

# 4

## HITRONIC®

### Optical transmission systems

HITRONIC® fibre optic cables make transmitting large data volumes easy: fault free, bug proof and at almost light speed. Even electromagnetic radiation does not interfere with the transmission. The HITRONIC® range includes the ideal solution for indoor or outdoor use, for demanding conditions, and even for use in power chains.

#### Application range

- Telecommunications and network technology
- Industrial cabling and automation level
- Industrial machinery and plant engineering
- Data transmission under harsh conditions (mining and tunnel construction, oil and gas platforms, wind power plants)

### POF - Polymer Optical Fibre Cable

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## Fibre optic technology – General

The optical transmission of signals in fibre optic cables functions according to the principle of “total reflection”. The reflection is attained by surrounding a light-conducting core with a sheath that is optically thinner – the light is totally reflected by the boundary surface of the sheath, enabling it to be guided through the fibre optic cable.

At a time when the demand for fast and secure communication networks is constantly growing, fibre optic cables are now an indispensable and irreplaceable communication medium.

### Benefits of using fibre optic cables

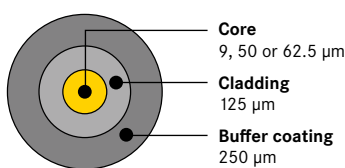
- Insensitivity to electromagnetic interference
- Electrical isolation of connected devices
- Low attenuation values
- Large transmission distances and high bandwidths
- Lightweight design
- Compact dimensions
- Can be installed in explosive environments
- High level of interception protection



### GOF – Glass Optical Fibre

There are the following different types of fibres:

- Singlemode (SM) fibre, E9/125 OS2
- Multimode (MM) fibre, G62.5/125 OM1, G50/125 OM2 to OM4

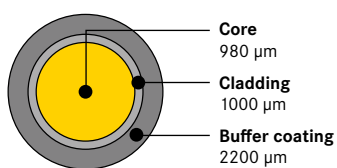


### POF – Polymer Optical Fibre

- P980/1000

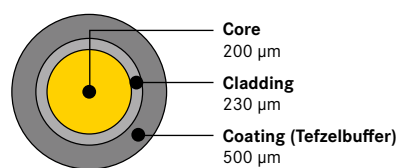
A distinction is made between the following application cases

- SIMPLEX (one buffered fibre)
- DUPLEX (two buffered fibres)



### PCF – Plastic Cladded Fibre

- K200/230
- PCF – Plastic Cladded Fibre
- Also known as HCS (Hard Cladded Silica Optical Fibre)



Fibre type/ wavelength	max. attenuation [dB/km]				max. transmission length [m]				Colour
	650 nm	850 nm	1300 nm	1550 nm	650 nm	850 nm	1300 nm	1550 nm	
POF 980 µm	160				100 Mbit/s (PN): 50				
PCF 200 µm	10.0	8.0			100 Mbit/s (PN): 100				
GOF MM 62.5 µm OM1		3.5 (3.0)	1.5 (0.7)			100 Mbit/s: 550 1 Gbit/s: 275 10 Gbit/s: 33	100 Mbit/s: 2,000 1 Gbit/s: 550 10 Gbit/s: 300		Orange
GOF MM 50 µm OM2		3.5 (2.5)	1.5 (0.7)			100 Mbit/s: 550 1 Gbit/s: 550 10 Gbit/s: 82	100 Mbit/s: 2,000 1 Gbit/s: 550 10 Gbit/s: 300		Orange
GOF MM 50 µm OM3		3.5 (2.5)	1.5 (0.7)			1 Gbit/s: 1,000 10 Gbit/s: 300 40 Gbit/s: 100 100 Gbit/s: 100	1 Gbit/s: 550 10 Gbit/s: 300		Aqua
GOF MM 50 µm OM4		3.5 (2.5)	1.5 (0.7)			1 Gbit/s: 1,100 10 Gbit/s: 550 40 Gbit/s: 150 100 Gbit/s: 150	1 Gbit/s: 550 10 Gbit/s: 300		Violet
GOF SM 9 µm OS2 (G652.D)			0.40 (0.35)	0.40 (0.21)				40 Gbit/s: 10,000 40 Gbit/s: 40,000	Yellow

Photographs and graphics are not to scale and do not represent detailed images of the respective products. For specific cable parameters see product pages or technical data sheets.

Type of fibre	Cables	Connectors and adapters	Accessories
POF	POF SIMPLEX PE		
	POF DUPLEX PE		
	POF SIMPLEX PE-PUR		
	POF DUPLEX PE-PUR		
	POF DUPLEX Heavy		
	POF SIMPLEX/DUPLEX FD PE-PUR		
	POF DUPLEX for PROFINET® applications		
PCF	PCF SIMPLEX Outdoor		
	PCF DUPLEX Outdoor		
	PCF DUPLEX Indoor		
	PCF DUPLEX FD Universal		
	PCF DUPLEX for PROFINET® applications		
GOF	HITRONIC® FIRE		
	HITRONIC® TORSION		
	HRM-FD Flexible		
	HDM Reel		
	HQN Outdoor		
	HVN Stranded Outdoor		
	HVN-Mini Outdoor (air blowable)		
	HQW Armoured Outdoor		
	HVW Armoured Stranded Outdoor		
	HQW-Plus Armoured Outdoor		
	HQA Aerial ADSS		
	HQA-Plus Aerial ADSS		
	HUN Universal		
	HUW Armoured Universal		
	HRH Breakout		
HDH Mini Breakout			

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 APPENDIX

**Customized Pre-Assembled FO Cable Solutions**

**ÖLFLEX® CONNECT – integrated solutions made by LAPP**

LAPP is offering an integrated solution with **ÖLFLEX® CONNECT** – cables assembled exactly to your requirements. Everything is possible – from traditional cable assemblies to industry standard servo connections right up to highly complex drag chain systems. With **ÖLFLEX® CONNECT** LAPP offers as well customized fibre optic system assemblies (FO trunks).

Customers can choose the right cable from the wide range of **HITRONIC®** fibre optic cables which can be assembled exactly as per customer specification.

By using factory assembled fibre optic cable solutions the installation for industry, telecommunication and office applications are significantly simplified.

Depending on the planning approach, time consuming connector installation or splicing at site can be avoided. Just lay the trunk system and simply plug it in with the factory pre-assembled connectors. **A plug & play solution from LAPP.**



**Technical benefits**

- No splice connections are necessary during installation. This saves time and costs for equipment and special tooling.
- Low attenuation values by factory preassembled plugs
- Trunk-system are easy to use without any further time consuming on-site processing
- Available with all major cable and connector types (LAPP **HITRONIC®** range)
- Ready to use fibre optic cabling system
- IP 68 metallic cable unit splitter for glass fibre (GOF) loose tube cables up to 48 fibres

**In a few steps to a customized FO-trunk-system:**

- 1. Determination of the required fibre type**
  - POF (980/1000)
  - PCF (200/230)
  - GOF (single-mode 9/125 OS2)  
(multimode 62,5/125 OM1)  
(multimode 50/125 OM2; OM3; OM4)
- 2. Selection of cable type and version**  
See **HITRONIC®** cable range  
(POF, PCF and GOF and number of fibers)
- 3. Determination of the system length**
- 4. Connector configuration**  
Selection of connector type – side 1 and 2

- 5. Cable pulling device**  
Selection cable pulling device  
side 1 and/or side 2
- 6. Specific requirements**  
Regarding packaging and marking
- 7. LAPP in-house**  
LAPP will check the technical feasibility and plausibility (fibre – cable – connector) and make a quotation
- 8. Easy ordering and fast shipping**

For questions about customized packaging and special issues we are happy to assist you.

**Selection example:**

- Short designation:**  
TRUNK GOF HUN1500-4E9/125-SC/LC-85m
- Description:**
- Customized pre-assembled fibre optic cable solution
  - Based on cable version **HITRONIC® HUN 4E9/125 OS2**
  - Assembled at both ends with connectors
    - side 1: 2 x SC-duplex connector
    - side 2: 2 x LC-duplex connector
  - Cable splitter unit IP68:
    - up to 24 fibres
    - M20 through hole
  - Side 1 protected with a cable pulling device
    - outer diameter < 30 mm
  - System length 85 m
  - On disposable drum
  - With test protocol





## HITRONIC® POF SIMPLEX BUFFERED FIBRE

Polymer optical fibre as simplex buffered fibre version with PE sheath



### Info

- Suitable for direct connector assembly

### Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

### Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress

### Product features

- Lightweight
- High flexibility
- Halogen-free buffer tube

### Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Without outer sheath
- Colour: black

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Buffered fibre: 2.2 mm

**Fibre type**  
 POF - P980/1000

**Standard designation**  
 J-V2Y

**Optical fibre type**  
 Core material: PMMA  
 Cladding material: fluoropolymers

**Permissible bending radius**  
 $\geq 10 \times$  outer diameter

**Permissible tensile force**  
 Fixed installation: 5 N  
 Short-term: 15 N

**Temperature range**  
 Operation: -55°C to +85°C  
 Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>HITRONIC® POF SIMPLEX PE</b>					
28000001	HITRONIC® POF SIMPLEX PE	980/1000 POF	1	2.2	3.8

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- HITRONIC® POF SIMPLEX CABLE refer to page 481

### Accessories

- POF Connector and Adapter HFBR refer to page 485
- POF Cutting Tools refer to page 488
- POF Connector F05 Simplex refer to page 486
- UNIVERSAL STRIP stripping tool refer to page 990
- TY-GRIP® FOL/ FO cable tie refer to page 1046



## HITRONIC® POF SIMPLEX CABLE

Polymer optical fibre as simplex fibre cable version with PUR sheath for fixed or flexible application

**i Info**

- Suitable for direct connector assembly



**Benefits**

- Optical data transmission up to 70m
- Easy to handle
- No interference by external fields
- No grounding problems
- Suitable for direct connector assembly

**Application range**

- For optical signal transmission in industrial applications
- As a link between moving parts
- FD cable version: for flexible applications (power chains)

**Product features**

- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- Outer sheath flame-retardant and halogen-free
- FD cable version: 5.000.000 bending cycles

**Product Make-up**

- Polymer Optical Fibre (POF)
- PE buffer tube
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

**Technical data**

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Buffered fibre: 2.2 mm  
 Cable: see table

**Fibre type**  
 POF - P980/1000

**Standard designation**  
 J-V2Y(ZN)11Y

**Optical fibre type**  
 Core material: PMMA  
 Cladding material: fluoropolymers

**Permissible bending radius**  
 ≥ 10 x outer diameter

**Permissible tensile force**  
 Fixed installation: 100 N  
 Short-term: 600 N

**Temperature range**  
 Operation: -20 °C to +70 °C  
 Installation: -10 °C to +50 °C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>HITRONIC® POF SIMPLEX PE-PUR</b>					
28020001	HITRONIC® POF SIMPLEX PE-PUR	980/1000 POF	1	5.5	25
<b>HITRONIC® POF SIMPLEX FD PE-PUR for draig chain application</b>					
28320001	HITRONIC® POF SIMPLEX FD PE-PUR	980/1000 POF	1	6	30

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 Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
 Photographs and graphics are not to scale and do not represent detailed images of the respective products.

**Accessories**

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

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## HITRONIC® POF DUPLEX BUFFERED FIBRES

Polymer optical fibre as duplex buffered fibres version with PE sheath



### Info

- For direct connector assembly

### Benefits

- Transmission lengths up to 70 m
- Suitable for direct connector assembly
- Easy to handle
- No crosstalk
- EMC protection

### Application range

- For optical signal transmission in industrial applications
- Very suitable for fixed installation in control cabinets, cable ducts, or pipes with low mechanical stress
- Light mechanical stress
- Identification by white dots

### Product features

- Halogen-free
- Lightweight
- High flexibility

### Product Make-up

- Polymer Optical Fibre (POF)
- Twin cable
- PE buffer tube
- Without outer sheath
- Colour: black

### Technical data

	<b>Classification ETIM 5/6</b> ETIM 5.0/6.0 Class-ID: EC000034 ETIM 5.0/6.0 Class-Description: Fibre optic cable
	<b>Dimensions</b> Twin cable 2x2.2mm
	<b>Core identification code</b> Black/black with white dots
	<b>Fibre type</b> POF - P980/1000
	<b>Standard designation</b> J-V2Y
	<b>Optical fibre type</b> Core material: PMMA Cladding material: fluoropolymers
	<b>Permissible bending radius</b> ≥ 10 x outer diameter
	<b>Permissible tensile force</b> Fixed installation: 10 N Short-term: 30 N
	<b>Temperature range</b> Operation: -55°C to +85°C Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>HITRONIC® POF DUPLEX BUFFERED FIBRES</b>					
28000002	HITRONIC® POF DUPLEX PE	980/1000 POF	2	2.2	7.6

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Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)  
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- HITRONIC® POF SIMPLEX BUFFERED FIBRE refer to page 480
- HITRONIC® POF DUPLEX CABLE refer to page 483
- HITRONIC® POF cables for PROFINET Applications refer to page 484

### Accessories

- POF Connector and Adapter HFBR refer to page 485
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- UNIVERSAL STRIP stripping tool refer to page 990
- TY-GRIP® FOL/ FO cable tie refer to page 1046





## HITRONIC® POF DUPLEX CABLE

Polymer optical fibre as duplex fibre cable version with PUR sheath for fixed or flexible application

**Info**

- For direct connector assembly



### Benefits

- Optical data transmission up to 70m
- Easy to handle
- No interference by external fields
- No grounding problems
- Suitable for direct connector assembly

### Application range

- For optical signal transmission in industrial applications
- FD cable version: for flexible applications (power chains)

### Product features

- Outer sheath flame-retardant and halogen-free
- Resistant to abrasion, oil, microbes and hydrolysis
- Adhesion-free
- FD cable version: 5.000.000 bending cycles

### Product Make-up

- Polymer Optical Fibre (POF)
- PE buffer tube
- Fibre colour coding: black, orange
- Aramid yarns as strain relief
- PUR outer sheath, orange (RAL 2003)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
Buffered fibre: 2.2 mm  
Cable: see table

**Core identification code**  
Black, orange

**Fibre type**  
2x  
POF - P980/1000

**Standard designation**  
J-V2Y(ZN)11Y

**Optical fibre type**  
Core material: PMMA  
Cladding material: fluoropolymers

**Permissible bending radius**  
≥ 10 x outer diameter

**Permissible tensile force**  
Fixed installation: 100 N (PE-PUR),  
130 N (Heavy PE-PUR)  
Short-term: 400 N

**Temperature range**  
Operation: -40°C to +7 °C  
(FD: -20°C to +70°C)  
Installation: -10°C to +50°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>HITRONIC® POF DUPLEX PE-PUR</b>					
28020002	HITRONIC® POF DUPLEX PE-PUR	980/1000 POF	2	5.5	27
<b>HITRONIC® POF DUPLEX HEAVY PE-PUR</b>					
28030002	HITRONIC® POF DUPLEX HEAVY PE-PUR	980/1000 POF	2	8	57
<b>HITRONIC® POF DUPLEX FD PE-PUR for draig chain application</b>					
28320002	HITRONIC® POF DUPLEX FD PE-PUR	980/1000 POF	2	6	30

