Rosenberger

FTTA: Fiber to the Antenna

High Performance FTTA Site Solutions for all architectures.

Fiber-to-the Antenna (FTTA) Site Solutions from Rosenberger

Secure your Network Connectivity Today and in the Future

There is a huge demand for high-speed data transfers in today's global mobile telecommunications networks. The connectivity performance between the base station and Remote Radio Unit (RRU) / Antenna is the key to the quality of the data transfer between the network and the end-user.

Our extensive experience with fiber optic technology, innovative product development and long-term relationships with large service providers and OEMs in the telecommunications industry enable us to develop forward reaching and universally applicable FTTA cabling systems that ensure Rosenberger's future as technology leaders for many generations.

Benefits of Rosenberger structured FTTA cabling systems
- Utilizes proven fiber optic technology
- Innovative interconnect technology adaptable to active equipment with upgrades
- A partner independent of the original equipment suppliers
- Sturdy / robust multi-fiber cable
- Pair coded cable assures easy error-free installation
- Connector interfaces conform to international standards at all interconnections

Standard application
- Connectors are compatible with all international standards and specifications
- Cabling solutions can quickly be adjusted to new equipment systems
- It is an economic and efficient system

Outstanding product features
- High UV resistant cable sheaths
- Waterproof installation tube in compliance with IP 67
- Grip for hoisting the pre-fabricated cable
- Extremely durable products

Fast and safe installation
Rosenberger cabling system:
- Pre-fabricated with up to 24, 36 coded fibers*
- Immediate installation possible
- Fiber jumpers and trunks individually tested and supplied with measurement details
- Protective and safe packaging

higher fiber counts on request

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DISCRETE CABLING

The Rosenberger Discrete Cabling solution is ideal for single runs of fiber and power cable pairs. Installation of this design gives the flexibility of one Fiber + Power pair per sector. On the other hand, expansion requires several runs of Fiber + Power cable up the tower, increasing cost. Rosenberger has several other solutions addressing the issue.

• Single runs of Fiber and Power duplex feeders per RRU

• **Fiber Feeder**
  • Outdoor rated
  • 5 or 7 mm outer diameter
  • Tube or distribution cable design
  • LC Duplex Connectors or Rosenberger Duplex Connectors (RDC)
  • Cable ends matching a variety of Radio Unit entries

• **Power Feeder**
  • 4,6,8, 10, 12 AWG with 2 Conductors plus Specified Grounding
  • Bulk cable on drum
  • Variety of conductor diameters

Antenna

RRU

Individual Fiber and Power Feeder Pairs
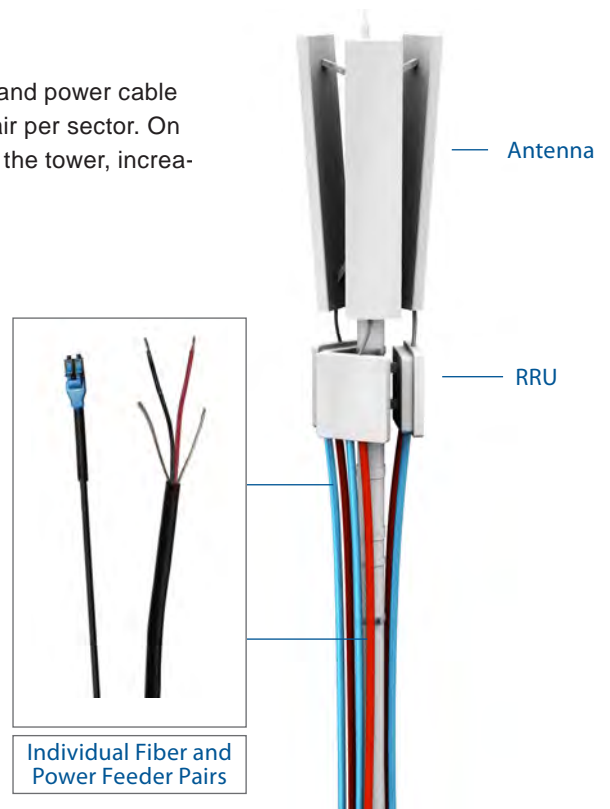
Three individual Runs of Fiber and Power Feeders for Three RRUs

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Fiber Feeder

Features and Advantages
• One Fiber Feeder per RRU
• Single Channel / Pair
• Single Mode (SM) or Multimode (MM)
• Various connector configurations and lengths

To Order Fiber Feeder please provide the following:
• Single Mode or Multimode
SM or MM
• Connector Type
LC Compact - LC Duplex (LCC-LCD)
LC Compact - LC Compact (LCC-LCC)
LC Compact - RDC (LCC-RDC)
• Length in Meters (m)

Power Feeder

Features and Advantages
• One Power Feeder per RRU
• Various Wire Sizes
• 2 Conductors with customer Specified Grounding
• Customer Specified Length
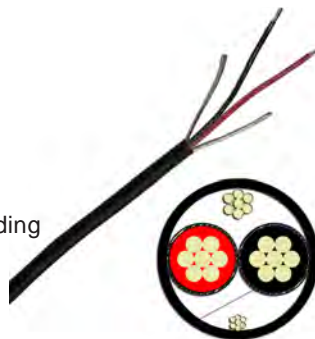
To Order Power Feeder please provide the following:
• AWG of Wire
4 Awg
6 Awg
8 AWG
10 AWG
12 AWG
• Length in Feet (ft)

FOUR-FIBER MINITUBE SOLUTION

The Four Fiber Minitube solution is a cost effective option when only three to four runs of fiber pairs are required. When paired with the three power feeder cable system, this solution can support up to three RRUs with only two runs of cable. This design also eliminates the need of a tower top distribution enclosure, as fiber and power feeders connect directly to RRUs.

Features and Benefits:

**Fiber feeders in one sheath**
- 3 – 4 duplex outdoor cables
- Equal configuration of cable ends as in discrete cabling
- No top- or bottom distribution box
- Adjustable length of fan-outs top and bottom
- One run of cable only along tower

Power feeders in one sheath
- 3 pairs of power feeders as one trunk
- Direct termination power supply to RRH
- Easy separation of singular power lines

Minitube Trunk

3 Power Feeders in One Sheath

One Run of Minitube Fiber and Power Cable for 3 RRUs
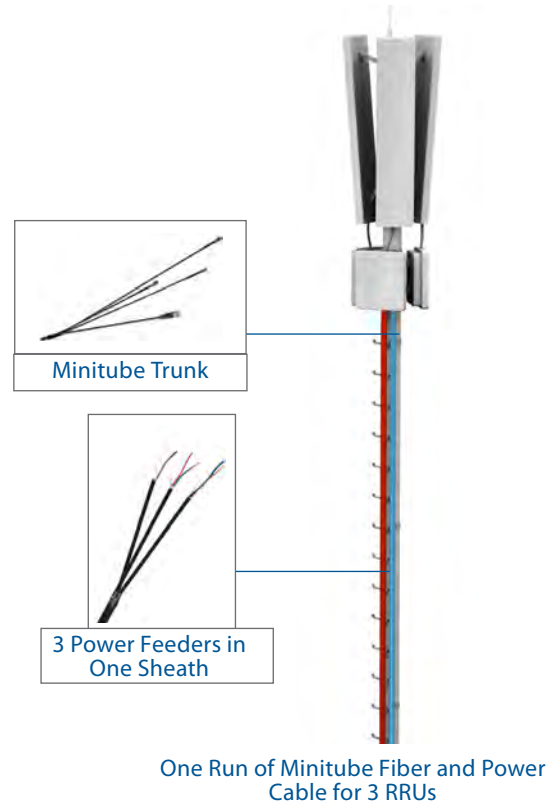
Minitube Trunk with two LC Duplex and two RDC Spare

Features and Advantages
- Connector Top: 2 x LC- Compact Duplex & 2 x RDC Duplex or Customer Specific
- Connector Bottom: 4 x LC- Compact Duplex or Customer Specific
- Single Mode (SM) or Multi Mode (MM)
- Most economic solution for 4 Fiber Scenarios
- Easy to Install – no tower top distribution enclosure required
- Weatherized RDC Connections

To Order Minitube Trunk please provide the following:	
• Single Mode or Multimode	
	SM or MM
• Total Length in Meters (m)	
• Fanout Lengths:	
Side A: Top Side fanout Lengths	
Side B: Equipment Side Fanout Lengths	
• Spare Connector Type (RDC by default)	

Three Power Feeders in One Sheath

Features and Advantages
- 8 AWG 3 Pairs Shielded Control Tray Cable with Corrugated copper tape shielded
- Three Power Feeder Pairs as one unit
- Direct connection to RRU or Equipment
- Splits at Tower Top with a heat shrink boot
- Heat shrink boot can be pre-installed or field-installed
- No Enclosure Required

- Can be used with universal Grounding Kits
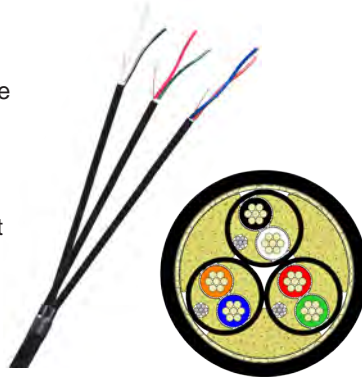
Ordering Info.	
Part Number	Description
WR-382CT	3 Pair Power Feeder
Sold Per Feet	

FTTA TRUNKING SYSTEM

The FTTA Trunking system utilizes one 10 mm fiber trunk with 3 to 24 pairs/channels of optical fiber and a multiple-conductor power trunk, with a FTTA Distribution Enclosure. One fiber and power trunk pair can provide fiber and power for up to six RRUs. Deploying a fiber trunk provides the fiber needed for today plus spare fiber for future growth. The power trunk allows multiple RRUs to be powered by a single cable. When additional RRUs are deployed, power trunks can be added as needed.

