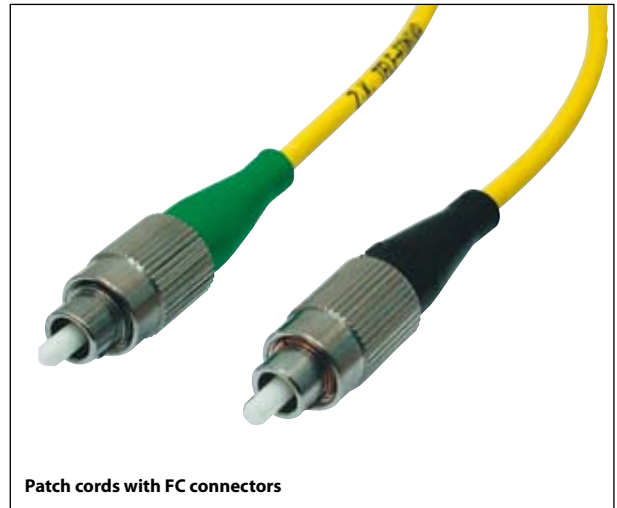
- Remarkable eccentricity of the hole thanks to the hole diameter tolerance from 0 to + 1  $\mu\text{m}$ .
- Zirconium ferrule ensures very good resistance at the changing temperatures (operating temperature range from  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ).
- Assembly of the ferrule with 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.



Patch cords with FC connectors

#### Connector type

- Single mode and multimode connectors.
- Following cables can be equipped with this connector type: 900  $\mu\text{m}$  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

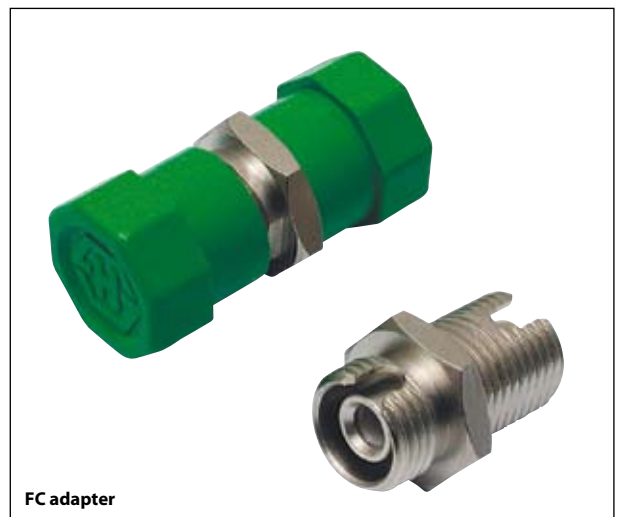
- Telecommunication, external and access networks.
- WDM networks.
- LAN/WAN networks.
- CATV networks.

### Connecting parameters according to BELLCORE and SEIKO measuring norms

Type	FC/PC	FC/APC
Type of fibre	multimode	single mode
Ferrule type	ceramic	
	$\varnothing 126 \mu\text{m}$ (0 to +1 $\mu\text{m}$ )	$\varnothing 125 \mu\text{m}$ (0 to +0.5 $\mu\text{m}$ )
Adjustable	yes	
Min. mating cycles	over 1000 cycles	
Operating temperature	$-40$ to $+85^{\circ}\text{C}$	

### Ferrule end face geometry

Polishing procedures	Radius	Fibre height	Fibre roughness
PC	10 - 25 mm	$\pm 50 \text{ nm}$	$< 5 \mu\text{m}$
APC	8 - 15 mm		



FC adapter

### Transmission parameters

Type	FC/PC multimode		FC/PC single mode		FC/APC single mode	
	typical	max.	typical	max.	typical	max.
Insertion loss IL	0.12 dB	$< 0.35 \text{ dB}$	0.12 dB	$< 0.35 \text{ dB}$	$> 65 \text{ dB}$	0.35 dB
Return loss ORL	-	-	$> 50 \text{ db}$	$> 52 \text{ db}$	$> 0.12 \text{ db}$	$> 80 \text{ db}$

## FIBRE OPTIC PIGTAILS, PATCH CORDS 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.
- According to norm EIA/TIA 568A, FOCIS 10, IEC 11801, Bellcore.

