

Overview



- Used for the optical Industrial Ethernet and PROFIBUS networks
- Rugged design for industrial applications indoors and outdoors
- Halogen-free design for installation inside buildings
- Trailing cable for the special application of forced motion control
- High immunity to noise thanks to insensitivity to electromagnetic fields
- Available preassembled
- Extensive approvals (UL)

Benefits



- Easy routing with
 - pre-assembled cables
 - no grounding problems
 - very light fiber-optic cable
- Tap-proof due to lack of radiation from the cable
- Silicon-free; therefore suitable for use in the automotive industry (e.g. on paint shop conveyors)

Application

Marine duplex fiber-optic cable SIENOPYR

Halogen-free, non-crush, flame-retardant, marine-approved fiber-optic cable for permanent installation on ships and on offshore platforms indoors and on open deck. Sold by the meter.

Fiber-optic indoor cable

Halogen-free fiber-optic cable, non-crush, flame-retardant, for installation inside buildings (e.g. in production halls and in building automation). Supplied in fixed lengths, pre-assembled with 4 BFOC connectors.

Fiber-optic standard cable

Fiber-optic cables for the following application areas indoors and outdoors

- For routing above ground
- For installation inside buildings.

Sold by the meter and in fixed lengths, pre-assembled with 4 BFOC connectors.

Fiber-optic trailing cable

Fiber-optic cables for the special application of forced motion control, such as in continuously moving machine parts (in trailing cables) indoors and outdoors. Two cable versions are available for this application:

- FO Trailing Cable; Cable for high mechanical stress, PUR outer sheath, no UL approval
- FO Trailing Cable GP (general purpose); Cable for low mechanical stress, PVC outer sheath, with UL approval

Sold by the meter and in fixed lengths, pre-assembled with 4 BFOC connectors.

Fiber-optic outdoor cable

Waterproof cable (lengthwise and sideways) for use outdoors with non-metallic protection against rodents for laying into the ground.

Sold by the meter and in fixed lengths, pre-assembled with 4 BFOC connectors.



Note:
Special tools and specially trained personnel are required for pre-assembling glass fiber-optic cables

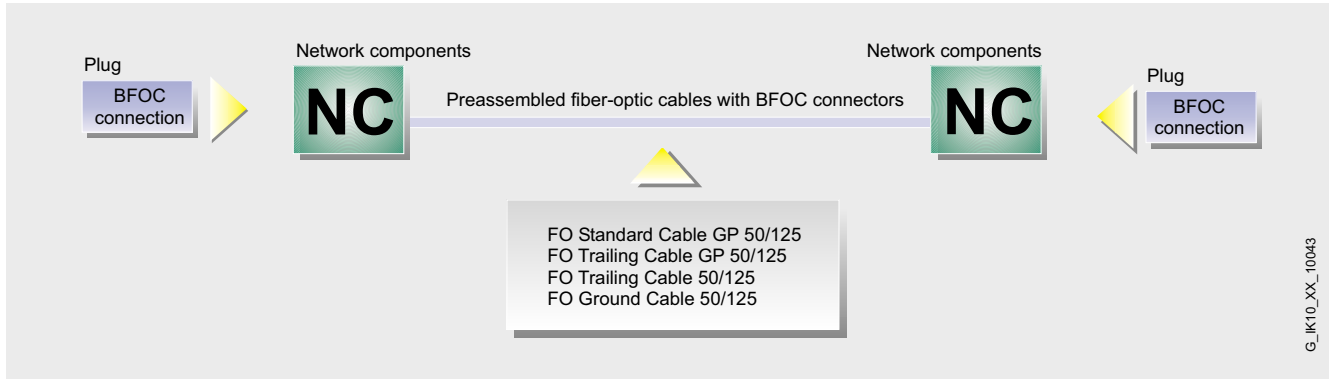
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Optical networks with OLM

Glass fiber-optic cables

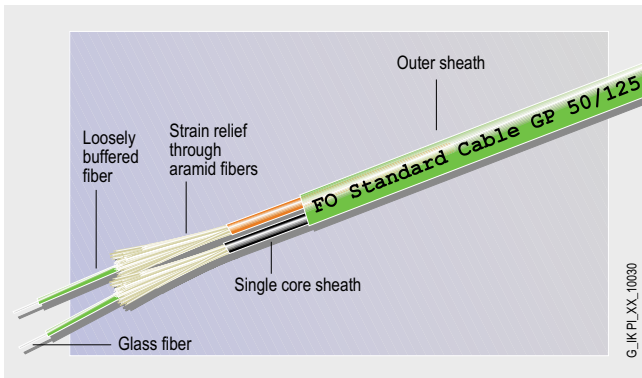
Application (continued)

Application examples



Use of pre-assembled fiber-optic cables with BFOC connectors (100 bit/s)

Design





Cable types	50/125 μm	62.5/125 μm
FO Standard Cable GP	■	-
FO Trailing Cable	■	-
FO Trailing Cable GP	■	-
FO Ground Cable	■	-
FIBER OPTIC standard cable	-	■
INDOOR Fiber Optic indoor cable	-	■
Flexible Fiber Optic trailing cable	-	■
SIENOPYR marine duplex fiber-optic cable	-	■

In the respective applications, the maximum cable lengths must be taken into account.

Passive connection of different fiber types is not permissible.

