

Much More Than Technology

## FTTA & PTTA

Next Generation Site Solutions for All Architectures

### SITE SOLUTIONS





## Rosenberger Site Solutions – Much More Than Technology

The Rosenberger Site Solutions Group designs, manufactures and provides solutions for the wireless infrastructure market. Our products and systems offer innovative and leading-edge designs with focus on high performance and quality. Having an efficient network implementation in mind, we focus on total site kitting, logistics and delivery time leading to reduced cost of ownership. Globally present, the Rosenberger Site Solutions Group offers extensive local support making Rosenberger Site Solutions a partner instead of just a supplier.



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## Home of Innovation

A global network of Rosenberger research & development and production centers provides innovation, optimized cost structure and outstanding local customer service.





The Rosenberger headquarters located in Fridolfing in the southeast part of Bavaria, Germany

# Rosenberger Worldwide

Rosenberger has more than 14,000 employees at the headquarters, manufacturing plants and sales offices in Europe, Asia as well as in North and South America, who are engaged in development, manufacture and sales of the products.

Rosenberger is always near you with its capable partners in the most important industrial countries when you need competent advice and trouble-free delivery on location.

In many countries, Rosenberger subsidiaries are active in the manufacture of connectors and cable assemblies. This facilitates flexibility on location and provides a national element that can help in reducing tax and customs charges.

With the establishment of a European assembly and logistics center in eastern Hungary together with the complete manufacturing plants in China and India, Rosenberger has, on the one hand, established a sustainable competitive advantage by international comparisons, and on the other hand, makes a useful contribution to the industrial development of emerging economies.

## Rosenberger Global Network

### Company Headquarters

- Fridolfing, Germany

### Europe

- Austria: Timelkam
- Denmark: Lynge
- Germany: Augsburg, Laufen, Neuenbürg, Radeberg
- Hungary: Jászárokszállás, Jászberény, Nyírbátor, Taksony
- Italy: Vimercate
- Spain: Madrid
- Sweden: Kista, Vallentuna
- UK: Bradford

### North America

- Mexico: Apodaca
- USA: Akron, Pennsauken, Lake Charles

### South America

- Brazil: Cacapava - São Paulo
- Chile: Santiago





#### Africa

- Tunisia

#### Asia

- China: Beijing, Dianshan Hu, Dongguan, Shanghai
- India: Manesar, Goa, Pune
- Japan: Tokyo
- Korea: Suwon-City

# Site Solutions Overview

Next Generation **FIBER** Solutions for all Architectures

## PreCONNECT® FIBER Trunk

### Boxless Solutions

One fiber trunk with up to 12 pairs of optical fibers. For the connection to the RRHs separate fiber jumpers are used. For upgrading systems with unique or proprietary fiber interfaces, only jumpers require modification or replacement.



## PreCONNECT® FIBER Trunk

### Direct Solutions

One fiber trunk with up to 12 pairs of optical fibers. The fanouts of the fiber trunk are taken directly to the RRHs without the use of fiber optic jumpers.

Extend or adapt the fanouts with the Rosenberger FiberInLine connector for upgrades or swaps.



## PreCONNECT® FIBER Trunk

### Box Solutions

One fiber trunk with up to 24 pairs of optical fibers connected to a distribution box. For the connection to the RRHs separate fiber jumpers are used. For upgrading systems with unique or proprietary fiber interfaces, only jumpers require modification or replacement.



## PreCONNECT® TMFS

### Tower Mounted Fiber System

Modular fiber optic system with up to 48 pairs of fibers. Pre-assembled in factory and available with a multiple choice of outdoor fiber optic connectors for fast connection to RRHs using fiber optic jumper cables.



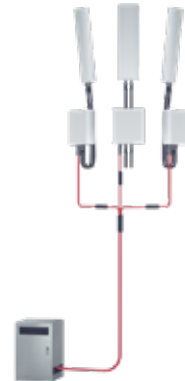


Next Generation **POWER** Solutions for all Architectures

## PreCONNECT® POWER Trunk

### Boxless Solutions

One power trunk with up to x-pairs of same sized cross-section wires, 6 mm<sup>2</sup>, 10 mm<sup>2</sup> and 16 mm<sup>2</sup>. For the connection to the RRHs separate power jumpers are used. For upgrading systems with unique or proprietary power interfaces, only jumpers require modification or replacement.

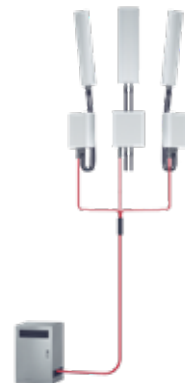


## PreCONNECT® POWER Trunk

### Direct Solutions

One power trunk with up to x-pairs of same sized cross-section wires, 6 mm<sup>2</sup>, 10 mm<sup>2</sup> or 16 mm<sup>2</sup>. Without any splicing the fanouts of the power trunk are taken directly to the RRHs without the use of power jumpers.

Extend or adapt the fanouts with the Rosenberger PowerInLine connector for upgrades or swaps.



## PreCONNECT® POWER Trunk

### Box Solutions

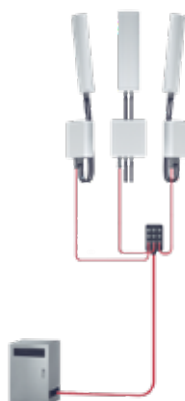
One power trunk with up to x-pairs of same sized cross-section wires either 6 mm<sup>2</sup>, 10 mm<sup>2</sup> or 16 mm<sup>2</sup> or a 2-wire power cable up to 35 mm<sup>2</sup> connected to a distribution box. For the connection to the RRHs separate power jumpers are used. For upgrading systems with unique or proprietary power interfaces, only jumpers require modification or replacement.



## PreCONNECT® TMPS

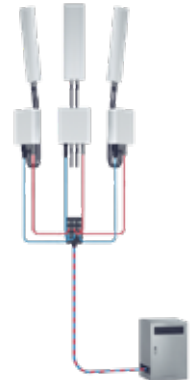
### Tower Mounted Power System

Modular power system with up to 18 outdoor power connectors. Pre-assembled in factory and available with either 3, 6, 12 or 18 outdoor power connectors, DC or AC, for fast connection to RRHs using power jumpers.



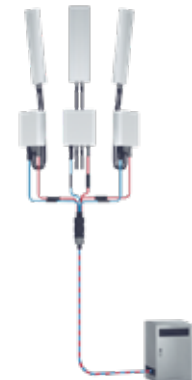
## PreCONNECT® TMHS Tower Mounted Hybrid System

Modular fiber optic and power system for data and DC power to support multiple RRHs. Pre-assembled in factory for fast connection to RRHs using fiber and power jumper cables. For upgrading systems with unique or proprietary fiber or power interfaces, only jumpers require modification or replacement.



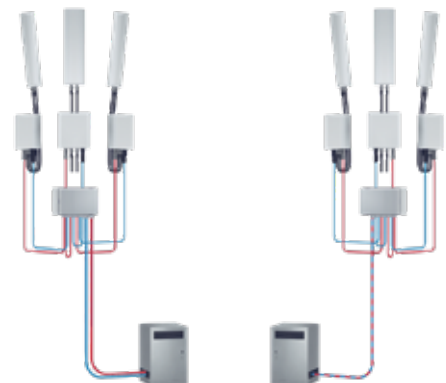
## PreCONNECT® HYBRID Boxless Solutions

One single hybrid cable for both data and DC power to support multiple RRHs. The slim cable design provides for a spliceless, continuous cable connection from the BBU and power supply to the RRHs. Separate fiber and power jumpers are used from the hybrid cable to the RRHs. For upgrading systems with unique or proprietary interfaces, only jumpers require modification or replacement.



## PreCONNECT® HYBRID Box Solutions

One single hybrid cable or two individual fiber and power trunks for data and DC or AC power supply. One hybrid box solution can support multiple RRHs in various configurations. Separate or hybrid fiber and power jumpers are connected from the hybrid box to the RRHs.



### PreCONNECT® 2FO

#### Discrete Solutions

Ideal for single runs of fiber cable. Each RRH is directly connected to the BBU by one fiber cable.



### PreCONNECT® POWER

#### Discrete Solutions

Ideal for single runs of power cable. Each RRH is directly connected to the PSU by one power cable.

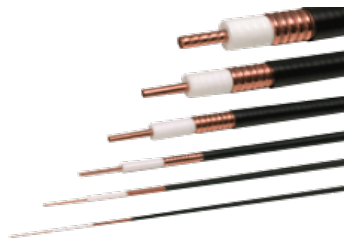






# Rosenberger B2ca CABLES

Compliant and certified according the CPR – EN 50575

## Coaxial Cables




Rosenberger No.	Description	Picture
SL 012R FRNC	1/2" Feeder, flexible, no halogen, flame retardant	
SL 012S FRNC	1/2" Feeder, superflexible, no halogen, flame retardant	
SL 078R FRNC	7/8" Feeder, flexible, no halogen, flame retardant	
SL 114R FRNC	1 1/4" Feeder, flexible, no halogen, flame retardant	
SL 158R FRNC	1 5/8" Feeder, flexible, no halogen, flame retardant	
SL 078B RK FRNC	7/8" Radiating cable, no halogen, flame retardant	
SL 114B RK FRNC	1 1/4" Radiating cable, no halogen, flame retardant	
SL 158B RK FRNC	1 5/8" Radiating cable, no halogen, flame retardant	

## Coaxial Jumpers


Rosenberger No.	Description	Picture
SLJ12RF-64M64M-xxx	Jumper 4.3-10 male - 4.3-10 male, 1/2" Flexible FRNC	
SLJ12SF-64M64M-xxx	Jumper 4.3-10 male - 4.3-10 male, 1/2" Super Flexible FRNC	

Other configurations available on request

## FO Cables



Rosenberger No.	Description	Picture
L98B-A0992-xxx	PreCONNECT® - 2 FO DISCRETE, SM, 5 mm, LCD_RFE-LCD, B2ca	
L98B-A1115-xxx	PreCONNECT® - 2 FO DISCRETE, SM, 5 mm, LCD_LCD, B2ca	
L98B-A0987-xxx	PreCONNECT® - 12 FO BOX, SM, 9.1 mm, 6xLCC-6xLCC, B2ca	
L98B-A1045-xxx	PreCONNECT® - 12 FO BOX, SM, 8.5 mm, 6xLCC-6xLCC, B2ca, steel armoured	
L98B-A0988-xxx	PreCONNECT® - 24 FO BOX, SM, 9.1 mm, 12xLCC-12xLCC, B2ca	

## Data Cable

Rosenberger No.	Description	Picture
L99-A0122-xxx	Cat5e Cable Outdoor acc. to IEEE 802.3 bt (PoE++), B2ca	
L99-C342-xxx	Cat6A Cable Outdoor acc. to IEEE 802.3 bt (PoE++), B2ca	