Fiber and Power Jumpers are used from the FTTA Distribution Enclosure to RRU or Equipment. For upgrading systems with unique fiber and power interfaces, only the jumpers will require modification or replacement.

Scenario 1: Shelter at Base

Tower Top: Fiber and Power trunk terminate in Distribution Enclosure - Fiber and Power Jumpers connect to RRU
Tower Bottom: Fiber Trunk fanouts connect directly to equipment in shelter. Power trunk connect to power source.

Features and Benefits:
- Single Fiber Trunk with 6 to 48 Fibers (3 to 24 Pairs / Channels)
- LC-Duplex to Customer Specified Connections
- Singlemode or Multimode
- Fiber Fanouts from single trunk go to Multiple Equipment in Shelter

- Power Cable Cut to Site Specific Lengths

- Distribution enclosure at tower top
- Fiber and Power Jumper connect to RRU at Tower Top

Antenna

RRU

FTTA Distribution Enclosure

Fiber Jumper

Power Jumper

Fiber Backbone Trunk

Power Trunk

Shelter with Equipment at Base

LTE Equipment

UMTS/EVDO Equipment

Power Source

2nd Carrier Equipment

Spare Fiber for Future Growth

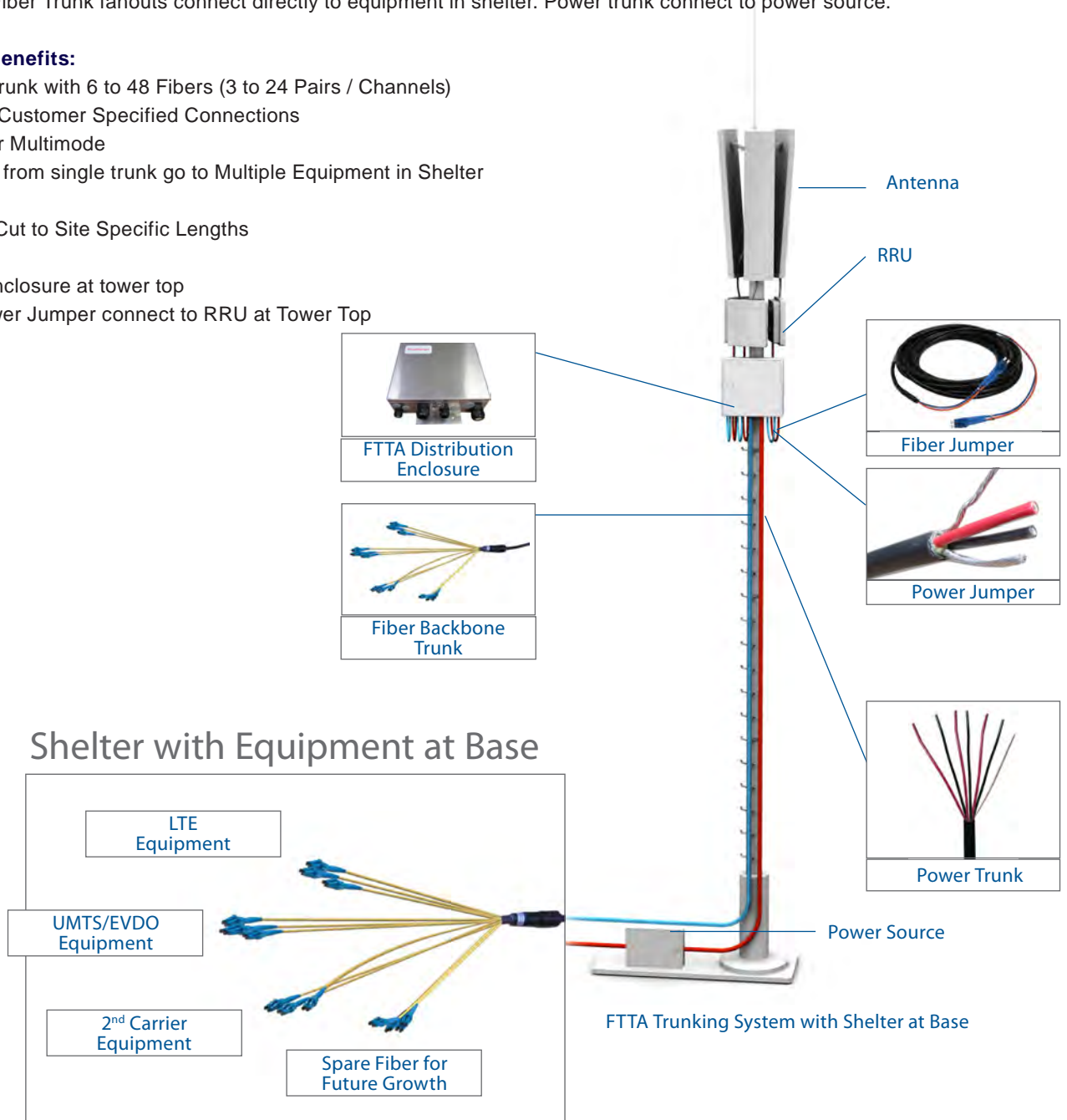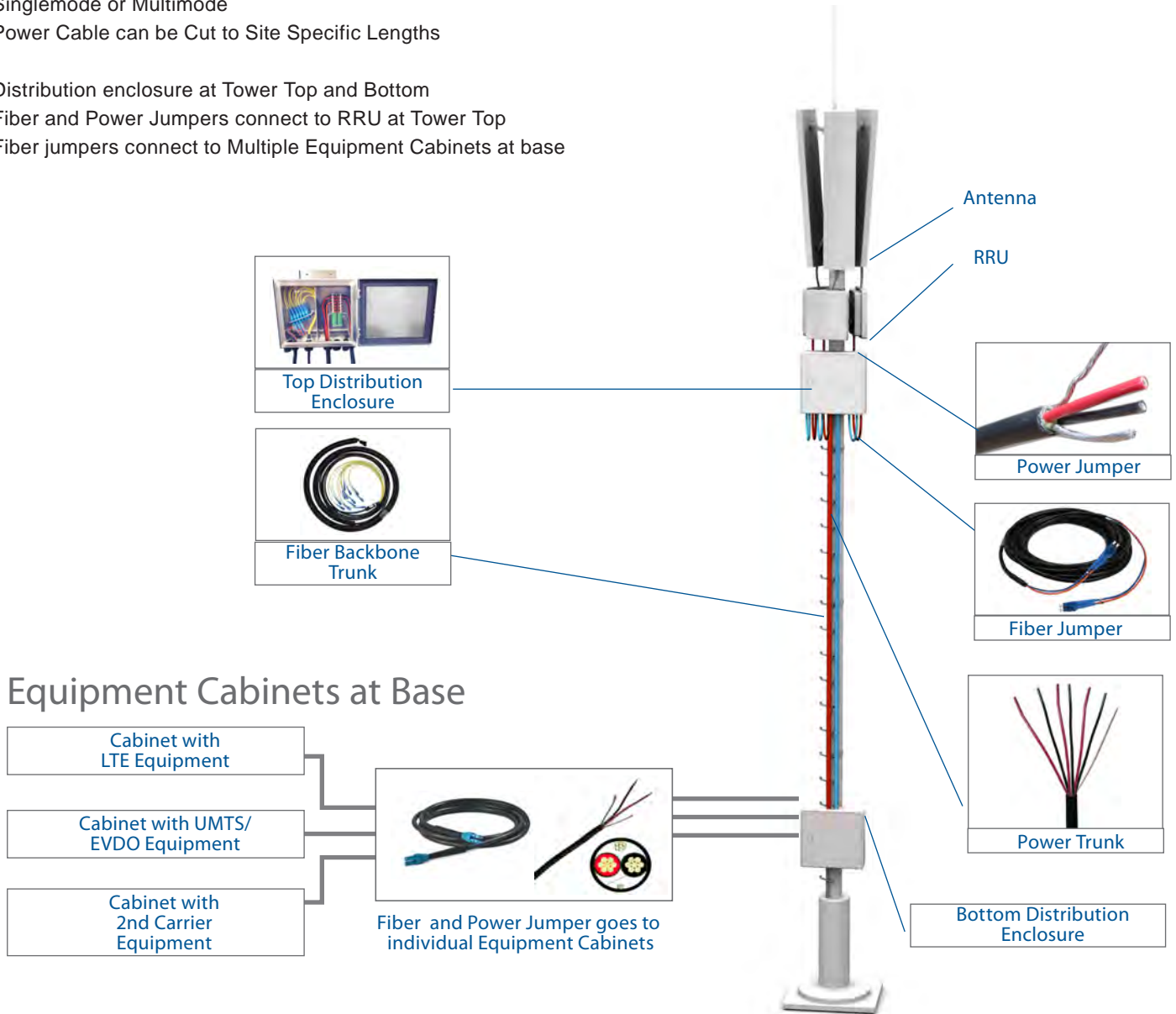FTTA Trunking System with Shelter at Base

Scenario 2: Multiple Equipment Cabinets at Base

Tower Top: Fiber and Power trunk terminate in Top Distribution Enclosure - Fiber and Power Jumpers connect to RRU
Tower Bottom: Fiber and Power trunk terminate in Bottom Distribution Enclosure - Fiber and Power Jumpers connect to individual equipment cabinets. For additional equipment, add power and fiber jumpers from bottom enclosure to equipment cabinets.

