

General Overview

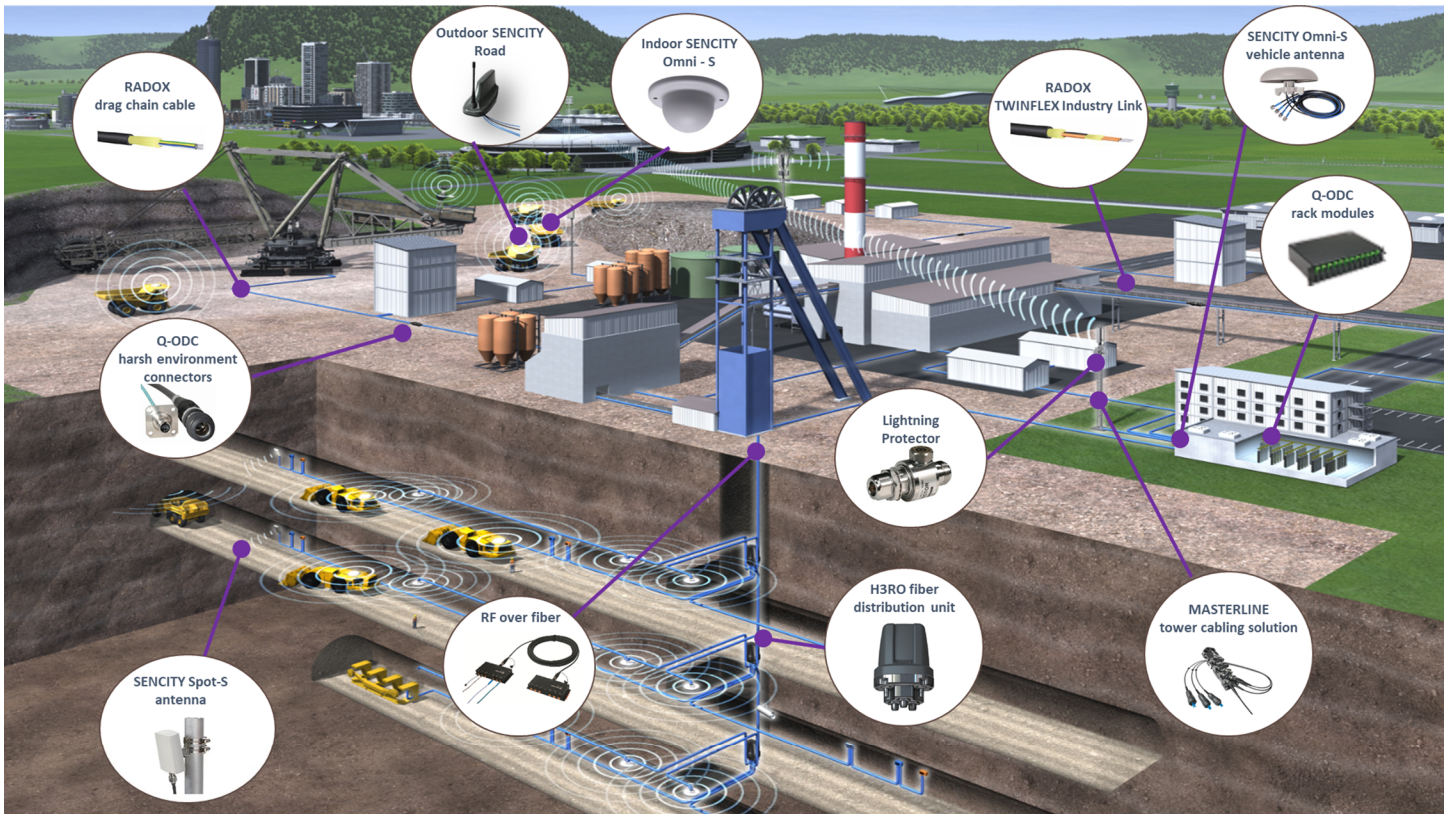
Products for the Industry Market

Edition 2020



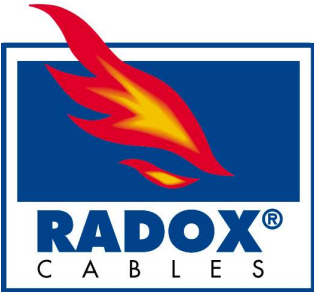
HUBER+SUHNER

Industry – Mining



- **Monitoring/Control**
 - Surveillance
 - Weather data
 - Machine condition monitoring
 - Structural monitoring
 - Control signals for operation (e.g. converter, pitch control)
- **Data transmission**
 - Cabling systems
- **Data connections throughout mining**
 - Equipment Supervision
 - Sensor monitoring
 - Remote asset monitoring

Fiber optic solutions for industrial markets - a selection



Fiber optic components & assemblies

Tunable to your needs

<p>RF Connectivity</p> 	<p>RF and FO Connectors</p> 	<p>Distribution boxes</p> 	
<p>LF, RF and FO Cable Systems</p>			
<p>FO Cables</p> 	<p>LF + RF Cables</p> 	<p>Fiber Management</p> 	<p>Active Components</p> 

Excellence in Connectivity Solutions

Fiber optic core products for industry



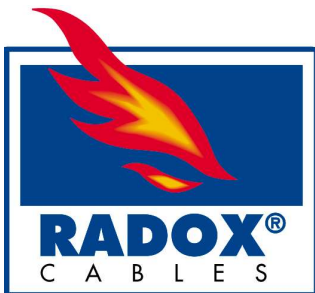
2, 4, 12 and 24 fiber push-pull 6 screw-on connectors



Rack- and DIN rail mountable patch modules



Ultra-harsh environment distribution units



Ultra-resilient cables

Distribution boxes

Key features

- Simple and portable.
- Simple deployment with true plug and play functionality
- A cost effective simple solution providing significant savings
- High performance single mode fiber optic hardware supporting Ethernet and PON architecture
- Reduced downtime with plug and play replacement that does not require specialist fiber optic splicing skills



- External Passive fiber optic box
- A robust IP68 rated product
- Designed with the most difficult environments in mind