Other configurations available on request

## 2-Wire Power Cables

Rosenberger No.	Description	Picture
SL2C1.5MM2FRNC-S-BK-R	Power Cable 2 x 2,5 mm <sup>2</sup> , Alu shielded, 6.9 mm	
SL2C2.5MM2FRNC-S-BK-R	Power Cable 2 x 2,5 mm <sup>2</sup> , Alu shielded, 8.1 mm	
SL2C4MM2FRNC-S-BK-R	Power Cable 2 x 4 mm <sup>2</sup> , Alu shielded, 8.5 mm	
SL2C6MM2FRNC-S-BK-R	Power Cable 2 x 6 mm <sup>2</sup> , Alu shielded, 9.8 mm	
SL2C10MM2FRNC-S-BK-R	Power Cable 2 x 10 mm <sup>2</sup> , Alu shielded, 11.6 mm	
SL2C16MM2FRNC-S-BK-R	Power Cable 2 x 16 mm <sup>2</sup> , Alu shielded, 13.8 mm	
SL2C25MM2FRNC-S-BK-R	Power Cable 2 x 25 mm <sup>2</sup> , Alu shielded, 17.2 mm	
SL2C35MM2FRNC-S-BK-R	Power Cable 2 x 35 mm <sup>2</sup> , Alu shielded, 22.3 mm	
SL2C6MM2FRNC-S-BK-N	Power Cable 2 x 6 mm <sup>2</sup> , Alu shielded, 9.8 mm	
SL2C10MM2FRNC-S-BK-N	Power Cable 2 x 10 mm <sup>2</sup> , Alu shielded, 11.6 mm	
SL2C16MM2FRNC-S-BK-N	Power Cable 2 x 16 mm <sup>2</sup> , Alu shielded, 13.8 mm	
SL2C25MM2FRNC-S-BK-N	Power Cable 2 x 25 mm <sup>2</sup> , Alu shielded, 17.2 mm	
SL2C35MM2FRNC-S-BK-N	Power Cable 2 x 35 mm <sup>2</sup> , Alu shielded, 22.3 mm	

## Double-Isolated Wires

Rosenberger No.	Description	Picture
SLZ0035-10-RD	Power Cable 1 x 10 mm <sup>2</sup> , double isolated, Red, 9,0 mm	
SLZ0035-16-RD	Power Cable 1 x 16 mm <sup>2</sup> , double isolated, Red, 10,0 mm	
SLZ0035-25-RD	Power Cable 1 x 25 mm <sup>2</sup> , double isolated, Red, 10,5 mm	
SLZ0035-35-RD	Power Cable 1 x 35 mm <sup>2</sup> , double isolated, Red, 11,0 mm	
SLZ0035-50-RD	Power Cable 1 x 50 mm <sup>2</sup> , double isolated, Red, 13,0 mm	
SLZ0035-10-WH	Power Cable 1 x 10 mm <sup>2</sup> , double isolated, White, 9,0 mm	
SLZ0035-16-WH	Power Cable 1 x 16 mm <sup>2</sup> , double isolated, White, 10,0 mm	
SLZ0035-25-WH	Power Cable 1 x 25 mm <sup>2</sup> , double isolated, White, 10,5 mm	
SLZ0035-35-WH	Power Cable 1 x 35 mm <sup>2</sup> , double isolated, White, 11,0 mm	
SLZ0035-50-WH	Power Cable 1 x 50 mm <sup>2</sup> , double isolated, White, 13,0 mm	

# PreCONNECT® BOXES

Next Generation **BOX** Solutions for all Architecture

The Rosenberger PreCONNECT® BOXES are available in standard and tailor-made configurations in volumes, low or high, to meet your specific requirements for reliable and easy-to-deploy connectivity boxes.

Designed and produced in-house at Rosenberger in Germany, our connectivity boxes provide the best workmanship and highest quality to ensure a long and smooth operation even in the most harsh environments.

The range of PreCONNECT® BOXES comprises:

- PreCONNECT® BOXES Fiber
- PreCONNECT® BOXES Power
- PreCONNECT® BOXES Hybrid

We Think Inside – and Outside the Box.





# PreCONNECT® BOXES

## DC, AC and Fiber

Rosenberger No.	Description
SLPDU005-03	PreCONNECT® PDU - 3 x Output, Multipower Cable, Shielded Output
SLPDU005-06	PreCONNECT® PDU - 6 x Output, Multipower Cable, Shielded Output
SLPDU046-03	PreCONNECT® PDU - 3 x Breaker B32A, 2-Wire Main Cable, Shielded Output
SLPDU046-06	PreCONNECT® PDU - 6 x Breaker B32A, 2-Wire Main Cable, Shielded Output
SLPDU046-06-C32	PreCONNECT® PDU - 6 x Breaker C32A, 2-Wire Main Cable, Shielded Output
SLPDU055-06	PreCONNECT® PDU - 6 x Breaker 3 x B32A 3 x B40A, 2 x 1 x 35 mm² Individual Wires
SLPDU055-06-C32	PreCONNECT® PDU - 6 x Breaker C32A, 2 x 1 x 35 mm² Individual Wires
SLPDU055-06-40	PreCONNECT® PDU - 6 x Breaker 6 x B40A, 2 x 1 x 35 mm² Individual Wires
SLPDU058-00	PreCONNECT® PDU - 3 x SPD Class I 50kA, 3 x 2-Wire shielded in, 3 x 2-Wire shielded out
SLPDU058-02	PreCONNECT® PDU - 2 x SPD Class I 50kA, 2 x 2-Wire shielded in, 2 x 2-Wire shielded out
SLPDU058-01	PreCONNECT® PDU - 1 x SPD Class I 50kA, 1 x 2-Wire shielded in, 1 x 2-Wire shielded out
SLPDU058-03	PreCONNECT® PDU - 3 x SPD Class I 50kA, 3 x 2-Wire shielded in, 3 x 2-Wire shielded out
SLPDU059-00	PreCONNECT® PDU - ALU outdoor connection box, 2-Wire shielded in, 2-Wire shielded out
SLPDU061-06-20	PreCONNECT® PDU - 6 x Breaker B20A, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU061-06-32	PreCONNECT® PDU - 6 x Breaker B32A, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU062-00	PreCONNECT® PDU - SPD Class I 50kA, 2-Wire Main Cable, 5-Wire Shielded Output
SLPDU023-00	PreCONNECT® PDU - 2 x Breaker B50A, SPD Class I 25kA, 2 x 2-Wire Main Cable, Shielded Output
SLPDU023-01	PreCONNECT® PDU - SPD Class I 25kA, 2 x 2-Wire Main Cable, Shielded Output
SLPDU022-03-06	PreCONNECT® PDU - 3 x Breaker B6A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU022-03-20	PreCONNECT® PDU - 3 x Breaker B20A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU022-03-32	PreCONNECT® PDU - 3 x Breaker B32A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU022-06	PreCONNECT® PDU - 6 x Breaker B20A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU022-06-32	PreCONNECT® PDU - 6 x Breaker B32A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, Shielded Output
SLPDU022-G6	PreCONNECT® PDU - 6 x Breaker B20A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, plus grounding terminals, Shielded Output
SLPDU022-G6-32	PreCONNECT® PDU - 6 x Breaker B32A, SPD Class I 25kA, 2 x 2-Wire Shielded Main Cable, plus grounding terminals, Shielded Output
SLPDU052-00	PreCONNECT® PDU - SPD Class I 25kA, 2-Wire Shielded Main Cable, 2-Wire Shielded Cable Output
SLPDU063-03	PreCONNECT® PDU - 3 x Breaker B32A, 2-Wire Shielded Input. 3 x 2-Wire Shielded Output
SLPDU063-03-06	PreCONNECT® PDU - 3 x Breaker B6A, 2-Wire Shielded Input. Shielded Output
SLPDU064-03	PreCONNECT® PDU - 3 x 2-Wire Shielded Input. 3 x 2-Wire Shielded Output
SLPDU025-18	PreCONNECT® PDU - 19" 3 HU, 18 x Breaker C20A, SPD Class I 12,5kA Varistor
SLPDU048-20-B16	PreCONNECT® PDU - 19" 3 HU, 20 x Breaker B16A
SLHDU048-06	PreCONNECT® HDU - 12 x LCD, 6 x Breaker C20A, 2-Wire Main Cable, Shielded Output
SLHDU055-04	PreCONNECT® HDU - 4 x LCD, 4 x Breaker B4A, 2-Wire Shielded Main Cable, Shielded Output
SLHDU055-06	PreCONNECT® HDU - 6 x LCD, 6 x Breaker B4A, 2-Wire Shielded Main Cable, Shielded Output
SLHDU055-08	PreCONNECT® HDU - 8 x LCD, 8 x Breaker B4A, 2-Wire Shielded Main Cable, Shielded Output
SLHDU056-12-00	PreCONNECT® HDU - 12 x LCD, 2 x 2-Wire Main Cable (2 x up to 2 x 35 mm²)
SLHDU056-12-2+4	PreCONNECT® HDU - 12 x LCD, 6 x Breaker C32A 2 + 4, 2 x 2-Wire Main Cable (2 x up to 2 x 35 mm²)
SLHDU056-12-3+3	PreCONNECT® HDU - 12 x LCD, 6 x Breaker C32A 3 + 3, 2 x 2-Wire Main Cable (2 x up to 2 x 35 mm²)
SLFDU004-06	PreCONNECT® FDU - 6 x LCD, IP66
SLFDU005-12	PreCONNECT® FDU - 12 x LCD, IP66
SLFDU008-18	PreCONNECT® FDU - 18 x LCD, IP66
SLFDU021-24	PreCONNECT® FDU - 24 x LCD, IP66
SLPDU073-00	PreCONNECT® PDU AC - 3 x Breaker B32A + 4 x 35A + 3 x B20A, SPD, Phase control, outdoor
SLPDU069-00	PreCONNECT® PDU AC - 6 x B25A, SPD, Phase control, outdoor
SLPDU069-01	PreCONNECT® PDU AC - 6 x B25A, SPD, Phase control, outdoor, 63A socket for Emergency Power feed
SLPDU069-07	PreCONNECT® PDU AC - 9 x B25A, SPD, Phase control, outdoor
SLPDU092-03-16	PreCONNECT® PDU AC - 3 x B16A, SPD for up to 3 Rectifiers

# 19" 1 HU DC Power Distribution Unit (PDU)

## Key Features

### Flexible Circuit Configuration

Supports up to 18 circuit breakers, adaptable to your specific power distribution needs.

### Scalable & On-Site Expandable

Easily add additional or change breakers on-site for maximum flexibility and future-proof expansion.

### High Power Capacity

Each circuit supports a maximum current of up to 250 A, ensuring reliable performance in line with your requirements.

### Customizable Circuit Design

Available with one, two, or three independent circuits, providing tailored solutions for all application requirements.

### Integrated Surge Protection (Optional)

Available with or without Surge Protection Devices (SPD) featuring varistor-based Class 2, 5kA protection for enhanced protection.

### Secure & Protected Installation

Dummy covers safeguard open slots ensuring a safe setup.





### Enhanced Dust Protection

Equipped with a brush at the rear cable entry to prevent dust ingress and ensure long-term reliability.