Features and Benefits:
- Single Fiber Trunk with 6 to 48 Fibers (3 to 24 Pairs / Channels)
- LC-Duplex to Customer Specified Connections
- Singlemode or Multimode
- Power Cable can be Cut to Site Specific Lengths

- Distribution enclosure at Tower Top and Bottom
- Fiber and Power Jumpers connect to RRU at Tower Top
- Fiber jumpers connect to Multiple Equipment Cabinets at base

Antenna

RRU

Top Distribution
Enclosure

Power Jumper

Fiber Backbone
Trunk

Fiber Jumper

Equipment Cabinets at Base

Cabinet with
LTE Equipment

Cabinet with UMTS/
EVDO Equipment

Power Trunk

Cabinet with
2nd Carrier
Equipment

Fiber and Power Jumper goes to
individual Equipment Cabinets

Bottom Distribution
Enclosure

FTTA Trunking System with Equipment Cabinets at base

Fiber Trunk

Rosenberger Preconnect fiber trunks are fiber optical cable assemblies connecting base stations and remote radio heads in telecommunication applications.

Features and Advantages
- 12, 16, 20, 24 or 36 fibers in one cable
- LSZH or UL fire rated
- Lean 7-10mm diameter
- LC duplex or LC duplex compact connectors
- Single mode (SM) or Multi-mode (MM)
- Terminated in bottom and top
- Pulling Sock Installed on both ends

Benefits:
- High fiber count on tower with low overall diameter
- Fiber for today plus spare for future growth
- Low overall cost

To Order Fiber Trunk please provide the following:

• **Number of Fibers**	
	6 Pairs/Channels (12 Fibers)
	8 Pairs/Channels (16 Fibers)
	10 Pairs/Channels (20 Fibers)
	12 Pairs/Channels (24 Fibers)
	18 Pairs/Channels (36 Fibers)
• **Single Mode or Multimode**	
	SM or MM
• **Total Length in Meters (m)**	
• **Fanout Lengths**	
	Side A: (Tower Top) Fanout Lengths
	Side B: (Bottom/Equipment) Fanout Lengths

Power Trunk

Features and Advantages
- 6, 8, 10, 12 AWG, 600V Power Trunk Cables
- Multiple Conductors per Specification
- Color Coded Pairs (Positive & Negative) per RRU
- UL Approved for direct burial, sunlight and oil resistant
- Available as shielded or unshielded.

Benefits:
- Allows for Multiple Circuits in a Single Cable Trunk.
- Reduces tower leasing
- Additional power cables easily deployed as needed

6 Conductor Power cable - for 3 RRUS

To Order Power Trunk please provide the following:

• **AWG of Wire**	
	6, 8, 10, 12
• **Numbers of Conductors**	
	3, 4, 6, 12
• **Total Length in Feet (ft)**	
• **Grounding Requirements (if any)**	
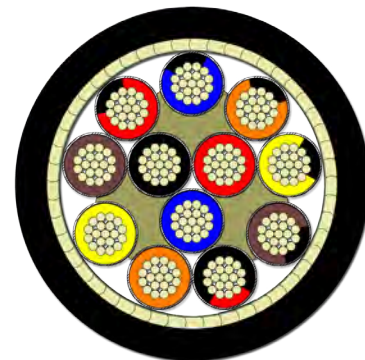
12 Conductor Power cable - for 6 RRUS
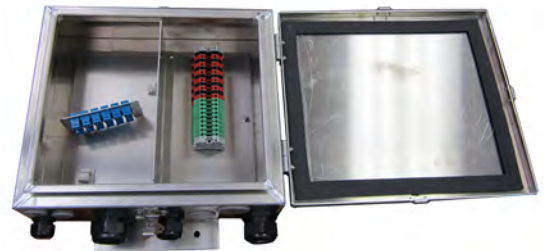
FTTA Distribution Enclosure

Used at Tower top for Fiber and Power management with Remote Radio Units (RRUs). Can also be used at bottom for power and fiber distribution.

Side A:
For Fiber
Distribution

Side B:
For Power
Distribution

Stainless Steel Enclosure for
6 Channel/Pair Fiber and Power

Features and Advantages

• Used at tower top for Fiber and Power management with Remote Radio Units (RRUs)
• Side A: Fiber Distribution (Fiber Trunk- Jumper Connections)
  Side B: Power Distribution (Power Trunk-Jumper Connections)
• Designed to handle up to 12 RRUs.
• Mounts to pipes from 2-3/8" OD to 6" OD

Benefits:

• Flexibility to upgrade RRU by changing only the Jumpers,
  not the entire cabling system.
• Provides water and dust proof protection to fiber and power connections.

Molded Fiberglass Enclosure for
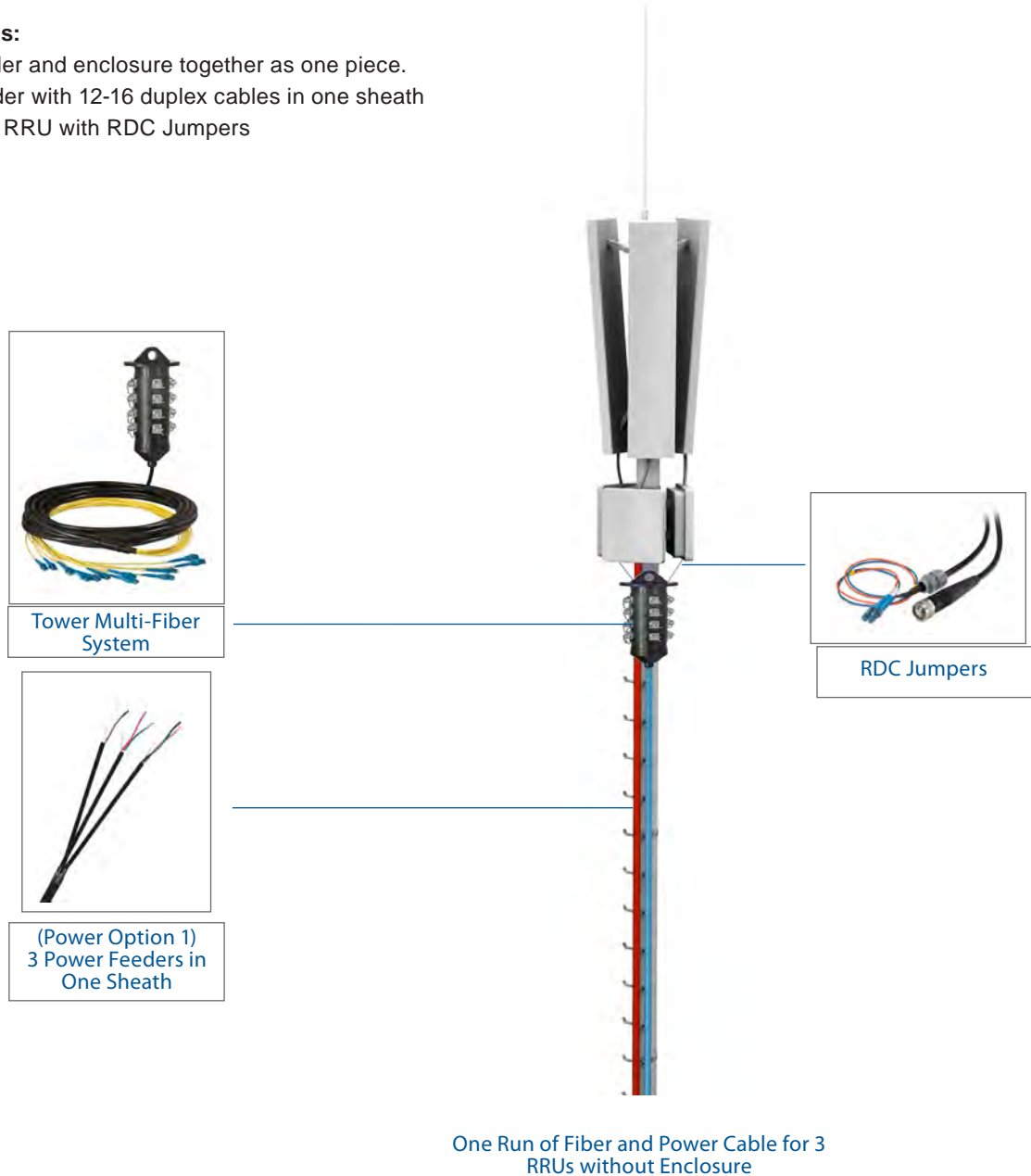12 Channel / Pair Fiber and Power