### Connector

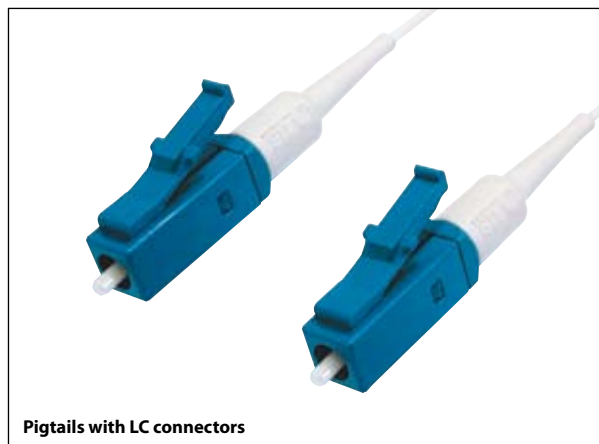
- Twice smaller than SC or E2000 standard connector.
- Zirconia ferrule ensures very good resistance at the changing temperatures (operating temperature range from -40°C to +85°C).
- Machine polishing procedure ensures high quality of end face geometry and high repeatable performance.
- End face geometry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

- Single mode and multimode connectors.
- Simplex and duplex connectors.
- Following cables can be equipped with this connector type: 900 µm 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.

### Connecting parameters according to BELLCORE and SEIKO measuring norms

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

### Transmission parameters

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



LC adapters

**SPECIAL ORDERS**



1) Optitel SPS 19/45U/600 cabinet with additional equipment  
 2) Optitel SPS 19/45U/800 cabinet  
 3) Optitel SPS 19/45U/1000 cabinet

CONSOLES AND KVM SWITCHES

UPS BATTERY BACKUPS

SWITCHED POWER DISTRIBUTION UNIT



**CONSOLES**

**CORN 15**

**CORN 17**




**CORN 19**

Console	CORN 15	CORN 17	CORN 19
<b>Catalogue number</b>	T-SO-970-101	T-SO-970-102	T-SO-970-103
<b>Usage</b>	1 PC to 1 console	1 PC to 1 console	1 PC to 1 console
<b>Active Matrix TFT LCD</b>	Active TFT LCD, 15"	Active TFT LCD, 17"	Active TFT LCD, 19"
<b>Resolution capabilities</b>	1024 x 768	1280 x 1024	1280 x 1024
<b>Pixel pitch</b>	0.297 x 0.297 mm	0.264 x 0.264 mm	0.298 x 0.294 mm
<b>Viewing angle</b>	130° right-left view 100° up-down view	70° right-left view 60° up-down view	140° right-left view 140° up-down view
<b>Contrast ratio</b>	400 ÷ 1	450 ÷ 1	500 ÷ 1
<b>Brightness</b>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
<b>Back light</b>	2 lamps	4 lamps	4 lamps
<b>Supported colors</b>	16.7 millions colors	16.7 millions colors	16.7 millions colors
<b>Response time</b>	5 ms (rising time) 11 ms (decay time)	2 ms (rising time) 14 ms (decay time)	2 ms (rising time) 10 ms (decay time)
<b>Slots number</b>	1	1	1
<b>Ports number PC</b>	1	1	1
<b>Synchronization</b>	45 ÷ 80 kHz	45 ÷ 80 kHz	45 ÷ 80 kHz
<b>Keyboard</b>	106 buttons, PS/2 touchpad	106 buttons, PS/2 touchpad	106 buttons, PS/2 touchpad
<b>Power consumption</b>	16 W		
<b>Power supply</b>	~230 V AC	~230 V AC	~230 V AC
<b>Temperature</b>	0°C ÷ 50°C	0°C ÷ 50°C	0°C ÷ 50°C
<b>Humidity</b>	10% ÷ 90%, non-condensing	10% ÷ 90%, non-condensing	10% ÷ 90%, non-condensing
<b>Certification</b>	CE, FCC, UL, CUL, C-Tick, GOST	CE, FCC, UL, CUL, C-Tick, GOST	CE, FCC, UL, CUL, C-Tick, GOST