- Internal Passive fiber optic box
- Up to 24 Connections



- Supports up to 24 fibers per module
- Cable entry from the bottom
- Splice and patch solution possible
- For SC simplex or LC duplex adapters
- Bending radius protected fiber over length storage
- Can be easily snapped on a 35 mm DIN rail

FO Cables

HUBER+SUHNER offers a wide range of fiber optical cables, optimized for fix or mobile applications at indoor and outdoor areas. Due to new market demands innovative products are developed and tested in accordance with international standards, which fulfil high mechanical and thermal conditions as well as fire requirements

Indoor

- Small bending radius, small cable diameter
- Easy to strip, easy to assemble
- Good flame properties, halogen free, low smoke,
- Self-extinguishing, small fire load



Outdoor

- Longitudinal water tightness, weather resistance
- Wide temperature range, rodent protection
- High mechanical strength, tensile load, crush resistance



Universal

- Longitudinal water tightness, weather resistance
- Wide temperature range, rodent protection
- Good flame properties, halogen free, low smoke
- Self-extinguishing, small fire load



Special

- High flexibility, abrasion resistance
- Wide temperature range
- Extreme flame properties
- Chemical resistance (oil, acids)
- Customer specific requirements



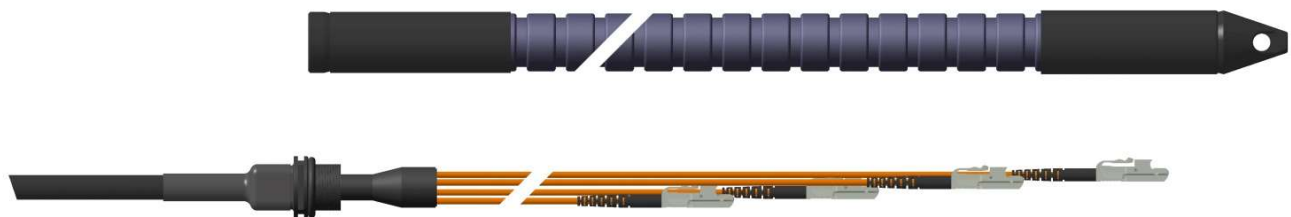
FO Cables Systems

Key features

MASTERLINE Extreme is the preferred choice of network installers who require trouble free, reliable and efficient field deployments. HUBER+SUHNER's MASTERLINE Extreme product family is unique in the market and provides the best **value for money**