Order List	
Products	**Item Number**
FTTA Distribution Enclosure for 6 Channel/Pair System	F-2132-55
FTTA Distribution Enclosure for 12 Channel/Pair System	F-2132-68

TOWER MULTI-FIBER SYSTEM (TMFS)

The Rosenberger Tower Multi- Fiber System allows for deployment of 12 to 16 pairs of fiber without the need of a tower top distribution enclosure. This system is installed directly on the tower. Rosenberger Duplex Connector (RDC) jumpers connect from the Multi-Fiber unit to RRU or equipment. Two power options. Option 1: One power cable with Three Pair Power Feeders split at tower top and connect directly to RRUs. Option 2: Tower Multi-power system installed at tower top and connects to RRUs via Rosenberger power jumpers. When additional RRUs are deployed, power feeders can be added as needed.

Features and Benefits:
- All in ONE fiber feeder and enclosure together as one piece.
- One run of fiber feeder with 12-16 duplex cables in one sheath
- Direct connection to RRU with RDC Jumpers

Tower Multi-Fiber System

RDC Jumpers

(Power Option 1)
3 Power Feeders in One Sheath

One Run of Fiber and Power Cable for 3 RRUs without Enclosure

Tower Multi-Fiber System (TMFS) Unit

Features and Advantages
- 12 to 16 Pairs of Fiber in One Unit
- Weatherized RDC Output at Top
- LC Duplex Connections at Bottom

Benefits:
- Same Benefits as the Fiber Trunk
- No top or bottom distribution box
- Pre-terminated solution
- Extra low wind load due to optimized shape
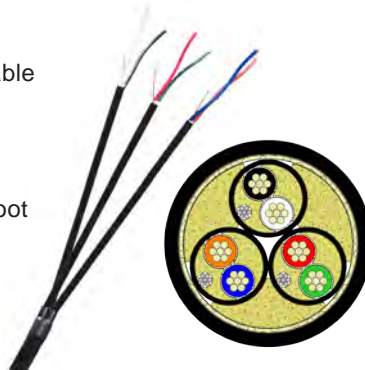- Well known connectors (RDC)
- Fast installation

To Order Tower Multi-Fiber System please provide the following:

• Number of Fibers	
	12 Pairs/Channels (24 Fibers)
	16 Pairs/Channels (32 Fibers)
• Single Mode or Multimode	
	SM or MM
• Total Length in Meters (m)	
• Length of Bottom Fiber Fan-outs	

Power Option 1: Three Power Feeders in One Sheath

Features and Advantages
- 8 AWG 3 Pairs Shielded Control Tray Cable with Corrugated copper tape shielded
- Three Power Feeder Pairs as one unit
- Direct connection to RRU or Equipment
- Splits at Tower Top with a heat shrink boot
- No Enclosure Required

- Can be used with 7/8" Grounding Kit

Ordering Info.

Part Number	Description
WR-382CT	3 Pair Power Feeder
Sold Per Feet	

Power Option 2: Tower Multi-Power System (TMPS) Unit

Features and Advantages
- Ensure quick deployment - self contained power distribution
- Weatherized power connectors on top

Benefits:
- Direct connector to RRU -No top or bottom distribution box required
- Pre-terminated solution
- Extra low wind load due to optimized shape
- Fast installation

To Order Tower Multi-Power System please provide the following:

• Number of Power Terminations	
• Total Length in Meters (m)	

TMPS Unit with Straight and 90 Degree power jumpers

DIRECT CONNECT TRUNK SYSTEM

The Direct Connect Trunk System utilizes a unique design that allows one 10 mm fiber trunk with 3 to 24 pairs/channels of optical fiber to be deployed directly to towers without using a distribution enclosure. Each fiber pair is factory terminated with RDC connectors which connect directly to RRUs via RDC jumpers. One direct connect trunk and power trunk pair can provide fiber and power for up to six RRUs. Deploying a direct connect trunk provides the fiber needed for today plus spare fiber for future growth. Weatherized RDC connectors protect unused fiber connections. The power trunk allows multiple RRUs to be powered by a single cable. When additional RRUs are deployed, power trunks can be added as needed.

Features and Benefits:
- Same benefits as a Fiber Trunk - no enclosure required
- Single Fiber Trunk with 6 to 48 Fibers (3 to 24 Pairs / Channels)
- Weatherized RDC connectors on top
- LC-Duplex to Customer Specified Connections on bottom
- Singlemode or Multimode
- Custom fiber fan-outs in bottom
- Connects directly to RRU via RDC jumpers

Direct Connect Trunk

RDC Jumpers

(Power Option 1)
3 Power Feeders in
One Sheath

Direct Connect Trunk Cable with
standard grommet and hangers

Direct Connect Trunk

Features and Advantages

- 3 to 24 Pairs of Fiber in One Unit
- Connector Top: RDC Female connectors
- Connector Bottom: LC Compact Duplex

Benefits:

- Same Benefits as the Fiber Trunk
- Distribution head mounted with standard hangers
- No top or bottom distribution box
- Pre-terminated solution
- Very low wind load due to optimized shape
- Fast installation

To Order Direct Connect Trunk please provide the following:

• Number of Fibers
Example: 12 Fibers (6 Pairs/Channels)
24 Fibers (12 Pairs/Channels)
• Single Mode or Multimode
SM or MM
• Total Length in Meters (m)
• Length of Bottom Fiber Fan-outs

Power Option 1: Three Power Feeders in One Sheath

Features and Advantages

- 8 AWG 3 Pairs Shielded Control Tray Cable with Corrugated copper tape shielded
- Three Power Feeder Pairs as one unit
- Direct connection to RRU or Equipment
- Splits at Tower Top with a heat shrink boot
- No Enclosure Required

- Can be used with 7/8" Grounding Kit

Ordering Info.

Part Number	Description
WR-382CT	3 Pair Power Feeder
Sold Per Feet	

Power Option 2: Tower Multi-Power System (TMPS) Unit

Features and Advantages

- Ensure quick deployment - self contained power distribution
- Weatherized power connectors on top

Benefits:

- Direct connector to RRU -No top or bottom distribution box required
- Pre-terminated solution
- Extra low wind load due to optimized shape
- Fast installation

To Order Tower Multi-Power System please provide the following:

• Number of Power Terminations
• Total Length in Meters (m)

TMPS Unit with Straight and 90 Degree power jumpers

HYBRID SOLUTION

The Rosenberger Hybrid Solution provides a single cable option for both optical fiber and copper wire. One Hybrid cable can support multiple RRUs. Two options available:
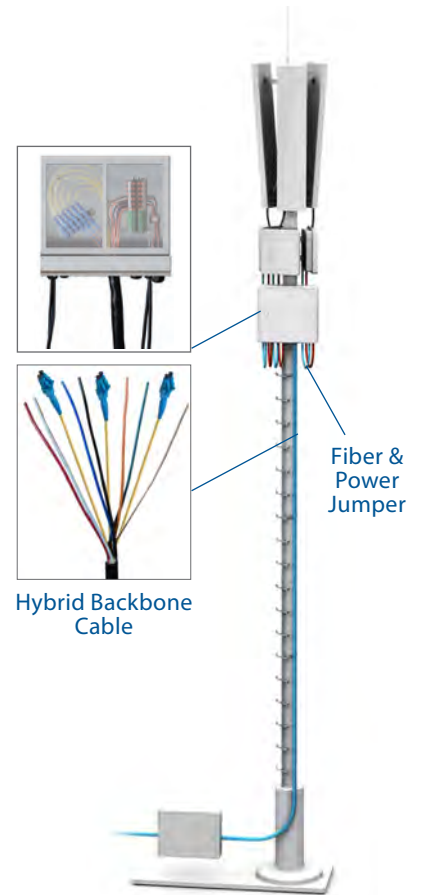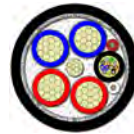Option 1: Hybrid cable terminates in Enclosure - Jumpers connect from Enclosure to RRU
Option 2: Hybrid cable connects directly to RRU - Direct Connect Option

Option 1: Hybrid Cable + Enclosure System

Features and Benefits:
- Optical Fiber:
  - 6 to 36 Fibers (3 to 18 pairs) –Single or Multimode
  - Factory terminated connections
- Copper Wire:
  - 6, 8, 10, 12 AWG with 2, 4, 6, 8, 10 or 12 Conductors
  - Color coded conductor pairs
  - Corrugated Copper Tape Shield
- Supply to RRU via Distribution Enclosure

Hybrid Cable

To Order Hybrid Cable Please provide the following

- Number of Fibers (6 to 36 / 3 to 18 pairs)
- Mode of fiber (Single Mode SM or Multimode MM)
- Connector Type (LC Duplex, LC Simplex, RDC, or custom)

- Gauge of Wire (#6, #8, #10, #12)
- Number of Conductors (2, 4, 6, 8, 12)

- Length in Feet
- Top and Bottom Fan-out Lengths

Fiber & Power Jumper

Hybrid Backbone Cable
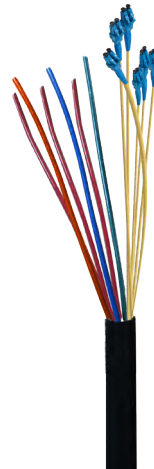
Hybrid Cable Shown with Tower Top Distribution Enclosure

FTTA Distribution Enclosure for Hybrid Cable

Used at Tower top for Fiber and Power management with RRUs. Can also be used at bottom for power and fiber distribution.