## CONSOLES

			
<b>CORN 20</b>	<b>GEM 15</b>	<b>GEM 17</b>	<b>GEM 19</b>
T-SO-970-104	T-SO-970-001	T-SO-970-002	T-SO-970-003
1 PC to 1 console	1 PC to 1 console	1 PC to 1 console	1 PC to 1 console
Active TFT LCD, 20.1"	Active TFT LCD, 15"	Active TFT LCD, 17"	Active TFT LCD, 19"
1600 x 1200	1024 x 768	1280 x 1024	1280 x 1024
0.255 x 0.255 mm	0.297 x 0.297 mm	0.264 x 0.264 mm	0.298 x 0.294 mm
85° right-left view 85° up-down view	130° right-left view 100° up-down view	70° right-left view 60° up-down view	140° right-left view 140° up-down view
1000 ÷ 1	400 ÷ 1	450 ÷ 1	500 ÷ 1
300 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>	250 cd/m <sup>2</sup>
6 lamps	2 lamps	4 lamps	4 lamps
16.7 millions colors	16.7 millions colors	16.7 millions colors	16.7 millions colors
15 ms (rising time) 7 ms (decay time)	5 ms (rising time) 11 ms (decay time)	2 ms (rising time) 14 ms (decay time)	2 ms (rising time) 10 ms (decay time)
1	1	1	1
1	1	1	1
45 ÷ 80 kHz	45 ÷ 80 kHz	45 ÷ 80 kHz	45 ÷ 80 kHz
106 buttons, PS/2, touchpad	106 buttons, PS/2, touchpad	106 buttons, PS/2, touchpad	106 buttons, PS/2, touchpad
~230 V AC	~230 V AC	~230 V AC	~230 V AC
0°C ÷ 50°C	0°C ÷ 50°C	0°C ÷ 50°C	0°C ÷ 50°C
10% ÷ 90%, non-condensing	10% ÷ 90%, non-condensing	10% ÷ 90%, non-condensing	10% ÷ 90%, non-condensing
CE, FCC, UL, CUL, C-Tick, GOST	CE, FCC, UL, CUL, C-Tick, GOST	CE, FCC, UL, CUL, C-Tick, GOST	CE, FCC, UL, CUL, C-Tick, GOST

**KVM SWITCHES**

Switch	 <b>MER 8D</b>	 <b>MER 16D</b>	 <b>VEN 8D</b>
<b>Catalogue number</b>	T-SO-970-201	T-SO-970-202	T-SO-970-203
<b>Usage</b>	8 PC to 1 user / stackable, for montage in consoles CORN/GEM	16 PC to 1 user / stackable, for montage in consoles CORN/GEM	8 PC to 2 users (1+1) / stackable, for montage in consoles CORN/GEM
<b>PC ports</b>	8x HDB15(F)	16x HDB15(F)	8x HDB15(F)
<b>Max. distance (KVM switch - Host)</b>	5 m (depend of the terminal type)	5m (depend of the terminal type)	5m (depend of the terminal type)
<b>Types of supported PC ports (keyboard/mouse)</b>	PS/2	PS/2	PS/2 or USB
<b>Console ports</b>	-	-	1 (one local) 1 IP-based remote console
<b>Available modules of the remote console</b>			Cat. 5 or IP
<b>Daisy Chain Port</b>	1x HDB15(F)	1x HDB15(F)	1x HDB15(F)
<b>Max. PC connections</b>	64	128	64
<b>Max. switch connections</b>	8 (serial)	8 (serial)	8 (serial)
<b>Choice of the active PC port</b>	keyboard shortcut / OSD	keyboard shortcut / OSD	keyboard shortcut / OSD
<b>Display menu OSD</b>	Yes	Yes	Yes
<b>Interval of automatic scanning ports</b>	from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.
<b>Max. resolution (Local console)</b>	1920 x 1440	1920 x 1440	1920 x 1440
<b>Max. resolution (Remote console)</b>	-	-	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module
<b>Cover</b>	metal	metal	metal
<b>Power supply</b>	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz
<b>Dimensions</b>	420 x 170 x 41.4 mm	420 x 170 x 41.4 mm	420 x 170 x 41.4 mm



## KVM SWITCHES

			
<b>VEN 16D</b>	<b>MAR 8D</b>	<b>MAR 16D</b>	<b>MAR 32D</b>
T-SO-970-204	T-SO-970-205	T-SO-970-206	T-SO-970-207
16 PC to 2 users (1+1) / stackable, for montage in consoles CORN/GEM	8 PC to 2 users (1+1) / stackable, for montage in consoles CORN/GEM	16 PC to 2 users (1+1) / stackable, for montage in consoles CORN/GEM	32 PC to 2 users (1+1) / stackable, for montage in consoles CORN/GEM
16x HDB15(F)	8x 8p8c(F) RJ-45	16x 8p8c(F) RJ-45	32x 8p8c(F) RJ-45
5m (depend of the terminal type)	150 m with the DCC-001	150 m with the DCC-001	150 m with the DCC-001
PS/2 or USB	PS/2 or USB	PS/2 or USB	PS/2 or USB
1 (one local) 1 IP-based remote console	1 widening port for the mod- ule of remote console	1 widening port for the mod- ule of remote console	1 widening port for the mod- ule of remote console
Cat. 5 or IP	Cat. 5 or IP	Cat. 5 or IP	Cat. 5 or IP
1x HDB15(F)	1x HDB15(F)	1x HDB15(F)	1x HDB15(F)
128	64	128	256
8 (serial)	8 (serial)	8 (serial)	8 (serial)
keyboard shortcut / OSD	keyboard shortcut / OSD	keyboard shortcut / OSD	keyboard shortcut / OSD
Yes	Yes	Yes	Yes
from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.
1920 x 1440	1600 x 1200	1600 x 1200	1600 x 1200
1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module
metal	metal	metal	metal
DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz
420 x 170 x 41.4 mm	420 x 170 x 41.4 mm	420 x 170 x 41.4 mm	420 x 170 x 41.4 mm