# 19" 1 HU DC Power Distribution Unit

## Portfolio

No. of Circuits	Circuit	No. of Circuit Breakers	SPD	Max. Current	Reference (Rosenberger No.)	Product
1	Single circuit	18 breakers	No SPD  Unit with SPD available on request	250 A / circuit	SLPDU100-04	 Circuit 1
2	Two independent circuits (primary and secondary)	Circuit one: Up to 12 circuit breakers Circuit two: Up to 6 circuit breakers	No SPD	250 A / circuit	SLPDU100-00	 Circuit 1    Circuit 2
2	Two independent circuits (primary and secondary)	Circuit one: Up to 12 circuit breakers Circuit two: Up to 6 circuit breakers	Varistor type, class 2, 5kA SPDs protect each line	125 A / circuit	SLPDU100-01	 Circuit 1    Circuit 2
3	Three independent circuits	Each circuit: Up to 6 circuit breakers	No SPD	250 A / circuit	SLPDU100-03	 Circuit 1    Circuit 2    Circuit 3

Note: Breaker adds separately acc. to your needs (see page 8)

More configurations on request



# 19" 1 HU Hybrid Distribution Unit (HDU)

## Key Features

### Flexible Circuit Configuration

Supports up to 6 circuit breakers, adaptable to your specific power distribution requirements.

### Efficient Fiber Management

Supports up to 12 fiber connections, ensuring seamless integration of power and data transmission.

### Scalable & On-Site Expandable

Easily add additional or change breakers on-site for maximum flexibility and future-proof expansion.

### High Power Capacity

Each circuit supports a maximum current of up to 250 A, ensuring reliable performance in demanding environments.

### Integrated Surge Protection (Optional)

Available with or without Surge Protection Devices (SPD) featuring varistor-based Class 2, 5kA protection for enhanced protection.

### Secure & Protected Installation

Dummy covers safeguard open slots ensuring a safe setup.




### Enhanced Dust Protection

Equipped with a brush at the rear cable entry to prevent dust ingress and ensure long-term reliability.



# 19" 1 HU Hybrid Distribution Unit

## Portfolio

No. of Circuits	No. of Circuit Breakers	SPD	Max. Current	No. of Fibers	No. of Keystones	Rosenberger No.	Product
1	Up to 6 breakers	No SPD	250 A / circuit	Up to 12 fibers (6 x LCD)	-	SLHDU100-06-00	
1	Up to 6 breakers	Varistor type, class 2, 5kA	125 A	Up to 12 fibers (6 x LCD)	-	SLHDU100-06-03	
1	Up to 6 breakers	Varistor type, class 2, 5kA	125 A	12 fibers (3 x LC Quad)	4	SLHDU100-06-02-A	

**Flexible configuration, please contact us to find the best solution for your requirements**

- Up to 6 breakers (see page 8)
- Up to 7 Keystones (for example RJ45)
- Up to 12 Fibers (6 x LCD or 3 x LC Quad or 7 x E2000)



# Indoor Rectifier

A rectifier system – for telecom applications – converts 230/400V (AC) into ~ -54V (DC). With the goal of continuously reducing total operating costs, Rosenberger rectifiers, combined with advanced control and monitoring functions, contribute to lowering both investment and operating costs. Our rectifier systems are characterized by high power density and a compact footprint.

Rosenberger rectifiers support telecommunications infrastructure in mobile networks and is ideal for use in network edge applications , RAN, distributed telecommunications networks, and locations with high data demand.

- Rack-mounted, 3 HU, 4HU or 5 HU, up to 9 Rectifier Moduleswith up to 36kW DC output power
- **Compact:** AC Input, DC Output, Rectifier Modules, Controller
- **Easy Maintenance:** Hot Plug Rectifier Module, Front Access Maintenance System
- Advanced Battery Management
- DC Output Breakers, standard and intelligent



Rosenberger No.	Description
98K216-540-000	19" Rack Mounted Rectifier Power Unit, 5 HU
98K216-540-005	19" Rack Mounted Rectifier Power Unit, 4 HU
98K216-540-004	19" Rack Mounted Rectifier Power Unit, 3 HU



# Outdoor Rectifier

With the deployment of LTE, 5G and upcoming 6G, the power requirement on site is increasing constantly.

Long DC power cable runs result in additional power losses (commonly up to 200 Wh x 24 hours / 7 days).

To reduce the losses and ease the installation due to smaller cross sections and less weight, AC power cables (230 / 400 V) can be deployed (directly from the technical room to the radio location).

Rosenberger Outdoor Rectifiers can be installed close to the radios, and supply the needed DC power to the radios on tower top in an efficient way.

- For RAN installations where the Radios are based far away from the technical room
- Use of AC-power for long cable runs allow reduced cross sections on the copper cables
- High demand of DC power for the radios
- AC/DC Conversion: Total Output Power of 3kW
- Monitoring: RS485, CAN Communication Serial Port and Dry Contact IF
- Battery Management Function with Battery IF
- 50 Ah Battery
- Rectifier devices with batteries connected parallel for back up

Battery Pack for Rectifier Power Module  
50Ah 7 51.2V



Outdoor Rectifier Module



Pole Mounting Bracket



Rosenberger No.	Description
98K216-518-3000-4	Battery Pack for Rectifier Power Module 50 AH / 51.2V
98K216-51 8-3000	Outdoor Rectifier Module
SLZ0070-30	Pole Mountin Bracket

# Circuit Breakers and Accessories

Factorypre-installation as per your requirements

## Circuit Breakers

Rosenberger No.	Description
<a href="#">NDB6AZ-63H/6/1PN</a>	6 A, 1 pole
<a href="#">NDB6AZ-63H/10/1PN</a>	10 A, 1 pole
<a href="#">NDB6AZ-63H/16/1PN</a>	16 A, 1 pole
<a href="#">NDB6AZ-63H/20/1PN</a>	20 A, 1 pole
<a href="#">NDB6AZ-63H/25/1PN</a>	25 A, 1 pole
<a href="#">NDB6AZ-63H/32/1PN</a>	32 A, 1 pole
<a href="#">NDB6AZ-63H/40/1PN</a>	40 A, 1 pole
<a href="#">NDB6AZ-63H/50/1PN</a>	50 A, 1 pole
<a href="#">NDB6AZ-63H/63/1PN</a>	63 A, 1 pole



## Dummy Cover

Rosenberger No.	Description
BSB-SLPDU100	Dummy cover



## Cable Management

Rosenberger No.	Description
SLR010-00	19" cable feedthrough with brush



## Finger Protection Cover

Rosenberger No.	Description
BSB-SLPDU100	Finger protection cover at the rear of the unit



Installed at the rear of the distribution unit

Assembly Instruction









# PreCONNECT® FIBER Trunk Box Solutions

One fiber trunk with up to 24 pairs of optical fibers connected to a distribution box. For the connection to the RRHs separate fiber jumpers are used. For upgrading systems with unique or proprietary fiber interfaces, only jumpers require modification or replacement.

## Features and Benefits

- Multi-channel cable for harsh outdoor environment
- Single fiber trunk with 3 to 24 pairs
- LC connectors on both sides
- Operating temperature range -40 °C to +85 °C
- High UV resistance
- High crush resistance
- Factory assembled fiber optic connectors
- Factory tested Insertion Loss (IL) including test report
- Connectors and fanouts protected with installation tube



# PreCONNECT® FIBER Distribution Box

Designed for tower as well as wall mounting, Rosenberger Fiber Distribution Boxes are available in various configurations to accommodate 3 to 24 pairs of fiber optic.

## Features and Benefits

- 3 to 24 LC duplex adaptors
- Ventilation seal to avoid moisture
- Mast and wall mount fixation
- Easy, efficient and safe installation
- IP67



## PreCONNECT® FIBER Distribution Boxes

Rosenberger No.						
Single mode G.657A - 9/125	*Multi mode OM 3 - 50/125	Pairs	Fibers	Diameter	Connector Type	Distribution Box
L98B-A0757-xxx	L98D-472-xxx	6	12	7.3 mm	6 x LC-Compact > 6 x LC-Compact	SLFDU004-06
L98B-022-xxx	L98D-471-xxx	12	24	7.3 mm	12 x LC-Compact > 12 x LC-Compact	SLFDU005-12
L98B-069-xxx	L98D-479-xxx	18	36	10 mm	18 x LC-Compact > 18 x LC-Compact	SLFDU008-w18
L98B-235-xxx	L98D-480-xxx	24	48	10 mm	24 x LC-Compact > 24 x LC-Compact	SLFDU021-24

Further configurations available on request

xxx = length between cable

\*OM 4 available on request

For related jumper cable, please go to page 38



# PreCONNECT® FIBER Trunk

## Boxless Solutions

The Fiber Trunk Boxless Solution utilizes one fiber trunk with up to 12 pairs of optical fiber.

For connection to the RRHs separate fiber jumpers are used. For up-grading systems with unique or proprietary fiber interfaces, only jumpers require modification or replacement.

### Features and Benefits

- Multi-channel cable for harsh outdoor environment
- Single fiber trunk with up to 12 pairs
- Rosenberger Duplex Connector (RDC) at tower top; LC connectors at tower bottom
- Operating temperature range -40 °C to +85 °C
- High UV resistance
- High crush resistance
- Factory assembled fiber optic connectors
- Factory tested Insertion Loss (IL) with test report
- Connectors and fanouts protected



## PreCONNECT® FIBER Trunk Boxless Solutions

Rosenberger No.					
Single mode G.657A - 9/125	*Multi mode OM 3 - 50/125	Pairs	Fibers	Diameter	Connector Type
L98B-128-xxx	L98D-448-xxx	6	12	7.3 mm	RDC > LC Duplex
L98B-A0744-xxx	L98D-449-xxx	12	24	7.3 mm	RDC > LC Duplex
On request	On request	18	36	10 mm	RDC > LC Duplex
On request	On request	24	48	10 mm	RDC > LC Duplex

Further configurations available on request  
xxx = length between cable dividers in mm  
\*OM 4 available on request

For related jumper cable, please go to page 38



Fiber Trunk with RDC and LC connectors

# PreCONNECT® FIBER Trunk Direct Solutions

One fiber trunk with up to 12 pairs of optical fibers. The fanouts of the fiber trunk are taken directly to the RRHs without the use of fiber optic jumpers.

Extend or adapt the fanouts with the Rosenberger FiberInLine connector for upgrades or swaps.

## Features and Benefits

- Multi-channel cable for harsh outdoor environment
- Single fiber trunk with up 12 pairs
- LC connectors at tower top and bottom
- All commonly used IP seals to protect fiber optic interfaces
- Operating temperature range -40 °C to +85 °C
- High UV resistance
- High crush resistance
- Factory assembled fiber optic connectors
- Factory tested Insertion Loss (IL) with test report
- Connectors and fanouts protected with installation tube



PreCONNECT® - 12 FO Direct for Huawei



PreCONNECT® - 12 FO Direct for Nokia



PreCONNECT® - 12 FO Direct for Ericsson

## PreCONNECT® FIBER Trunk Direct

Rosenberger No.					
Single mode G.657A - 9/125	Multi mode *OM 3 - 50/125	Pairs	Fibers	Diameter	Connector Type
L98B-A0745-xxx		6	12	7.3 mm	LCC > LCC Duplex with RFE for Ericsson
L98B-A0746-xxx		12	24	7.3 mm	LCC > LCC Duplex with RFE for Ericsson
L98B-A0909-xxx	L98D-450-xxx	6	12	7.3 mm	LCC > LCC Duplex with IP-Seal for Nokia
	L98D-451-xxx	12	24	7.3 mm	LCC > LCC Duplex with IP-Seal for Nokia
L98B-A0783-xxx		6	12	7.3 mm	LCC > LCD Duplex for Huawei
L98B-A0877-xxx		12	24	7.3 mm	LCC > LCD Duplex for Huawei

Further configurations available on request

xxx = length between cable dividers in mm

\*OM 4 available on request

# PreCONNECT® TMFS

## Tower Mounted Fiber System

The Rosenberger Tower Mounted Fiber System offers a major advantage in terms of flexibility and installability. The fiber trunk is terminated in a fiber housing ensuring full individual fiber protection and minimum windload. Easy to install on either towers or rooftops, the TMFS one-piece design features different connector options to meet your requirements.