Technical specifications

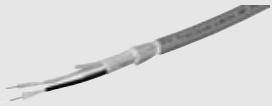

Cable type	FO Standard Cable GP	FO Ground Cable
		
Application areas	Universal cable for installation indoors and outdoors	Waterproof cable (lengthwise and sideways) for use outdoors with non-metallic protection against rodents for laying into the ground.
Type of delivery	Sold by the meter; pre-assembled with 4 BFOC connectors	Sold by the meter; pre-assembled with 4 BFOC connectors
Cable type (standard designation)	AT-W(ZN)YY 2x1G50/125	AT-WQ(ZN)Y(ZN)B2Y 2G50/125
Fiber type	Multi-mode gradient fiber 50/125 mm	Multi-mode gradient fiber 50/125 mm
Damping	<ul style="list-style-type: none"> • at 850 nm ≤ 2.7 dB/km • at 1300 nm ≤ 0.7 dB/km 	<ul style="list-style-type: none"> • at 850 nm ≤ 2.7 dB/km • at 1300 nm ≤ 0.7 dB/km
Modal bandwidth	<ul style="list-style-type: none"> • at 850 nm ≥ 600 MHz *km • at 1300 nm ≥ 1200 MHz *km 	<ul style="list-style-type: none"> • at 850 nm ≥ 600 MHz *km • at 1300 nm ≥ 1200 MHz *km
Number of fibers	2	2
Cable design	Segmentable	Segmentable
Core type	Hollow core, filled	Hollow core, filled
Materials	<ul style="list-style-type: none"> • Basic element PVC, orange/black • Strain relief Aramide fibers • Outer sheath/color of cable PVC, green 	<ul style="list-style-type: none"> • Basic element PVC, orange/black • Strain relief Aramide fibers • Outer sheath/color of cable PVC, black
Mechanical characteristics	<ul style="list-style-type: none"> • Dimensions of basic element 2.9 mm dia. • Cable dimensions 4.5 x 7.4 mm • Cable weight approx. 40 kg/km • Permissible tensile force ≤ 500 N • Bending radius 65 mm • Bending cycles – • Resistant to lateral force 300 N/cm • Impact resistant (starting energy/number/hammer Ø) – 	<ul style="list-style-type: none"> • Dimensions of basic element 2.9 mm dia. • Cable dimensions 10.5 mm • Cable weight approx. 90 kg/km • Permissible tensile force ≤ 800 N • Bending radius 155 mm • Bending cycles – • Resistant to lateral force 300 N/cm • Impact resistant (starting energy/number/hammer Ø) –
Perm. ambient conditions	<ul style="list-style-type: none"> • Routing and installation temperature -5 °C ... $+50$ °C • Operating temperature -25 °C ... $+80$ °C • Storage temperature -25 °C ... $+80$ °C 	<ul style="list-style-type: none"> • Routing and installation temperature -5 °C ... $+50$ °C • Operating temperature -25 °C ... $+70$ °C • Storage temperature -25 °C ... $+70$ °C
Behavior in fire	–	–
Halogen-free	–	–
Silicone-free	Yes	Yes
Resistance to mineral oils and grease	Limited resistance	Highly resistant
UL/CSA approvals	OFN (NEC Article 770, UL1651)/ OFN, 90°C, FT1, FT4 (CSA standard C22.2 No232-M1988)	–
UV-resistant	Yes	Yes
Protection against rodents	–	Yes

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Optical networks with OLM

Glass fiber-optic cables

Technical specifications (continued)

Cable type	FO Trailing Cable	FO Trailing Cable GP
		
Application areas	Cable for use in cable carriers for high mechanical loading, PUR outer sheath, no UL approval	Cable for use in cable carriers for low mechanical loading, PVC outer sheath, UL approval
Type of delivery	Sold by the meter; pre-assembled with 4 BFOC connectors	Sold by the meter; pre-assembled with 4 BFOC connectors
Cable type (standard designation)	AT-W(ZN)Y(ZN)11Y 2G50/125	AT-W(ZN)Y(ZN)Y 2G50/125
Fiber type	Multi-mode gradient fiber 50/125 mm	Multi-mode gradient fiber 50/125 mm
Damping		
• at 850 nm	≤ 2.7 dB/km	≤ 2.7 dB/km
• at 1300 nm	≤ 0.7 dB/km	≤ 0.7 dB/km
Modal bandwidth		
• at 850 nm	≥ 600 MHz *km	≥ 600 MHz *km
• at 1300 nm	≥ 1200 MHz *km	≥ 1200 MHz *km
Number of fibers	2	2
Cable design	Segmentable	Segmentable
Core type	Hollow core, filled	Hollow core, filled
Materials		
• Basic element	PVC, orange/black	PVC, orange/black
• Strain relief	Aramide fibers	Aramide fibers
• Outer sheath/color of cable	PUR, green	PVC, green
Mechanical characteristics		
• Dimensions of basic element	2.9 mm dia.	2.9 mm dia.
• Cable dimensions	10.5 mm	10.5 mm
• Cable weight	approx. 90 kg/km	approx. 90 kg/km
• Permissible tensile force	≤ 800 N	≤ 800 N
• Bending radius	200 mm	200 mm
• Bending cycles	5000000	>3500000
• Resistant to lateral force	300 N/cm	300 N/cm
• Impact resistant (starting energy/number/hammer Ø)	–	–
Perm. ambient conditions		
• Routing and installation temperature	–5 °C ... +50 °C	–5 °C ... +50 °C
• Operating temperature	–25 °C ... +80 °C	–25 °C ... +80 °C
• Storage temperature	–25 °C ... +80 °C	–25 °C ... +80 °C
Behavior in fire	–	–
Halogen-free	–	–
Silicone-free	Yes	Yes
Resistance to mineral oils and grease	Highly resistant	Limited resistance
UL/CSA approvals	–	OFN (NEC Article 770, UL1651)/ OFN, 90°C, FT1, FT4 (CSA standard C22.2 No232-M1988)
UV-resistant	Yes	Yes
Protection against rodents	–	–

Technical specifications (continued)