**KVM SWITCHES OX 19"**


Switch	KSC-108A	KSC-108B	KSC-108E	KCC-108A
<b>Catalogue number</b>	T-SO-970-600	T-SO-970-602	T-SO-970-604	T-SO-970-606
<b>Usage</b>	8 PC to 1 user / stackable	8 PC to 2 users (1+1) / stackable	8 PC to 2 users (1+1) / stackable	8 PC to 2 users (1+1) / stackable
<b>PC ports</b>	8x HDB15(F)	8x HDB15(F)	8x HDB15(F)	8x 8p8c(F) RJ-45
<b>Max. distance (KVM switch - Host)</b>	5 m (depend of the terminal type)	5 m (depend of the terminal type)	5 m (depend of the terminal type)	150 m with Oxca DCC-001
<b>Types of supported PC ports (keyboard/mouse)</b>	PS/2 or USB	PS/2 or USB	PS/2 or USB	PS/2 or USB
<b>Console ports</b>	1x VGA HDB15(F) + 2x PS/2 mini DIN 6(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x PS/2 mini DIN 6(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x USB A(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x USB A(F), 1 widening port for the module of remote console
<b>Available modules of the remote console</b>	-	Cat. 5 or IP	Cat. 5 or IP	Cat. 5 or IP
<b>Daisy Chain Port</b>	1x HDB15(F)	1x HDB15(F)	1x HDB15(F)	1x HDB15(F)
<b>Max. PC connections</b>	64	64	64	64
<b>Max. switch connections</b>	8 (serial)	8 (serial)	8 (serial)	8 (serial)
<b>Choice of the active PC port</b>	keyboard shortcut / OSD / button	keyboard shortcut / OSD / button	keyboard shortcut / OSD / button	keyboard shortcut / OSD / button
<b>Display of the switch number</b>	7-sectional LED	7-sectional LED	7-sectional LED	7-sectional LED
<b>Numbers of LED diodes of the state</b>	16 (2 for each PC port)	16 (2 for each PC port)	16 (2 for each PC port)	16 (2 for each PC port)
<b>Display menu OSD</b>	Yes	Yes	Yes	Yes
<b>Interval of automatic scanning ports</b>	from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.
<b>Max. resolution (local console)</b>	1920 x 1440	1920 x 1440	1920 x 1440	1600 x 1200
<b>Max. resolution (remote console)</b>	-	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for module cat. 5 300 m, 1600 x 1200 for IP module
<b>Cover</b>	19", metal	19", metal	19", metal	19", metal
<b>Power supply</b>	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz
<b>Dimensions</b>	470 x 190 x 44 mm	470 x 190 x 44 mm	470 x 190 x 44 mm	470 x 190 x 44 mm

## KVM SWITCHES OX 19"

				
KSC-116A	KSC-116E	KCC-116A	KSC-116B	KCC-132A
T-SO-970-601	T-SO-970-605	T-SO-970-607	T-SO-970-603	T-SO-970-608
16 PC to 1 user / stackable	16 PC to 2 users (1+1) / stackable	16 PC to 2 users (1+1) / stackable	16 PC to 2 users (1+1) / stackable	32 PC to 2 users (1+1) / stackable
16x HDB15(F)	16x HDB15(F)	16x 8p8c(F) RJ-45	16x HDB15(F)	32x 8p8c(F) RJ-45
5 m (depend of the terminal type)	5 m (depend of the terminal type)	150 m with Oxca DCC-001	5 m (depend of the terminal type)	150 m with Oxca DCC-001
PS/2 or USB	PS/2 or USB	PS/2 or USB	PS/2 or USB	PS/2 or USB
1x VGA HDB15(F) + 2x PS/2 mini DIN 6(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x USB A(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x USB A(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x PS/2 mini DIN 6(F), 1 widening port for the module of remote console	1x VGA HDB15(F) + 2x USB A(F), 1 widening port for the module of remote console
-	Cat. 5 or IP	Cat. 5 or IP	Cat. 5 or IP	Cat. 5 or IP
1x HDB15(F)	1x HDB15(F)	1x HDB15(F)	1x HDB15(F)	1x HDB15(F)
128	128	128	128	256
8 (serial)	8 (serial)	8 (serial)	8 (serial)	8 (serial)
keyboard shortcut / OSD / button	keyboard shortcut / OSD / button	keyboard shortcut / OSD / button	keyboard shortcut / OSD / button	keyboard shortcut / OSD / button
7-sectional LED	7-sectional LED	7-sectional LED	7-sectional LED	7-sectional LED
32 (2 for each PC port)	32 (2 for each PC port)	32 (2 for each PC port)	32 (2 for each PC port)	64 (2 for each PC port)
Yes	Yes	Yes	Yes	Yes
from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.	from 5 to 99 sec.
1920 x 1440	1920 x 1440	1600 x 1200	1920 x 1440	1600 x 1200
-	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module	1600 x 1200 for cat. 5 module 150 m, 1024 x 768 for cat. 5 module 300 m, 1600 x 1200 for IP module
19", metal	19", metal	19", metal	19", metal	19", metal
DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz	DC power adapter 12 V DC 1 A, ~230 V AC 50 Hz
470 x 190 x 44 mm	470 x 190 x 44 mm	470 x 190 x 44 mm	470 x 190 x 44 mm	470 x 190 x 44 mm