### Features and Benefits

- Distribution unit with factory mounted multifiber cable
- Modular design with up to 48 fiber pairs
- Connector options for jumper connection:  
LC, MTP®/MPO, RDC, RQC, Q-RMC
- Operating temperature range -40 °C to +85 °C
- IP67
- High UV resistance
- High crush resistance
- Factory assembled FO connectors
- Factory tested Insertion Loss (IL) including test report



PreCONNECT® TMFS (6 x LCD)

PreCONNECT® TMFS (12 x LCD)

PreCONNECT® TMFS (24 x RDC)



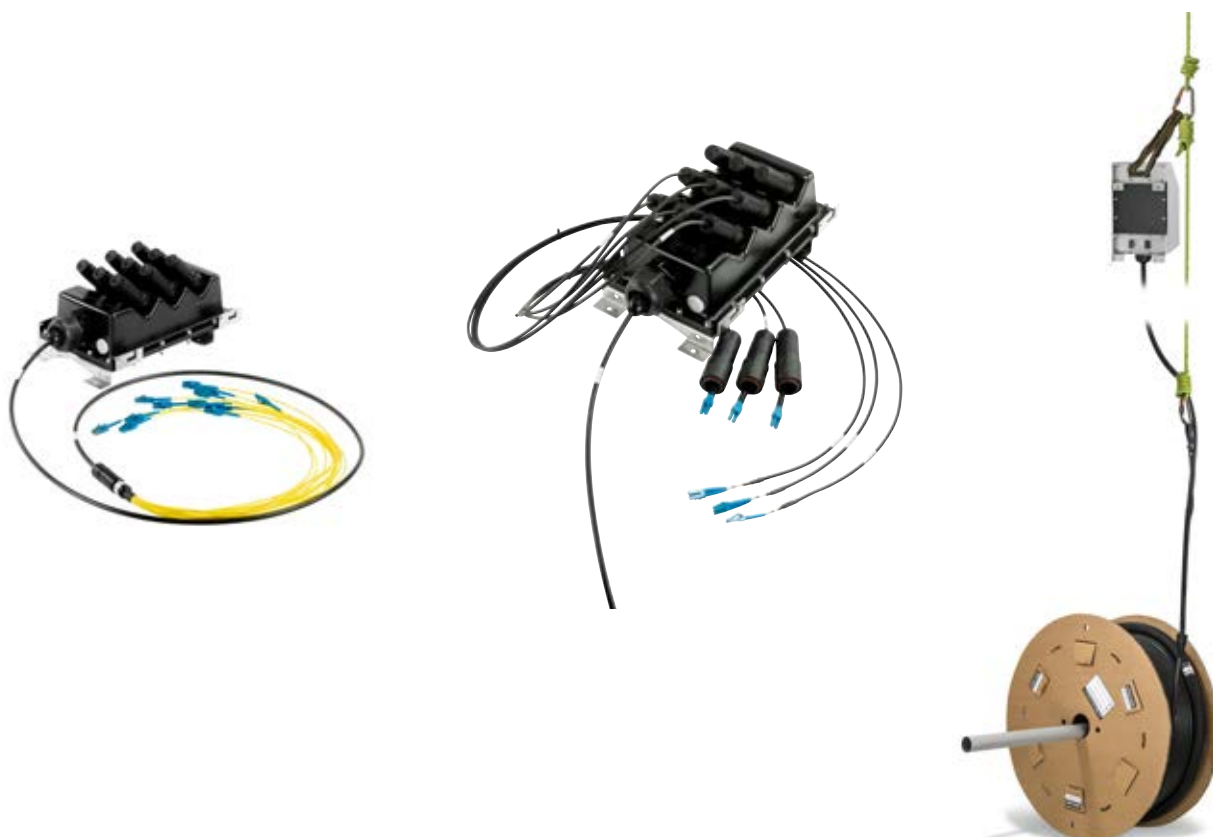


## PreCONNECT® TMFS Tower Mounted Fiber System

Rosenberger No.					
Single mode G.657A - 9/125	Multi mode OM 3/OM 4 - 50/125	Pairs	Fibers	Diameter	Connector Type
L98B-A0652-xxx	On request	6	12	7.3 mm	6 x LCD Boot
L98B-A0653-xxx	On request	6	12	7.3 mm	6 x RDCf
L98B-A0654-xxx	On request	12	24	7.3 mm	12 x LCD Boot
L98B-A0655-xxx	On request	12	24	7.3 mm	12 x RDCf
L98B-A0656-xxx	On request	18	36	10 mm	18 x LCD Boot
L98B-A0676-xxx	On request	12	24	10 mm	3 x MTP®/MPO + 12 x LCD Boot

Further configurations available on request  
xxx = length between cable dividers in mm

For related jumper cable, please go to page 38







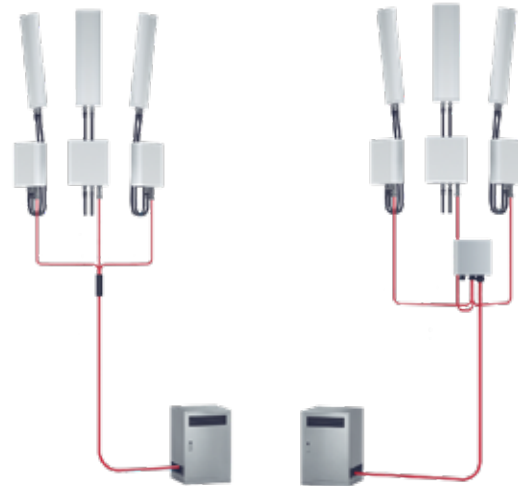


# PreCONNECT® POWER

## Direct or Box Solutions

### Features and Benefits

- Conformity with EU regulations
- CPR-rating B2ca
- Small dimensions
- Less weight
- Small bending radius
- Less windload
- Easy stripping and handling
- Time saving
- One cable clamp for all cable dimensions



Cross Section [mm²]	6		10			16			25			35
Cable Type	SL2C	NYCY	SL2C	NYCWY	H07RN-F	SL2C	NYCWY	H07RN-F	SL2C	NYCWY	H07RN-F	SL2C
Wire Class	5	1	5	1	5	5	1	5	5	1	5	5
Weight [kg/km]	161	430	237	612	538	346	840	744	731	1299	1074	1061
Diameter [mm]	9.4	17.0	10.7	19.4	17.7	12.5	20.4	20.2	16.4	24.4	24.3	19.8
Min. Bending Radius [mm]	47.0	204.0	53.5	232.8	54	62.5	244.8	78.6	82	292.8	97.2	100

Comparative table: Rosenberger SL2CXX compared to other power cable types



One cable clamp size for all cable dimensions (6 mm² up to 25 mm²)

Rosenberger No. 6 wire	SL6C4FRNC-S-BK	SL6C6FRNC-S-BK	SL6C10FRNC-S-BK	SL6C16FRNC-S-BK
Weight	303 kg/km	500 kg/km	820 kg/km	1200 kg/km
Operating voltage	300 V	300 V	300 V	300 V
20 °C conductor DC resistance	5.1 Ω/km	3.3 Ω/km	1.91 Ω/km	1.21 Ω/km
Conductor size	4 mm²	6 mm²	10 mm²	16 mm²
Jacket diameter	Ø 12.5 mm	Ø 15.8 mm	Ø 19.5 mm	Ø 22.8 mm

Rosenberger No. 12 wire	SL12C4FRNC-S-BK	SL12C6FRNC-S-BK	SL12C10FRNC-S-BK	SL12C16FRNC-S-BK
Weight	582 kg/km	930 kg/km	1430 kg/km	2130 kg/km
Operating voltage	300 V	300 V	300 V	300 V
20 °C conductor DC resistance	5.1 Ω/km	3.3 Ω/km	1.91 Ω/km	1.21 Ω/km
Conductor size	4 mm²	6 mm²	10 mm²	16 mm²
Jacket diameter	Ø 17.5 mm	Ø 21.1 mm	Ø 24.8 mm	Ø 28 mm

Further configurations available on request  
xxx = length in mm

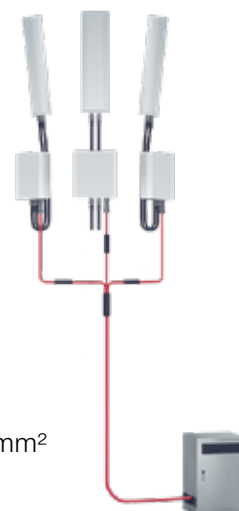
# PreCONNECT® POWER

## Trunk Boxless Solutions

The Rosenberger Power Trunk design provides a slim and easy to install neutral point of interface. Each power cable can be connected either directly to a RRH or to power jumpers utilizing the Rosenberger PowerInLine connector. Eliminating potential issues with windload and rental fees, the PowerInLine connector provides the same flexibility as that of a power distribution box.

### Features and Benefits

- Power Trunk for 3 or 6 RRHs
- Easy installation
- Feasible for box and boxless installation
- Available in 6 mm<sup>2</sup>, 10 mm<sup>2</sup>, 16 mm<sup>2</sup>
- Shielded with aluminum foil
- Low smoke zero halogen
- Rosenberger PowerInLine connector for flexible installation
- 360° EMI shielding
- Suitable for shielded 2-wire power cables and coaxial power cables from 1 – 10 mm<sup>2</sup>



Power trunk with PowerInLine connector



### Power Feeder Trunk Boxless

Rosenberger No.	Description
SL3x6FRNC-S-BK	Multipower cable 3 x 2 x 6 mm <sup>2</sup> shielded
SL6x6FRNC-S-BK	Multipower cable 6 x 2 x 6 mm <sup>2</sup> shielded
SL3x10FRNC-S-BK	Multipower cable 3 x 2 x 10 mm <sup>2</sup> shielded
SL6x10FRNC-S-BK	Multipower cable 6 x 2 x 10 mm <sup>2</sup> shielded
SL3x16FRNC-S-BK	Multipower cable 3 x 2 x 16 mm <sup>2</sup> shielded
SL6x16FRNC-S-BK	Multipower cable 6 x 2 x 16 mm <sup>2</sup> shielded
SD007-25-xxx	25 mm <sup>2</sup> power cable 2-wire shielded with 3 x power connector on top end

For power jumpers please refer to page 38

### PreCONNECT® PowerInLine Connector

Rosenberger No.	Description
99C084-000N1	PowerInLine connector 1-10 mm <sup>2</sup>
7F2RS105B-0M16T1	Power connector for TMPS and various RRHs, 3 wire 55A/60VDC
7F2RS106B-0M16T1	Power connector for TMPS and various RRHs, 1 wire 55A/60VDC
SLZ0113-00	PowerInLine connector 6-25 mm <sup>2</sup> , 3pin

Further configurations available on request



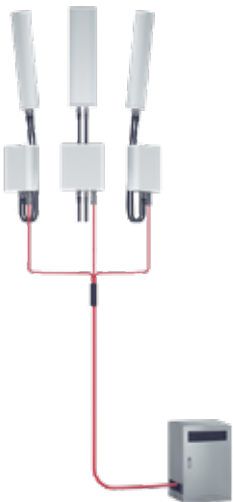
# PreCONNECT® POWER

## Trunk Direct Solutions

One power trunk with up to x-pairs of same sized cross-section wires either 6 mm<sup>2</sup>, 10 mm<sup>2</sup> or 16 mm<sup>2</sup>. The fanouts of the power trunk are taken directly to the RRHs without the use of power jumpers – no splicing. Extend or adapt the fanouts with the Rosenberger PowerInLine connector for upgrades or swaps.