Cable type	INDOOR Fiber Optic Indoor cable	Fiber Optic Standard cable
		
Application areas	Non-crush, halogen-free and fire-retardant cable for indoor installation	Universal cable for installation indoors and outdoors
Type of delivery	Sold by the meter, pre-assembled with 4 BFOC connectors	Sold by the meter, pre-assembled with 4 BFOC connectors
Cable type (standard designation)	T-VHH 2G62.5/125 3.2B200+0.9F600 F TB3 OR FRNC	AT-VYY 2G62.5/125 3.1B200 + 0.8F600 F
Fiber type	Multi-mode gradient fiber 62.5/125 mm	Multi-mode gradient fiber 62.5/125 mm
Attenuation at 850 nm Attenuation at 1300 nm	≤ 3.5 dB/km ≤ 1.0 dB/km	≤ 3.1 dB/km ≤ 0.8 dB/km
Modal bandwidth at 850 nm Modal bandwidth at 1300 nm	≥ 200 MHz *km ≥ 500 MHz *km	≥ 200 MHz *km ≥ 600 MHz *km
Number of fibers	2	2
Cable design	Segmentable inner conductor	Segmentable outer conductor
Core type	Fixed core	Compact core
Materials		
• Basic element	Copolymer, gray (FRNC)	PVC, gray
• Strain relief	Aramide fibers	Kevlar fiber and impregnated glass fiber
• Outer sheath/color of cable	Copolymer, light orange (FRNC)	PVC, black
Mechanical characteristics		
• Dimensions of basic element	(2.9 ± 0.1) mm dia.	(3.5 ± 0.2) mm dia.
• Cable dimensions	(3.9 × 6.6) ± 0.2 mm	(6.3 × 9.8) ± 0.4 mm
• Cable weight	approx. 27 kg/km	approx. 74 kg/km
• Permissible tensile force	≤ 800 N (temporary)	≤ 500 N (temporary)
• Bending radius	≥ 50 mm (when routing) ≥ 30 mm (during operation) only on the flat side	≥ 100 mm only on the flat side
• Resistant to lateral force	10000 N/10 cm (temporary) ¹⁾ 2000 N/10 cm (continuous) ²⁾	–
• Impact resistant (starting energy/number/hammer Ø)	1.5 Nm/20 impacts/12.5 mm	–
Perm. ambient conditions		
• Routing and installation temperature	–5 °C ... +50 °C	–5 °C ... +50 °C
• Operating temperature	–20 °C ... +60 °C	–20 °C ... +60 °C
• Storage temperature	–25 °C ... +70 °C	–25 °C ... +70 °C
Behavior in fire	Flame-retardant to IEC 60332-1 and VDE 0482-265-2-1	Flame-retardant to IEC 60332-3 and VDE 0482-266-2-4
Halogen-free	Yes	–
Silicone-free	Yes	Yes
Resistance to mineral oils and grease	–	–
UL approval	–	–
UV-resistant	–	–
Protection against rodents	–	Yes

1) Attenuation change reversible max. 0.3 dB

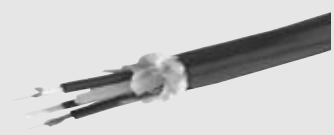

2) Attenuation change reversible max. 0.1 dB

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Optical networks with OLM

Glass fiber-optic cables

Technical specifications (continued)

Cable type	Flexible Fiber Optic Trailing cable	SIENOPYR marine duplex fiber-optic cable
		
Application areas	Flexible cable for routing in cable carriers indoors and outdoors	Fixed routing on ships and on offshore platforms in any room and on open deck; marine approval
Type of delivery	Sold by the meter, pre-assembled with 4 BFOC connectors	Sold by the meter
Cable type (standard designation)	AT-W11Y (ZN) 11Y 2G62.5/125 3.1B200 + 0.8F600 F	MI-VHH 2G 62.5/125 3.1B200 + 0.8F600 + 2 x 1CU
Fiber type	Multi-mode gradient fiber 62.5/125 mm	Multi-mode gradient fiber 62.5/125 mm
Attenuation at 850 nm Attenuation at 1300 nm	≤ 3.1 dB/km ≤ 0.8 dB/km	≤ 3.1 dB/km ≤ 0.8 dB/km
Modal bandwidth at 850 nm Modal bandwidth at 1300 nm	≥ 200 MHz *km ≥ 600 MHz *km	≥ 200 MHz *km ≥ 600 MHz *km
Number of fibers	2	2
Cable design	Segmentable outer conductor	Segmentable outer conductor
Core type	Hollow core, filled	Full core
Materials	<ul style="list-style-type: none"> • Basic element: PUR, black • Strain relief: Aramide fiber, also GFP central element • Outer sheath/color of cable: PUR, black 	<ul style="list-style-type: none"> • Polyolefin • Aramide fibers • SHF1 mixture, black
Mechanical characteristics	<ul style="list-style-type: none"> • Dimensions of basic element: (3.5 ± 0.2) mm dia. • Cable dimensions: 13.4 ± 0.4 mm (external diameter) • Cable weight: approx. 135 kg/km • Permissible tensile force: ≤ 2000 N (temporary) ≤ 1000 N (continuous) • Bending radius: ≥ 150 mm min. 100000 bending cycles 	<ul style="list-style-type: none"> • (2.9 ± 0.2) mm dia. • 13.3 ± 0.5 mm • approx. 220 kg/km • ≤ 500 N (temporary) ≤ 250 N (continuous) • 133 mm (once) 266 mm (more than once)
Perm. ambient conditions	<ul style="list-style-type: none"> • Routing and installation temperature: -5 °C ... +50 °C • Operating temperature: -30 °C ... +60 °C • Storage temperature: -30 °C ... +70 °C 	<ul style="list-style-type: none"> • -10 °C ... +50 °C • -40 °C ... +80 °C ¹⁾ • -40 °C ... +70 °C ²⁾ • -40 °C ... +80 °C
Behavior in fire	-	Flame-retardant acc. to IEC 60332-3 Cat A
Halogen-free	-	Yes
Silicone-free	Yes	Yes
Resistance to mineral oils and grease	-	-
UL approval	-	-
UV-resistant	Yes	-
Protection against rodents	-	-
Approvals for use in marine vessels	-	<ul style="list-style-type: none"> • Lloyd Register of Shipping • German Lloyd • Registro Staliano Navale • Bureau Veritas

1) With copper cores and no load

2) With copper cores and maximum load (6 A)