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Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- HITRONIC® POF SIMPLEX CABLE refer to page 481
- HITRONIC® POF cables for PROFINET Applications refer to page 484

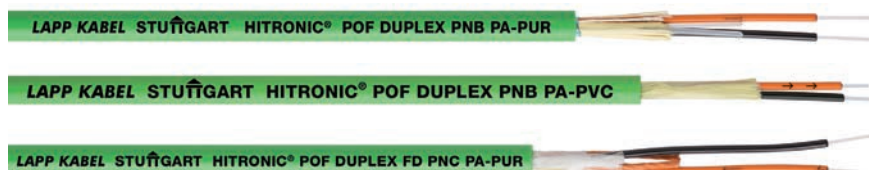
### Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- POF Connector SC-RJ refer to page 487
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985



## HITRONIC® POF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PUR sheath for PROFINET applications type B or C



**Info**

- PROFINET compliant  
- Type B or Type C

### Benefits

- Optical data transmission up to 70m
- Easy to handle
- No interference by external fields
- No grounding problems
- Suitable for direct connector assembly

### Application range

- For optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 50 m cable length
- PROFINET type B: for fixed laying
- PROFINET type C: for flexible applications (power chains)

### Product features

- Cable version with PVC outer sheath: for standard applications in industrial environments
- Cable version with PUR outer sheath: for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (power chains)

### Product Make-up

- Polymer Optical Fibre (POF)
- PA buffer tube
- Fibre colour coding: black, orange (with arrow printing)
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
Buffered fibre: 2.2 mm  
Cable: see table

**Core identification code**  
Black, orange (with arrow printing)

**Standard designation**  
J-V4Y(ZN)11Y 2P980/1000  
J-V4Y(ZN)Y 2P980/1000  
J-V4Y(ZN)11Y 2P980/1000 flex

**Optical fibre type**  
Core material: PMMA  
Cladding material: fluoropolymers

**Permissible bending radius**  
≥ 10 x outer diameter

**Permissible tensile force**  
see data sheet

**Temperature range**  
Operation: -20 °C to +70 °C  
Installation: -10 °C to +50 °C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>POF DUPLEX - PROFINET TYPE B</b>					
28051002	HITRONIC® POF DUPLEX PNB PA-PUR	980/1000 POF	2	8	56
28052002	HITRONIC® POF DUPLEX PNB PA-PVC	980/1000 POF	2	7.8	59
<b>POF DUPLEX - PROFINET TYPE C</b>					
28351002	HITRONIC® POF DUPLEX FD PNC PA-PUR	980/1000 POF	2	8	55

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Please find our standard lengths at: [www.lappkabel.de/en/cable-standardlengths](http://www.lappkabel.de/en/cable-standardlengths)

Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Connector F-SMA and ST(BFOC) refer to page 486
- POF Connector SC-RJ refer to page 487
- EPIC® DATA PB Sub-D FO refer to page 354
- UNIVERSAL STRIP stripping tool refer to page 990
- STAR STRIP stripping tool refer to page 985

## POF Connector and Adapter HFBR

Accessories for polymer optical fibre cables, connectors and adapters type HFBR family  
(HFBR4501/4503/4506/4511/4513/4516/4531/4532/4533)

### Benefits

- Compatible with HP Versatile Link Connectors and Components series
- Different colours for channel coding

### Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems
- Automotive Networks
- Printed Circuit Board

### Product features

- HFBR connector series for 2.2 mm POF
- For crimping or clamping
- Simplex or Duplex variations

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001122  
ETIM 5.0/6.0 Class-Description: Fibre optic connector



Article number	Article designation	PU
<b>Connector HFBR-4501, Simplex, with Crimp Sleeve</b>		
29140099	POF Connector HFBR4501 GY Simplex /4PC	4 piece
29140098	POF Connector HFBR4501 GY Simplex /50PC	50 piece
<b>Latching Connector HFBR-4503, Simplex, with Crimp Sleeve</b>		
29141099	POF Connector HFBR4503 GY Simplex /4PC	4 piece
29141098	POF Connector HFBR4503 GY Simplex /50PC	50 piece
<b>Connector HFBR-4506, Duplex, with Crimp Sleeve</b>		
29142099	POF Connector HFBR4506 WH Duplex /4PC	4 piece
29142098	POF Connector HFBR4506 WH Duplex /50PC	50 piece
<b>Connector HFBR-4511, Simplex, with Crimp Sleeve</b>		
29143099	POF Connector HFBR4511 BL Simplex /4PC	4 piece
29143098	POF Connector HFBR4511 BL Simplex /50PC	50 piece
<b>Latching Connector HFBR-4513, Simplex, with Crimp Sleeve</b>		
29144099	POF Connector HFBR4513 BL Simplex /4PC	4 piece
29144098	POF Connector HFBR4513 BL Simplex /50PC	50 piece
<b>Latching Connector HFBR-4516, Duplex, with Crimp Sleeve</b>		
29145099	POF Connector HFBR4516 GY Duplex /4PC	4 piece
29145098	POF Connector HFBR4516 GY Duplex /50PC	50 piece
<b>Clamp Connector HFBR-4531, Simplex</b>		
29146099	POF Connector HFBR4531 BK Simplex /4PC	4 piece
29146098	POF Connector HFBR4531 BK Simplex /50PC	50 piece
<b>Clamp and Latching Connector HFBR-4532, Simplex</b>		
29147099	POF Connector HFBR4532 BK Simplex /4PC	4 piece
29147098	POF Connector HFBR4532 BK Simplex /50PC	50 piece
<b>Clamp Connector HFBR-4533, Simplex</b>		
29148099	POF Connector HFBR4533 BL Simplex /4PC	4 piece
29148098	POF Connector HFBR4533 BL Simplex /50PC	50 piece
<b>HFBR4505 Adapters</b>		
29440099	POF Adapter HFBR4505 GY Simplex /4PC	4 piece
<b>HFBR4515 Adapters</b>		
29441099	POF Adapter HFBR4515 BL Simplex /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489

## POF Connector F05 Simplex

Accessories for polymer optical fibre cables, connector and adapter type F05, compatible with TOCP155K



### Benefits

- Easy to assemble

### Application range

- Digital audio
- Factory automation
- Office Automation (Smart House)

### Product features

- F-05 (TOCP) SIMPLEX clamp connector for connecting to polymer optical fibre without crimping or gluing
- Snap-In Connector
- Suitable for 2.2 mm POF



### Info

- Compatible with TOCP155K

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001122  
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
<b>Connector F05 Simplex</b>		
29150099	POF Connector F05 Simplex /4PC	4 piece
29150098	POF Connector F05 Simplex /50PC	50 piece
<b>Adapter for Connector F05 Simplex</b>		
29450099	POF Adapter F05 Simplex /4PC	4 piece

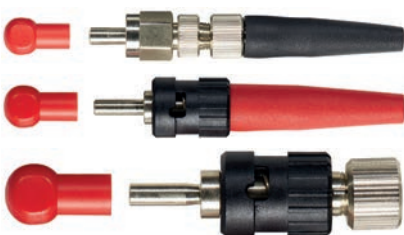
Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489

## POF Connector F-SMA and ST(BFOC)

Accessories for polymer optical fibre cables, connector type FSMA and ST(BFOC)



### Benefits

- As crimp or clamp version for easy assembling

### Product features

- FSMA and ST(BFOC) connector with knurled nut or hexagonal nut for crimping, gluing or easy clamping
- Suitable for 2.2 mm POF
- Available for different cable diameters (2.2 mm and 6.0 mm)
- Connector including bend protection boot and dust cap
- Bend protection boot colour: black and red



### Info

- FSMA and ST(BFOC) connectors for POF cable assembly

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001122  
ETIM 5.0/6.0 Class-Description: Fibre optic connector

Article number	Article designation	PU
<b>FSMA Connectors with knurled nut for crimping</b>		
29135099	POF Connector FSMA Crimp 2.2 /4PC	4 piece
29135098	POF Connector FSMA Crimp 2.2 /50PC	50 piece
29137099	POF Connector FSMA Crimp 6.0 /4PC	4 piece
29137098	POF Connector FSMA Crimp 6.0 /50PC	50 piece
<b>FSMA Connectors with hexagonal nut for crimping</b>		
29135089	POF Connector FSMA Hex Crimp 2.2 /4PC	4 piece
29135088	POF Connector FSMA Hex Crimp 2.2 /50PC	50 piece
29132089	POF Connector FSMA Hex Crimp 6.0 /4PC	4 piece
29132088	POF Connector FSMA Hex Crimp 6.0 /50PC	50 piece
<b>FSMA Connectors with knurled nut for clamping</b>		
29130099	POF Connector FSMA Clamp 2.2 /4PC	4 piece
29130098	POF Connector FSMA Clamp 2.2 /50PC	50 piece
<b>FSMA Connectors with hexagonal nut for clamping</b>		
29130089	POF Connector FSMA Hex Clamp 2.2 /4PC	4 piece
29130088	POF Connector FSMA Hex Clamp 2.2 /50PC	50 piece
<b>ST(BFOC) Connectors for crimping</b>		
29125099	POF Connector ST(BFOC) Crimp 2.2 /4PC	4 piece
29125098	POF Connector ST(BFOC) Crimp 2.2 /50PC	50 piece
<b>ST(BFOC) Connectors for clamping</b>		
29120099	POF Connector ST(BFOC) Clamp 2.2 /4PC	4 piece
29120098	POF Connector ST(BFOC) Clamp 2.2 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Assembly Sets refer to page 488
- POF Cutting Tools refer to page 488
- POF Polishing tools and accessories refer to page 489
- POF Measurement Equipment refer to page 490

## POF Connector SC-RJ

Accessories for polymer optical fibre cables, connector type SC-RJ

### Benefits

- Connectors for PROFINET Data Cabling
- As crimp version for easy assembling

### Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Suitable for 2.2 mm POF
- Bend protection boot colour: black and red

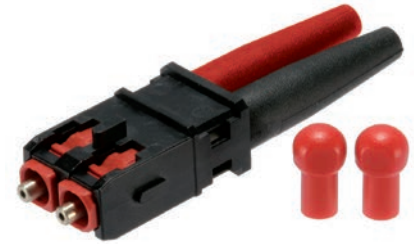
**Info**

- SC-RJ connectors for POF cable assembly
- Connectors for PROFINET Data Cabling

**Technical data**

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001122  
 ETIM 5.0/6.0 Class-Description: Fibre optic connector

**Certifications**  
 SC-RJ complies with IEC61754-24



Article number	Article designation	PU
<b>POF Connector SC-RJ</b>		
29161097	POF Connector SC-RJ Crimp 2.2	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- POF Assembly Sets refer to page 488
- POF Polishing tools and accessories refer to page 489
- POF Cutting Tools refer to page 488
- POF Measurement Equipment refer to page 490

### Product features

- POF Adapter FSMA: version with two fixing nuts and lock washer
- POF Adapter FSMA hexa: version with hexagonal flange, fixing nuts and lock washer

**Info**

- Can be used for POF and PCF connector types

**Technical data**

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000752  
 ETIM 5.0/6.0 Class-Description: Fibre optic coupler



Article number	Article designation	PU
<b>FSMA Adapters</b>		
29430099	POF Adapter FSMA /4PC	4 piece
29430089	POF Adapter FSMA Hex /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## POF Adapter ST (BFOC)

Accessories for polymer optical fibre cables, adapter for connector type ST(BFOC)

### Product features

- ST(BFOC) adapter with flange, fixing nuts and lock washer

### Norm references / Approvals

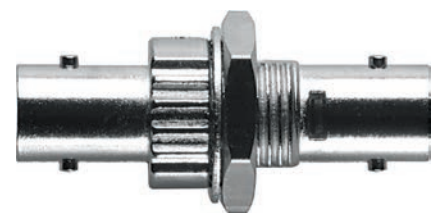
- ST comply with IEC standard 61754-2

**Info**

- Can be used for POF and PCF connector types

**Technical data**

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000752  
 ETIM 5.0/6.0 Class-Description: Fibre optic coupler



Article number	Article designation	PU
<b>ST(BFOC) Adapters</b>		
29420099	POF Adapter ST (BFOC) /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## POF Assembly Sets

... includes all necessary tools for connector assembly of POF crimp connector versions: FSMA; ST(BFOC); SC/SC-RJ



### Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly
- Suitable for on-site assembly

### Product features

- Sets available for POF connector types FSMA and ST (BFOC) and SC / SC-RJ
- Contents: crimp tool, buffered fibre stripper, polishing disc FSMA, polishing film, cutter

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC002609  
 ETIM 5.0/6.0 Class-Description:  
 Accessories for optic fibre technique

Article number	Article designation	PU
<b>Assembly Set for POF FSMA Connector</b>		
29500001	Assembly Set POF Connector FSMA	1 piece
<b>Assembly Set for POF ST(BFOC) Connector</b>		
29500002	Assembly Set POF Connector ST(BFOC)	1 piece
<b>Assembly Set for POF SC/SC-RJ Connector</b>		
29500004	Assembly Set for POF Connector SC	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## Optical transmission systems

## POF Cutting Tools

... for POF cable and connector product range; stripping tools for different sheath materials and cable diameters



### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001126  
 ETIM 5.0/6.0 Class-Description: Fibre optic cleaver

### Benefits

- Cutting tools for the POF cable and connector product range

### Application range

- Cable stripper for different jacket materials and cable diameter

### Product features

- Various tools for cutting buffered fibres (2.2mm) from very simple to version with automatic blade advance
- 29500011 - fibre stripper for PE buffer tube 2.2mm
- 29500013 - fibre stripper for PA buffer tube 2.2mm-2.3mm
- 29500012 - jacket stripper for cable diameter 3.6mm and 6.0mm
- Crimping tool suitable for the POF(PCF) connector program

Article number	Article designation	PU
<b>POF Bare Fibre Cutter</b>		
29500014	POF Cutter 2.2/1.0mm Guillotine	5 pieces
29500015	POF BufferedFibreCutter 2.2mm manual	1 piece
29500016	POF BufferedFibreCutter 2.2mm automatic	1 piece
<b>POF Cable Stripper</b>		
29500011	POF Buffered Fibre Stripper 2.2 mm (P980/1000)	1 piece
29500013	POF Cable Stripper PA 2.2mm	1 piece
29500012	POF Cable Stripper 3.6/6.0mm	1 piece
<b>Strain relief element scissors</b>		
29500017	Strain relief element scissors	1 piece
<b>POF Crimping Tool</b>		
29500010	POF Crimp Tool 2.5/3.0/4.5/4.95mm	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- POF Assembly Sets refer to page 488