## SUPPLEMENTARY ACCESSORIES

### 19" keyboard KBD-106TP-USB

**Catalogue number:** T-SO-970-400; T-SO-970-401

**Interface:** PS/2(T-SO-970-400) or USB (T-SO-970-401)

**Dimensions:** 437.4 x 436.6 x 44 mm

**Weight:** 6.0 kg

**Power supply:** from keyboard port



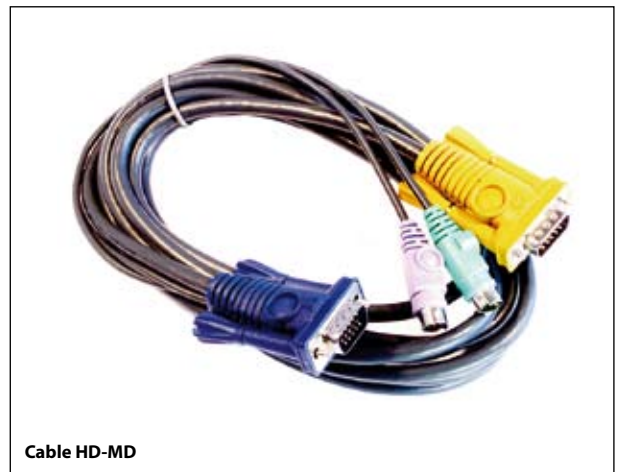
19" keyboard KBD-106TP-USB

### Cable HD-MD

**PC ports:** 1x HD-15M, 2x MD-6M

**Console ports:** 1x HD-15M

Cable type	Length	Catalogue number
KC-1501	1.8 m	T-SO-970-301
KC-1503	3.0 m	T-SO-970-303
KC-1505	5.0 m	T-SO-970-305



Cable HD-MD

### Cable HD-USB

**PC ports:** 1x HD-15M, 1x USB type A (M)

**Console ports:** 1x HD-15M

Cable type	Length	Catalogue number
KC-1501-USB	1.8 m	T-SO-970-311
KC-1503-USB	3.0 m	T-SO-970-313
KC-1505-USB	5.0 m	T-SO-970-315