### Features and Benefits

- Power Trunk for 3 or 6 RRHs
- Factory assembled
- Power handling up to 1500 W per port dependent on cross-section and length
- Operating temperature range -40 °C to +85 °C
- IP67
- High UV resistance
- High crush resistance
- Easy extension, upgrade or swap with the Rosenberger PowerInLine connector



Trunk Direct (Coaxpower)

### Direct Power System

Rosenberger No.	No. of Ports
SLFP0606-5.0-xxx	6 x 2 x 6 mm <sup>2</sup> for 6 RRHs, Fanout 5 m - Coaxpower
SLFP0610-5.0-xxx	6 x 2 x 10 mm <sup>2</sup> for 6 RRHs, Fanout 5 m - Coaxpower
SLFP20306-5.0-xxx-R	3 x 2 x 6 mm <sup>2</sup> for RRHs, Fanout 5 m - 2 wire shielded elements, red&white
SLFP20310-5.0-xxx-R	3 x 2 x 10 mm <sup>2</sup> for RRHs, Fanout 5 m - 2 wire shielded elements, red&white
SLFP20606-5.0-xxx-R	6 x 2 x 6 mm <sup>2</sup> for RRHs, Fanout 5 m - 2 wire shielded elements, red&white
SLFP20610-5.0-xxx-R	6 x 2 x 10 mm <sup>2</sup> for RRHs, Fanout 5 m - 2 wire shielded elements, red&white

Further configurations available on request  
 xxx = length in mm

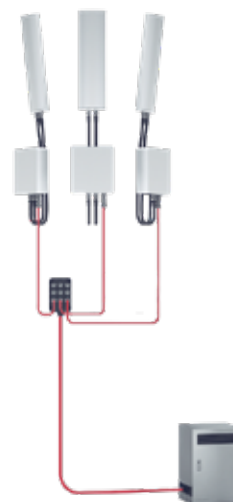
# PreCONNECT® TMPS

## Tower Mounted Power System

The Rosenberger Tower Mounted Power System offers a major advantage in terms of flexibility and installability. The power trunk is prewired and terminated in a housing thus ensuring individual power cable protection and minimum windload. Easy to install on either towers or rooftops, the TMPS one-piece design features the Rosenberger robust outdoor connectors for direct connection to power jumpers.

### Features and Benefits

- Factory assembled
- Power handling up to 1500 W per port dependent on cross-section and length
- Operating temperature range -40 °C to +85 °C
- Distribution unit with up to 18 outdoor power connectors, DC or AC
- IP67
- High UV resistance
- High crush resistance



Tower Mounted Power System

### Tower Mounted Power System

Rosenberger No.	No. of Ports
L99-P085-xxx	6 x 6 mm <sup>2</sup> (3 RRHs)
L99-P084-xxx	12 x 6 mm <sup>2</sup> (6 RRHs)
L99-P080-xxx	18 x 4 mm <sup>2</sup> (9 RRHs)

Further configurations available on request  
xxx = length in mm

For power and fiber jumper feeder please refer to page 38



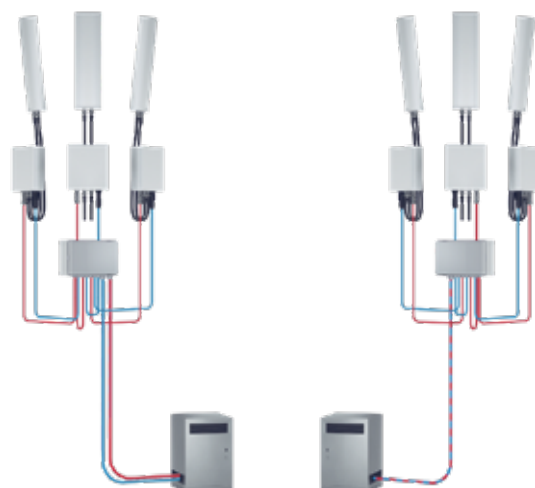
# PreCONNECT® HYBRID Box Solutions

The Rosenberger Hybrid Box Solution provides an option for both data and power supply. One Hybrid Box Solution can support multiple RRHs in various configurations. The hybrid cable (or alternatively two individual fiber and power trunks) are terminated in a Hybrid Distribution Box.

Separate fiber and power jumpers are used for the connection to RRHs.

## Features and Benefits

- Fiber and power distribution and management
- OVP integrated as an option
- Pre-connectorized and wired
- IP66
- Wall or mast mounting
- Easy-to-install mounting brackets
- High UV resistance
- High crush resistance



Hybrid distribution box with and without OVP

## Hybrid Distribution Box

Rosenberger No.	No. of Ports
SLHDU006-xxx	Hybrid box with surge protection for 6 RRHs
SLHDU054-xx	Hybrid box without surge protection for 6 RRHs
SLHDU057-xx	Hybrid box without surge protection
SLHDU055-xx	Hybrid box for separate power and fiber feeder cable with SPD, xx breakers, 12 fibers
SLHDU056-xx-xx	Hybrid box for separate power and fiber feeder cable without SPD, xx breakers, 24 fibers

Further configurations available on request

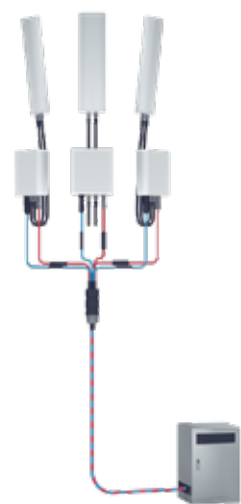
# PreCONNECT® HYBRID

## Boxless Solutions

The Rosenberger Hybrid Boxless Solution provides a single cable option for both data and DC power. One hybrid cable supports multiple RRHs. The slim and flexible cable design reduces overall network implementation costs. The unique design allows a spliceless, continuous cable connection from BBU to RRH. Fiber and power jumpers are used from the hybrid trunk to the RRHs.

### Features and Benefits

- Easy and fast installation
- Small bending radius and outer cable diameter
- Single hybrid trunk with multiple fiber and coaxial power cables
- Sturdy slim profile canister dividing fiber and power cables
- No splice connection inside the canister
- No distribution box required
- RDC outdoor connectors for mounting of jumpers towards RRHs and LC connectors towards BBU
- IP67
- High UV resistance
- High crush resistance
- Factory assembled fiber optic connectors
- Hybrid cable shielded with aluminum foil
- Factory assembled fiber optic connectors
- Factory tested Insertion Loss (IL) including test report
- Connectors and fanouts protected with installation tube



Hybrid Boxless

### Hybrid Boxless

Rosenberger No.					
Single mode G.657A - 9/125	*Multi mode OM 2 - 50/125	Pairs	Fibers	Diameter	Connector Type
L98B-237-xxx	L98C-086-xxx	6 x RDC – 6 x LCD + 3 x 6 mm <sup>2</sup> Coax	12	5/8"	RDC > LC Duplex
L98B-201-xxx		3 x RDC – 3 x LCD + 3 x 10 mm <sup>2</sup> Coax	12	7/8"	RDC > LC Duplex

Further configurations available on request

xxx = length in mm

\*OM 4 available on request

For jumper cables please refer to page 38



# PreCONNECT® TMHS

## Tower Mounted Hybrid System

Rosenberger Tower Mounted Hybrid System offers a major advantage in terms of flexibility and installability. The hybrid trunk is prewired and terminated in a housing thus ensuring individual cable protection and minimum windload. Easy to install on either towers or rooftops, the TMHS one-piece design features the Rosenberger robust outdoor connectors for direct connection to power and fiber jumpers.

### Features and Benefits

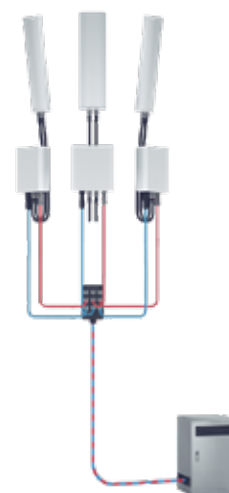
- Factory assembled
- Modular design
- Outdoor power connectors
- Connector options for jumper connection: LC, MTP®/MPO, RDC, RQC, Q-RMC
- Power handling up to 1500 W per port
- Operating temperature range -40 °C to +85 °C
- IP67
- High UV resistance
- High crush resistance



PreCONNECT® TMHS (6 x LCD + 3 x Power)



PreCONNECT® TMHS (12 x LCD + 6 x Power)



Rosenberger No.		Description	Fibers	Power	Diameter
Single mode G.657A - 9/125	*Multi mode OM 3 - 50/125				
L98B-A0657-xxx		6 x LCD – 6 x LCD + 3 x 6 mm <sup>2</sup>	12	3	23 mm
L98B-A0658-xxx		6 x RDC – 6 x LCD + 3 x 6 mm <sup>2</sup>	12	3	23 mm
L98B-A0689-xxx		6 x RDC – 6 x LCD + 6 x 6 mm <sup>2</sup>	12	6	26 mm
L98B-A0755-xxx		6 x LCD – 6 x LCD + 6 x 6 mm <sup>2</sup>	12	6	26 mm
L98B-A0758-xxx	L98D-463-xxx	6 x LCD – 6 x LCD + 6 x 10 mm <sup>2</sup>	12	6	28 mm
L98B-A0759-xxx		6 x RDC – 6 x LCD + 6 x 10 mm <sup>2</sup>	12	6	28 mm
L98B-A0338-xxx		12 x RDC – 12 x LCC + 4 x 230V AC connection	24	4	19.7 mm

Further configurations available on request

xxx = length in mm

\*OM 4 available on request

For jumper cables please refer to page 38

# PreCONNECT® 2FO

## Discrete Solutions

Discrete Fiber Solutions are ideal for harsh outdoor environments.