## POF Polishing tools and accessories

Polishing discs for different connector designs; polishing sheets; accessories

### Benefits

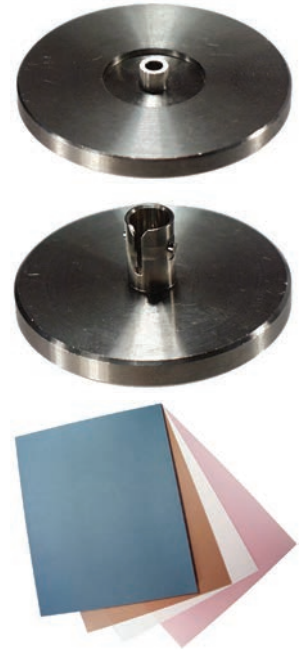
- Easy to handle
- Suitable to POF Connector Assembly Sets

### Product features

- Accessories for POF Assembly
- Polishing disc for various POF connector types
- Other versions are available upon request
- Polishing film with different graining size types for fibre end face treatment
- Polishing process:
  - POF - Polishing Film 1000 (BU)
  - Polishing Film 5µm (BN)
  - Polishing Film 1µm (GN)
  - PCF - Polishing Film 5 µm (BN)
  - Polishing Film 1 µm (GN)
  - Polishing Film 0.3 µm (WH)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001126  
 ETIM 5.0/6.0 Class-Description: Fibre optic cleaver



Article number	Article designation	PU
<b>Polishing Disc for POF connector assembly</b>		
29500031	Polishing Disc POF FSMA Connector	1 piece
29500032	Polishing Disc POF ST(BFOC) Connector	1 piece
29500033	Polishing Disc POF HFBR4501/4511 SIMPLEX	1 piece
29500034	Polishing Disc POF HFBR4516 DUPLEX	1 piece
29500035	Polishing Disc POF F05 Connector	1 piece
29500036	Polishing Disc POF Simplex 2.2mm	1 piece
29500733	Polishing Disc PCF HFBR4521 Connector	1 piece
29500037	Polishing Disc POF SC Connector	1 piece
<b>Polishing film</b>		
29500021	Polishing film graining size 1000 (BL)	10 pieces
29500024	Polishing film graining size 5 µm (BR)	10 pieces
29500023	Polishing film graining size 1 µm (GN)	10 pieces
29500022	Polishing film graining size 0.3 µm (WH)	10 pieces
<b>Polishing accessories</b>		
29500020	Polishing glass plate 150x230mm	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- POF Assembly Sets refer to page 488

## POF Measurement Equipment

Measuring equipment set for wavelength range 660 nm and 850 nm; suitable for measuring assembled POF and PCF systems



### Benefits

- Measuring Equipment Set for wavelengths 660/850nm
- Suitable for the measurement of assembled POF and PCF systems
- Measuring Equipment Set for different wave lengths and connector types. Connector type and wavelength is defined by interchangeable adapter system

### Product features

- The measurement device is supplied without adapters. Please order separately
- Optical Transmitter (TMR): wavelength dependent on interchangeable adapter
  - 650nm
  - 660nm
  - 850nm (on request)
- Optical Power Meter: for attenuation measurement of an assembled POF (PCF) systems adapted to Optical Transmitter (TMR)

### Product Make-up

- Optical Transmitter with digital display, wavelength dependent on adapter, active interchangeable adapters are not included, please order separately
- Optical Power Meter with digital display, wavelength meter 660/850 nm, interchangeable adapters (receiver side) are not included, please order separately
- Measuring Set (29500089): Optical Transmitter and Power Meter as set in a black suitcase, interchangeable adapters are not included

### Technical data



**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC002609  
 ETIM 5.0/6.0 Class-Description:  
 Accessories for optic fibre technique

Article number	Article designation	PU
<b>POF Measurement Equipment</b>		
29500070	POF Optical Transmitter (TMR)	1 piece
<b>POF TMR Adapter, wavelength 650nm</b>		
29500071	POF Optical TMR Adapter HFBR, 650nm	1 piece
29500072	POF Optical TMR Adapter FSMA, 650nm	1 piece
29500073	POF Optical TMR Adapter ST(BFOC), 650nm	1 piece
<b>POF TMR Adapter, wavelength 660nm</b>		
29500074	POF Optical TMR Adapter F05, 660nm	1 piece
29500075	POF Optical TMR Adapter HFBR, 660nm	1 piece
29500076	POF Optical TMR Adapter FSMA, 660nm	1 piece
29500077	POF Optical TMR Adapter ST(BFOC), 660nm	1 piece
<b>POF Optical Power Meter 660/850 nm</b>		
29500080	POF Optical Power Meter 660/850 nm	1 piece
<b>POF Power Meter Adapters</b>		
29500081	POF Power Meter Adapter HFBR4501/4521	1 piece
29500082	POF Power Meter Adapter FSMA	1 piece
29500083	POF Power Meter Adapter ST(BFOC)	1 piece
29500084	POF Power Meter Adapter F05	1 piece
<b>POF Measuring Equipment Set without adapters</b>		
29500089	POF Measuring Equipment Set 660/850nm	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## HITRONIC® PCF SIMPLEX Cable

Polymer Cladded Fibre as simplex fibre cable version for indoor or outdoor use, pur outer sheath; halogen-free

**Info**

- For direct connector assembly



### Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- High mechanical strength
- UV-resistant
- EMC protection

### Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

### Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Outer sheath flame-retardant and halogen-free

### Product Make-up

- Tight-buffered fibres
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

### Technical data

- Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable
- Dimensions**  
2.9mm
- Fibre type**  
PCF - K200/230  
PCF - Polymer Cladded Fibre
- Minimum bending radius**  
Static:  $\geq 15 \times$  outer diameter  
Dynamic:  $\geq 20 \times$  outer diameter
- Standard designation**  
A-V(ZN)11Y
- Optical fibre type**  
Core material: glass  
Cladding material: fluoropolymers
- Permissible tensile force**  
Fixed installation: 200 N
- Temperature range**  
Operation:  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$   
Installation:  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>HITRONIC® PCF SIMPLEX Cable</b>					
28600701	HITRONIC® PCF SIMPLEX PUR Outdoor	200/230 PCF	1	2.9	7.5

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

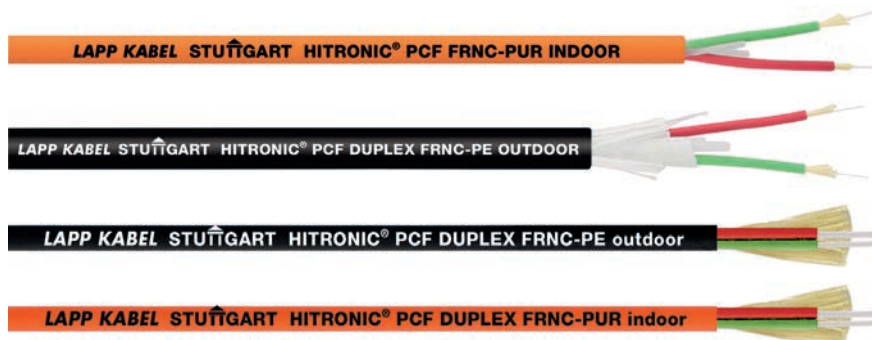
### Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497



## HITRONIC® PCF DUPLEX Cable

Polymer Cladded Fibre as duplex fibre cable version for indoor or outdoor use



### Info

- For direct connector assembly

### Benefits

- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- High mechanical strength
- EMC protection

### Application range

- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- Industrial environments

### Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Halogen-free outer sheath

### Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath (2.9mm)
- Aramid yarns as strain relief
- PUR outer sheath (indoor); PE outer sheath (outdoor)
- Colour: orange (indoor); black (outdoor)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Buffered fibre: 0.5mm  
 Single cable: 2.9 mm  
 Cable: see table

**Core identification code**  
 red, green

**Fibre type**  
 PCF - K200/230  
 PCF - Polymer Cladded Fibre

**Minimum bending radius**  
 Static:  $\geq 15 \times$  outer diameter  
 Dynamic:  $\geq 20 \times$  outer diameter

**Standard designation**  
 PCF DUPLEX Indoor: J-V(ZN)H11Y 2K200/230  
 PCF DUPLEX Outdoor: A-VQ(ZN)HB2Y 2K200/230

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: fluoropolymers

**Permissible tensile force**  
 Fixed installation: 400 N (indoor); 500 N (outdoor)  
 Short-term: 1200 N (indoor); 1500 N (outdoor)

**Temperature range**  
 Operation: -20 °C to +70 °C  
 Installation: -10 °C to +50 °C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Indoor</b>					
28020702	HITRONIC® PCF DUPLEX FRNC-PUR Indoor	200/230 PCF	2	8	53
<b>Outdoor</b>					
28620702	HITRONIC® PCF DUPLEX FRNC-PE Outdoor	200/230 PCF	2	10.5	89

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- HITRONIC® PCF DUPLEX FD cables refer to page 493
- HITRONIC® PCF cables for PROFINET Applications refer to page 494

### Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Connector SC-RJ refer to page 496
- STAR STRIP stripping tool refer to page 985





## HITRONIC® PCF DUPLEX FD cables

Polymer Cladded Fibre as duplex fibre cable version for flexible applications, PUR outer sheath, halogen-free

**Info**

- Flexible PCF cable compatible with all BUS systems



### Benefits

- Designed for use in power chains
- Transmission lengths up to 500 m
- Suitable for direct connector assembly
- Good resistance to oil, petrol, acids and alkalis
- EMC protection

### Application range

- For highly flexible applications
- For data transmission in field bus systems, such as PROFIBUS, INTERBUS etc.
- As a link between moving parts
- Industrial environments

### Product features

- Possible transmission wavelengths: 650 nm and 850 nm
- Complies with requirements for all BUS systems
- Outer sheath flame-retardant and halogen-free

### Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with FRNC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: orange (RAL 2003)

### Technical data

- Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable
- Dimensions**  
Buffered fibre: 0.5mm  
Single cable: 2.2 mm  
Cable: 8.8mm
- Core identification code**  
red, green
- Fibre type**  
PCF - K200/230  
PCF - Polymer Cladded Fibre
- Minimum bending radius**  
Static:  $\geq 15 \times$  outer diameter  
Dynamic:  $\geq 20 \times$  outer diameter
- Standard designation**  
A/J-V(ZN)H11Y
- Optical fibre type**  
Core material: glass  
Cladding material: fluoropolymers
- Permissible tensile force**  
Fixed installation: 800 N  
Short-term: 2000 N
- Temperature range**  
Operation: -20 °C to +70 °C  
Installation: -10 °C to +50 °C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>HITRONIC® PCF DUPLEX FD cables</b>					
28320702	HITRONIC® PCF DUPLEX FD FRNC-PUR	200/230 PCF	2	8.8	63

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

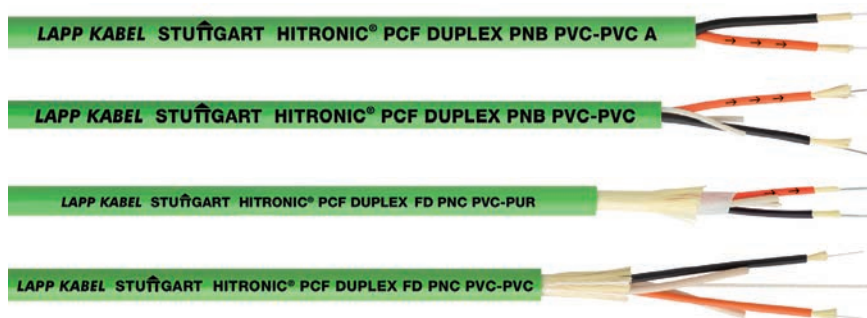
- PCF Assembly Sets refer to page 496
- PCF Connector HFBR refer to page 495
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497
- PCF Connector SC-RJ refer to page 496
- STAR STRIP stripping tool refer to page 985

PCF - Plastic Cladded Fibre Cable • Two buffered fibres applications (DUPLEX)



## HITRONIC® PCF cables for PROFINET Applications

Polymer optical fibre as duplex fibre cable version with PCV or PUR sheath for PROFINET applications type B or C



### Info

- PROFINET compliant  
- Type B or Type C
- For direct connector assembly

### Benefits

- Optical data transmission up to 500m
- Easy to handle
- No interference by external fields
- No grounding problems
- Suitable for direct connector assembly

### Application range

- PCF DUPLEX cables for optical signal transmission in industrial applications
- PROFINET / Industrial Ethernet
- At 100 Mbit/s: max 100 m cable length
- PROFINET type B:  
for fixed laying
- PROFINET type C:  
for flexible applications (power chains)

### Product features

- Cable version with PVC outer sheath:  
for standard applications in industrial environments
- Cable version with PUR outer sheath:  
for high mechanical or chemical stress in industrial environments
- PNB - PROFINET-Type B
- PNC - PROFINET-Type C
- FD - Highly flexible (power chains)

### Norm references / Approvals

- 28055702: with c(UL)us certification (OFNG 75°C)

### Product Make-up

- Colour-coded, tight-buffered PCF sub-cable with PVC sheath
- Sub cable outer diameter: 2.2mm
- Aramid yarns as strain relief
- Outer sheath material PUR or PVC (see article description)
- Outer sheath colour: green (RAL 6018)

### Technical data

	<b>Classification ETIM 5/6</b> ETIM 5.0/6.0 Class-ID: EC000034 ETIM 5.0/6.0 Class-Description: Fibre optic cable
	<b>Dimensions</b> Buffered fibre: 0.5mm Single cable: 2.2 mm Cable: see table
	<b>Core identification code</b> Black, orange (with arrow printing)
	<b>Fibre type</b> PCF - K200/230 PCF - Polymer Cladded Fibre
	<b>Minimum bending radius</b> see data sheet
	<b>Standard designation</b> J-V(ZN)YY 2K200/230 J-V(ZN)Y(ZN)11Y 2K200/230 flex J-V(ZN)Y(ZN)Y 2K200/230 flex
	<b>Optical fibre type</b> Core material: glass Cladding material: fluoropolymers
	<b>Permissible tensile force</b> see data sheet
	<b>Temperature range</b> See data sheet

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>PCF DUPLEX - PROFINET TYPE B</b>					
28055702	HITRONIC® PCF DUPLEX PNB PVC-PVC A	200/230 PCF	2	7.5	59
28052702	HITRONIC® PCF DUPLEX PNB PVC-PVC	200/230 PCF	2	7.2	55
<b>PCF DUPLEX - PROFINET TYPE C</b>					
28351702	HITRONIC® PCF DUPLEX FD PNC PVC-PUR	200/230 PCF	2	8.8	71
28352702	HITRONIC® PCF DUPLEX FD PNC PVC-PVC	200/230 PCF	2	8.8	76

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

Lapp Kabel is a member of the PROFIBUS user organisation (PNO)