Cable HD-USB

## SUPPLEMENTARY ACCESSORIES

### Adapter for KVM cat. 5, DCC-001

**Catalogue Number:** T-SO-970-620

**Usage:** Adapter RJ-45 to PS/2+VGA for KVM cat. 5

**PC port:** 1x VGA HDB15(F) + 2x PS/2 mini DIN 6(F)

**Types of supported PC ports (keyboard/mouse):**  
PS/2 or USB (from CUP-101)

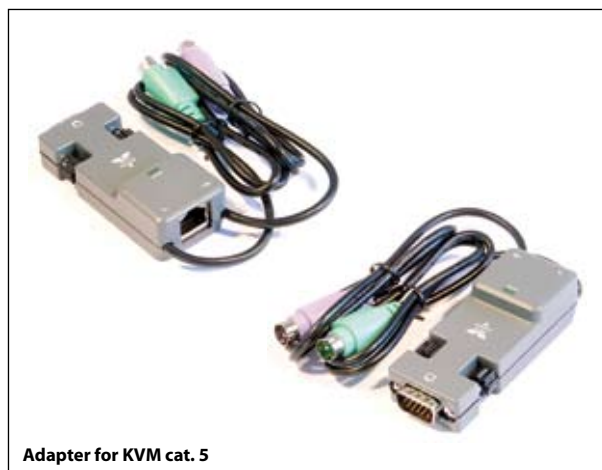
**KVM port:** 1x 8p8c(F) RJ-45

**Numbers of LED diodes of the state:** 1

**Dimensions:** 90 x 30 x 20 mm

**Power supply:**

from PS/2 ports, the external power supply is not necessary



Adapter for KVM cat. 5

### Console module KVM 1+1 with cat. 5 port, type DCC -150

**Catalogue number:** T-SO-970-622

**Usage:** remote access to KVM 1+1 through the twisted-pair cable

**Contain:** local module, remote module

**Max range:** 150 m

**Demand wire:** twisted-pair cable cat. 5e, 6 or higher

**Access control:** on the level of remote console module

**Local module:**

**Usage:** for the cat. 5 remote module connection

**Port cat. 5:** 1x 8p8c(F) RJ-45

**Dimensions:** 108 x 72 x 20 mm

**Remote module**

**Usage:** for the remote console connection to KVM 1+1,  
integrated KVM 2 PC for 1 user

**PC port:** 1x HDB15(F)

**KVM port 1+1:** 1x 8p8c(F) RJ-45

**Types of supported PC ports (keyboard/mouse):** PS/2 or USB

**Console ports:** 1x VGA HDB15(F) + 2x USB A(F)

**Choice of the active PC/Cat.5 port:** keyboard shortcut / OSD / button

**Number of LED diodes of the state:** 2

**Max. resolution:** 1280 x 1024

**Cover:** desktop, metal

**Dimensions:** 160 x 70 x 25 mm

**Power supply:** 9 V DC 500 mA, ~230 V AC 50 Hz



Console module KVM 1+1 with cat. 5 port

## SUPPLEMENTARY ACCESSORIES

### Console module KVM 1+1 with IP port, type DIP-101

**Catalogue number:** T-SO-970-330

**Usage:** remote access to KVM 1+1 through IP network

**Max. resolution:** local 1600 x 1200, remote 1280 x 1024

**IP port:** 1x 10/100 Mbps RJ-45, access HTTP/HTTPS and telnet

**Terminal port:** 1x DB9, access to the basic configuration, locally or through the modem

**Line port:** 1x miniUSB B(F) 2.0, remote access to the mass storage

**Service of protocols:** DHCP, static IP (support for DDNS), Bootp

**Data encryption:** SSL 256-bit

**Access control:** login + password, user profiles, user groups

**Compatibility:** IE6.0, Mozilla 1.6, Netscape 7.0, Opera 8.0

**Access through the HTTP:** required installation Java RE 1.4.2

**Simultaneous access of many users:** recommended amount not more than 15 users

**Amount of users accounts:** recommended amount not more than 150 accounts

**Log on of events:** NFS, SMTP, SNMP Trap

**Dimensions:** 108 x 72 x 20 mm

**Software update:** Yes



Console module KVM 1+1 with IP port

## UPS BATTERY BACKUPS

### Cover Partner RM

<b>Technology:</b>	True On-Line , Double Conversion, VFI-SS-111 (according to PN-EN 62040-3)
<b>Power range:</b>	1-3 kVA
<b>Phases in/out:</b>	1/1 (Plug&Play)
<b>Software:</b>	UPSentry Smart 2000

#### Typical application:

- servers
- work stations
- graphical stations
- systems in 19" cabinets
- controls systems and automations
- medical apparatus



Model	Capacity	Backup time	Specification	Dimensions	Weight	Catalogue number
<b>Cover Partner RM10</b>	1.0 kVA	8 min 22 min 40 min 70 min	UPS UPS + 1 battery module RM 1.0 kVA UPS + 2 battery modules RM 1.0 kVA UPS + 3 battery modules RM 1.0 kVA	440x434x88 mm (2U)	19 kg	T-S0-910-100
<b>Cover Partner RM22</b>	2.2 kVA	8 min 20 min 35 min 50 min	UPS UPS + 1 battery module RM 2.2 kVA UPS + 2 battery modules RM 2.2 kVA UPS + 3 battery modules RM 2.2 kVA	440x526x88 mm (2U)	24 kg	T-S0-910-200
<b>Cover Partner RM30</b>	3.0 kVA	8 min 20 min 35 min 50 min	UPS UPS + 1 battery module RM 3.0 kVA UPS + 2 battery modules RM 3.0 kVA UPS + 3 battery modules RM 3.0 kVA	440x503x132 mm (3U)	33 kg	T-S0-910-300

Accessories	Catalogue number
SNMP module - see page 67	T-S0-910-400
Environmental sensor (requires SNMP module) - see page 68	T-S0-910-401
Battery module RM 1.0 kVA, dimensions 440x434x88 mm (2U), weight 24 kg	T-S0-910-402
Battery module RM 2.2 kVA, dimensions 440x434x88 mm (2U), weight 22 kg	T-S0-910-403
Battery module RM 3.0 kVA, dimensions 440x434x88 mm (2U), weight 25 kg	T-S0-910-404
External bypass switch RM	T-S0-910-405
External bypass switch RM, 19" rack mount, 1 U	T-S0-910-406
Rails for 19" rack mount	T-S0-910-407