Ordering data	Order No.	Order No.	
<p>FO Standard Cable GP 50/125</p> <p>Sold by the meter; max. quantity 1000 m; minimum order 20 m;</p> <p>Preferred lengths pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> • 0.5 m • 1 m • 2 m • 3 m • 5 m • 10 m • 15 m • 20 m • 30 m • 40 m • 50 m • 80 m • 100 m • 150 m • 200 m • 300 m 	<p>6XV1 873-2A</p> <p>6XV1 873-3AH05</p> <p>6XV1 873-3AH10</p> <p>6XV1 873-3AH20</p> <p>6XV1 873-3AH30</p> <p>6XV1 873-3AH50</p> <p>6XV1 873-3AN10</p> <p>6XV1 873-3AN15</p> <p>6XV1 873-3AN20</p> <p>6XV1 873-3AN30</p> <p>6XV1 873-3AN40</p> <p>6XV1 873-3AN50</p> <p>6XV1 873-3AN80</p> <p>6XV1 873-3AT10</p> <p>6XV1 873-3AT15</p> <p>6XV1 873-3AT20</p> <p>6XV1 873-3AT30</p>	<p>Standard FIBER OPTIC CABLE (62.5/125), segmentable</p> <p>Sold by the meter; max. quantity 2000 m; minimum order 20 m</p> <p>Preferred lengths pre-assembled with 4 BFOC plugs</p> <ul style="list-style-type: none"> • 1 m • 2 m • 3 m • 4 m • 5 m • 10 m • 15 m • 20 m • 30 m • 40 m • 50 m • 55 m • 60 m • 65 m • 70 m • 75 m • 80 m • 100 m • 120 m • 130 m • 150 m • 200 m • 250 m • 300 m 	<p>6XV1 820-5AH10</p> <p>6XV1 820-5BH10</p> <p>6XV1 820-5BH20</p> <p>6XV1 820-5BH30</p> <p>6XV1 820-5BH40</p> <p>6XV1 820-5BH50</p> <p>6XV1 820-5BN10</p> <p>6XV1 820-5BN15</p> <p>6XV1 820-5BN20</p> <p>6XV1 820-5BN30</p> <p>6XV1 820-5BN40</p> <p>6XV1 820-5BN50</p> <p>6XV1 820-5BN55</p> <p>6XV1 820-5BN60</p> <p>6XV1 820-5BN65</p> <p>6XV1 820-5BN70</p> <p>6XV1 820-5BN75</p> <p>6XV1 820-5BN80</p> <p>6XV1 820-5BT10</p> <p>6XV1 820-5BT12</p> <p>6XV1 820-5BT13</p> <p>6XV1 820-5BT15</p> <p>6XV1 820-5BT20</p> <p>6XV1 820-5BT25</p> <p>6XV1 820-5BT30</p>
<p>FO Trailing Cable 50/125</p> <p>Sold by the meter; max. quantity 1000 m; minimum order 20 m;</p> <p>Preferred lengths pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> • 3 m • 5 m • 10 m • 20 m • 50 m • 100 m 	<p>6XV1 873-2C</p> <p>6XV1 873-3CH30</p> <p>6XV1 873-3CH50</p> <p>6XV1 873-3CN10</p> <p>6XV1 873-3CN20</p> <p>6XV1 873-3CN50</p> <p>6XV1 873-3CT10</p>	<p>INDOOR FIBER OPTIC CABLE (62.5/125), segmentable</p> <p>Sold by the meter; max. quantity 2000 m; minimum order 20 m</p> <p>Preferred lengths; pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> • 0.5 m • 1 m • 2 m • 3 m • 5 m • 10 m • 15 m • 20 m • 25 m • 50 m • 75 m • 100 m 	<p>6XV1 820-7AH10</p> <p>6XV1 820-7BH05</p> <p>6XV1 820-7BH10</p> <p>6XV1 820-7BH20</p> <p>6XV1 820-7BH30</p> <p>6XV1 820-7BH50</p> <p>6XV1 820-7BN10</p> <p>6XV1 820-7BN15</p> <p>6XV1 820-7BN20</p> <p>6XV1 820-7BN25</p> <p>6XV1 820-7BN50</p> <p>6XV1 820-7BN75</p> <p>6XV1 820-7BT10</p>
<p>FO Trailing Cable GP 50/125</p> <p>Sold by the meter; max. quantity 1000 m; minimum order 20 m;</p> <p>Preferred lengths ¹⁾ pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> • 3 m • 5 m • 10 m • 20 m • 50 m • 100 m 	<p>6XV1 873-2D</p> <p>6XV1 873-3DH30</p> <p>6XV1 873-3DH50</p> <p>6XV1 873-3DN10</p> <p>6XV1 873-3DN20</p> <p>6XV1 873-3DN50</p> <p>6XV1 873-3DT10</p>	<p>SIENOPYR marine duplex fiber-optic cable (62.5/125)</p> <p>Fiber-optic cable for installation onboard ships and on offshore platforms</p> <p>Sold by the meter; max. quantity 1000 m</p>	<p>6XV1 820-7BH05</p> <p>6XV1 820-7BH10</p> <p>6XV1 820-7BH20</p> <p>6XV1 820-7BH30</p> <p>6XV1 820-7BH50</p> <p>6XV1 820-7BN10</p> <p>6XV1 820-7BN15</p> <p>6XV1 820-7BN20</p> <p>6XV1 820-7BN25</p> <p>6XV1 820-7BN50</p> <p>6XV1 820-7BN75</p> <p>6XV1 820-7BT10</p> <p>6XV1 830-0NH10</p>
<p>FO Ground Cable 50/125</p> <p>Sold by the meter; max. quantity 2000 m; minimum order 20 m;</p> <p>Preferred lengths pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> • 100 m • 200 m • 300 m 	<p>6XV1 873-2G</p> <p>6XV1 873-3GT10</p> <p>6XV1 873-3G T20</p> <p>6XV1 873-3G T30</p>		

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Optical networks with OLM

Glass fiber-optic cables

Ordering data

Order No.