The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- PCF Assembly Sets refer to page 496
- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Cutting Tools refer to page 497
- PCF Connector SC-RJ refer to page 496
- EPIC® DATA PB Sub-D FO refer to page 354
- STAR STRIP stripping tool refer to page 985



## PCF Connector HFBR

Accessories for polymer cladded optical fibre cables, connectors type HFBR4521

### Benefits

- Compatible with HP Versatile Link Connectors and Components series

### Application range

- Factory automation
- Medical equipment
- Telecommunications Switching Systems

### Product features

- HFBR4521 connector for 2.2 mm PCF cable diameter as crimp version
- HFBR4521 connector for 3.0 mm PCF cable diameter as clamp version
- HFBR4521 clamp connector compatible with Assembly Set PCF Connector HFBR4521

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001122  
 ETIM 5.0/6.0 Class-Description: Fibre optic connector



Article number	Article designation	PU
<b>Connector HFBR4521 for 2.2 mm cables - crimp version</b>		
29140799	PCF Connector HFBR4521 BK Simplex 2.2 /4PC	4 piece
29140798	PCF Connector HFBR4521 BK Simplex 2.2 /50PC	50 piece
<b>Connector HFBR4521 for 3.0 mm cables - clamp version</b>		
29141799	PCF Connector HFBR4521 Clamp 3.0 /4PC	4 piece
29141798	PCF Connector HFBR4521 Clamp 3.0 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

### Product features

- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Adapters available on request
- Bend protection boot colour: black and red

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001122  
 ETIM 5.0/6.0 Class-Description: Fibre optic connector



## PCF Connector F-SMA and ST(BFOC)

Accessories for Polymer Cladded Fibre cables, connector type FSMA and ST(BFOC)

Article number	Article designation	PU
<b>Connector FSMA Clamp for 3.0 mm cables</b>		
29136799	PCF Connector FSMA Clamp 3.0 /4PC	4 piece
29136798	PCF Connector FSMA Clamp 3.0 /50PC	50 piece
<b>Connector FSMA Clamp for 2.2 mm cables</b>		
29135799	PCF Connector SC-RJ Clamp 2.2	4 piece
29135798	PCF Connector FSMA Clamp 2.2 /50PC	50 piece
<b>Connector ST(BFOC) Clamp for 3.0 mm cables</b>		
29126799	PCF Connector ST (BFOC) Clamp 3.0 /4PC	4 piece
29126798	PCF Connector ST (BFOC) Clamp 3.0 /50PC	50 piece
<b>Connector ST(BFOC) Clamp for 2.2 mm cables</b>		
29125799	PCF Connector ST (BFOC) Clamp 2.2 /4PC	4 piece
29125798	PCF Connector ST (BFOC) Clamp 2.2 /50PC	50 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- POF Adapter F-SMA refer to page 487
- POF Adapter ST (BFOC) refer to page 487

### Accessories

- PCF Cutting Tools refer to page 497



## PCF Connector SC-RJ

Accessories for PCF cables, connector type SC-RJ for clamp and cleave assembly, PROFINET



### Benefits

- Easy to assemble
- Designed for field assembly
- Reusable as it can be removed

### Product features

- Connector set included two SC connectors, SC-RJ housing, two bending protection boots, dust caps
- Connectors for clamp and cleave assembly
- Available for different cable diameters (2.2mm and 3.0mm)
- Bend protection boot colour: black and red



### Info

- Connectors for PROFINET Data Cabling

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001122  
ETIM 5.0/6.0 Class-Description: Fibre optic connector



#### Certifications

SC-RJ complies with IEC61754-24

Article number	Article designation	PU
<b>PCF Connector SC-RJ</b>		
29166797	PCF Connector SC-RJ Clamp 3.0	1 piece
29165797	PCF Connector SC-RJ Clamp 2.2	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- PCF Cutting Tools refer to page 497

## PCF Assembly Sets

... includes all necessary tools for connector assembly of PCF connector versions: FSMA, ST(BFOC), SC/SC-RJ, HFBR4521



### Benefits

- Easy to handle
- Set includes all the necessary tools for connector assembly from clamp connector versions
- Suitable for on-site assembly

### Product features

- Sets available for PCF clamp connector types FSMA, ST (BFOC), SC and HFBR4521
- Contents: stripper, cleave tool, kevlar scissor, cutter, microscope

Article number	Article designation	PU
<b>Assembly Set For PCF FSMA Connectors</b>		
29500701	Assembly Set PCF Connector FSMA	1 piece
<b>Assembly Set For PCF ST(BFOC) Connectors</b>		
29500702	Assembly Set PCF Connector ST(BFOC)	1 piece
<b>Assembly Set For PCF HFBR4521 Connectors</b>		
29500703	Assembly Set PCF Connector HFBR4521	1 piece
<b>Assembly Set For PCF SC/SC-RJ Connectors</b>		
29500704	Assembly Set PCF Connector SC	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- PCF Connector F-SMA and ST(BFOC) refer to page 495
- PCF Connector SC-RJ refer to page 496
- PCF Cutting Tools refer to page 497

## PCF Cutting Tools

Accessories for Polymer Cladded Fibre cables

### Benefits

- Optimally coordinated tools for the PCF cable and connector product range
- For the processing of PCF fibres

### Product features

- PCF cleaving tool for connector types:
  - FSMA
  - ST(BFOC)
  - HFBR4521
  - SC



Article number	Article designation	PU
<b>PCF Buffered Fibre Stripper</b>		
29500711	PCF Buffered Fibre Stripper 0.5mm (K200/230)	1 piece
<b>PCF Fibre Cleaving Tool</b>		
29500712	PCF Cleaving Tool FSMA Connector	1 piece
29500713	PCF Cleaving Tool ST(BFOC) Connector	1 piece
29500714	PCF Cleaving Tool HFBR4521 Connector	1 piece
29500715	PCF Cleaving Tool SC Connector	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Similar products

- PCF Assembly Sets refer to page 496

## PCF Measurement Equipment

Inspection microscope for PCF connector types: FSMA; ST(BFOC); HFBR

### Benefits

- Inspection Microscope with 100x magnification for connector inspection
- Easy to handle

### Product features

- Interchangeable adapter for PCF connector types FSMA, ST(BFOC), HFBR
- Interchangeable adapters are not included in microscope, please order separately
- Other adapters available on request

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001685  
 ETIM 5.0/6.0 Class-Description:  
 Microscope for glass fibre



Article number	Article designation	PU
<b>PCF Inspection Microscope (100x) without adapter</b>		
29500770	PCF Inspection Microscope (100x)	1 piece
<b>PCF Microscope Adapter For Connector Types</b>		
29500771	PCF Microscope Adapter FSMA Simplex	1 piece
29500772	PCF Microscope Adapter ST(BFOC) Simplex	1 piece
29500773	PCF Microscope Adapter HFBR Simplex	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.





## HITRONIC® FIRE

Safety cable with central loose tube, LSZH inner and outer sheath, corrugated steel tape; halogen-free



### Benefits

- Ensures that the fibres can still transmit data during and after a fire (according to IEC 60331-25)
- Suitable for installation in underground tunnels where fire safety is critical
- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- UV-resistant longitudinally and laterally watertight

### Application range

- In industrial areas that use fire as a tool
- Highly combustible or fire-prone areas
- For indoor and outdoor use
- Methods of Deployment: empty plastic pipes, ducts and trays

### Product features

- Fire behaviour:
  - Halogen-free (IEC 60754-1)
  - Flame-retardant (IEC 60332-3)
  - Low smoke density (IEC 61034-1/2)
  - Circuit integrity (IEC 60331-25); Optical fibre cables
- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free

### Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- LSZH inner and outer sheaths
- Colour: black (RAL 9005)

### Info

- Fire-resistant for at least 180 minutes in the event of fire
- \* Cable had been tested to withstand 180 min

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Primary coated fibre: 250µm  
 Cable: see table

**Core identification code**  
 Fibre colour code see data sheet

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 A/J-DQ(ZN)BH(SR)H

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static: ≥ 15 x outer diameter  
 Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**  
 Fixed installation: 1500 N  
 Short-term: 2200 N

**Temperature range**  
 Fixed installation: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
27560304	HITRONIC® FIRE 4G 50/125 OM3	50/125 OM3	4	9.6	123
27560308	HITRONIC® FIRE 8G 50/125 OM3	50/125 OM3	8	9.6	123
27560312	HITRONIC® FIRE 12G 50/125 OM3	50/125 OM3	12	9.6	123
27560324	HITRONIC® FIRE 24G 50/125 OM3	50/125 OM3	24	12.6	188
<b>Multimode G 50 OM2</b>					
27560204	HITRONIC® FIRE 4G 50/125 OM2	50/125 OM2	4	9.6	123
27560208	HITRONIC® FIRE 8G 50/125 OM2	50/125 OM2	8	9.6	123
27560212	HITRONIC® FIRE 12G 50/125 OM2	50/125 OM2	12	9.6	123
27560224	HITRONIC® FIRE 24G 50/125 OM2	50/125 OM2	24	12.6	188
<b>Multimode G 62.5 OM1</b>					
27560104	HITRONIC® FIRE 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	123
27560108	HITRONIC® FIRE 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	123
27560112	HITRONIC® FIRE 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	123
27560124	HITRONIC® FIRE 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	188
<b>Single-mode E 9 OS2</b>					
27560904	HITRONIC® FIRE 4E 9/125 OS2	9/125 OS2	4	9.6	123
27560908	HITRONIC® FIRE 8E 9/125 OS2	9/125 OS2	8	9.6	123
27560912	HITRONIC® FIRE 12E 9/125 OS2	9/125 OS2	12	9.6	123
27560924	HITRONIC® FIRE 24E 9/125 OS2	9/125 OS2	24	12.6	188

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 The cables can also be supplied as pre-terminated fibre optic trunks.  
 Photographs and graphics are not to scale and do not represent detailed images of the respective products.  
 Available on request with Multimode OM4 fibres.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985



**HITRONIC® TORSION**

Breakout cable specially designed to withstand high torsional stresses; PUR outer sheath

**Info**

- Torsion-resistant and very flexible



**Benefits**

- Designed to withstand high torsion in the windmill drip loop
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

**Application range**

- For fixed and flexible installations, as well as for applications with torsional movements (e.g. machinery, wind turbines)
- Industrial environments
- In vertical installations
- As a link between moving parts
- For indoor and outdoor use

**Product features**

- Based on military norm MIL-C-85045
- Torsion-resistant and very flexible
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

**Product Make-up**

- 2.5 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

**Technical data**

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 sub-cable: 2.5mm  
 Cable: see table

**Core identification code**  
 Details see datasheet

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 A/J-V(ZN)H11Y

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static: ≥ 15 x outer diameter  
 Dynamic: ≥ 20 x outer diameter

**Temperature range**  
 Fixed installation: -40°C to +70°C  
 Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26310302	HITRONIC® TORSION 2G 50/125 OM3	50/125 OM3	2	8.4	54
26310304	HITRONIC® TORSION 4G 50/125 OM3	50/125 OM3	4	8.4	54
26310308	HITRONIC® TORSION 8G 50/125 OM3	50/125 OM3	8	11.6	95
26310312	HITRONIC® TORSION 12G 50/125 OM3	50/125 OM3	12	14.7	122
<b>Multimode G 50 OM2</b>					
26310202	HITRONIC® TORSION 2G 50/125 OM2	50/125 OM2	2	8.4	54
26310204	HITRONIC® TORSION 4G 50/125 OM2	50/125 OM2	4	8.4	54
26310208	HITRONIC® TORSION 8G 50/125 OM2	50/125 OM2	8	11.6	95
26310212	HITRONIC® TORSION 12G 50/125 OM2	50/125 OM2	12	14.7	122
<b>Multimode G 62.5 OM1</b>					
26310102	HITRONIC® TORSION 2G 62.5/125 OM1	62.5/125 OM1	2	8.4	54
26310104	HITRONIC® TORSION 4G 62.5/125 OM1	62.5/125 OM1	4	8.4	54
26310108	HITRONIC® TORSION 8G 62.5/125 OM1	62.5/125 OM1	8	11.6	95
26310112	HITRONIC® TORSION 12G 62.5/125 OM1	62.5/125 OM1	12	14.7	122
<b>Single-mode E 9 OS2</b>					
26310902	HITRONIC® TORSION 2E 9/125 OS2	9/125 OS2	2	8.4	54
26310904	HITRONIC® TORSION 4E 9/125 OS2	9/125 OS2	4	8.4	54
26310908	HITRONIC® TORSION 8E 9/125 OS2	9/125 OS2	8	11.6	95
26310912	HITRONIC® TORSION 12E 9/125 OS2	9/125 OS2	12	14.7	122

Photographs and graphics are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

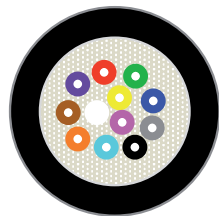
**Accessories**

- GOF DUPLEX Patchcord refer to page 514
- GOF Connector refer to page 516
- STAR STRIP stripping tool refer to page 985



## HITRONIC® HDM Cable

Mini breakout/distribution cable designed for frequent reeling and unreeling, reelable



### Info

- Mobile field cables

### Benefits

- Suitable for field application
- Reelable for mobile use
- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- Light & sound technology
- For indoor and outdoor use
- Industrial environments
- TV broadcasts
- Camera technology
- Building monitoring
- Field application

### Product features

- Based on military norm MIL-C-85045
- Highly flexible, reelable and tensile strength
- Colour-coded tight buffered fibres for easy channel identification
- Outer sheath halogen-free
- Mechanically robust

### Product Make-up

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded
- Aramid yarns as strain relief
- PUR outer sheath
- Colour: black (RAL 9005)

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable



#### Dimensions

tight-buffer (secondary coated fibre): 900µm  
Cable: see table



#### Core identification code

Buffered-fibre colour code see data sheet

#### Fibre type

GOF - Glass Optical Fibre

#### Standard designation

A/J-V(ZN)11Y

#### Optical values

see data sheet



#### Optical fibre type

Core material: glass  
Cladding material: glass



#### Permissible bending radius

Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter



#### Temperature range

Fixed installation: -40°C to +70°C  
Flexible use: -20°C to +60°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM4</b>					
26610404	HITRONIC® HDM600 4G 50/125 OM4	50/125 OM4	4	5.5	24
26610406	HITRONIC® HDM600 6G 50/125 OM4	50/125 OM4	6	5.6	29
26610408	HITRONIC® HDM700 8G 50/125 OM4	50/125 OM4	8	6.2	36
<b>Multimode G 50 OM3</b>					
26610304	HITRONIC® HDM600 4G 50/125 OM3	50/125 OM3	4	5.5	24
26610306	HITRONIC® HDM600 6G 50/125 OM3	50/125 OM3	6	5.6	29
26610308	HITRONIC® HDM700 8G 50/125 OM3	50/125 OM3	8	6.2	36
<b>Multimode G 50 OM2</b>					
26610204	HITRONIC® HDM600 4G 50/125 OM2	50/125 OM2	4	5.5	24
26610206	HITRONIC® HDM600 6G 50/125 OM2	50/125 OM2	6	5.6	29
26610208	HITRONIC® HDM700 8G 50/125 OM2	50/125 OM2	8	6.2	36
<b>Multimode G 62.5 OM1</b>					
26610104	HITRONIC® HDM600 4G 62.5/125 OM1	62.5/125 OM1	4	5.5	24
26610106	HITRONIC® HDM600 6G 62.5/125 OM1	62.5/125 OM1	6	5.6	29
26610108	HITRONIC® HDM700 8G 62.5/125 OM1	62.5/125 OM1	8	6.2	36
<b>Single-mode E 9 OS2</b>					
26610904	HITRONIC® HDM600 4E9/125 OS2	9/125 OS2	4	5.5	24
26610906	HITRONIC® HDM600 6E9/125 OS2	9/125 OS2	6	5.6	29
26610908	HITRONIC® HDM700 8E9/125 OS2	9/125 OS2	8	6.2	36
26610912	HITRONIC® HDM700 12E9/125 OS2	9/125 OS2	12	6.7	49