### Features and Benefits

- Operating temperature range -40 °C to +85 °C
- High UV resistance
- High crush resistance
- Both sides factory assembled with fiber optic connectors
- Single data channel in one cable
- Standard light propagation „channelwise crossed“ (pairwise flipped)



Fiber feeder

Fiber feeder with OCTIS

Rosenberger fiber enclosure (RFE)

## Discrete Cabling Solution

### Fiber Feeder Standard

Single Mode	Multimode OM3	Multimode OM4	RFE additionally needed	Connector Type	OEM
L98B-090-xxx				LCD - LCC with RFE	Ericsson
L98B-A0992-xxx				LCD - LCC with RFE, B2ca	Ericsson
98Z111-S04				RFE - Rosenberger Fiber Enclosure	Ericsson
98F29-178-48				RXE - Rosenberger Fiber Enclosure	Ericsson
L98B-A1030-xxx				LCD - LCC with AOPC	Nokia
L98B-A0859-xxx	L98D-227-xxx			LCD - LCC with IP-Seal	Nokia
L98B-A1015-xxx				LCD - LCC/OCTIS	Nokia
L98B-003-xxx	L98C-023-xxx			LCD - LCD	Huawei
	L98D-255-xxx	L98E-151-xxx		LCC - LCC with OCTIS	NEC
L98B-A0641-xxx	L98D-256-xxx	L98E-152-xxx		LCC - LCC with RFE	NEC
L98B-A0151-xxx				LCC - LCC	
L98B-A0646-xxx				MTP®/MPO (12) - MTP®/MPO (12)	
L98B-A0647-xxx	L98D-181-xxx			MTP®/MPO (12) - MTP®/MPO (12)	
L98B-A0878-xxx	L98D-182-xxx			MTP®/MPO (12) - MTP®/MPO (12)	
L98B-A0879-xxx				MTP®/MPO (12) - MTP®/MPO (12)	
L98B-A0880-xxx				MTP®/MPO (12) - MTP®/MPO (12)	

Further configurations available on request

xxx = length in mm

\*OM 4 available on request

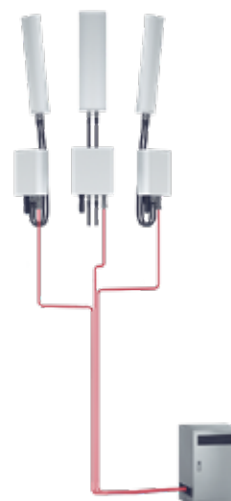
# PreCONNECT® POWER

## Discrete Solutions

Power Cabling Solutions are ideal for harsh outdoor environments.

### Features and Benefits

- Conformity with EU regulations
- CPR-rating B2ca
- Small dimensions
- Less weight
- Small bending radius
- Less windload
- Easy stripping and handling
- Time saving
- One cable clamp for all cable dimensions



### Power Cables

Rosenberger No.	Description
SL2C4MM2FRNC-S-BK-R	Power cable 2 x 4 mm², shielded, 9.2 mm (red/white)
SL2C6MM2FRNC-S-BK-R	Power cable 2 x 6 mm², shielded, 10.8 mm (red/white)
SL2C10MM2FRNC-S-BK-R	Power cable 2 x 10 mm², shielded, 13.6 mm (red/white)
SL2C16MM2FRNC-S-BK-R	Power cable 2 x 16 mm², shielded, 15.9 mm (red/white)
SL2C25MM2FRNC-S-BK-R	Power cable 2 x 25 mm², shielded, 20.4 mm (red/white)
SL2C35MM2FRNC-S-BK-R	Power cable 2 x 35 mm², shielded, 23.6 mm (red/white)

### Power Cables

Rosenberger No.	Description
SL2C4MM2FRNC-S-BK-N	Power cable 2 x 4 mm², shielded, 9.2 mm (blue/white)
SL2C6MM2FRNC-S-BK-N	Power cable 2 x 6 mm², shielded, 10.8 mm (blue/white)
SL2C10MM2FRNC-S-BK-N	Power cable 2 x 10 mm², shielded, 13.6 mm (blue/white)
SL2C16MM2FRNC-S-BK-N	Power cable 2 x 16 mm², shielded, 15.9 mm (blue/white)
SL2C25MM2FRNC-S-BK-N	Power cable 2 x 25 mm², shielded, 20.4 mm (blue/white)
SL2C35MM2FRNC-S-BK-N	Power cable 2 x 35 mm², shielded, 23.6 mm (blue/white)

### DC Power Cable Brown/Blue

Rosenberger No.	Description
SL2C6MM2FRNC-BK-B	Power cable 2 x 6 mm², 9.4 mm (brown/blue), full drum 500 m
SL2C10MM2FRNC-BK-B	Power cable 2 x 10 mm², 10.7 mm (brown/blue), full drum 500 m
SL2C16MM2FRNC-BK-B	Power cable 2 x 16 mm², 12.5 mm (brown/blue), full drum 500 m
SL2C25MM2FRNC-BK-B	Power cable 2 x 25 mm², 16.4 mm (brown/blue), full drum 500 m
SL2C35MM2FRNC-BK-B	Power cable 2 x 35 mm², 17.6 mm (brown/blue), full drum 500 m



## Jumper Cables

Rosenberger offers a wide range of jumper cables to meet industry standard requirements including required IP protection.



### Product Overview

- Fiber optic jumper cables
- OEM interfaces
- Power jumper cables
- Patch cords, indoor
- CATx cables, indoor and outdoor

Rosenberger fiber optic and power jumper cables in combination with the outdoor Rosenberger InLine connectors offer a flexible and easy upgradable solution.



# OEM Fiber Interfaces

E///

Rosenberger No.				
Single Mode	Multimode OM3	Multimode OM4	RFE additionally needed	Connector Type
L98B-090-xxx				LCD - LCC with RFE
L98B-A0992-xxx				LCD - LCC with RFE, B2ca
L98B-091-xxx				RDC (male) - LCC with RFE
L98B-A0709-xxx			yes	LCC - LCC for PreCONNECT® TMFS
L98B-A1138-xxx				LCD - LCC with RXE
L98B-A0606-xxx				LCC with RFE - LCC with RFE
98Z111-S04				RFE - Rosenberger Fiber Enclosure
98F29-178-48				RXE - Rosenberger Fiber Enclosure

Nokia

Rosenberger No.				
Single Mode	Multimode OM3	Multimode OM4	AOPC additionally needed	Connector Type
L98B-A0859-xxx	L98D-227-xxx			LCD - LCC with IP-Seal
L98B-A1030-xxx				LCD - LCC with AOPC
L98B-A0933-xxx				LCC - LCC for PreCONNECT® TMFS
		L98E-160-xxx	yes	LCC - LCC
L98B-A1015-xxx				LCD - LCC with OCTIS
L98B-A1039-xxx				RDC (male) - LCC with OCTIS
L98B-A0831-xxx	L98D-028-xxx			RDC (male) - LCC with IP-Seal
475151A.102				AOPC Fiber Enclosure

Huawei

Rosenberger No.				
Single Mode	Multimode OM3	Multimode OM4		Connector Type
L98B-003-xxx	L98C-023-xxx			LCD - LCD
L98B-004-xxx				RDC (male) - LCD
L98B-A0709-xxx				LCD - LCC for PreCONNECT® TMFS

Samsung

Rosenberger No.				
Single Mode	Multimode OM3	Multimode OM4		Connector Type
L98B-A0150-xxx				RDC (male) - LCC
L98B-A0151-xxx				LCC - LCC
L98B-180-xxx				LCD - LCC

Further configurations available on request

xxx = length in mm

\*OM 4 available on request



# Power Jumper Cables

Rosenberger Power Jumpers with their unique coaxial design provide highest flexibility. Compared to conventional two-wire cables, the Rosenberger coaxial power cables provide smaller bending radius and higher surge protection.

## Features and Benefits

- Smaller diameter and higher flexibility compared to two-wire design
- Reduced wind load and weight
- 360° EMI shielding
- Low inductance
- Easy installation
- Small bending radius – higher surge protection
- Termination point for power supply independent of proprietary interface
- Available in 6 mm<sup>2</sup> or 10 mm<sup>2</sup>
- UV-resistant
- Rosenberger Power connector for Tower Mounted Power System and various RRH/Active Antennas



Power jumper with PowerInLine connector



Power jumper with power connector

## Power Jumper

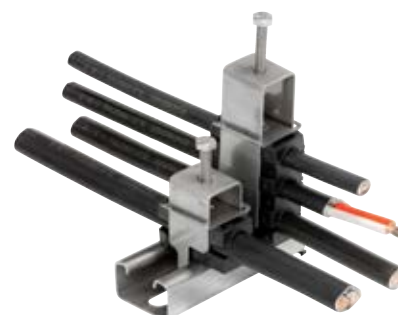
Rosenberger No.	Description
L99-P005-xxx	PowerInLine connector on 6 mm <sup>2</sup> coaxial power cable
L99-P055-xxx	Power connector on 6 mm <sup>2</sup> coaxial power cable
L99-P049-xxx	AC power connector
SL2CxxMM2FRNC-S-BK-N	Power cable shielded blue/grey
SL2CxxMM2FRNC-S-BK-R	Power cable shielded red/white
L99-P037-xxx	Power-Jumper cable for SD007, 2 x 6 mm <sup>2</sup> shielded
L99-P110-xxx	Power-Jumper cable, 99RS73-199 with 2 x 6 mm <sup>2</sup> shielded (red&white)

Jumper with 4 mm<sup>2</sup> and 10 mm<sup>2</sup> available on request

# Rosenberger Power Cables acc. to DIN EN 60445

## Power Cables

Rosenberger No.	Description
SL2C4MM2FRNC-S-BK-R	Power cable 2 x 4 mm <sup>2</sup> , shielded, 9.2 mm (red/white)
SL2C6MM2FRNC-S-BK-R	Power cable 2 x 6 mm <sup>2</sup> , shielded, 10.8 mm (red/white)
SL2C10MM2FRNC-S-BK-R	Power cable 2 x 10 mm <sup>2</sup> , shielded, 13.6 mm (red/white)
SL2C16MM2FRNC-S-BK-R	Power cable 2 x 16 mm <sup>2</sup> , shielded, 15.9 mm (red/white)
SL2C25MM2FRNC-S-BK-R	Power cable 2 x 25 mm <sup>2</sup> , shielded, 20.4 mm (red/white)
SL2C35MM2FRNC-S-BK-R	Power cable 2 x 35 mm <sup>2</sup> , shielded, 23.6 mm (red/white)



**One cable clamp** type can fix the cables from 2 x 6 mm<sup>2</sup> up to 2 x 25 mm<sup>2</sup> for efficient logistics

## Power Cables

Rosenberger No.	Description
SL2C4MM2FRNC-S-BK-N	Power cable 2 x 4 mm <sup>2</sup> , shielded, 9.2 mm (blue/white)
SL2C6MM2FRNC-S-BK-N	Power cable 2 x 6 mm <sup>2</sup> , shielded, 10.8 mm (blue/white)
SL2C10MM2FRNC-S-BK-N	Power cable 2 x 10 mm <sup>2</sup> , shielded, 13.6 mm (blue/white)
SL2C16MM2FRNC-S-BK-N	Power cable 2 x 16 mm <sup>2</sup> , shielded, 15.9 mm (blue/white)
SL2C25MM2FRNC-S-BK-N	Power cable 2 x 25 mm <sup>2</sup> , shielded, 20.4 mm (blue/white)
SL2C35MM2FRNC-S-BK-N	Power cable 2 x 35 mm <sup>2</sup> , shielded, 23.6 mm (blue/white)