Features and Advantages
- Side A: Fiber Distribution (Fiber Fanout - Jumper Connections)
- Side B: Power Distribution (Power Wire - Jumper Connections)
- Jumpers attach to the RRU.
- Flexibility to upgrade RRU by changing only the Jumpers, not the entire cabling system.
- Designed to handle up to 6 RRUs.
- Easily mounts to pipes from 2-3/8" OD to 6" OD with included hardware
- Provides waterproof protection to fiber and power connections

Order List

Product	Item Number
FTTA Distribution Enclosure for Hybrid Cable	HCB-2132-65
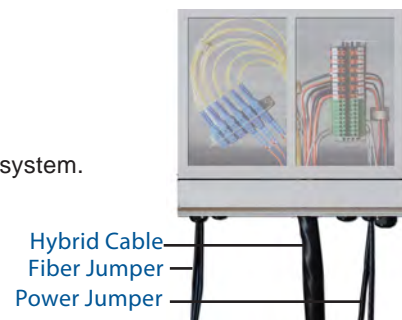
Hybrid Cable
Fiber Jumper
Power Jumper

Distribution Enclosure Shown with Hybrid Cable, Fiber Jumper and Power Jumper

Option 2: Direct Connect Hybrid

Features and Benefits:

- Supply to RRU Directly via RDC Jumpers
- No Distribution Enclosure required
- Shielded outdoor hybrid cable
- Waterproof according to IP 67
- Lean Design - Low wind load
- Easily to install

- Optical Fiber:
  - 8, 12 or 18 Fibers (4 to 9 pairs) –Single or Multimode
  - Factory terminated connectors on both ends
- Copper Wire:
  - 6, 8, 10, 12 AWG with multiple color coded Conductor pairs

RDC Jumpers connect from Main Hybrid to RRU

Direct Connect Hybrid Cable with factory terminated RDC Connectors

To Order Direct Connect Hybrid Cable Please provide the following

- **Number of Fibers** (8,12 or 18 / 4,6 or 9 pairs)
- **Mode of fiber** (Single Mode SM or Multimode MM)

- **Gauge of Wire** (#6, #8, #10, #12)
- **Number of Conductors**

- **Length in Meters (m)**
- **Top and Bottom Fan-out Lengths**

Rosenberger Jumper Assemblies

LC-LC / RDC-LC Fiber Jumpers

Rosenberger fiber jumpers connect to remote radio heads or equipment.

Ruggedized LC Jumper

LC-LC Jumper

RDC-LC Jumper

Features and Advantages

- Installed with LC-LC / RDC-LC Connetors
- Custom Fanout Lengths
- UV protected and riser rated
- Can be used indoors or outdoors
- Cable outer diameter: 5-7mm

To Order Fiber Jumper please provide the following:

• Single Mode or Multimode	
	SM or MM
• Connector Type	
	LCD to LCD Connector Side A: LC Duplex Connector Side B: LC Duplex
	LCC to LCC Connector Side A: LC Compact Connector Side B: LC Compact
	RDC-LCD Connector Side A: RDC Duplex Male Connector Side B: LC Duplex or customer specified
• Length in Meters (m)	

Rosenberger Loopback Adapters

Fiber Optic Loopback Adapters are designed for testing and engineering purposes. These adapters provide system test engineers with a simple but effective way of testing the transmission capability and receiver sensitivity of fiber optic network equipment. The loopback adapters may also be used for the burn-in stage of boards and other equipment.

Applications

- Used for equipment self diagnostic testing and evaluation

Features and Advantages

- For use in harsh environments
- Ruggedized housings equipped with latches for secure fastening.
- Tested to work in extreme temperature ranges
- Outstanding quality of ferrule end-face
- Exceptional IL and RL values

Order List	
Products	**Item Number**
Loopback adapter for LC Duplex Connector. Single Mode.	FB-98LCS120-L00
Loopback adapter for LC Duplex Connector. Multi-Mode.	FB-98LCS130-L00
Male Loopback adapter for RDC Connector. Single Mode.	FB-98RDCS120-L00
Male Loopback adapter for RDC Connector. Multi-Mode.	FB-98RDCS130-L00
Female Loopback adapter for RDC Connector. Single Mode.	FB-98RDCK120-L00
Female Loopback adapter for RDC Connector. Multi-Mode.	
Female Loop-back adapter for RDC Connector. Single Mode.	FB-98RDCK130-L00

Four Fiber Dual-Pair Jumper

Rosenberger dual-pair jumpers provide a single-jacket approach when two pair of LC-LC jumpers are required.

Features and Advantages
- Four Fibers (Two Pairs) in One Jacket
- Conector Top and Bottom 2x LC-Compact
- Custom Fanout Lengths
- UV protected and riser rated
- Can be used indoors or outdoors
- Cable outer diameter: 7mm

To Order Dual-Pair Jumper please provide the following:

• Single Mode or Multimode	
	SM or MM
• Connector Type	
	LCC to LCC
	Connector Side A: LC Compact
	Connector Side B: LC Compact
• Length in Meters (m)	

Power Jumpers

Rosenberger Power Jumper Cables connect to RRUs or equipment. When used in conjuction with a distributon box, these power jumpers provide convenient connections from the power trunk to equipment or RRU.
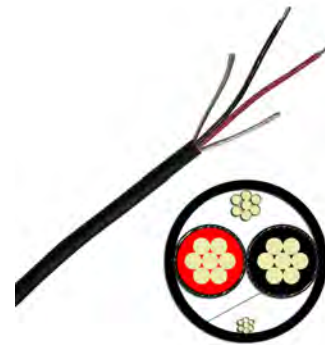
Features and Advantages
- Provides connection from power trunk to equipment or RRU.
- Flexible 600V Power Jumper Cables
- 1 Pair (2 conductors)
- 8, 10, or 12 AWG Copper Conductor
- Color Coded Pairs (Positive & Negative)
- UL Approved for direct burial
- Sunlight and oil resistant

To Order Power Jumper please provide the following:

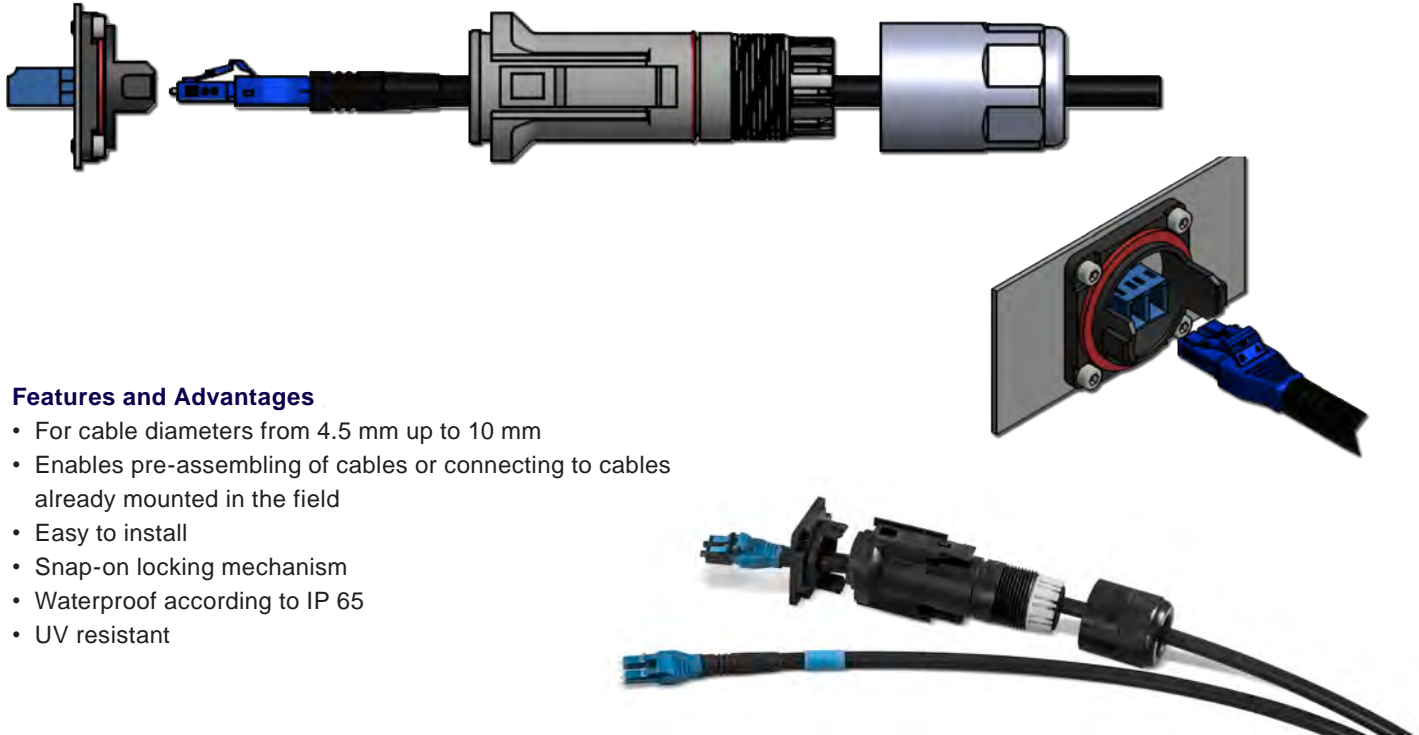|	
• AWG of Wire	
	8 AWG
	10 AWG
	12 AWG
• Length in Feet	
• Connector Requirement *(optional)*	