FLEXIBLE FIBER OPTIC CABLE trailing cable

(62.5/125), segmentable

Sold by the meter;
max. quantity 2000 m;
minimum order 20 m

Preferred lengths;
pre-assembled
with 4 BFOC connectors

- 1 m
- 2 m
- 3 m
- 5 m
- 10 m
- 15 m
- 20 m
- 30 m
- 50 m
- 75 m
- 100 m

6XV1 820-6AH10

6XV1 820-6BH10

6XV1 820-6BH20

6XV1 820-6BH30

6XV1 820-6BH50

6XV1 820-6BN10

6XV1 820-6BN15

6XV1 820-6BN20

6XV1 820-6BN30

6XV1 820-6BN50

6XV1 820-6BN75

6XV1 820-6BT10

Accessories

BFOC connector set

for FIBER OPTIC CABLE,
standard, trailing cable, indoor
cable as well as SIENOPYR
marine duplex fiber-optic cable,
20 units

6GK1 901-0DA20-0AA0

Manual for TP and fiber-optic networks¹⁾

Paper version

Network architecture,
components, configurations,
installation guidelines

- German
- English

6GK1 970-1BA10-0AA0

6GK1 970-1BA10-0AA1

SIMATIC NET Manual Collection

6GK1 975-1AA00-3AA0

Electronic manuals
for communication systems,
communication protocols and
communication products;
on CD-ROM
German/English

1) Further language versions and manuals
can be found for the respective products at
<http://www.siemens.com/automation/csj/net>



Note
Special fiber-optic cables, lengths and accessories available
on request. Special tools and specially trained personnel
are required for pre-assembling glass fiber-optic cables

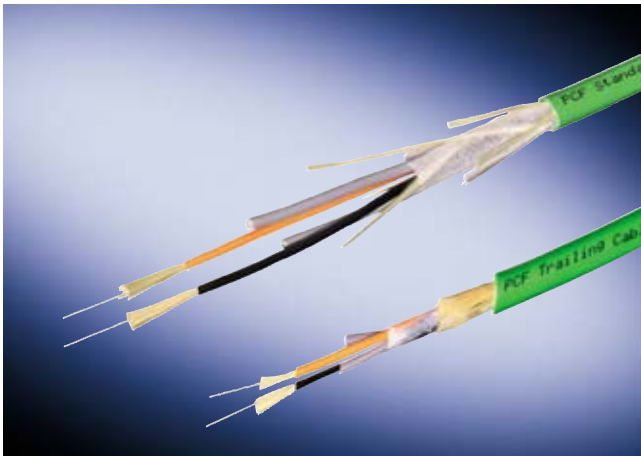
More information

You can order components and demonstration materials
supplementary to the SIMATIC NET cabling range from your
local contact.

Technical advice on this subject is available from:

J. Hertlein A&D SE PS
Tel. +49 (0) 911/750 44 65
Fax. +49 (0) 911/750 99 91
E-mail: juergen.hertlein@siemens.com

Overview



- Electrical isolation of PROFIBUS devices and PROFIBUS segments
- Protection of the transmission path against electromagnetic interference
- Up to 80 m cable length with plastic fiber-optic cables and up to 400 m with PCF fiber-optic cables
- Rugged fiber-optic standard cables, designed for industrial applications
- Extensive approvals (UL)

Benefits



- Plastic and PCF fiber-optic cables can be pre-assembled on site
- Time savings on start-up thanks to pre-assembled cables
- Protection of the transmission path against electromagnetic interference
- Tap-proof, because the cable does not radiate

Application

SIMATIC NET plastic and PCF fiber-optic cables are used in combination with OLM/P11 and OLM/P12 for constructing optical PROFIBUS networks or for the optical connection of segments in RS 485 technology in indoor applications.

Plastic fiber-optic cables and segmented PCF fiber-optic cables can be assembled on site with 2 x 2 BFOC connectors. The maximum cable length between two OLM/P11 or OLM/P12 is 80 m.

Longer cable lengths up to 400 m can be achieved using PCF fiber-optic cables. These cables are also available preassembled with 4 BFOC connectors.

Design

Different types of plastic and PCF fiber-optic cables are offered:

Plastic fiber-optic cables

- **Plastic FOC, standard cable;** rugged round cable with violet PVC outer sheath and Kevlar tension components as well as two plastic fibers with a rugged polyamide inner sheath. For indoor applications; cable lengths up to 80 m.
- **Plastic FOC, duplex core;** two flat cores with PVC inner sheath and without outer sheath for indoor applications with low mechanical stress such as laboratory setups or inside cabinets; cable length to 50 m.

PCF fiber optic cables

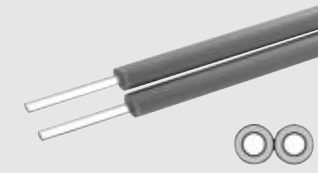
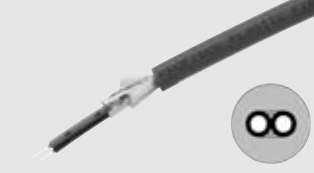

- **PCF fiber-optic cable, standard cables:** Rugged round cables with violet/green PVC outer sheath and Kevlar strain relief elements for applications indoor/outdoors; cable lengths up to 400 m; the following cable versions are available:
 - PCF fiber optic standard cable; with violet PVC outer sheath for indoor applications. The cable is not suitable for assembly in the field; (only available pre-assembled with an insertion tool)
 - PCF Standard Cable GP (general purpose); with green PVC outer sheath for indoor and outdoor applications. The cable is suitable for assembly in the field.
- **PCF fiber optic trailing cable;** rugged round cable with green outer sheath and Kevlar tension elements for trailing cable applications; cable lengths of up to 400 m. The cables are suitable for assembly in the field. The following cable versions are available:
 - PCF Trailing Cable; cable for high mechanical stress, PUR outer sheath, no UL approval
 - PCF Trailing Cable GP (general purpose); cable for low mechanical stress, PVC outer sheath, with UL approval

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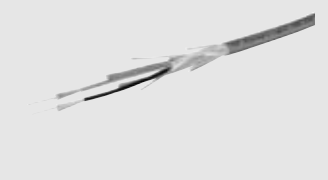
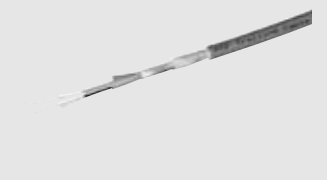