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

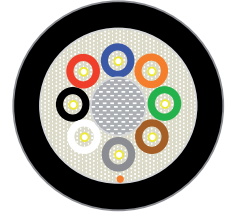
- GOF DUPLEX Patchcord refer to page 514

- STAR STRIP stripping tool refer to page 985









**HITRONIC® HRM-FD Cable**

flexible devisible breakout cable designed for use in power chains



**Technical data**

-  **Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable
-  **Dimensions**  
sub-cable: 2.0mm  
Cable: see table
-  **Core identification code**  
Details see datasheet
- Fibre type**  
GOF - Glass Optical Fibre
- Standard designation**  
A/J-V(ZN)H(ZN)11Y
- Optical values**  
see data sheet
-  **Optical fibre type**  
Core material: glass  
Cladding material: glass
-  **Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
-  **Temperature range**  
Fixed installation: -40°C to +70°C  
Flexible use: -20°C to +60°C

**Benefits**

- Designed for use in power chains
- Suitable for field assembly
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

**Application range**

- For highly flexible industrial applications
- As a link between moving parts
- In vertical installations
- Industrial environments
- For indoor and outdoor use

**Product features**

- Based on military norm MIL-C-85045
- For use in power chains and moving machinery parts in dry or damp rooms
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

**Product Make-up**

- 2.0 mm tight-buffered sub-cable with LSZH sheath
- Aramid yarns as strain relief
- Central element
- PUR outer sheath
- Colour: black (RAL 9005)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM4</b>					
26300402	HITRONIC® HRM-FD800 2G 50/125 OM4	50/125 OM4	2	7.8	50
26300404	HITRONIC® HRM-FD1000 4G 50/125 OM4	50/125 OM4	4	7.8	50
26300408	HITRONIC® HRM-FD1400 8G 50/125 OM4	50/125 OM4	8	10.4	93
26300412	HITRONIC® HRM-FD1800 12G 50/125 OM4	50/125 OM4	12	13	98
<b>Multimode G 50 OM3</b>					
26300302	HITRONIC® HRM-FD800 2G 50/125 OM3	50/125 OM3	2	7.8	50
26300304	HITRONIC® HRM-FD1000 4G 50/125 OM3	50/125 OM3	4	7.8	50
26300308	HITRONIC® HRM-FD1400 8G 50/125 OM3	50/125 OM3	8	10.4	93
26300312	HITRONIC® HRM-FD1800 12G 50/125 OM3	50/125 OM3	12	13	98
<b>Multimode G 50 OM2</b>					
26300202	HITRONIC® HRM-FD800 2G 50/125 OM2	50/125 OM2	2	7.8	50
26300204	HITRONIC® HRM-FD1000 4G 50/125 OM2	50/125 OM2	4	7.8	50
26300208	HITRONIC® HRM-FD1400 8G 50/125 OM2	50/125 OM2	8	10.4	93
26300212	HITRONIC® HRM-FD1800 12G 50/125 OM2	50/125 OM2	12	13	98
<b>Multimode G 62.5 OM1</b>					
26300102	HITRONIC® HRM-FD800 2G 62.5/125 OM1	62.5/125 OM1	2	7.8	50
26300104	HITRONIC® HRM-FD1000 4G 62.5/125 OM1	62.5/125 OM1	4	7.8	50
26300108	HITRONIC® HRM-FD1400 8G 62.5/125 OM1	62.5/125 OM1	8	10.4	93
26300112	HITRONIC® HRM-FD1800 12G 62.5/125 OM1	62.5/125 OM1	12	13	98
<b>Single-mode E 9 OS2</b>					
26300902	HITRONIC® HRM-FD800 2E 9/125 OS2	9/125 OS2	2	7.8	50
26300904	HITRONIC® HRM-FD1000 4E 9/125 OS2	9/125 OS2	4	7.8	50
26300908	HITRONIC® HRM-FD1400 8E 9/125 OS2	9/125 OS2	8	10.4	93
26300912	HITRONIC® HRM-FD1800 12E 9/125 OS2	9/125 OS2	12	13	98

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

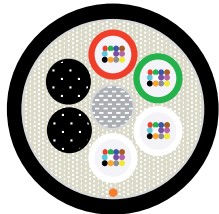
**Accessories**

- GOF DUPLEX Patchcord refer to page 514
- GOF Connector refer to page 516
- STAR STRIP stripping tool refer to page 985



## HITRONIC® HVN-Mini Cable

Mini outdoor cable designed for installation by air-blowing systems (Ducts)



### Benefits

- Suitable for blowing into ducts
- Compact dimensions
- UV-resistant
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- Backbone-Area, FTTH applications
- Telecommunications network
- WAN applications
- For installations by blowing
- Methods of deployment: for blowing or pulling into ducts

### Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Reduced dimensions
- Halogen-free, low-friction outer sheath
- UV-resistant

### Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Fibre type**  
 GOF - Glass Optical Fibre  
 Single-mode  
 E9/125 OS2

**Standard designation**  
 A-DQ(ZN)2Y

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static:  $\geq 15 \times$  outer diameter  
 Dynamic:  $\geq 20 \times$  outer diameter

**Temperature range**  
 Fixed installation:  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
26609912	HITRONIC® HVN-Mini500 1x12E 9/125 OS2	9/125 OS2	12	5.8	30
26609924	HITRONIC® HVN-Mini500 2x12E 9/125 OS2	9/125 OS2	24	5.8	30
26609948	HITRONIC® HVN-Mini500 4x12E 9/125 OS2	9/125 OS2	48	5.8	33
26609972	HITRONIC® HVN-Mini500 6x12E 9/125 OS2	9/125 OS2	72	5.8	33
26609996	HITRONIC® HVN-Mini1200 8x12E 9/125 OS2	9/125 OS2	96	7.2	52
26609944	HITRONIC® HVN-Mini1000 12x12E 9/125	9/125 OS2	144	8	80

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

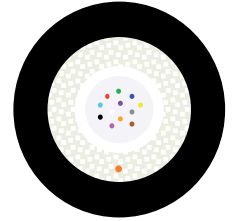
- GOF DUPLEX Patchcord refer to page 514
- GOF SIMPLEX Pigtail refer to page 515
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC












## HITRONIC® HQN Outdoor Cable

Outdoor cable with central loose tube and non-metallic strain relief



### Technical data

-  **Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable
-  **Dimensions**  
Primary coated fibre: 250µm  
Cable: see table
-  **Core identification code**  
Fibre colour code see data sheet
- Fibre type**  
GOF - Glass Optical Fibre
- Standard designation**  
A-DQ(ZN)B2Y
- Optical values**  
see data sheet
-  **Optical fibre type**  
Core material: glass  
Cladding material: glass
-  **Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
-  **Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 3000 N
-  **Temperature range**  
Fixed installation: -40°C to +70°C

### Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays
- Suitable for blowing-in technics

### Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

### Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
27600304	HITRONIC® HQN 1500 4G 50/125 OM3	50/125 OM3	4	7.3	40
27600308	HITRONIC® HQN 1500 8G 50/125 OM3	50/125 OM3	8	7.3	40
27600312	HITRONIC® HQN 1500 12G 50/125 OM3	50/125 OM3	12	7.3	40
27600324	HITRONIC® HQN 1500 24G 50/125 OM3	50/125 OM3	24	8.3	65
<b>Multimode G 50 OM2</b>					
27600204	HITRONIC® HQN 1500 4G 50/125 OM2	50/125 OM2	4	7.3	40
27600208	HITRONIC® HQN 1500 8G 50/125 OM2	50/125 OM2	8	7.3	40
27600212	HITRONIC® HQN 1500 12G 50/125 OM2	50/125 OM2	12	7.3	40
27600224	HITRONIC® HQN 1500 24G 50/125 OM2	50/125 OM2	24	8.3	65
<b>Multimode G 62.5 OM1</b>					
27600104	HITRONIC® HQN 1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	40
27600108	HITRONIC® HQN 1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	40
27600112	HITRONIC® HQN 1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	40
27600124	HITRONIC® HQN 1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	65
<b>Single-mode E 9 OS2</b>					
27600904	HITRONIC® HQN 1500 4E 9/125 OS2	9/125 OS2	4	7.3	40
27600908	HITRONIC® HQN 1500 8E 9/125 OS2	9/125 OS2	8	7.3	40
27600912	HITRONIC® HQN 1500 12E 9/125 OS2	9/125 OS2	12	7.3	40
27600924	HITRONIC® HQN 1500 24E 9/125 OS2	9/125 OS2	24	8.3	65

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs and graphics are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

### Similar products

- HITRONIC® HUN Universal Cable refer to page 510
- HITRONIC® HVN Outdoor Cable refer to page 504
- HITRONIC® HQW Armoured Outdoor Cable refer to page 505

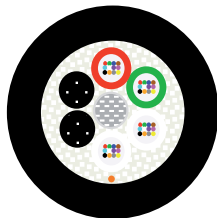
### Accessories

- GOF SIMPLEX Pigtail refer to page 515
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC



## HITRONIC® HVN Outdoor Cable

Outdoor cable with stranded loose tubes and non-metallic strain relief



### Benefits

- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Suitable for blowing-in technic (low friction outer sheath)
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

### Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Rodent-protection
- Robust, halogen-free outer sheath

### Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Central GRP strength element
- Water-blocking reinforced glass yarn strain relief
- PE outer sheath
- Colour: black (RAL 9005)

### Technical data

	<b>Classification ETIM 5/6</b> ETIM 5.0/6.0 Class-ID: EC000034 ETIM 5.0/6.0 Class-Description: Fibre optic cable
	<b>Dimensions</b> Primary coated fibre: 250µm Cable: see table
	<b>Core identification code</b> Fibre colour code see data sheet
	<b>Fibre type</b> GOF - Glass Optical Fibre
	<b>Standard designation</b> A-DQ(ZN)B2Y
	<b>Optical values</b> see data sheet
	<b>Optical fibre type</b> Core material: glass Cladding material: glass
	<b>Permissible bending radius</b> Static: ≥ 15 x outer diameter Dynamic: ≥ 20 x outer diameter
	<b>Temperature range</b> Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26600324	HITRONIC® HVN5000 2x12G 50/125 OM3	50/125 OM3	24	11	64
26600348	HITRONIC® HVN5000 4x12G 50/125 OM3	50/125 OM3	48	11	84
<b>Multimode G 50 OM2</b>					
26600224	HITRONIC® HVN5000 2x12G 50/125 OM2	50/125 OM2	24	11	64
26600248	HITRONIC® HVN5000 4x12G 50/125 OM2	50/125 OM2	48	11	84
<b>Single-mode E 9 OS2</b>					
26600924	HITRONIC® HVN5000 2x12E 9/125 OS2	9/125 OS2	24	11	64
26600948	HITRONIC® HVN5000 4x12E 9/125 OS2	9/125 OS2	48	11	84
<b>HVN Telecom Single-mode E 9 OS2</b>					
26601924	HITRONIC® HVN1500 2x12E 9/125 OS2	9/125 OS2	24	10.5	89
26601948	HITRONIC® HVN1500 4x12E 9/125 OS2	9/125 OS2	48	10.5	91
26601972	HITRONIC® HVN2000 6x12E 9/125 OS2	9/125 OS2	72	10.8	97
26601996	HITRONIC® HVN2000 8x12E 9/125 OS2	9/125 OS2	96	11.9	121
26601944	HITRONIC® HVN2000 12x12E 9/125 OS2	9/125 OS2	144	14.3	183

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Other models are available upon request.

### Similar products

- HITRONIC® HVN-Mini Cable refer to page 502
- HITRONIC® HVW Armoured Outdoor Cable refer to page 506

### Accessories

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985



# HITRONIC® HQW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief

**Info**

- Cable with corrugated steel tape (CST) for increased mechanical stress



**Benefits**

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight

**Application range**

- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

**Product features**

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

**Product Make-up**

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

**Technical data**

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
Primary coated fibre: 250µm  
Cable: see table

**Core identification code**  
Fibre colour code see data sheet

**Fibre type**  
GOF - Glass Optical Fibre

**Standard designation**  
A-DQ(ZN)(SR)2Y

**Optical values**  
see data sheet

**Optical fibre type**  
Core material: glass  
Cladding material: glass

**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**  
Fixed installation: 3000 N  
Short-term: 5000 N

**Temperature range**  
Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
27900304	HITRONIC® HQW3000 4G 50/125 OM3	50/125 OM3	4	9.6	88
27900308	HITRONIC® HQW3000 8G 50/125 OM3	50/125 OM3	8	9.6	88
27900312	HITRONIC® HQW3000 12G 50/125 OM3	50/125 OM3	12	9.6	88
27900324	HITRONIC® HQW3000 24G 50/125 OM3	50/125 OM3	24	9.6	88
<b>Multimode G 50 OM2</b>					
27900204	HITRONIC® HQW3000 4G 50/125 OM2	50/125 OM2	4	9.6	88
27900208	HITRONIC® HQW3000 8G 50/125 OM2	50/125 OM2	8	9.6	88
27900212	HITRONIC® HQW3000 12G 50/125 OM2	50/125 OM2	12	9.6	88
27900224	HITRONIC® HQW3000 24G 50/125 OM2	50/125 OM2	24	9.6	88
<b>Multimode G 62.5 OM1</b>					
27900104	HITRONIC® HQW3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27900108	HITRONIC® HQW3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27900112	HITRONIC® HQW3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27900124	HITRONIC® HQW3000 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
<b>Single-mode E 9 OS2</b>					
27900904	HITRONIC® HQW3000 4E 9/125 OS2	9/125 OS2	4	9.6	88
27900908	HITRONIC® HQW3000 8E 9/125 OS2	9/125 OS2	8	9.6	88
27900912	HITRONIC® HQW3000 12E 9/125 OS2	9/125 OS2	12	9.6	88
27900924	HITRONIC® HQW3000 24E 9/125 OS2	9/125 OS2	24	9.6	88