Rosenberger Fiber Enclosure (RFE)

Rosenberger Fiber Enclosure (RFE) provides UV resistant and watertight protection to fiber connectors. Used with Rosenberger jumper assemblies.

Features and Advantages
- For cable diameters from 4.5 mm up to 10 mm
- Enables pre-assembling of cables or connecting to cables already mounted in the field
- Easy to install
- Snap-on locking mechanism
- Waterproof according to IP 65
- UV resistant

Applications
- Makes fiber and data cables possible for outdoor use
- For Small Cells, Radio Links, RRU's, distribution boxes, etc.
- 4-hole, square flange – enables fast and easy connections
- Ready to cover copper and fiber assemblies: e.g. RJ45, LC, SC, MPO etc.
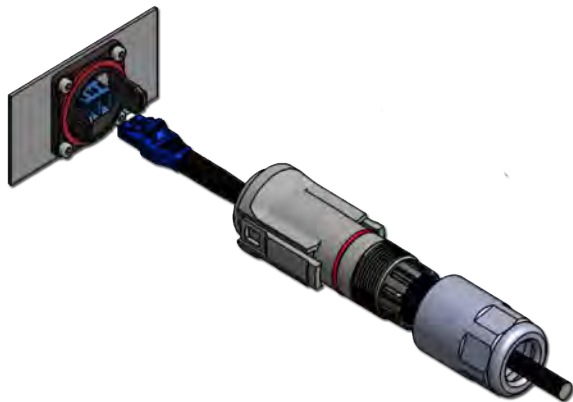
Ordering Info:
Rosenberger Fiber Enclosure (RFE) is sold separately or pre-installed on Rosenbeger Jumper Assemblies

Ordering Part Number	With Jumper Assembly
To order RFE separately, please provide the following part number: **FB-98Z105-S00**	To order Jumper Assemblies with RFE: 1) Select fiber jumper assembly from pages 16-17 2) Provide location of RFE on Jumper (Side A, Side B or both)

Fiber Patchcords

Rosenberger offers a complete portfolio of fiber patchcords tailored to meet your requirements. Available in all standard fiber types and connector configurations.
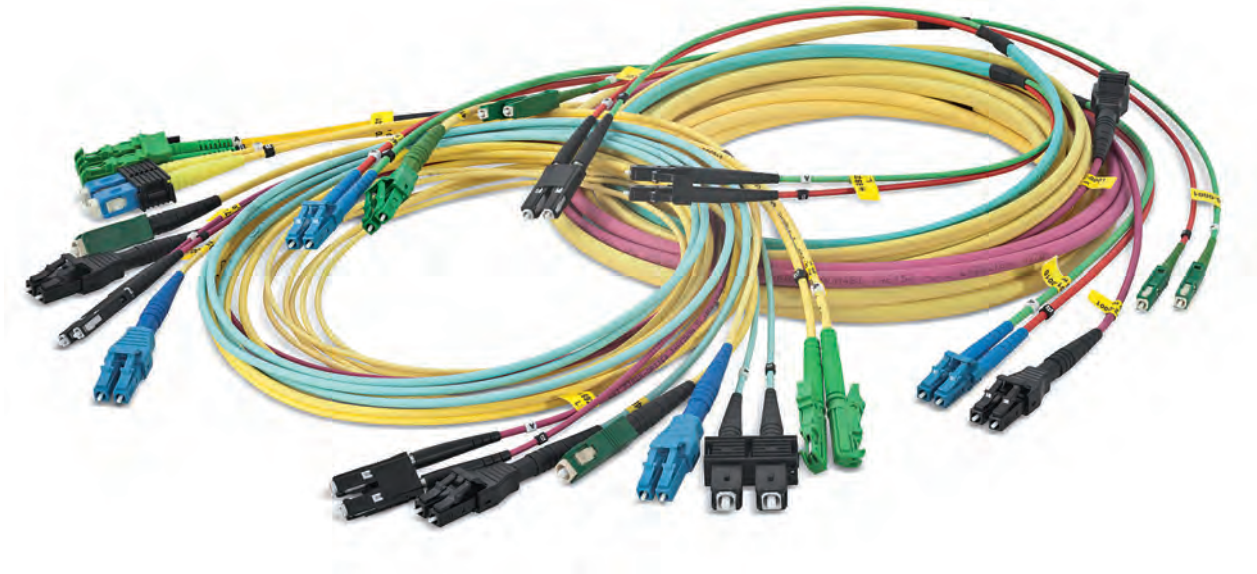
Features and Advantages

- Optimized kink and crush resistance with regards to application requirements
- Operating temperature range -10 °C to +60 °C, patchcords
- Standard light propagation:
  - Full-duplex-cables: duplex connectors at both sides acc. to ISO /IEC 11801 and EN 50173 = "crossed" (flipped)
  - Half-duplex-cables: duplex-connector at one side and 2 x simplex at the other side = "uncrossed" (unflipped)
  - Duplex-cables: with simplex connectors at both sides = "uncrossed" (unflipped)

To order Fiber Patchcords, Please provide the following

- **Cable Type:**
  Available in different FRNC - LSZH Cables

- **Fiber Type:**
  All standard fiber types available

- **Connector Type**:
  All standard connectors available

- **Length in Meters** (from tip of connector to tip of connector)

Excess Fiber Storage

Interior Excess Fiber Cable Enclosure

The Rosenberger interior excess fiber cable enclosure is designed for indoor on-site storage of excess fiber cable when Pre-connected fiber trunk cables are utilized.
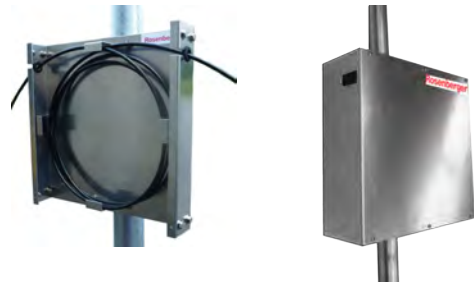
Features and Advantages
- Size: 17" wide X 1 3/4" (1RU) high X 12" deep
- Material: Unpainted Steel
- Rack mount: Removable 19" rack ears included
- Capacity: 20 or 30 meters of 10mm cable + fanouts
- Mounting: Wall or rack mount

Order List

Products	Item Number
Wall or Rack mounted up to 20 meters of 10mm fiber trunk cable	FB-SLF001-000
Rack mounted up to 30 meters of 10mm fiber trunk cable	FB-SLFCS003-000-DB

Exterior Excess Fiber Cable Enclosure

The Rosenberger exterior excess fiber cable enclosure is designed for outdoor on-site storage of excess fiber cable when pre-connected fiber trunk cables are utilized.

Features and Advantages
- Size:
  - 18" wide X 18" high X 4" deep (plus mounting)
  - 17" wide X 17" high X 6.5" deep (plus mounting)
- Material: Unpainted Aluminum
- Protection: Weatherproof
- Capacity:
  - 35 meters of 10mm cable or 75 meters of 7mm cable
  - 60 meters of 10mm cable or 300 meters of 7mm cable
- I/O: Cable can enter any of the 4 sides and exit any of the 3 remaining sides
- Mounting: Wall, H-bracket or pipe up 3.5" OD

Order List

Products	Item Number
18" x 18" x 4" H-bracket or pipe mounted up to 35 meters of 10mm fiber trunk cable	FB-15-ABOX
17" x 17" x 6.5" pipe mounted up to 60 meters of 10mm fiber trunk cable	FB-19-ABOX-4

Top Tower Excess Fiber Cable Enclosure

The Rosenberger Tower Top excess fiber cable enclosure is designed for Tower Top Excess Fiber storage of 7 mm fiber cable.