Pre-assembled "plug & play" cabling system

- Terminated with Q-ODC-12 and others extension connectors
- Ruggedized design with robust break-out cables
- Robust pulling tube for cable lifting
- Loose tube cables with 12 fibers, rodent protected and UV resistant
- Connectors numbered for easy channel identification
- Easy and time-saving installation



MASTERLINE®

Excellence in Connectivity Solutions

Complemented with RF and LF components



LF Cables

A growing demand of sensors, higher operating temperatures and restricted space are typical in today's motor compartments. These cables have been developed with these specific requirements in mind

The characteristics of these RADOX® cables make them ideal for use in a wide range of applications, where space is at a premium and where cables are subjected to high temperatures. Even high humidity levels and motor vehicle fluids do not negatively affect the lifetime of the cables

Key Features

- Lower Total Cost of Ownership (TCO)
- 25+ years lifetime
- Less stripping time (60% time reduction)
- Easy to install
- Flexible thanks to the small bending radius
- Space saving (up to 63%)
- DNV certified

APPLICATIONS

- Offshore
- Oil & Gas
- Petrochemicals
- Refineries
- Chemical



RF Cables Assemblies

HUBER+SUHNER makes a significant contribution to simplifying processes by supplying cables assembled with connector according to customer requirements. The assemblies are manufactured using high-quality cables and connectors, carefully tested according to the relevant standards and delivered with a certificate upon request.

Radio frequency assemblies are used not only in the mobile and telecommunications sector, but also in industrial and data technology. They consist of standardized connector series and the corresponding cable types. These products are manufactured in line with customer requirements and tested to ensure that their electrical properties meet the relevant specifications. Flexible radio frequency assemblies can be supplied together with other accessories



Antennas - Omni

Omni - S



Key features

- Supporting mobile bands LTE 790 to 960 MHz, Cellular 1710 to 2170 and LTE 2300, 2500, 2600 MHz bands,
- Ingress protection IP66/IP67 (IP69k), SISO and MIMO options

Omni - S



Key features

- Small Omni-directional outdoor antenna for Wi-Fi applications,
- Supports the 2.4 and 5.8 GHz band,

Omni stick antennas



Key features SWA 0827/360/2/0/V

- Frequency range 790-960 MHz 1710-2690 MHz
- Cellular microcells for 2G, 3G, 4G (LTE 800, LTE 2300 and LTE 2600) Wi-Fi 2.4 GHz band
- Outdoor prove (IP67)
- Mounting bracket included

Antennas - SENCITY® Directional Antennas

SENCITY Spot-S antenna family

Small directional for railway applications

Features

- High gain antenna for 2.4 / 5 GHz Wi-Fi bands
- Up to 3 radiators in one housing
- SISO and MIMO versions
- Pole or wall mounting options
- EN 50155/EN 45545-2 compliant
- Temperature range -40 to +85°C*



Mounting adaptor plate



Optional L- bracket



Benefits

- Very compact and slim size allows installations in almost every application scenario
- Wide product range with same housing dimensions allow easy product upgrades i.e. from SISO to MIMO

Spot-M Yagi



Key features

- Supports WLAN / Wi-Fi acc. to IEEE 802.11 b/g,
- 14 dBi high gain version,
- Railway approved acc. to EN50125-3 and EN 45545-2.

Spot-L



Key features

- Wi-Fi, RFID and LORA applications,
- In and outdoor applications – IP67,
- MIMO options.