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

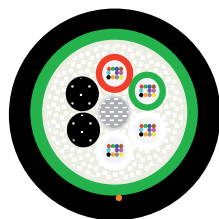
**Accessories**

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985



## HITRONIC® HVW Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, stranded loose tubes and non-metallic strain relief



### Info

- Cable with corrugated steel tape (CST) for increased mechanical stress

### Benefits

- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight

### Application range

- Methods of Deployment: empty plastic pipes, ducts and trays
- For outdoor use
- Campus backbone
- WAN applications
- Industrial environments

### Product features

- Stranded loose tubes with up to 144 fibres (12 loose tubes with each 12 fibres)
- Colour-coded fibres and loose tubes
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

### Product Make-up

- Up to 12 stranded gel-filled loose tubes
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE outer sheath
- Colour: black (RAL 9005)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Primary coated fibre: 250µm  
 Cable: see table

**Core identification code**  
 Fibre colour code see data sheet

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 A-DQ(ZN)(SR)2Y

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static: ≥ 15 x outer diameter  
 Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**  
 Fixed installation: 3000 N  
 Short-term: 5000 N

**Temperature range**  
 Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
26900924	HITRONIC® HVW3000 2x12E 9/125 OS2	9/125 OS2	24	10	98
26900948	HITRONIC® HVW3000 4x12E 9/125 OS2	9/125 OS2	48	12.5	148
26900972	HITRONIC® HVW3000 6x12E 9/125 OS2	9/125 OS2	72	16	215
26900996	HITRONIC® HVW3000 8x12E 9/125 OS2	9/125 OS2	96	16	222
26900944	HITRONIC® HVW3000 12x12E 9/125 OS2	9/125 OS2	144	18.5	261

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985



## HITRONIC® HQW-Plus Armoured Outdoor Cable

Outdoor cable with corrugated steel tape, central loose tube, non-metallic strain relief and PE inner and outer sheath

**Info**

- Cable with corrugated steel tape (CST) for increased mechanical stress



### Benefits

- Additional sheath protects the fibres for use in harsh environments
- Armouring provides excellent protection against high mechanical stress and rodents
- Suitable for direct burial
- UV-resistant longitudinally and laterally watertight

### Application range

- For outdoor use
- Harsh industrial environment
- Campus backbone
- WAN applications
- Methods of Deployment: empty plastic pipes, ducts and trays

### Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Excellent rodent protection
- Robust, halogen-free outer sheath

### Product Make-up

- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- Corrugated steel tape armour
- PE inner and outer sheaths
- Colour: black (RAL 9005)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Primary coated fibre: 250µm  
 Cable: see table

**Core identification code**  
 Fibre colour code see data sheet

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 A-DQ(ZN)B2Y(SR)2Y

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static: ≥ 15 x outer diameter  
 Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**  
 Fixed installation: 3000 N  
 Short-term: 5000 N

**Temperature range**  
 Fixed installation: -40°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
27920304	HITRONIC® HQW-Plus3000 4G 50/125 OM3	50/125 OM3	4	9.6	95
27920308	HITRONIC® HQW-Plus3000 8G 50/125 OM3	50/125 OM3	8	9.6	95
27920312	HITRONIC® HQW-Plus3000 12G 50/125 OM3	50/125 OM3	12	9.6	95
27920324	HITRONIC® HQW-Plus3000 24G 50/125 OM3	50/125 OM3	24	12.6	135
<b>Multimode G 50 OM2</b>					
27920204	HITRONIC® HQW-Plus3000 4G 50/125 OM2	50/125 OM2	4	9.6	95
27920208	HITRONIC® HQW-Plus3000 8G 50/125 OM2	50/125 OM2	8	9.6	95
27920212	HITRONIC® HQW-Plus3000 12G 50/125 OM2	50/125 OM2	12	9.6	95
27920224	HITRONIC® HQW-Plus3000 24G 50/125 OM2	50/125 OM2	24	12.6	135
<b>Multimode G 62.5 OM1</b>					
27920104	HITRONIC® HQW-Plus3000 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	95
27920108	HITRONIC® HQW-Plus3000 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	95
27920112	HITRONIC® HQW-Plus3000 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	95
27920124	HITRONIC® HQW-Plus3000 24G 62.5/125 OM1	62.5/125 OM1	24	12.6	135
<b>Single-mode E 9 OS2</b>					
27920904	HITRONIC® HQW-Plus3000 4E 9/125 OS2	9/125 OS2	4	9.6	95
27920908	HITRONIC® HQW-Plus3000 8E 9/125 OS2	9/125 OS2	8	9.6	95
27920912	HITRONIC® HQW-Plus3000 12E 9/125 OS2	9/125 OS2	12	9.6	95
27920924	HITRONIC® HQW-Plus3000 24E 9/125 OS2	9/125 OS2	24	12.6	135

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985



# Optical transmission systems

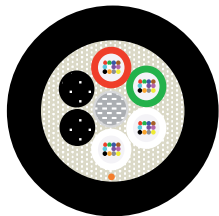


GOF - Glass Optical Fibre • Outdoor area - aerial cable



## HITRONIC® HQA Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes and non-metallic strain relief; ADSS cable type



### Benefits

- Suitable for mild weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For outdoor use
- Hanging on poles
- Laying on poles
- Installation on building columns

### Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 90m

### Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE outer sheath
- Colour: black (RAL 9005)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Primary coated fibre: 250µm  
 Cable: see table

**Core identification code**  
 Fibre colour code see data sheet

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 A-DQ(ZN)2Y - ADSS  
 All-Dielectric Self-Supporting

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static:  $\geq 15 \times$  outer diameter  
 Dynamic:  $\geq 20 \times$  outer diameter

**Permissible tensile force**  
 MAT: 2000 N  
 EDS: 800 N

**Temperature range**  
 Fixed installation: -40°C to +70°C  
 Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
26640912	HITRONIC® HQA800 6x2E 9/125 OS2	9/125 OS2	12	9.7	73
26640924	HITRONIC® HQA800 6x4E 9/125 OS2	9/125 OS2	24	9.7	73
26640948	HITRONIC® HQA800 6x8E 9/125 OS2	9/125 OS2	48	10.9	92
26640972	HITRONIC® HQA800 6x12E 9/125 OS2	9/125 OS2	72	10.9	94
26640996	HITRONIC® HQA800 8x12E 9/125 OS2	9/125 OS2	96	12.4	121

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. Photographs and graphics are not to scale and do not represent detailed images of the respective products. Further cable versions are available on request.

### Accessories

- STAR STRIP stripping tool refer to page 985



## HITRONIC® HQA-Plus Aerial Cable

Outdoor self-supporting aerial cable with stranded loose tubes, non-metallic strain relief and PE inner and outer sheath;

ADSS cable type



### Benefits

- Designed to withstand harsh weather conditions
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For long span widths
- Hanging on poles
- For outdoor use
- Laying on poles
- Installation on building columns








### Product features

- Stranded loose tubes with up to 96 fibres
- Colour-coded fibres and loose tubes
- Mechanical support members (central filler and aramid yarns)
- Robust, halogen-free outer sheath
- Span width up to 250m

### Product Make-up

- Up to 8 stranded gel-filled loose tubes
- Central GRP strength element
- Aramid yarns as strain relief
- PE inner and outer sheaths
- Colour: black (RAL 9005)

### Technical data

	<b>Classification ETIM 5/6</b> ETIM 5.0/6.0 Class-ID: EC000034 ETIM 5.0/6.0 Class-Description: Fibre optic cable
	<b>Dimensions</b> Primary coated fibre: 250µm Cable: see table
	<b>Core identification code</b> Fibre colour code see data sheet
	<b>Fibre type</b> GOF - Glass Optical Fibre
	<b>Standard designation</b> A-DQ2Y(ZN)2Y ADSS All-Dielectric Self-Supporting
	<b>Optical values</b> see data sheet
	<b>Optical fibre type</b> Core material: glass Cladding material: glass
	<b>Permissible bending radius</b> Static: ≥ 15 x outer diameter Dynamic: ≥ 20 x outer diameter
	<b>Permissible tensile force</b> MAT: 8000 N EDS: 3200 N
	<b>Temperature range</b> Fixed installation: -40°C to +70°C Occasional flexing: -30°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Single-mode E 9 OS2</b>					
26644912	HITRONIC® HQA-Plus3200 6x2E 9/125 OS2	9/125 OS2	12	12.8	132
26644924	HITRONIC® HQA-Plus3200 6x4E 9/125 OS2	9/125 OS2	24	12.8	132
26644948	HITRONIC® HQA-Plus3200 6x8E 9/125 OS2	9/125 OS2	48	13.7	151
26644972	HITRONIC® HQA-Plus3200 6x12E 9/125 OS2	9/125 OS2	72	13.7	153
26644996	HITRONIC® HQA-Plus3200 8x12E 9/125 OS2	9/125 OS2	96	15.3	188

Photographs and graphics are not to scale and do not represent detailed images of the respective products. Further cable versions are available on request.

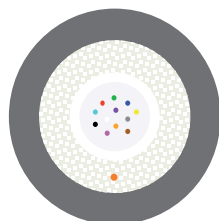
### Accessories

- STAR STRIP stripping tool refer to page 985



## HITRONIC® HUN Universal Cable

Universal cable with corrugated steel tape armour, central loose tube and non-metallic strain relief



### Info

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)
- For indoor and outdoor use

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000034  
 ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
 Primary coated fibre: 250µm  
 Cable: see table

**Core identification code**  
 Fibre colour code see data sheet

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 A/J-DQ(ZN)BH  
 U-DQ(ZN)BH

**Optical values**  
 see data sheet

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible bending radius**  
 Static: ≥ 15 x outer diameter  
 Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**  
 Fixed installation: 1500 N  
 Short-term: 2000 N

**Temperature range**  
 Fixed installation: -30°C to +70°C

### Benefits

- Flame retardance makes it suitable for indoor and outdoor installations
- Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
- UV-resistant longitudinally and laterally watertight
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For indoor and outdoor use
- Campus backbone
- Industrial environments
- Methods of Deployment: empty plastic pipes, ducts and trays

### Product features

- Central loose tube with up to 24 fibres
- Colour-coded fibres
- Longitudinal watertight
- Outer sheath flame-retardant and halogen-free
- Rodent-protection

### Product Make-up

- Glass fibres with primary coating
- Gel-filled loose tube
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: dark grey

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM4</b>					
27400404	HITRONIC® HUN1500 4G 50/125 OM4	50/125 OM4	4	7.3	53
27400408	HITRONIC® HUN1500 8G 50/125 OM4	50/125 OM4	8	7.3	53
27400412	HITRONIC® HUN1500 12G 50/125 OM4	50/125 OM4	12	7.3	53
27400424	HITRONIC® HUN1500 24G 50/125 OM4	50/125 OM4	24	8.3	60
<b>Multimode G 50 OM3</b>					
27400304	HITRONIC® HUN1500 4G 50/125 OM3	50/125 OM3	4	7.3	53
27400308	HITRONIC® HUN1500 8G 50/125 OM3	50/125 OM3	8	7.3	53
27400312	HITRONIC® HUN1500 12G 50/125 OM3	50/125 OM3	12	7.3	53
27400324	HITRONIC® HUN1500 24G 50/125 OM3	50/125 OM3	24	8.3	60
<b>Multimode G 50 OM2</b>					
27400204	HITRONIC® HUN1500 4G 50/125 OM2	50/125 OM2	4	7.3	53
27400208	HITRONIC® HUN1500 8G 50/125 OM2	50/125 OM2	8	7.3	53
27400212	HITRONIC® HUN1500 12G 50/125 OM2	50/125 OM2	12	7.3	53
27400224	HITRONIC® HUN1500 24G 50/125 OM2	50/125 OM2	24	8.3	60
<b>Multimode G 62.5 OM1</b>					
27400104	HITRONIC® HUN1500 4G 62.5/125 OM1	62.5/125 OM1	4	7.3	53
27400108	HITRONIC® HUN1500 8G 62.5/125 OM1	62.5/125 OM1	8	7.3	53
27400112	HITRONIC® HUN1500 12G 62.5/125 OM1	62.5/125 OM1	12	7.3	53
27400124	HITRONIC® HUN1500 24G 62.5/125 OM1	62.5/125 OM1	24	8.3	60
<b>Single-mode E 9 OS2</b>					
27400904	HITRONIC® HUN1500 4E 9/125 OS2	9/125 OS2	4	7.3	53
27400908	HITRONIC® HUN1500 8E 9/125 OS2	9/125 OS2	8	7.3	53
27400912	HITRONIC® HUN1500 12E 9/125 OS2	9/125 OS2	12	7.3	53
27400924	HITRONIC® HUN1500 24E 9/125 OS2	9/125 OS2	24	8.3	60

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.  
 The cables can also be supplied as pre-terminated fibre optic trunks.  
 Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF SIMPLEX Pigtail refer to page 515
- DATA STRIP stripping tool refer to page 986
- Fibre Strip DC



## HITRONIC® HUW Armoured Universal Cable

Universal cable with central loose tube, corrugated steel tape and non-metallic strain relief for applications with extended mechanical stress



**Info**

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)
- For indoor and outdoor use
- Cable with corrugated steel tape (CST) for increased mechanical stress

**Technical data**

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
Primary coated fibre: 250µm  
Cable: see table

**Core identification code**  
Fibre colour code see data sheet

**Fibre type**  
GOF - Glass Optical Fibre

**Standard designation**  
A/J-DQ(ZN)(SR)H  
U-DQ(ZN)(SR)H

**Optical values**  
see data sheet

**Optical fibre type**  
Core material: glass  
Cladding material: glass

**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

**Permissible tensile force**  
Fixed installation: 1500 N  
Short-term: 2000 N

**Temperature range**  
Fixed installation: -30°C to +70°C

- Benefits**
- Armouring provides excellent protection against high mechanical stress and rodents
  - Flame retardance makes it suitable for indoor and outdoor installations
  - Easy to install due to the compact design, high flexibility, robust sheath and small bending radii
  - Water-resistant
- Application range**
- For indoor and outdoor use
  - Campus backbone
  - Industrial environments
  - Methods of Deployment: empty plastic pipes, ducts and trays

- Product features**
- Outer sheath flame-retardant and halogen-free
  - Central loose tube with up to 24 fibres
  - Colour-coded fibres
  - Longitudinal watertight
  - Excellent rodent protection
- Product Make-up**
- Gel-filled loose tube
  - Water-blocking reinforced glass yarn strain relief
  - Corrugated steel tape armour
  - LSZH outer sheath
  - Colour: green (based on RAL 6018)