## UPS BATTERY BACKUPS

### Cover Partner RT

**Technology:** True On-Line, Double Conversion, VFI-SS-111 (according to PN-EN 62040-3)  
**Power range:** 5-11 kVA  
**Phases in/out:** 1/1  
**Software:** UPSentry Smart 2000

**Typical application:**

- servers
- work stations
- graphical stations
- systems in 19" cabinets
- controls systems and automations
- medical apparatus

**Dimensions:**

445x563x130 mm (3U)  
 (concerns all UPS and battery modules)



Model	Capacity	Backup time	Specification	Weight	Catalogue number
<b>Cover Partner RT50</b>	5.0 kVA	- 12 min 30 min 50 min	UPS UPS + 1 battery module RT 7.0 kVA, 7 Ah UPS + 2 battery modules RT 7.0 kVA, 7 Ah UPS + 3 battery modules RT 7.0 kVA, 7 Ah	20.5 kg	T-S0-910-500
<b>Cover Partner RT70</b>	7.0 kVA	- 8 min 20 min 32 min	UPS UPS + 1 battery module RT 7.0 kVA, 7 Ah UPS + 2 battery modules RT 7.0 kVA, 7 Ah UPS + 3 battery modules RT 7.0 kVA, 7 Ah	20.5 kg	T-S0-910-700
<b>Cover Partner RT90</b>	9.0 kVA	- 8 min 17 min 26 min	UPS UPS + 1 battery module RT 11.0 kVA, 9 Ah UPS + 2 battery modules RT 11.0 kVA, 9 Ah UPS + 3 battery modules RT 11.0 kVA, 9 Ah	24.5 kg	T-S0-910-900
<b>Cover Partner RT110</b>	11.0 kVA	- 5 min 14 min 22 min	UPS UPS + 1 battery module RT 11.0 kVA, 9 Ah UPS + 2 battery modules RT 11.0 kVA, 9 Ah UPS + 3 battery modules RT 11.0 kVA, 9 Ah	24.5 kg	T-S0-910-910

Accessories	Catalogue number
SNMP module - see page 67	T-S0-910-400
Environmental sensor (requires SNMP module) - see page 68	T-S0-910-401
Wireless signal panel RAM Partner RT	T-S0-910-408
Battery module RT 7.0 kVA, 7 Ah, weight 69.5 kg	T-S0-910-409
Battery module RT 11.0 kVA, 9 Ah, weight 69.5 kg	T-S0-910-410
External wireless bypass RT (wall-mounted)	T-S0-910-411
External wireless bypass RT Rack (19" rack mount)	T-S0-910-412
Fire switch (REPO)	T-S0-910-413
Rails for 19" rack mount	T-S0-910-407

## ACCESSORIES FOR UPS BATTERY BACKUPS

### SNMP card

**Catalogue number:** T-SO-910-400

SNMP InsightPower card is an interface between the UPS and the computer network. The card makes it possible to obtain information about the operating status of the device and execute control commands remotely.

Users can easily control the operation of the device using their Internet browser or tools based on SNMP, a popular network management protocol.

The system is complemented by the InsightPowerClient software compatible with the SNMP card. In the event of prolonged power outage, the software automatically shuts down computers working under Windows operating systems. A simpler software version called SNMP ShutdownAgent is capable of working with a wide array of popular system platforms.

#### Properties and functionalities:

- In-built SNMP agent and HTTP server for UPS monitoring
- Configuration through a terminal or via telnet
- Management of different user rights levels
- Firmware updating option
- UPS monitoring and control
- Recording events and parameters in the card's memory
- UPS starting, restarting and testing programme
- "Wake On LAN" feature for automatic PC start
- Sending e-mail messages and SNMP traps in the event of alarms
- Cooperation with the InsightPower Client software – the Windows platform
- Cooperation with the Shutdown Agent software for shutting down operating systems automatically (support for many leading system platforms).



## ACCESSORIES FOR UPS BATTERY BACKUPS

### Sensor of environmental conditions

**Catalogue number:** T-SO-910-401

The sensor of environmental conditions enables to monitor climatic conditions in the cabinets:

- temperature
- humidity
- door open
- enables to connect a smoke sensor

All exceeded parameters are being registered in the computer system and visualize on the local or remote computer through the Internet.

To connect the sensor with the computer a SNMP card is required (see page 67)

The sensor connected to the SNMP card enables the remote monitoring of the state of current parameters of the environment in the cabinet or the room, in which it was installed.

Values of parameters are available after connect by Internet browser. In the same location, adjusting permissible values of parameters of the environment is possible (temperature, humidity) and status of the remaining sensors (smoke, fire, flood, access) into the monitored room. Exceeding of adjusted values, causes the activation of the alarm.