Antennas

Sencity Road antenna family

Customizable multi-port roof-top antennas for bus/truck and light rail vehicles

Features

- Up to 4 antenna ports serving FM, TETRA, cellular, Wi-Fi, GNSS
- Cellular 2x2 and Wi-Fi 3x3 MIMO
- Embedded GNSS antenna/LNA
- Single hole mounting
- High voltage protection
- ISO 16750/ECE-R118 compliant
- EN 50155/EN 45545-2 compliant
- Temperature range -40 to +85°C
- IP69 ingress protection level
- E-/CE-certified



Benefits

- 4-in-1 concept reduces effort to mount single antennas
- Same mounting footprint for all variants reduces engineering effort
- Large diameter single hole mounting allows easy cable feed through and upgrade of antennas
- Allows easy installation w/o external metal ground plane
- Can be customized to meet project specific needs

Antennas

Sencity® Rail antenna family



Features:

- Railway rooftop antenna for GSM-R 900
- Rugged design, meets EN 50155 railway standard
- Fire retardant acc. to DIN 5510-2, BS 6853, NF F16-101/102, EN 45545-2
- Works also on non-metallic surfaces

Sencity® Rail antenna family – low profile

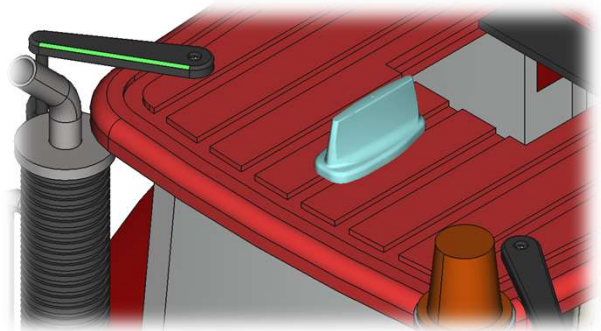


Features:

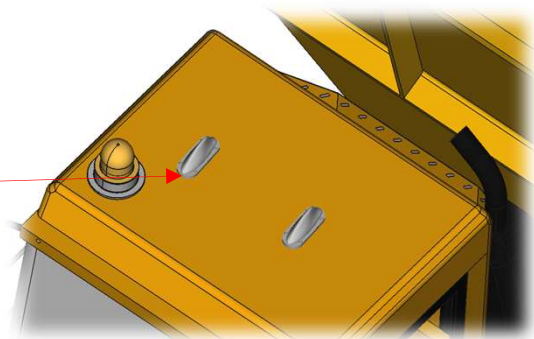
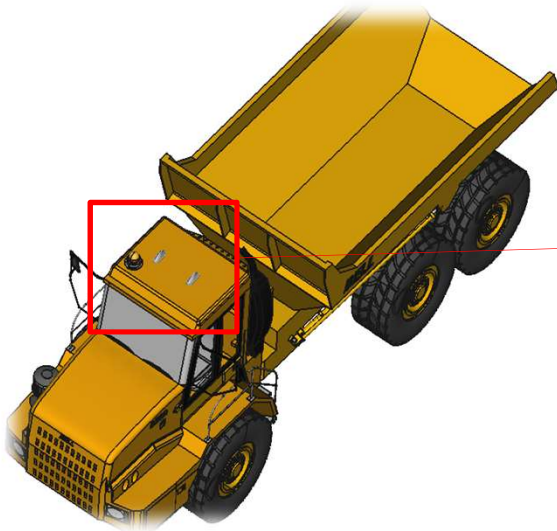
- Railway rooftop antenna for GSM-R 900,
- Rugged design, meets EN 50155 railway standard,
- Fire retardant acc. to DIN 5510-2, BS 6853, NF F16-101/102, EN 45545-2,
- Works also on non-metallic surfaces,
- MIMO possibilities

Applications

Road Mounting example



Rail Mounting example



Cables

Bestseller: Enviroflex cables



Features:

- Halogen free RG replacement
- RADOX® jacket Material
- UL-Approved cable portfolio
- Low Smoke flame retardant material
- Halogen-free alternatives to coaxial cables containing fluorine

Benefits:

- RG standard
- Extended temperature range
- High power

Spuma



Very flexible, halogen-free coaxial cables with outstanding return loss for applications up to 6 GHz