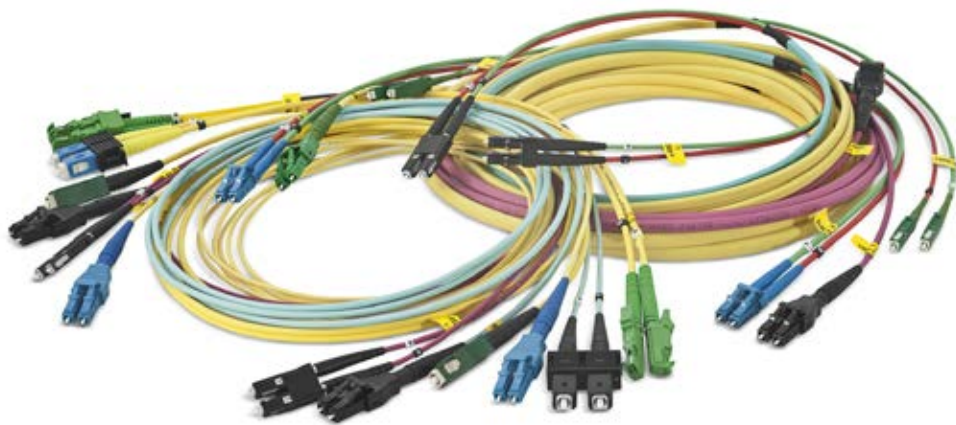
Rosenberger No.	Description
SL2C6MM2FRNC-BK-B	Power cable 2 x 6 mm <sup>2</sup> , 9.4 mm (brown/blue)
SL2C10MM2FRNC-BK-B	Power cable 2 x 10 mm <sup>2</sup> , 10.7 mm (brown/blue)
SL2C16MM2FRNC-BK-B	Power cable 2 x 16 mm <sup>2</sup> , 12.5 mm (brown/blue)
SL2C25MM2FRNC-BK-B	Power cable 2 x 25 mm <sup>2</sup> , 16.4 mm (brown/blue)
SL2C35MM2FRNC-BK-B	Power cable 2 x 35 mm <sup>2</sup> , 17.6 mm (brown/blue)

# Indoor Patch Cords

The Indoor Patch Cords provide the flexible Interconnection between the ODF and the BBU.

## Features and Benefits

- Patch cords appropriate for use in indoor applications, such as mobile stations, shelters and office buildings
- Patch cords for other applications on request
- Optimized kink and crush resistance with regard to application requirements
- Operating temperature range -10 °C to +60 °C
- Standard light propagation



## Indoor Patch Cords

Rosenberger No.						
Single mode G.657A - 9/125	Multi mode OM 2 - 50/125	*Multi mode OM 3 - 50/125	Pairs	Fibers	Diameter	Connector Type
L98B-A0157-xxx	L98C-117-xxx	L98D-218-xxx	1	2	2.8 mm	LC-Compact > LC-Compact
L98B-A0295-xxx		L98D-229-xxx			2 mm	LCD > LCD
L98B-A0141-xxx						LCD > SC/APC 8°
L98B-A0272-xxx						LCD > E2000HRL
L98B-A0308-xxx						E2000HRL > E2000HRL
L98B-A0600-xxx						SC/APC 8° > E2000HRL
L98B-A0140-xxx						SC/APC 8° > SC/APC 8°
L98B-A0008-xxx		L98D-230-xxx				SCD > LCD
L98B-A0011-xxx		L98D-231-xxx				SCD > FC
L98B-A0002-xxx						LCS > SC/APC 8°
L98B-A0005-xxx		L98D-232-xxx		1	2 mm	LCS > LCS
L98B-A0070-xxx						LCS > E2000HRL
L98B-A0085-xxx						SC/APC 8° > SC/APC 8°
L98B-A0197-xxx						E2000HRL > E2000HRL

Further configurations available on request  
xxx = length between cable dividers in mm  
\*OM 4 available on request





# Accessories



## Product Overview

- FiberInLine
- PowerInLine
- Optical distribution frames
- Interior excess fiber cable enclosures
- Power connectors
- Cable clamps



# Rosenberger FiberInLine

Rosenberger FiberInLine connector allows for an easy extension of an existing fiber optic installation.

## Features and Benefits

- Easy and quick extension of existing fiber optic line
- Efficient and safe installation
- No replacement of existing fiber optic line



## FiberInLine Connectors

Rosenberger No.	Description
98K100-130-L02	Flexible cable extension kit LCD adaptor
98K100-130-L04	Flexible cable extension kit MTP®/MPO adaptor
SLFDU038-01	Flexible cable extension kit LCD adaptor, for RFE Enclosure
SLFDU018-01	Flexible cable extension kit LCD adaptor, for RFE Enclosure with Magnets
SLFDU044-01	Flexible cable extension kit MTP®/MPO adaptor for RFE Enclosure

# Rosenberger PowerInLine and Power Connector

The Rosenberger Power Connectors with their robust design provide a robust, 360° EMI shielded connection of power cables. The connectors are specifically designed to fit shielded or unshielded conventional two wire power cables as well as coaxial power cables. The Power connector is pluggable with the TMPS as well as various RRHs while the PowerInLine connector provides an independent termination point for the power supply without the need of a bulky power distribution box.

## Features and Benefits

- 360° EMI-shielding
- Independent termination point with PowerInLine connector
- Direct connection to various RRHs and TMPS with power connector
- Suitable for conventional 2-wire power cables and coaxial power cables 1 - 10 mm<sup>2</sup>
- Low wind load
- IP68
- High UV resistance
- High crush resistance



Power Connector  
99RK73L-199N



Power Connector  
7G2S101B-0M16T1



Power Connector  
7F2RS105B-0M16T1



PowerInLine Connector  
99C084-00N1



PowerInLine Connector  
SLZ0113-00

## Power Connectors

Rosenberger No.	Description
7F2RS105B-0M16T1	3 wire cable plug 55A/60VDC
7G2S101B-0M16T1	3 wire cable connector 55A/60VDC
SLZ033-16M	3-pin male connector up to 2 x 16 mm <sup>2</sup>
SLZ033-16F	3-pin female connector up to 2 x 16 mm <sup>2</sup>
SLZ0113-00	PowerInLine 3-pin, 6 mm <sup>2</sup> - 35 mm <sup>2</sup>
99C084-00N1	PowerInLine 2-pin shielded, 1 mm <sup>2</sup> - 10 mm <sup>2</sup>
99RK73L-199N	3 wire bulkhead power connector 55A /60VDC



# Optical Distribution Frames

The Rosenberger Optical Distribution Frame is designed for rack installation.

## Features and Benefits

- Available with 3 to 24 LC duplex
- Easy, efficient and safe installation
- Material: unpainted steel
- Removable 19" rack ears included



Optical Distribution Frame

## Optical Distribution Frames for Fiber Trunk

Rosenberger No.	Pairs	Fibers
SLODF001-xxx	3	6
SLODF051-xxx	6 to 24	12 to 48

# Interior Excess Fiber Cable Enclosures

The Rosenberger Excess Fiber Cable Enclosure is designed for indoor on-site storage of excess fiber cable when pre-connected fiber cables are utilized.

### Features and Benefits

- Material: unpainted steel
- Rack mount: removable 19" rack ears included
- Capacity: 20 or 30 meters of 10 mm cable + fanouts
- Mounting: wall or rack mount



Interior Excess Fiber Cable Enclosure

## Interior Excess Fiber Cable Enclosures

Rosenberger No.		
Stainless Steel	Steel, Zinc Plated	Variant
SLFCS001-000	SLFCS009-000	1 HU without drawer
SLFCS003-000	SLFCS011-000	1 HU with drawer

# Cable Clamps

For multiple cable runs on sites where space is limited. Without additional adaptors these clamps provide sturdy, reliable and long-term support.

## C-Clamp for Flat, Round and Angular



## C-Clamp Type Single

Rosenberger No.	Description	Size
SLCC111-03	Cable clamp for ½" R cables single	1 x ½" R
SLCC111-08	Cable clamp for ½" S cables single	1 x ½" S
SLCC121-03	Cable clamp for ½" R cables double	2 x ½" R
SLCC121-08	Cable clamp for ½" S cables double	2 x ½" S
SLCC131-03	Cable clamp for ½" R cables triple	3 x ½" R
SLCC131-08	Cable clamp for ½" S cables triple	3 x ½" S



## C-Clamp Type Twin

Rosenberger No.	Description	Size
SLCC221-03	Cable clamp for ½" R cables single	2 x ½" R
SLCC221-08	Cable clamp for ½" S cables single	2 x ½" S
SLCC241-03	Cable clamp for ½" R cables double	4 x ½" R
SLCC241-08	Cable clamp for ½" S cables double	4 x ½" S
SLCC261-03	Cable clamp for ½" R cables triple	6 x ½" R
SLCC261-08	Cable clamp for ½" S cables triple	6 x ½" S



### Hook Type Clamp for Section 40 x 22, Flat and Round 3-12 mm Structures

Rosenberger No.	Size
SLCC122-C03	2 x ½" R
SLCC122-C08	2 x ½" S
SLCC132-C03	3 x ½" R
SLCC132-C08	3 x ½" S
SLCC112-0408	1 x 4-8 mm
SLCC122-0408	2 x 4-8 mm
SLCC132-0408	3 x 4-8 mm
SLCC242-0408	4 x 4-8 mm
SLCC262-0408	6 x 4-8 mm
SLCC282-0408	8 x 4-8 mm
SLCC242-0710	4 x 7-10 mm
SLCC112-0814	1 x 8-14 mm
SLCC122-1x0814+1x08	1 x 8-14 mm + 1 x 7-8 mm
SLCC132-1x0814+2x0408	1 x 8-14 mm + 2 x 4-8 mm
SLCC132-1x0814+2x0710	1 x 8-14 mm + 2 x 7-10 mm
SLCC132-1x0814+2x05	1 x 8-14 mm x 2 x 5 mm
SLCC122-0814	2 x 8-14 mm
SLCC222-0408	2 x 8-14 mm
SLCC142-2x0814+2x05	2 x 8-14 mm + 2 x 5 mm
SLCC142-1x0814+2x05	2 x 8-14 mm + 2 x 5 mm
SLCC142-2x0814+2x08	2 x 8-14 mm + 2 x 8 mm
SLCC132-0814	3 x 8-14 mm
SLCC162-3x0814+3x08	3 x 8-14 mm + 3 x 7-8 mm
SLCC172-3x0814+4x05	3 x 8-14 mm + 4 x 5 mm
SLCC172-3x0814+4x05	3 x 8-14 mm + 4 x 5 mm
SLCC172-3x0814+4x0710	3 x 8-14 mm + 4 x 7-10 mm
SLCC112-10	1 x 10 mm
SLCC112-1226	1 x 12-26 mm
SLCC132-1x1226+2x05	1 x 12-26 mm + 2 x 5 mm
SLCC132-1x1226+2x0710	1 x 12-26 mm + 2 x 7-10 mm
SLCC122-1226	2 x 12-26 mm
SLCC142-2x1226+2x05	2 x 12-26 mm + 2 x 5 mm
SLCC142-1x1226+2x05	2 x 12-26 mm + 2 x 5 mm
SLCC152-3x1226+2x05	2 x 12-26 mm + 2 x 5 mm
SLCC142-2x1226+2x0710	2 x 12-26 mm + 2 x 7-10 mm
SLCC182-2x1226+6x05	2 x 12-26 mm + 6 x 5 mm
SLCC172-3x1226+4x05	3 x 12-26 + 4 x 5 mm
SLCC132-1226	3 x 12-26 mm
SLCC172-3x1226+4x05	3 x 12-26 mm + 4 x 5 mm
SLCC172-3x1226+4x0710	3 x 12-26 mm + 4 x 7-10 mm
SLCC132-1x1432+2x0710	1 x 14-32 mm + 2 x 7-10 mm
SLCC142-2x1432+2x0710	2 x 14-32 mm + 2 x 7-10 mm
SLCC132-1432	3 x 14-32 mm
SLCC142-2x2232+2x0814	2 x 22-32 mm + 2 x 8-14 mm

# Cable Clamps

Clamps for multiple Fibre Optic, Power and Coax cable runs where space is limited. Various configurations possible with the use of different M10 threaded rods lengths. Using resistant and UV rated material, these clamps provide a sturdy, reliable, and long-term attachment to support structures.