Plastic and PCF fiber-optic cables

Technical specifications

Cable type	PROFIBUS Plastic Fiber Optic Duplex Core	PROFIBUS Plastic Fiber Optic Standard Cable	PROFIBUS PCF Fiber Optic Standard Cable
Core cross-section			
Area of application	Indoor applications with low mechanical loading, such as laboratory setups or inside cabinets, with cable lengths up to 50 m	For indoor applications with cable lengths up to 80 m	For indoor applications with cable lengths up to 300 m
Delivery format	Sold by the meter; for assembly on site with 2 simplex connectors	Preassembled with 2 x 2 BFOC connectors or sold by the meter	Only preassembled with 2 x 2 BFOC plugs; cable is not suitable for assembly in the field.
Cable type (standard designation)	I-VY2P 980/1000 150A	I-VY4Y2P 980/1000 160A	I-VY2K 200/230 10A17+8B20
Fiber type	Step-index fiber	Step-index fiber	Step-index fiber
Damping			
• at 660 nm	≤ 230 dB/km	≤ 230 dB/km	≤ 10 dB/km
Number of fibers	2	2	2
Materials			
• Fiber core	Polymethyl methacrylate (PMMA)	Polymethyl methacrylate (PMMA)	Quartz glass
• Cladding	Fluoridated special polymer	Fluoridated special polymer	Fluoridated special polymer
• Inner sheath/color	PVC, gray	PA, black or orange	– ¹⁾
• Outer sheath/color	–	PVC, violet	PVC, violet
• Strain relief	–	Kevlar fibers	Kevlar fibers
Mechanical characteristics			
• Diameter of fiber core	980 μm	980 μm	200 μm
• Cladding outer diameter	1000 μm	1000 μm	230 μm
• Diameter of inner sheath	2.2 ± 0.01 mm dia.	2.2 ± 0.01 mm dia.	–
• Cable dimensions	2.2 × 4.4 mm ± 0.01 mm	7.8 ± 0.3 mm dia.	4.7 ± 0.3 mm dia.
• Cable weight	7.8 kg/km	65 kg/km	22 kg/km
• Maximum permissible tensile force			
- temporary	≤ 50 N	≤ 100 N	≤ 500 N
- constant	Not suitable for continuous tensile load	Not suitable for continuous tensile load	≤ 100 N (only on strain relief, ≤ 50 N on plug or single core)
• Bending radius			
- once without tensile force	≥ 30 mm	≥ 100 mm	≥ 75 mm
- more than once with tensile force	≥ 50 mm (only over flat side)	≥ 150 mm	≥ 75 mm
• Resistance to lateral force per 10 cm cable length (temporary)	≤ 35 N/10 cm	≤ 100 N/10 cm	≤ 750 N/10 cm
• Resistant against			
- mineral oil ASTM No. 2	Limited	Limited	Limited
- grease	Limited	Limited	Limited
- water	Limited	Limited	Limited
- UV radiation	Not UV resistant	Limited	Limited
Perm. ambient conditions			
• Operating temperature	–30 °C ... +70 °C	–30 °C ... +70 °C	–20 °C ... +70 °C
• Transport/storage temperature	–35 °C ... +85 °C	–30 °C ... +70 °C	–30 °C ... +70 °C
• Routing	0 °C ... +50 °C	0 °C ... +50 °C	–5 °C ... +50 °C
• In short-circuit on conductor			–
Behavior in fire	Flame retardant in accordance with the VW-1 flame test to UL 1581	Flame retardant in accordance with the VW-1 flame test to UL 1581	Flame-retardant acc. to flame test VW-1 to UL 1581
Silicone-free	Contains small quantities of a non-migrating silicone elastomer	Yes	Yes

1) Sold by the meter without inner sheath; not suitable for assembly in the field.

Technical specifications (continued)

Cable type	PCF Standard Cable GP	PCF Trailing Cable	PCF Trailing Cable GP
Core cross-section			
Area of application	For permanent indoor and outdoor installation	For moving applications	For moving applications
Delivery format	Sold by the meter	Sold by the meter	Sold by the meter
Cable type (standard designation)	I-V(ZN)YY 2K200/230	AT-V(ZN)Y(ZN)11Y 2K200/230	AT-V(ZN)Y(ZN)Y 2K200/230
Fiber type	Step index 200/230	Step index 200/230	Step index 200/230
Damping			
• at 650 nm	10 dB/km	10 dB/km	10 dB/km
Modal bandwidth			
• at 650 nm	17 MHz * km	17 MHz * km	17 MHz * km
Number of fibers	2	2	2
Materials			
• Fiber core	Quartz glass	Quartz glass	Quartz glass
• Cladding	Special polymer	Special polymer	Special polymer
• Inner sheath/color	PVC, orange/black	PVC, orange/black	PVC, orange/black
• Outer sheath/color	PVC, green	PUR, green	PVC, green
• Strain relief	Aramide fibers	Aramide fibers	Aramide fibers
Mechanical characteristics			
• Diameter of fiber core	200 µm	200 µm	200 µm
• Cladding outer diameter	230 µm	230 µm	230 µm
• Diameter of inner sheath	2.2 mm dia.	2.2 mm dia.	2.2 mm dia.
• Cable dimensions	7.2 mm	8.8 mm	8.8 mm
• Cable weight	45 kg/km	85 kg/km	85 kg/km
• Maximum permissible tensile force	100 N	800 N	800 N
• Bending radius	105 mm	175 mm	175 mm
• Bending cycles	–	5000000	5000000
• Resistant to lateral force			
- constant	300 N/cm	300 N/cm	300 N/cm
- temporary	500 N/cm	500 N/cm	500 N/cm
• Resistant against			
- mineral oil ASTM No. 2	Limited resistance	Limited resistance	Limited resistance
- grease	Limited resistance	Highly resistant	Limited resistance
- water	-	-	-
- UV radiation	Yes	Yes	Yes
Perm. ambient conditions			
• Operating temperature	-25 °C ... 75 °C	-25 °C ... 75 °C	-25 °C ... 75 °C
• Transport/storage temperature	-25 °C ... 75 °C	-30 °C ... 75 °C	-30 °C ... 75 °C
• Routing	-5 °C ... 50 °C	-5 °C ... 50 °C	-5 °C ... 50 °C
• In short-circuit on conductor			
Behavior in fire	Flame-retardant acc. to IEC 60332-1	Flame-retardant acc. to IEC 60332-1	Flame-retardant acc. to IEC 60332-1
UL/CSA approvals	OFN (NEC Article 770, UL1651)/ OFN, 90°C, FT1, FT4 (CSA standard C22.2 No232-M1988)	–	OFN (NEC Article 770, UL1651)/ OFN, 90°C, FT1, FT4 (CSA standard C22.2 No232-M1988)
UV-resistant	Yes	Yes	Yes
Halogen-free	-	-	-
Silicone-free	Yes	Yes	Yes

PROFIBUS

Optical networks with OLM

Plastic and PCF fiber-optic cables

Ordering data

Order No.