Features and Advantages
- Provides protection against damage to excess fibers at tower top
- Material: Unpainted Aluminum
- Size / Capacity:
  - 12" X 9.25'' X 3'' (For Up to 20 meters of 7 mm fiber cable)
  - 12" X 9.25'' X 1.5'' (For Up to 10 meters of 7 mm fiber cable)
- Mounting:
  - Wall, H Bracket or Pipe up to 3.5" OD (pipe mounting hardware included)
 - Optional Mounting with Angle Adapters (Sold Separately)

Order List

Products	Item Number
For Up to 20 Meters of 7 mm Fiber Cable	FB-7J-1230
For Up to 10 meters of 7 mm fiber cable	FB-7J-1215

Distribution Panels

Rack Mounted Distribution Panels

Rosenberger distribution panels are used to interconnect Fiber Trunks with Fiber Jumpers or Patchcords. These distribution panels are designed for installation on 19" racks. Available for up to 24 Channels / pairs (48 fibers).

Type A:
Fixed Installation

Type B:
Telescopic
Full-pullout
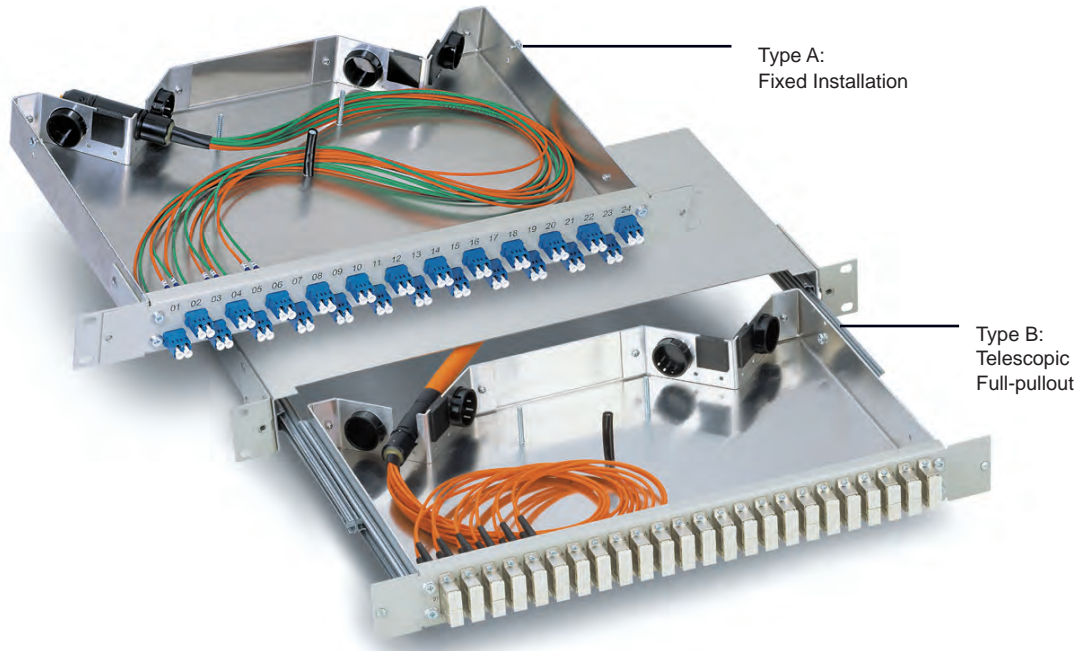
Features and Advantages

- For installation on 19" racks
- Interconnects Fiber Trunks to Fiber Jumpers or Patchcords
- Suitable to accept all Fiber Trunk cables assembled by Rosenberger
- Size: 15" wide X 1.7" high X 10" deep
- Material: Aluminum
- Available in two types:
  1) Fixed Installation
  2) With drawer / telescopic full-pullout
- Weight: 1600 grams / 3.54 lbs

Order List

Fiber Count	Connection Type	Type A: Fixed Installation	Type B: Telescopic Installation
		RSS Part Number *	RSS Part Number *
12 Fibers (6 pairs)	LC - LC Duplex	FB-231A0173	FB-230A0173
24 Fibers (12 pairs)	LC - LC Duplex	FB-231A0175	FB-230A0175
48 Fibers (24 pairs)	LC - LC Duplex	FB-231A0177	FB-230A0177

* Part number shown for Single Mode (SM) versions only.
Multi Mode (MM) versions also available upon request

Universal Trunk Cable Divider Holder - For Multiple Trunk Cables
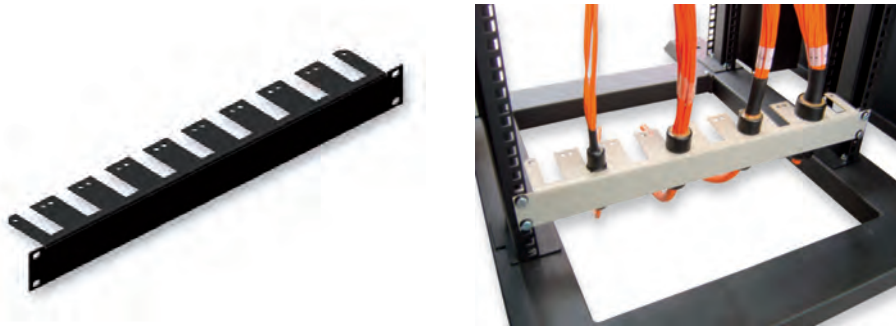
Order List

Products	Item Number
For universal installation of trunk cable dividers on 19" cabinets/racks.	FB-099A0085

Universal Trunk Cable Divider Holder - For Single Trunk Cable

Order List

Products	Item Number
For universal installation of a trunk cable divider on a 19" cabinet/rack or at any place where this part can be installed individually.	FB-099A0065

Mini-Universal Coupler Brackets

Applications
- **Suited for interconnecting 2-6 LC Duplex connectors**
- **Can be installed on 19" bars for universal mounting**

Properties and delivery form
- **Material: steel, powder coated**
- **Colour: RAL 9005 (black)**
- **Long holes for universal installation**
- **Couplers mounted**
- **Without screws and cage nuts**

Order List

Num of Couplers	Type of Couplers	Single Mode (SM)	Multi-Mode (MM)
2	LC -Duplex	FB-099A0345	FB-099A0347OM3
4	LC -Duplex	FB-099A0342	FB-099A0344OM3
6	LC -Duplex	FB-099A0340	FB-099A0305OM3

Cable Inserts / Grommets

All cabling requires the use of appropriate size grommet listed below in conjunction with universal hanger, snap-stack hanger, SIC clamp or double clamp .

Select grommets from the table by matching Cable O.D. with Hole Size, and according to hanger size requirements. Compatible universal hangers, snap-stack hangers, stackable SIC clamps and double clamps also shown.

Grommet Order List			Compatible Hanger, Stackable Clamp and Double Clamp Part #			
Part Number	Hole Size	Hanger Size	Univ. Hanger	Snap-Stack	Stackable Clamp	Double Clamp
CX602-HA0005	One 5-7 mm	1/2"	TH412-U12	TH425-S12	CX-SIC1-12	TH494-DC12
CX601-HA0709	One 7-9 mm	1/2"	TH412-U12	TH425-S12	CX-SIC1-12	TH494-DC12
CX610-HA1012	One 10-12 mm	1/2"	TH412-U12	TH425-S12	CX-SIC1-12	TH494-DC12
CX603-HA0711	One 7-11 mm	7/8"	TH413-U78	TH426-S78	CX-SIC2-78	TH495-DC78
CX604-HA1117	One 11-17 mm	7/8"	TH413-U78	TH426-S78	CX-SIC2-78	TH495-DC78
CX607-HA1711	One 7-11 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX605-HA1117	One 11-17 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX608-HA1720	One 17-20 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX609-HA1823	One 18-23 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX611-HA1010	Two 10-12 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX625-HA0710	Two 10 mm & Two 7mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX621-HA0307	Three 7 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX629-HA0407	Four 7 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX646-HA4128	Four 10.28 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX647-HA6128	Six 10.28 mm	1-1/4"	TH414-U114	TH427-S114	CX-SIC3-114	TH496-DC114
CX614-155	One 24-31 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX648-2526	One 26 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX651-2829	One 28 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX644-3132	One 32 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX616-3437	One 34-36 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX635-HA3360	One 33.6 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX641-3033	One 30-32 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX652-1714	One 7 mm & One 14 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX626-HA1020	One 10 mm & One 20 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX628-2210	One 10 mm & Two 20 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158
CX622-HA3722	Three 7 mm & One 22.6 mm	1-5/8"	TH415-U158	TH428-S158	CX-SIC4-158	TH497-DC158

Universal Snap-In Hangers

Primary method of attaching the cable insert to a 3/4" mounting hole on tower. Sold in Packs of 10. Recommended Spacing 36 Inches