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
27500304	HITRONIC® HUW1500 4G 50/125 OM3	50/125 OM3	4	9.6	88
27500308	HITRONIC® HUW1500 8G 50/125 OM3	50/125 OM3	8	9.6	88
27500312	HITRONIC® HUW1500 12G 50/125 OM3	50/125 OM3	12	9.6	88
27500324	HITRONIC® HUW1500 24G 50/125 OM3	50/125 OM3	24	9.6	88
<b>Multimode G 50 OM2</b>					
27500204	HITRONIC® HUW1500 4G 50/125 OM2	50/125 OM2	4	9.6	88
27500208	HITRONIC® HUW1500 8G 50/125 OM2	50/125 OM2	8	9.6	88
27500212	HITRONIC® HUW1500 12G 50/125 OM2	50/125 OM2	12	9.6	88
27500224	HITRONIC® HUW1500 24G 50/125 OM2	50/125 OM2	24	9.6	88
<b>Multimode G 62.5 OM1</b>					
27500104	HITRONIC® HUW1500 4G 62.5/125 OM1	62.5/125 OM1	4	9.6	88
27500108	HITRONIC® HUW1500 8G 62.5/125 OM1	62.5/125 OM1	8	9.6	88
27500112	HITRONIC® HUW1500 12G 62.5/125 OM1	62.5/125 OM1	12	9.6	88
27500124	HITRONIC® HUW1500 24G 62.5/125 OM1	62.5/125 OM1	24	9.6	88
<b>Single-mode E 9 OS2</b>					
27500904	HITRONIC® HUW1500 4E 9/125 OS2	9/125 OS2	4	9.6	88
27500908	HITRONIC® HUW1500 8E 9/125 OS2	9/125 OS2	8	9.6	88
27500912	HITRONIC® HUW1500 12E 9/125 OS2	9/125 OS2	12	9.6	88
27500924	HITRONIC® HUW1500 24E 9/125 OS2	9/125 OS2	24	9.6	88

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs and graphics are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

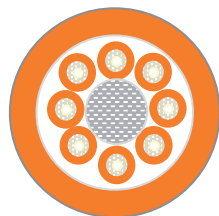
**Accessories**

- GOF SIMPLEX Pigtail refer to page 515
- STAR STRIP stripping tool refer to page 985



# HITRONIC® HRH Breakout Cable

Divisible breakout cable for direct connector assembly; J-V(ZN)HH



### Benefits

- Suitable for field assembly
- Universal cable for cabling of buildings
- Very easy to install due to compact design, high flexibility, and small bending radii
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

### Product features

- Installation cable with up to 12 Simplex cables
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

### Product Make-up

- 2.1 mm tight-buffered sub-cable with LSZH sheath (identified by numbers)
- Central GRP strength element
- Aramid yarns as strain relief
- LSZH inner and outer sheaths
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1, yellow for Single-mode

**Info**

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)
- Breakout cable for direct connector assembly

### Technical data

- Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable
- Dimensions**  
tight-buffer (secondary coated fibre): 900µm  
sub-cable: 2.1mm
- Core identification code**  
Sub-cable: with black numbers
- Fibre type**  
GOF - Glass Optical Fibre
- Standard designation**  
J-V(ZN)HH
- Optical values**  
see data sheet
- Optical fibre type**  
Core material: glass  
Cladding material: glass
- Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter
- Temperature range**  
Fixed installation: -20°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26000302	HITRONIC® HRH400 2G 50/125 OM3	50/125 OM3	2	7	35
26000304	HITRONIC® HRH600 4G 50/125 OM3	50/125 OM3	4	7	44
26000308	HITRONIC® HRH1200 8G 50/125 OM3	50/125 OM3	8	9.7	77
26000312	HITRONIC® HRH1700 12G 50/125 OM3	50/125 OM3	12	10.3	100
<b>Multimode G 50 OM2</b>					
26000202	HITRONIC® HRH400 2G 50/125 OM2	50/125 OM2	2	7	35
26000204	HITRONIC® HRH600 4G 50/125 OM2	50/125 OM2	4	7	44
26000208	HITRONIC® HRH1200 8G 50/125 OM2	50/125 OM2	8	9.7	77
26000212	HITRONIC® HRH1700 12G 50/125 OM2	50/125 OM2	12	10.3	100
<b>Multimode G 62.5 OM1</b>					
26000102	HITRONIC® HRH400 2G 62.5/125 OM1	62.5/125 OM1	2	7	35
26000104	HITRONIC® HRH600 4G 62.5/125 OM1	62.5/125 OM1	4	7	44
26000108	HITRONIC® HRH1200 8G 62.5/125 OM1	62.5/125 OM1	8	9.7	77
26000112	HITRONIC® HRH1700 12G 62.5/125 OM1	62.5/125 OM1	12	10.3	100
<b>Single-mode E 9 OS2</b>					
26000902	HITRONIC® HRH400 2E 9/125 OS2	9/125 OS2	2	7	35
26000904	HITRONIC® HRH600 4E 9/125 OS2	9/125 OS2	4	7	44
26000908	HITRONIC® HRH1200 8E 9/125 OS2	9/125 OS2	8	9.7	77
26000912	HITRONIC® HRH1700 12E 9/125 OS2	9/125 OS2	12	10.3	100

Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request.

The cables can also be supplied as pre-terminated fibre optic trunks.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

Available on request with multi-mode OM4 fibres (outer sheath colour violet).

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Connector refer to page 516
- DATA STRIP stripping tool refer to page 986
- TY-GRIP® FOL/ FO cable tie refer to page 1046
- Fibre Strip DC



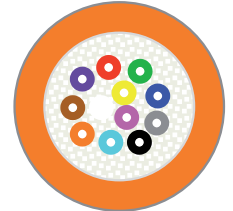


## HITRONIC® HDH Mini-Breakout Cable

Divisible indoor cable (distribution-style) with LSZH outer sheath, halogenfree; J-V(ZN)HH

**Info**

- CPR: Article number choice under [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)
- Mini breakout/distribution cable for direct connector assembly



### Benefits

- Very easy to install due to small dimensions, high flexibility, and small bending radius
- Suitable for field assembly
- Universal cable for cabling of buildings
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For indoor use
- Tertiary cabling
- Structured cabling - backbone
- Methods of Deployment: laying in trunking, ducts, trays, empty plastic pipes, building riser, raised floors and plenums

### Product features

- Up to 12 tight-buffered fibres (900µm)
- Colour-coded fibres
- Outer sheath flame-retardant and halogen-free
- Mechanically robust

### Product Make-up

- Tight-buffered fibres
- Water-blocking reinforced glass yarn strain relief
- LSZH outer sheath
- Colour: aqua (RAL 6027) for OM3, orange (RAL 2003) for OM2 and OM1
- Available on request: single-mode OS2 (yellow) and multimode OM4 (violet)

### Technical data

**Classification ETIM 5/6**  
ETIM 5.0/6.0 Class-ID: EC000034  
ETIM 5.0/6.0 Class-Description: Fibre optic cable

**Dimensions**  
tight-buffer (secondary coated fibre): 900µm  
Cable: see table

**Core identification code**  
Buffered-fibre colour code see data sheet

**Fibre type**  
GOF - Glass Optical Fibre

**Standard designation**  
J-V(ZN)H

**Optical values**  
see data sheet

**Optical fibre type**  
Core material: glass  
Cladding material: glass

**Permissible bending radius**  
Static: ≥ 15 x outer diameter  
Dynamic: ≥ 20 x outer diameter

**Temperature range**  
Fixed installation: -20°C to +70°C

Article number	Article designation	Fibre type	Number of fibres	Outer diameter [mm]	Weight (kg/km)
<b>Multimode G 50 OM3</b>					
26010302	HITRONIC® HDH 2G 50/125 OM3	50/125 OM3	2	6	34
26010304	HITRONIC® HDH 4G 50/125 OM3	50/125 OM3	4	6.3	37
26010308	HITRONIC® HDH 8G 50/125 OM3	50/125 OM3	8	7.5	57
26010312	HITRONIC® HDH 12G 50/125 OM3	50/125 OM3	12	8.3	69
<b>Multimode G 50 OM2</b>					
26010202	HITRONIC® HDH 2G 50/125 OM2	50/125 OM2	2	6	34
26010204	HITRONIC® HDH 4G 50/125 OM2	50/125 OM2	4	6.3	37
26010208	HITRONIC® HDH 8G 50/125 OM2	50/125 OM2	8	7.5	57
26010212	HITRONIC® HDH 12G 50/125 OM2	50/125 OM2	12	8.3	69
<b>Multimode G 62.5 OM1</b>					
26010102	HITRONIC® HDH 2G 62.5/125 OM1	62.5/125 OM1	2	6	34
26010104	HITRONIC® HDH 4G 62.5/125 OM1	62.5/125 OM1	4	6.3	37
26010108	HITRONIC® HDH 8G 62.5/125 OM1	62.5/125 OM1	8	7.5	57
26010112	HITRONIC® HDH 12G 62.5/125 OM1	62.5/125 OM1	12	8.3	69

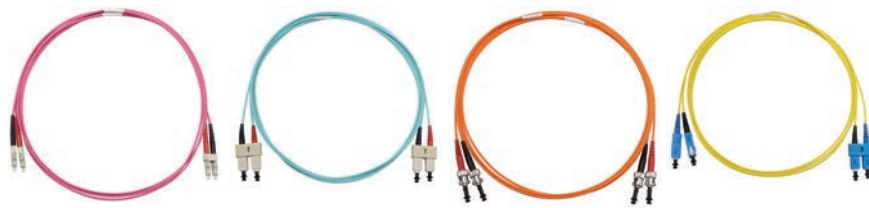
Unless specified otherwise, the shown product values are nominal values. Detailed values (e.g. tolerances) are available upon request. The cables can also be supplied as pre-terminated fibre optic trunks. Photographs and graphics are not to scale and do not represent detailed images of the respective products. Available on request with Multimode OM4 fibres.

### Accessories

- DATA STRIP stripping tool refer to page 986
- TY-GRIP® FOL/ FO cable tie refer to page 1046
- Fibre Strip DC

## GOF DUPLEX Patchcord

Optical patch cords with various types of connectors available in single-mode or multi-mode fibre version



### Benefits

- To connect optical transmitter, receiver and terminal box
- "Plug & Play" connection between optical devices
- Non-permanent connections allow for easy change of equipment
- For direct connection between two active optical components

### Application range

- For indoor use
- LAN connections
- Data Centers
- Distributor cabinet

### Product features

- Outer sheath flame-retardant and halogen-free
- High flexibility
- Cable termination with durable ceramic ferrules
- Pre-assembled connectors:
  - Low insertion loss
  - High return loss

### Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- FC complies with IEC61754-13

### Product Make-up

- Tight-buffered duplex cable with LSZH outer sheath
- Connector: LC, SC or ST
- Cable colour:
  - violet for multimode OM4,
  - aqua for multimode OM3,
  - orange for multimode OM2 and OM1,
  - yellow for single-mode OS2
- Standard length: 2 m
- On request: 1 m, 3 m, 5 m and 10 m



### Info

- Pre-assembled duplex tight-buffered optical fibre cables with durable ceramic ferrule connectors
- Other types are available at [www.lappgroup.com/assemblyfinder](http://www.lappgroup.com/assemblyfinder) or on request

### Technical data

- Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001263  
 ETIM 5.0/6.0 Class-Description: Fibre optic patch cord
- Dimensions**  
 Primary coated fibre: 250µm  
 tight-buffer (secondary coated fibre): 900µm  
 sub-cable: 1.9mm
- Fibre type**  
 GOF - Glass Optical Fibre
- Standard designation**  
 J-VH 2x1G/E...
- Optical fibre type**  
 Core material: glass  
 Cladding material: glass
- Permissible bending radius**  
 Static: ≥ 30 mm  
 Dynamic: ≥ 40 mm
- Permissible tensile force**  
 Fixed installation: 100 N
- Temperature range**  
 Fixed installation: -20°C to +60°C  
 Occasional flexing: -5°C to +50°C

Article number	Article designation	PU
<b>Multimode G 50 OM4</b>		
29011402	GOF Duplex Patchcord SC/SC G50 OM4, 2m	1 piece
29021402	GOF Duplex Patchcord ST/SC G50 OM4, 2m	1 piece
29022402	GOF Duplex Patchcord ST/ST G50 OM4, 2m	1 piece
29031402	GOF Duplex Patchcord LC/SC G50 OM4, 2m	1 piece
29032402	GOF Duplex Patchcord LC/ST G50 OM4, 2m	1 piece
29033402	GOF Duplex Patchcord LC/LC G50 OM4, 2m	1 piece
29044402	GOF Duplex Patchcord FC/FC G50 OM4, 2m	1 piece
<b>Multimode G 50 OM3</b>		
29011302	GOF Duplex Patchcord SC/SC G50 OM3, 2m	1 piece
29021302	GOF Duplex Patchcord ST/SC G50 OM3, 2m	1 piece
29022302	GOF Duplex Patchcord ST/ST G50 OM3, 2m	1 piece
29031302	GOF Duplex Patchcord LC/SC G50 OM3, 2m	1 piece
29032302	GOF Duplex Patchcord LC/ST G50 OM3, 2m	1 piece
29033302	GOF Duplex Patchcord LC/LC G50 OM3, 2m	1 piece
29044302	GOF Duplex Patchcord FC/FC G50 OM3, 2m	1 piece
<b>Multimode G 50 OM2</b>		
29011202	GOF Duplex Patchcord SC/SC G50 OM2, 2m	1 piece
29021202	GOF Duplex Patchcord ST/SC G50 OM2, 2m	1 piece
29022202	GOF Duplex Patchcord ST/ST G50 OM2, 2m	1 piece
29031202	GOF Duplex Patchcord LC/SC G50 OM2, 2m	1 piece
29032202	GOF Duplex Patchcord LC/ST G50 OM2, 2m	1 piece
29033202	GOF Duplex Patchcord LC/LC G50 OM2, 2m	1 piece
29044202	GOF Duplex Patchcord FC/FC G50 OM2, 2m	1 piece
<b>Multimode G 62.5 OM1</b>		
29011102	GOF Duplex Patchcord SC/SC G62.5, 2m	1 piece
29021102	GOF Duplex Patchcord ST/SC G62.5, 2m	1 piece
29022102	GOF Duplex Patchcord ST/ST G62.5, 2m	1 piece
29031102	GOF Duplex Patchcord LC/SC G62.5, 2m	1 piece
29032102	GOF Duplex Patchcord LC/ST G62.5, 2m	1 piece
29033102	GOF Duplex Patchcord LC/LC G62.5, 2m	1 piece
29044102	GOF Duplex Patchcord FC/FC G62.5, 2m	1 piece
<b>Single-mode E 9 OS2</b>		
29011902	GOF Duplex Patchcord SC/SC E9 OS2, 2m	1 piece
29021902	GOF Duplex Patchcord ST/SC E9 OS2, 2m	1 piece
29022902	GOF Duplex Patchcord ST/ST E9 OS2, 2m	1 piece
29031902	GOF Duplex Patchcord LC/SC E9 OS2, 2m	1 piece
29032902	GOF Duplex Patchcord LC/ST E9 OS2, 2m	1 piece
29033902	GOF Duplex Patchcord LC/LC E9 OS2, 2m	1 piece
29033802	GOF DUPLEX Patchcord LC/LC 9/ 125 APC, 2m	1 piece
29039902	GOF DUPLEX Patchcord LC/SC-APC E9 OS2, 2m	1 piece