- Low-loss cables for frequencies up to 6 GHz
- Flame-retardant cable types (LSFH)
- Outstanding return loss
- High flexibility

Benefits:

- Low Loss
- Excellent shielding
- Mostly Halogen free
- Flame retardant

Lightning protector

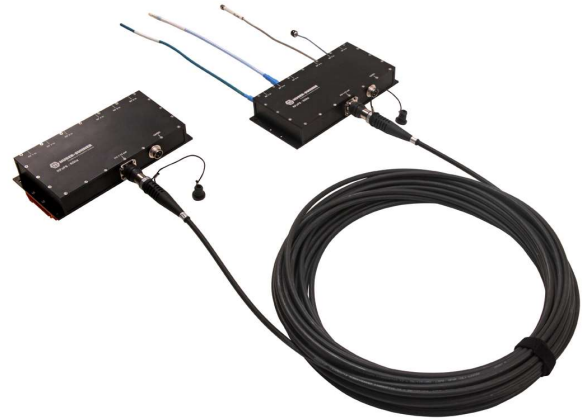


- Four decades of experience in developing and manufacturing coaxial – and data line HEMP and LEMP protectors are the foundation of our current EMP protector portfolio and have made
- HUBER+SUHNER a first stop for protection solutions in defence applications. HUBER+SUHNER offers protection components for land based, airborne and naval tactical communications as well as for navigation, radar and electronic warfare applications.

RF over Fiber

RF over Fiber Advantages (RFoF)

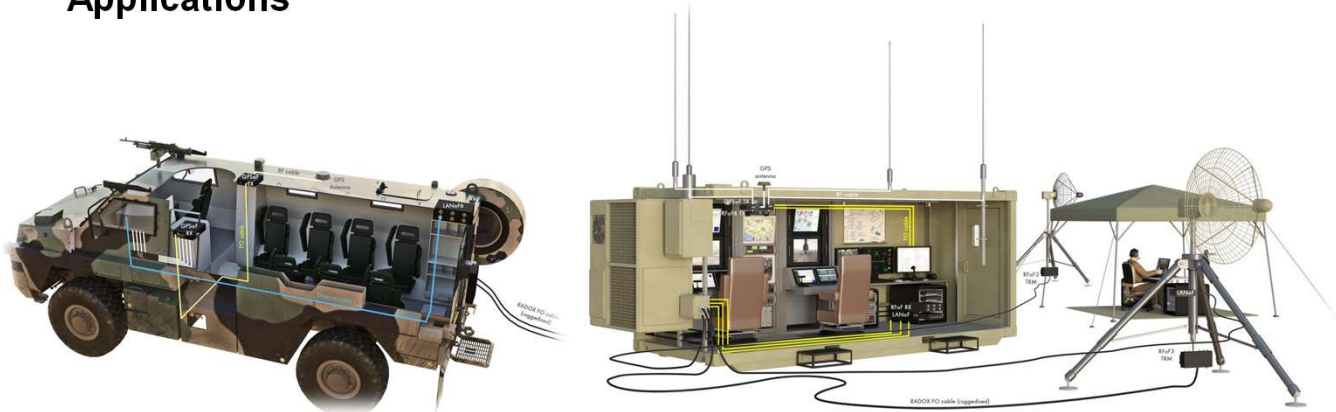
- Allow for greater distances between RF links,
- Are immune to EMI & RFI,
- Are immune to EMP,
- Are more difficult to intercept (“tap”),
- Are lighter in weight,
- Broadband bandwidth.
- CATV applications

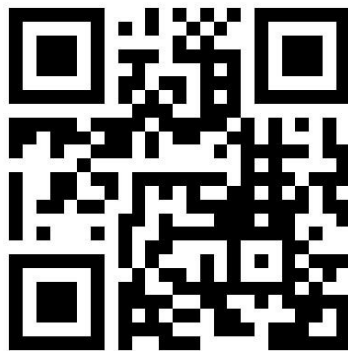


GPS - over - Fiber (GPSoF) Products



Applications





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