1-1/4" Snap-In Hangers
with Grommets,
Fiber and Power Cable

Order List

Products	Item Number
Snap in Hanger to Suit 1/2" Coaxial Cable (Universal)	TH412-U12
Snap in Hanger to Suit 7/8" Coaxial Cable (Universal)	TH413-U78
Snap in Hanger to Suit 1-1/4" Coaxial Cable (Universal)	TH414-U114
Snap in Hanger to Suit 1-5/8" Coaxial Cable (Universal)	TH415-U158

Stackable Snap-In Hangers

Stackable Snap-In Hangers can be stacked up to three high when using sizes 1/2" and 7/8", or two high when using sizes 1-1/4" and 1-5/8". Sold in Packs of 10. Recommended Spacing 36 Inches

1-1/4" Stackable Snap-In Hanger with Grommet and Power Cable

Order List

Products	Item Number
Stackable Snap-in Hanger for 1/2" Coax	TH425-S12
Stackable Snap-in Hanger for 7/8" Coax	TH426-S78
Stackable Snap-in Hanger for 1-1/4" Coax	TH427-S114
Stackable Snap-in Hanger for 1-5/8" Coax	TH428-S158

Stackable Speedy Snap-In Clamps (SICs)

The SIC Clamps are affordable alternatives to the standard stackable hangers. The high flexible Monobloc stainless steel body, with corresponding claws, allows an easy handling by snapping into 18 mm wide round holes. Available in 1/2", 7/8", 1-1/4" and 1-5/8" versions - compatible with standard grommets and tower standoffs.

Order List

Products	Item Number
SIC - Speedy Stackable Snap-In Clamps suitable for 1/2" Cable	CX-SIC1-12
SIC - Speedy Stackable Snap-In Clamps suitable for 7/8" Cable	CX-SIC2-78
SIC - Speedy Stackable Snap-In Clamps suitable for 1-1/4" Cable	CX-SIC3-114
SIC - Speedy Stackable Snap-In Clamps suitable for 1-5/8" Cable	CX-SIC4-158

Double Clamps

The double clamps provide a second option for attaching the cable insert to a 3/8" threaded hole on tower mounting component with support block attachment hardware.

Order List

Products	Item Number
Double Clamp to Suit 1/2" Coaxial Cable	TH494-DC12
Double Clamp to Suit 7/8" Coaxial Cable	TH495-DC78
Double Clamp to Suit 1-1/4" Coaxial Cable	TH496-DC114
Double Clamp to Suit 1-5/8" Coaxial Cable	TH497-DC158

INTRODUCING

Rosenberger RRU Block Kits

RRU Block Kits for fiber and power cable applications. The unique design eliminates the need of grommets or cable inserts, and does not require adhering to standard coax sizes. Standard hole sizes for fiber cable and adjustable sleeves for power cables. Suitable for fiber cables from 7 mm to 10 mm and power cables from 10 mm to 26 mm. Can be single, double or triple stacked.
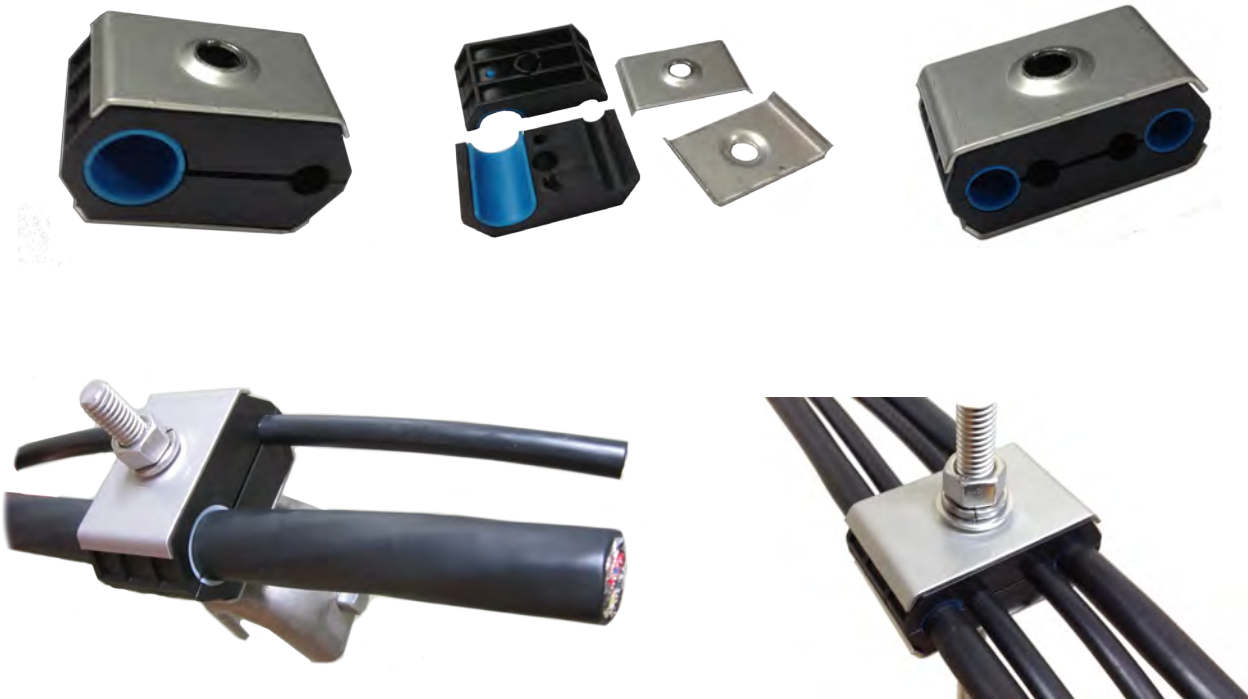
TH621-1F1P RRU Block Kit Shown with 10 mm fiber cable and 20 mm 8-6 power cable. (3/8" hardware and angle adapter sold separately).

TH622-2F2P RRU Block Kit Shown with two 7 mm fiber Jumper and two 10 mm power jumper cable. (3/8" hardware sold separately).

Part #	Description	Qty
TH621-1F1P	RRU Block Kit for One 10 mm fiber cable and One 20 mm or 26 mm Power Cable	10
TH622-2F2P	RRU Block Kit for Two 7 mm fiber Jumper cable and Two 10 mm or 12 mm Power Cable	10
TH623-0F2P	RRU Block Kit for Two 20 mm or 26 mm Power Cable	10

For additional Hardware/Installation Accessories, please refer to the RSS Installation Materials catalog

Kellum Grips

One kellum grip is required for each vertical run of power cable, not required for fiber trunking cable as strain relief is integral to distribution box cable gland. Kellum grip is recommended for pulling fiber jumpers through conduits.

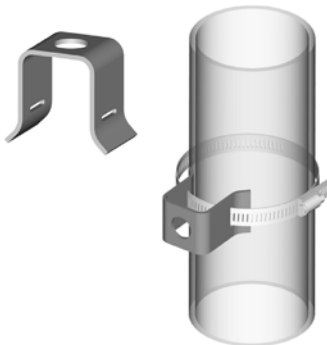| Order List	
Products	Item Number
Pre-Laced Kellum Grip for 6 Conductor power cables	CX062-HGRSP
Lace up Kellum Grip for 10mm Fiber Trunk	CX063-HGFC
Kellum Grip for Fiber Jumpers	FB-SLHG002

Threaded Rod Kits

These kits are required for attaching double clamps to 3/8" threaded hole on tower mounting component. Each kit contains: 10 Threaded Rods, 30 Flat Washers, 30 Lock Washers & 30 Nuts
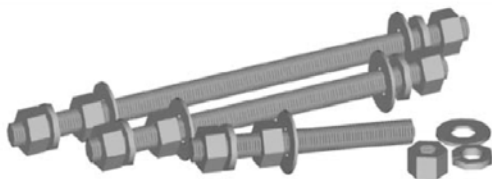
Order List	
Products	Item Number
Stainless Steel Rod Kit 3/8" x 3.75" for use with Single Stack 7/8" or 1 1/4" Double Clamp	TH475-CH383S
Stainless Steel Rod Kit 3/8" x 8" for use with Single Stack 7/8" or 1 1/4" Double Clamp	TH478-CH388S
Galvanized Rod Kit 3/8" x 4.25" for use with Single Stack 7/8" or 1 1/4" Double Clamp.	TH482-SSCB158
Galvanized Rod Kit 3/8" x 7" for use with Single Stack 7/8" or 1 1/4" Double Clamp	TH484-DSCB158

Snap-On Standoff Adapter

For individual mounting of snap in hanger via 3/4" hole (typically used for dressing in tower top fiber jumpers and single pair power cable).

Order List	
Products	Item Number
Snap-In Stand-off Adapter	TH532-EUS38
for 1" - 2" OD Round Member	TH533-EUS12
for 2" - 3" OD Round Member	TH534-EUS23
for 3" - 4" OD Round Member	TH535-EUS34

Rosenberger Site Solutions, LLC ("RSS")
"Terms and Conditions of Purchase"
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Phone: (337)-598-5250 Fax: (337)-598-5290

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