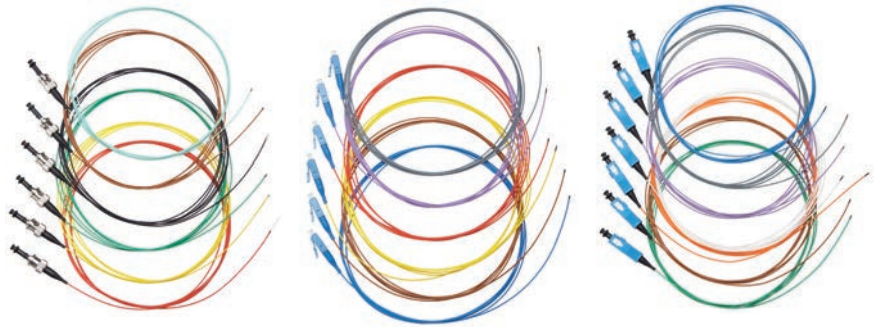
Other lengths and types of connectors are available upon request. / Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## GOF SIMPLEX Pigtail

12x assorted colour coded pigtails with various types of connectors (LC, ST, LC) with Singlemode OS2 and Multimode OM1, OM2, OM3, OM4 fibres

**i Info**

- Pre-assembled simplex tight-buffered optical fibre with a durable ceramic ferrule connector



### Benefits

- Ease of installation and assembly
- Create a direct plug connection for installation cables with splicing
- Zero electromagnetic interference as the cable contains no metal (totally dielectric)

### Application range

- For indoor use
- Connection to an end optical device

### Product features

- High flexibility
- Cable termination with durable ceramic ferrules
- Set consisting of 12 colour-coded pigtails

### Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

### Product Make-up

- Tight buffered simplex fibres
- Connector: LC, SC or ST
- Colour-coded primary and secondary coatings
- Standard length: 2 m

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000748  
 ETIM 5.0/6.0 Class-Description: Pigtail

**Dimensions**  
 Primary coated fibre: 250µm  
 tight-buffer (secondary coated fibre): 900µm

**Fibre type**  
 GOF - Glass Optical Fibre

**Standard designation**  
 J-VH 1G/E...

**Optical fibre type**  
 Core material: glass  
 Cladding material: glass

**Permissible tensile force**  
 Fixed installation: 100 N

**Temperature range**  
 Fixed installation: -20°C to +60°C  
 Occasional flexing: -5°C to +50°C

Article number	Article designation	PU
<b>Multimode G 50 OM4</b>		
29310402	GOF Simplex Pigtail SC G50 OM4, 2m	12 piece
29320402	GOF Simplex Pigtail ST G50 OM4, 2m	12 piece
29330402	GOF Simplex Pigtail LC G50 OM4, 2m	12 piece
<b>Multimode G 50 OM3</b>		
29310302	GOF Simplex Pigtail SC G50 OM3, 2m	12 piece
29320302	GOF Simplex Pigtail ST G50 OM3, 2m	12 piece
29330302	GOF Simplex Pigtail LC G50 OM3, 2m	12 piece
<b>Multimode G 50 OM2</b>		
29310202	GOF Simplex Pigtail SC G50 OM2, 2m	12 piece
29320202	GOF Simplex Pigtail ST G50 OM2, 2m	12 piece
29330202	GOF Simplex Pigtail LC G50 OM2, 2m	12 piece
<b>Multimode G 62.5 OM1</b>		
29310102	GOF Simplex Pigtail SC G62.5, 2m	12 piece
29320102	GOF Simplex Pigtail ST G62.5, 2m	12 piece
29330102	GOF Simplex Pigtail LC G62.5, 2m	12 piece
<b>Single-mode E 9 OS2</b>		
29310902	GOF Simplex Pigtail SC E9 OS2, 2m	12 piece
29320902	GOF Simplex Pigtail ST E9 OS2, 2m	12 piece
29330902	GOF Simplex Pigtail LC E9 OS2, 2m	12 piece

Other types of connectors (e.g. LC, MTRJ, E2000) are available upon request. Judy Lim: This will not apply to Hitronic anymore, as LC will become a standard product and MTRJ/E2000 will be removed.

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## GOF Connector

Accessories for glass optical fibre cable, connector types LC, SC, ST and FC



### Benefits

- Ideal for assembling
- For assembly process: cable preparation/ glueing/crimping/polishing
- Assembly instructions can be found in the GOF assembly toolbox (not included in Lapp product range)
- Trained optical installers should be used in all connector assembly

### Application range

- For connector assemblies in production or laboratory environment

### Product features

- Connector sets include all needed parts for assembly

### Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2

### Product Make-up

- Ferrule diameter:  
LC: 1.25mm (zirconia)  
SC, ST: 2.5mm (zirconia)
- Can be assembled with cables of 1.7mm-2.1mm diameter
- LC and SC connector sets available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

### Technical data

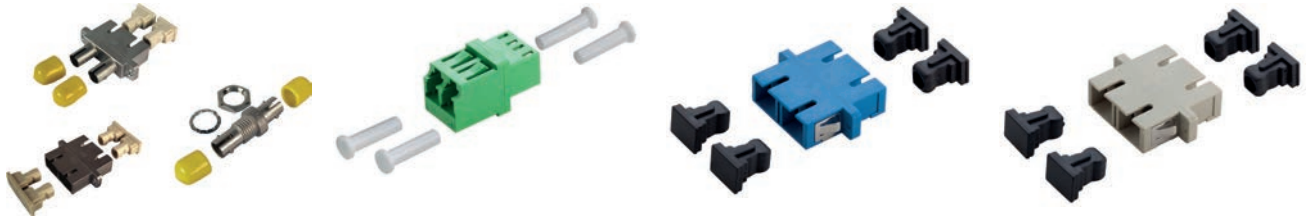
	<b>Classification ETIM 5/6</b> ETIM 5.0/6.0 Class-ID: EC001122 ETIM 5.0/6.0 Class-Description: Fibre optic connector
	<b>Permissible tensile force</b> Tensile load 70N Tensile strength after assembly > 100N
	<b>Temperature range</b> Operating LC: -40°C to 75°C SC: -40°C to 75°C ST: -40°C to 85°C Humidity 95% Flammability UL 94 V-0

Article number	Article designation	PU
<b>Singlemode</b>		
29110999	GOF Connector SC Single-mode Blue /4PC	4 piece
29110998	GOF Connector SC Single-mode Blue /50PC	50 piece
29110989	GOF Connector SC Single-mode APC Green/ 4PC	4 piece
29110988	GOF Connector SC Single-mode APC Green/ 50PC	50 piece
29130999	GOF Connector LC Single-mode Blue /4PC	4 piece
29130998	GOF Connector LC Single-mode Blue /50PC	50 piece
29130989	GOF Connector LC Single-mode APC GR /4PC	4 piece
29130988	GOF Connector LC Single-mode APC GR/50PC	50 piece
29120999	GOF Connector ST Single-mode /4PC	4 piece
29120998	GOF Connector ST Single-mode /50PC	50 piece
29140999	GOF Connector FC Single-mode /4PC	4 piece
<b>Multimode</b>		
29110199	GOF Connector SC Multimode Beige /4PC	4 piece
29110198	GOF Connector SC Multimode Beige /50PC	50 piece
29130199	GOF Connector LC Multimode Beige /4PC	4 piece
29130198	GOF Connector LC Multimode Beige /50PC	50 piece
29120199	GOF Connector ST Multimode /4PC	4 piece
29120198	GOF Connector ST Multimode /50PC	50 piece
29140199	GOF Connector FC Multimode /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

## GOF Adapters

Accessories for glass optical fibre cable, adapters for connector types LC, SC and ST



### Product features

- The couplings connect the glass fibre connectors with the same or different connector types.

### Norm references / Approvals

- LC comply with IEC standard 61754-20
- SC comply with IEC standard 61754-4
- ST comply with IEC standard 61754-2
- Comply with IEC, EIA/TIA standards

### Product Make-up

- Zirconia sleeves
- LC and SC adapters available in green (single-mode APC), blue (single-mode PC) and grey (multimode)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC000752  
 ETIM 5.0/6.0 Class-Description: Fibre optic coupler

**Attenuation**  
 Attenuation (dB) < 0.2  
 Repeatability  
 1000 cycles (dB) < 0.2

**Temperature range**  
 Operating  
 LC: -25°C to 70°C  
 SC: -40°C to 75°C  
 ST: -40°C to 85°C  
 Humidity 95%  
 Flammability UL 94 V-0

Article number	Article designation	PU
<b>Singlemode</b>		
29410999	GOF Adapter Duplex SC Single-mode Blue /4PC	4 piece
29410989	GOF Adapter Duplex SC Single-mode APC Green /4PC	4 piece
29430999	GOF Adapter Duplex LC Single-mode Blue /4PC	4 piece
29430989	GOF Adapter Duplex LC Single-mode APC Green /4PC	4 piece
29420999	GOF Adapter Simplex ST(BFOC) Single-mode /4PC	4 piece
29421999	GOF Adapter Duplex ST-SC Single-mode /4PC	4 piece
<b>Multimode</b>		
29410199	GOF Adapter Duplex SC Multimode Beige /4PC	4 piece
29430199	GOF Adapter Duplex LC Multimode Beige /4PC	4 piece
29420199	GOF Adapter Simplex ST(BFOC) Multimode /4PC	4 piece
29421199	GOF Adapter Duplex ST-SC Multimode /4PC	4 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.



## 19" Splice Box for ST



### Product features

- For up to 12 or 24 fibres
- Can be pulled out
- Unpopulated
- For a maximum of 4 splicing cartridges
- Height: 1 RU
- Dimensions (WxHxD):  
483 x 44.5 x 244 mm
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001130  
 ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

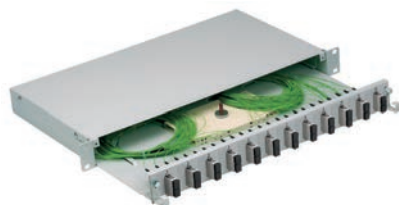
Article number	Article designation	PU
<b>Splice Box Compact</b>		
CE9138	19" Splice Box for 12 ST	1 piece
CE9139	19" Splice Box for 24 ST	1 piece

Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with coupings and pigtails. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

## 19" Splice Box for SC



### Product features

- For up to 24 fibres
- Included: front panel with 12 SC-duplex holes
- Can be pulled out
- Unpopulated
- Height: 1 RU
- Material: steel plate, 1.5 mm
- Colour: light grey (RAL 7035)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001130  
 ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

Article number	Article designation	PU
<b>Splice Box Compact</b>		
CE9135	19" Splice Box for SC	1 piece

Splice boxes for more fibres with other types of connectors are available upon request. Also available in pre-assembled versions with coupings and pigtails. Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

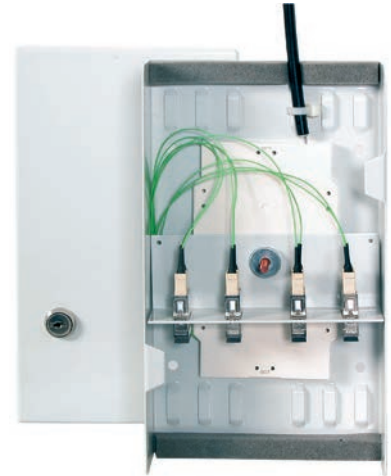
## Splice Box Compact

### Product features

- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Includes distributor plate for 8 ST couplings
- Includes distributor plate for 4 SC duplex couplings
- Dimensions (WxHxD): 265 x 150 x 55 mm
- Colour: light grey (RAL 7035)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001130  
 ETIM 5.0/6.0 Class-Description: Patch panel fibre optic



Article number	Article designation	PU
<b>Splice Box Compact</b>		
CE9147	Splice Box Compact	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

### Product features

- Panel mounting
- Lockable
- Max. capacity of 8 splicing cartridges or 4 splicing cartridges and one distribution plate
- Accessories for Mini wall-mounted rack:
  - Distributor plate for 24 ST couplings
  - Distributor plate for 24 SC Simplex couplings
  - Distributor plate for 12 SC Duplex couplings
- Dimensions (W x H x D): 320 x 280 x 54 mm
- Colour: light grey (RAL 7035)

### Technical data

**Classification ETIM 5/6**  
 ETIM 5.0/6.0 Class-ID: EC001130  
 ETIM 5.0/6.0 Class-Description: Patch panel fibre optic

## Mini wall-mounted rack



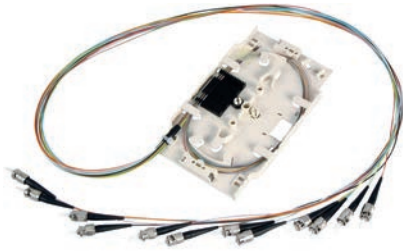
Article number	Article designation	PU
<b>Mini wall-mounted rack</b>		
CE9150	Mini wall-mounted rack	1 piece
<b>Accessories for Mini wall-mounted rack</b>		
CE9151	Distribution plate for 24 x ST-Couplers	1 piece
CE9152	Distribution plate for 24 x SC-simplex-Couplers	1 piece
CE9153	Distribution plate for 12 x SC-duplex-Couplers	1 piece

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF Adapters refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- Accessories for splice boxes and wall-mounted rack refer to page 520

## Accessories for splice boxes and wall-mounted rack



### Product features

- Splicing cassette for up to 2 splicing protection holders
- Cover for splicing cartridge
- 12-fold splicing protection holder
- Splicing protection sleeve for ANT splicing device
- Blind cap instead of E2000 coupling
- Blind cap instead of ST coupling
- Dummy cap instead of SC duplex coupling

### Technical data



#### Classification ETIM 5/6

ETIM 5.0/6.0 Class-ID: EC001123  
 ETIM 5.0/6.0 Class-Description: Splice protection

Article number	Article designation	PU
<b>Accessories for splice boxes and wall-mounted rack</b>		
CE9914	Splicing cassette for up to 2 splicing protection holders	1 piece
CE9914D	Cover for splicing cartridge	1 piece
CE9916	12-fold splicing protection holder	1 piece
CE9913	Splicing protection sleeve for ANT splicing device	15 pieces
CE9917	Blind cap instead of E2000 coupling	10 pieces
CE9918	Blind cap instead of ST coupling	10 pieces
CE9919	Blind cap instead of SC duplex coupling	10 pieces

Photographs and graphics are not to scale and do not represent detailed images of the respective products.

### Accessories

- GOF DUPLEX Patchcord refer to page 514
- GOF ADAPTERS refer to page 517
- GOF SIMPLEX Pigtail refer to page 515
- TY-GRIP® FOL/ FO cable tie refer to page 1046