## SWITCHED POWER DISTRIBUTION UNIT

### PDU-1

**Catalogue number:** T1Z-01-0004

Power distribution unit is equipped with 8 sockets. It is intended to be used in 19" server cabinets. Unit is designed for 1U height enclosure because of its small diameters. It is equipped with RJ45 socket for Ethernet connection according to SNMP protocol. Thanks to notification of SNMP traps, e-mails and sound signals, the service can be alarmed about exceptional occurrences. Additionally the digital pointer informing about power supply of connected servers is installed in the front.



Power distribution unit is equipped with additional software which lets for manual monitoring of particular ports power consumption, setting the alarm in case of crossing the inflicted states.

**Additionally unit lets for controlling all supplying ports through web browser or attached software.**

Basic parameters	
Installing	horizontal installed in rack 19"
Current meter	digital true RMS
Power monitor	meter, Web, SNMP, free bundle software
Remote power control	Web, SNMP
Audible alarm	2 Phase, warning and overload
Event alert	e-mail, trap SNMP, audible alarm
Protection	circuit breaker 16 A
Output	8 socket IEC320 C13
Input	IEC320 C20 attached power cord, 3 m
Communication	
Ethernet LED	1 yellow LED
Status LED	1 green LED
Power LED	8 green LED
Power monitor	RJ45
Power measurement	digital meter; range: 0-20 A
Metering range	resolution: 0.1 A; precision: +/-2%, +/-0.1 A
Operation and environment	
Input voltage	230 V
Frequency	50/60 Hz (full range)
Max. output current	16 A
Temperature	0-40°C
Humidity	0-90%
Size	90x432x44 mm
Weight	3 kg



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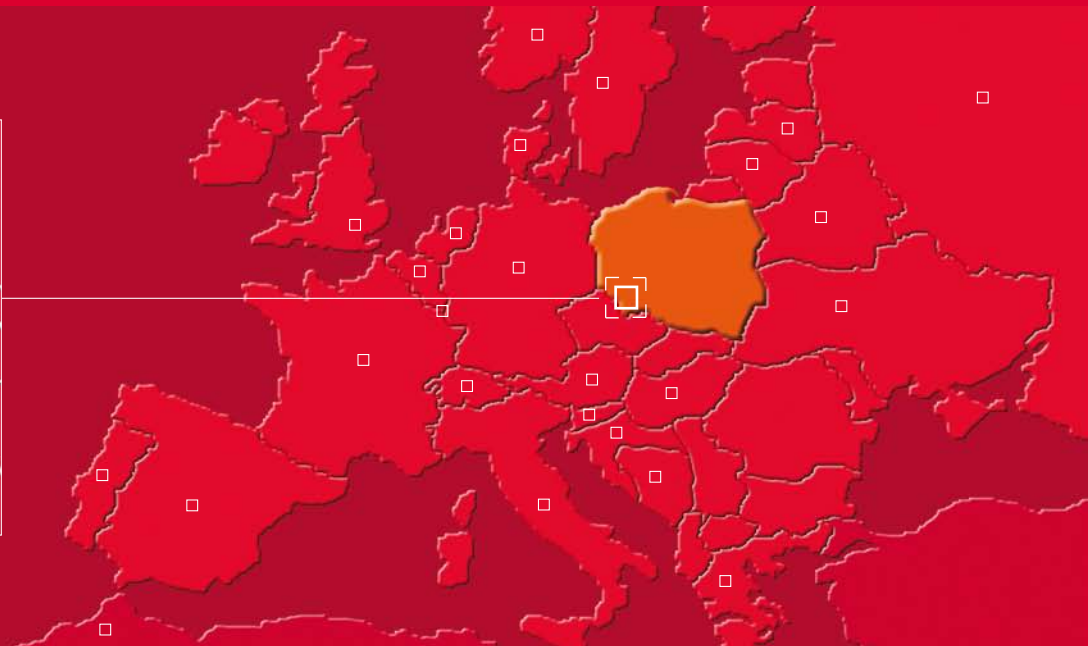
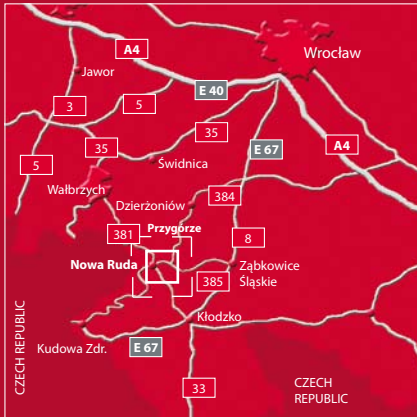
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