Order No.

PROFIBUS Plastic Fiber Optic, standard cable

Rugged round cable with 2 plastic fiber-optic cores, PVC outer sheath and PA inner sheath, for indoor use

Without connector

- Sold by the meter
- 50 m ring
- 100 m ring

Preferred lengths

Preassembled with 2 x 2 BFOC connectors, arm length 20 cm each, for connection of OLM/P.

- 1 m
- 2 m
- 5 m
- 10 m
- 15 m
- 20 m
- 25 m
- 30 m
- 50 m
- 65 m
- 80 m

6XV1 821-0AH10
6XV1 821-0AN50
6XV1 821-0AT10

6XV1 821-0BH10
6XV1 821-0BH20
6XV1 821-0BH50
6XV1 821-0BN10
6XV1 821-0BN15
6XV1 821-0BN20
6XV1 821-0BN25
6XV1 821-0BN30
6XV1 821-0BN50
6XV1 821-0BN65
6XV1 821-0BN80

PROFIBUS PCF Fiber Optic standard cable

PCF fiber-optic cable with two cores, PVC outer sheath, for covering larger distances up to 400 m,

Preferred lengths

Preassembled with 2 x 2 BFOC connectors, arm length 20 cm each, with aid for pulling in at one end for connection of OLM/P.

- 75 m
- 100 m
- 150 m
- 200 m
- 250 m
- 300 m
- 400 m

6XV1 821-1BN75
6XV1 821-1BT10
6XV1 821-1BT15
6XV1 821-1BT20
6XV1 821-1BT25
6XV1 821-1BT30
6XV1 821-1BT40

PROFIBUS PCF Standard Cable GP 200/230

Standard cable, segmentable, sold by the meter; max. quantity 2000 m; minimum order 20 m;

Preferred lengths; pre-assembled with 4 BFOC connectors

- 75 m
- 100 m
- 150 m
- 200 m
- 250 m
- 300 m
- 400 m

6XV1 861-2A

6XV1 861-3AN75
6XV1 861-3AT10
6XV1 861-3AT15
6XV1 861-3AT20
6XV1 861-3AT25
6XV1 861-3AT30
6XV1 861-3AT40

PROFIBUS Plastic Fiber Optic, duplex core

Plastic fiber-optic cable with two cores, PVC outer sheath, for use in environments with low mechanical stress, without connector

- 50 m ring

6XV1 821-2AN50

PROFIBUS Plastic Fiber Optic, Stripping Tool Set

Tools for removing the outer sheath or core sheath of PROFIBUS Plastic Fiber Optic cables

6GK1 905-6PA10

PROFIBUS Plastic Fiber Optic, BFOC connector set

20 BFOC connectors for assembling PROFIBUS Plastic Fiber Optic cables for OLM/P.

6GK1 905-1PA00

PROFIBUS Plastic Fiber Optic, BFOC crimping tool

For connecting BFOC connectors to PROFIBUS Plastic Fiber Optic cables

6GK1 905-6PB00

PROFIBUS Plastic Fiber Optic, BFOC polishing set

Polishing set for grinding and polishing the BFOC connector face ends for PROFIBUS Plastic Fiber Optic cables with OLM/P.

6GK1 905-6PS00

PROFIBUS PCF Trailing Cable 200/230

Trailing cable, segmentable, sold by the meter; max. quantity 2000 m; minimum order 20 m;

Preferred lengths; pre-assembled with 4 BFOC connectors

- 75 m
- 100 m
- 150 m
- 200 m
- 250 m
- 300 m
- 400 m

6XV1 861-2C

6XV1 861-3CN75
6XV1 861-3CT10
6XV1 861-3CT15
6XV1 861-3CT20
6XV1 861-3CT25
6XV1 861-3CT30
6XV1 861-3CT40

PROFIBUS Optical networks with OLM

Plastic and PCF fiber-optic cables

Ordering data	Order No.
<p>PROFIBUS PCF Trailing Cable GP 200/230</p> <p>Trailing cable, segmentable, sold by the meter; max. quantity 2000 m; minimum order 20 m;</p> <p>Preferred lengths; pre-assembled with 4 BFOC connectors</p> <ul style="list-style-type: none"> • 75 m • 100 m • 150 m • 200 m • 250 m • 300 m • 400 m 	<p>6XV1 861-2D</p> <p>6XV1 861-3DN75</p> <p>6XV1 861-3DT10</p> <p>6XV1 861-3DT15</p> <p>6XV1 861-3DT20</p> <p>6XV1 861-3DT25</p> <p>6XV1 861-3DT30</p> <p>6XV1 861-3DT40</p>
<p>Manual for PROFIBUS networks</p> <p>Paper version</p> <p>Network architecture, project management, network components, installation</p> <ul style="list-style-type: none"> • German • English 	<p>6GK1 970-5CA20-0AA0</p> <p>6GK1 970-5CA20-0AA1</p>
<p>SIMATIC NET Manual Collection</p> <p>Electronic manuals for communication systems, communication protocols and communication products on CD-ROM German/English</p>	<p>6GK1 975-1AA00-3AA0</p>

More information

You can order components and demonstration materials supplementary to the SIMATIC NET cabling range from your local contact.