SLCCM10-2x5-8

SLCCM10-2x8-14

SLCCM10-C08

SLCCM10-C03

SLCCM10-C05



SLCCM10-Cap



SLCCM10-Nut



SLCCM10-W



SLCCM10-SW



SLCCM10-R-xx

Temperature -40°C to +70°C  
Salt spray test 96 hr. acc. to MIL-STD-1344:1977 Method 1001.1  
UV resistance 300 hr. acc. to ISO 4892-2:2006(E) Method A  
RoHS compliant



Rosenberger No.	Size	Material
SLCCM10-2xC03	Pair of clamps, 2x 1/2"R	Polyamide with glass fibre
SLCCM10-2xC05	Pair of clamps, 2x 7/8"R	Polyamide with glass fibre
SLCCM10-2xC08	Pair of clamps, 2x 1/2"S	Polyamide with glass fibre
SLCCM10-2x8-14	Pair of clamps, 2x 7,5-14 mm	Polyamide with glass fibre
SLCCM10-2x5-8	Pair of clamps, 2x 4,5-8 mm	Polyamide with glass fibre
SLCCM10-Nut	M10 Nut	Stainless steel A2
SLCCM10-W	M10 Washer	Stainless steel A2
SLCCM10-SW	M10 Spring Washer	Stainless steel A2
SLCCM10-R-80	M10 threaded rod, 80 mm	Stainless steel A2
SLCCM10-R-100	M10 threaded rod, 100 mm	Stainless steel A2
SLCCM10-R-110	M10 threaded rod, 110 mm	Stainless steel A2
SLCCM10-R-130	M10 threaded rod, 130 mm	Stainless steel A2
SLCCM10-R-150	M10 threaded rod, 150 mm	Stainless steel A2
SLCCM10-R-170	M10 threaded rod, 170 mm	Stainless steel A2
SLCCM10-R-180	M10 threaded rod, 180 mm	Stainless steel A2
SLCCM10-R-200	M10 threaded rod, 200 mm	Stainless steel A2
SLCCM10-R-220	M10 threaded rod, 220 mm	Stainless steel A2
SLCCM10-R-250	M10 threaded rod, 250 mm	Stainless steel A2
SLCCM10-R-300	M10 threaded rod, 300 mm	Stainless steel A2
SLCCM10-R-350	M10 threaded rod, 350mm	Stainless steel A2
SLCCM10-R-500	M10 threaded rod, 500 mm	Stainless steel A2
SLCCM10-R-1000	M10 threaded rod, 1000 mm	Stainless steel A2
SLCCM10-Cap	Yellow Rubber Cap, 8 mm	Vinyl



## Test and Cleaning Equipment

The Rosenberger test and cleaning equipment – specifically designed for site solutions applications



### Product Overview

- Fiber loop
- Inspection and cleaning kits
- Test laser EV-3
- Reel cleaner
- Click cleaner



# Fiber Loop

The Rosenberger Fiber Loop is designed for use in harsh environment.

This robust and handy loop adaptor supports measurement of single mode or multimode signals on site or within the lab. It supports LC Duplex, RDC male or female interfaces. The uni-directional loop adaptor helps to detect wrong fiber assignment and cross / uncross failures.



Loop Adaptor

## Fiber Loop

Rosenberger No.			
Single mode G.657A - 9/125		*Multi mode OM 2 - 50/125	
98LCS120-L00	Loop-adaptor LCD-2F9μ	98LCS130-L00	Loop-adaptor LCD-2F50μ
98RDCK120-00	Loop-adaptor RDCK-2F9μ	98RDCK130-00	Loop-adaptor RDCK-2F50μ
98RDCS120-00	Loop-adaptor RDCS-2F9μ	98RDCS130-00	Loop-adaptor RDCS-2F50μ
98LCIS120-L00	LC unidirectional loop LCD-2F9μ		

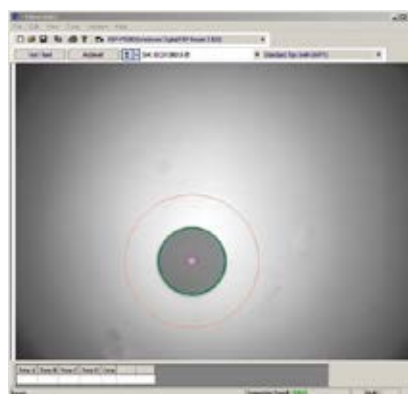
\*OM 4 available on request

# Inspection and Cleaning Kit

The kit includes all materials and tools for visual inspection and cleaning of FO connectors and adaptors. The main component is a video backpanel microscope. It is available with a hand-held monitor or with a USB interface, alternatively. The USB version needs a laptop or PC with USB 2.0 port.

That version comprises an additional feature compared to the monitor version: The pictures can be saved for documentation.

Microscope adaptors for Ø 1.25 mm and Ø 2.5 mm standard ferrules are included, additional adaptions to all frequently used connector types are available as accessory.



## Inspection and Cleaning Kits

Rosenberger No.	Description
SLTK001-000	Cleaning kit with video-mic., light source and Insertion Loss measurement
98W018-000	Cleaning kit with USB microscope
SLTK001-000/53	Power source
SLTK001-000/51	Power meter for MM fibers
SLTK001-000/52	Power meter for SM fibers
SLTK001-000/57	Adaptor power meter Ø 1.25 mm



# Test Laser EV-3

Laser light source for defect location, fiber identification and testing of connectors, single mode and multi mode.



## Test Laser

Rosenberger No.	Description
SLTK001-000/50	Test laser EV-3 for ferrules with Ø 1.25 mm and Ø 2.5 mm

## Reel Cleaner

Cleaning device with a dry textile ribbon for all FO connectors with the exception of MT-RJ male (with pins).

- One textile reel included
- Up to 400 cleanings per reel



## Reel Cleaner

Rosenberger No.	Description
98W013-000	Reel cleaner
98W013-001	Replacement reel

## Click Cleaner

Handy cleaning tool for ferrule endfaces of FO connectors.

- Simple release of the cleaning mechanism by pushing the tool holder
- Unmating of the connector not necessary – cleaning through the adaptor is available
- Extendable nozzle for cleaning connectors, being difficult accessible



Rosenberger No.	Description
98W005-000	Click cleaner, for ferrules Ø 1.25 mm
98W006-000	Click cleaner, for ferrules Ø 2.5 mm
98W007-000	Click cleaner, for RDC connectors
98W012-000	MTP®/MPO cleaner

## Tools



Rosenberger No.	Description
SLT011-1.2/3	Torque screwdriver 1.2 -3 Nm
SLT011-4/8.8	Torque screwdriver 4-8.8 Nm
53W010-000	Torque wrench

# Rosenberger No.

475151A.102	46	L98B-128-xxx	26	L98B-A0745-xxx	29
53W010-000	67	L98B-180-xxx	46	L98B-A0746-xxx	29
7F2RS105B-0M16T1	35	L98B-201-xxx	40	L98B-A0755-xxx	41
7F2RS105B-0M16T1	55	L98B-235-xxx	25	L98B-A0757-xxx	25
7F2RS106B-0M16T1	35	L98B-237-xxx	40	L98B-A0758-xxx	41
7G2S101B-0M16T1	55	L98B-A0002-xxx	50	L98B-A0759-xxx	41
98F29-178-48	42	L98B-A0005-xxx	50	L98B-A0783-xxx	29
98F29-178-48	46	L98B-A0008-xxx	50	L98B-A0831-xxx	46
98K100-130-L02	54	L98B-A0011-xxx	50	L98B-A0859-xxx	42
98K100-130-L04	54	L98B-A0070-xxx	50	L98B-A0859-xxx	46
98K216-51 8-3000	21	L98B-A0085-xxx	50	L98B-A0877-xxx	29
98K216-518-3000-4	21	L98B-A0140-xxx	50	L98B-A0878-xxx	42
98K216-540-000	20	L98B-A0141-xxx	50	L98B-A0879-xxx	42
98K216-540-004	20	L98B-A0150-xxx	46	L98B-A0880-xxx	42
98K216-540-005	20	L98B-A0151-xxx	42	L98B-A0909-xxx	29
98LCIS120-L00	64	L98B-A0151-xxx	46	L98B-A0933-xxx	46
98LCS120-L00	64	L98B-A0157-xxx	50	L98B-A0987-xxx	12
98RDCK120-00	64	L98B-A0197-xxx	50	L98B-A0988-xxx	12
98RDCS120-00	64	L98B-A0272-xxx	50	L98B-A0992-xxx	12
98W005-000	67	L98B-A0295-xxx	50	L98B-A0992-xxx	42
98W006-000	67	L98B-A0308-xxx	50	L98B-A0992-xxx	46
98W007-000	67	L98B-A0338-xxx	41	L98B-A1015-xxx	42
98W012-000	67	L98B-A0600-xxx	50	L98B-A1015-xxx	46
98W013-000	66	L98B-A0606-xxx	46	L98B-A1030-xxx	42
98W013-001	66	L98B-A0641-xxx	42	L98B-A1030-xxx	46
98W018-000	65	L98B-A0646-xxx	42	L98B-A1039-xxx	46
98Z111-S04	42	L98B-A0647-xxx	42	L98B-A1045-xxx	12
98Z111-S04	46	L98B-A0652-xxx	31	L98B-A1115-xxx	12
99C084-000N1	35	L98B-A0653-xxx	31	L98B-A1138-xxx	46
99C084-000N1	55	L98B-A0654-xxx	31	L98C-023-xxx	42
99RK73L-199N	55	L98B-A0655-xxx	31	L98C-023-xxx	46
L98B-003-xxx	42	L98B-A0656-xxx	31	L98C-117-xxx	50
L98B-003-xxx	46	L98B-A0657-xxx	41	L98D-028-xxx	46
L98B-004-xxx	46	L98B-A0658-xxx	41	L98D-181-xxx	42
L98B-022-xxx	25	L98B-A0676-xxx	31	L98D-182-xxx	42
L98B-069-xxx	25	L98B-A0689-xxx	41	L98D-218-xxx	50
L98B-090-xxx	42	L98B-A0709-xxx	46	L98D-227-xxx	42
L98B-090-xxx	46	L98B-A0709-xxx	46	L98D-227-xxx	42
L98B-091-xxx	46	L98B-A0744-xxx	26	L98D-227-xxx	46

L98D-229-xxx	50	NDB6AZ-63H/63/1PN	22	SL2C35MM2FRNC-S-BK-N	49
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Certified by IATF 16949 · DIN EN 9100 · ISO 9001 · ISO 14001 · ISO 45001 · ISO 50001

Order No.  
pA 292050 · Info501FTTAPTACatEN  
50/2025

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