For technical support, please contact:

J. Hertlein A&D SE V22
Tel. +49 (0) 911/750 44 65
Fax. +49 (0) 911/750 99 91
E-mail: juergen.hertlein@siemens.com

PROFIBUS

Optical networks with OLM

PCF FOC termination kits

Overview



- Compact, rugged assembly case for PCF fiber-optic cables
- Special versions for easy assembly of HP Simplex and BFOC plugs on PCF fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

Benefits



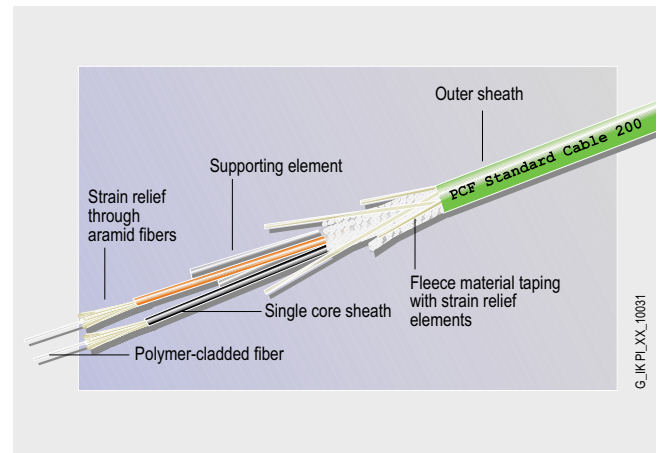
- Easy installation of the unassembled cables in industrial plants
- Flexible assembly of connectors on PCF fiber-optic cables on site (HP Simplex, BFOC connectors)
- Mistakes are avoided with easy visual inspection of the assembled connector on site using a microscope
- PCF fiber-optic cables are easily repaired on site by installing a new PCF cable

Application

SIMATIC NET PCF fiber-optic conductors are used to design optical indoor and outdoor PROFIBUS DP networks. They are easily assembled on site with 2 x 2 Simplex connectors or 2 x 2 BFOC connectors. The maximum cable length between two DP devices is 300 m, and between two OLMs it is 400 m.

PROFIBUS DP devices that are equipped with an integral optical interface (Simplex connection) include OBT, CP 342-5 FO, CP 5613 FO, CP 5614 FO, IM 153-2 FO and IM 467 FO.

Design



Two types of assembly cases for PCF fiber-optic cables are offered:

- Assembly case for HP Simplex connectors; for local assembly of HP Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope
- Assembly case for BFOC connectors; for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope.

Ordering data

Order No.

Termination Kit for Simplex connectors

6GK1 900-0KL00-0AA0

Assembly case for local assembly of PCF Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope

Termination Kit for BFOC connectors

6GK1 900-0HL00-0AA0

Assembly case for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope

Connector

Simplex connector

6GK1 900-0KB00-0AC0

with cleaning materials; 50 crimp connectors for assembly on PCF fiber-optic cables on site

BFOC connector

6GK1 900-0HB00-0AC0

with cleaning materials; 20 screw connectors for assembly on PCF fiber-optic cables on site

More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact. For technical support, please contact:

J. Hertlein A&D SE V22
 Tel. +49 (0) 911/750 44 65
 Fax. +49 (0) 911/750 99 91
 E-mail: juergen.hertlein@siemens.com

Overview



- For constructing PROFIBUS networks (line, star and ring) with glass, PCF and plastic fiber-optic cables
- High availability can be achieved using redundant power supply and redundant cable routes
- Function monitoring through signaling contact
- All PROFIBUS data rates from 9.6 kbit/s to 12 Mbit/s including 45.45 kbit/s for PROFIBUS PA
- The fiber-optic routes can be checked with a voltmeter

Benefits



- High network availability through redundant optical ring topology
- Fast error localization through signal contact, LED and measuring jacks
- Wide range through use of glass fiber-optic cables up to a length of 15 km
- OLM/G12-EEC for use outdoors down to -20°C

Application

With the PROFIBUS OLM (Optical Link Modules) Version 3, optical PROFIBUS networks can be established in linear bus, star and redundant ring topologies.

The data transmission rate of a fiber optic line is independent of the distance and can be up to 12 Mbit/s.

Possible applications for OLMs include:

- System buses based on PROFIBUS
- Networking between buildings using glass fiber optic cable
- Mixed networks with electrical and optical segments
- Networks covering a wide area (road tunnels, traffic control systems)
- Networks with high availability requirements (redundant ring networks)

Design

The OLMs have a compact metal housing. It is suitable for mounting on a standard mounting rail and for fixed mounting.

The 24 V supply is provided through a terminal block. Redundant power supply configurations are supported.

The signal contact can be used to transfer a digital signal for evaluation purposes to controllers or operator control and monitoring systems.

OLMs can be combined with each other and individual stations or whole electrical segments integrated in the optical PROFIBUS network through an electrical interface .

The OLMs are available with one or two FOC interfaces with BFOC connection method for various types of FO cables:

- Plastic FO cables (980/1000 μm) can be used for single line lengths up to 80 m. They can also be preassembled on site with BFOC connectors .
- PCF FO cables (200/230 μm) can be used for single line lengths up to 400 m. They are available preassembled with 4 BFOC connectors and an insertion assistance.
- Glass fiber multimode FO cables (62.5/125 μm) like the SIMATIC NET fiber-optic cables can be used for long distances up to 3000 m. These cables are available pre-assembled with 4 BFOC plugs.
- Single mode FO cables (10/125 μm fibers) can be used for very long distances up to 15 km. They are available on request.

Function

- Automatic recognition of all PROFIBUS transmission rates: 9.6 kbit/s to 12 Mbit/s including 45.45 kbit/s (PROFIBUS PA)
- Configuration of the following network topologies: line, star, redundant ring
- High availability through media redundancy. The distance between two OLMs in the redundant ring is limited only by the optical sensing range of the modules.
- Segmentable RS485 interface (Sub-D connector)
- Unlimited multimaster mode: Extended segmenting function for error localization on fiber-optic cable and RS 485 segments
- Fast localization of faults:
 - indication of module status through isolated signaling contact.
 - inspection of the fiber-optic cable quality: Measuring output for optical receivers for logging and validity check of the FOC line attenuation with a voltmeter
- High cascading depth: Line and redundant ring up to 124 OLM (only limited by monitoring times)

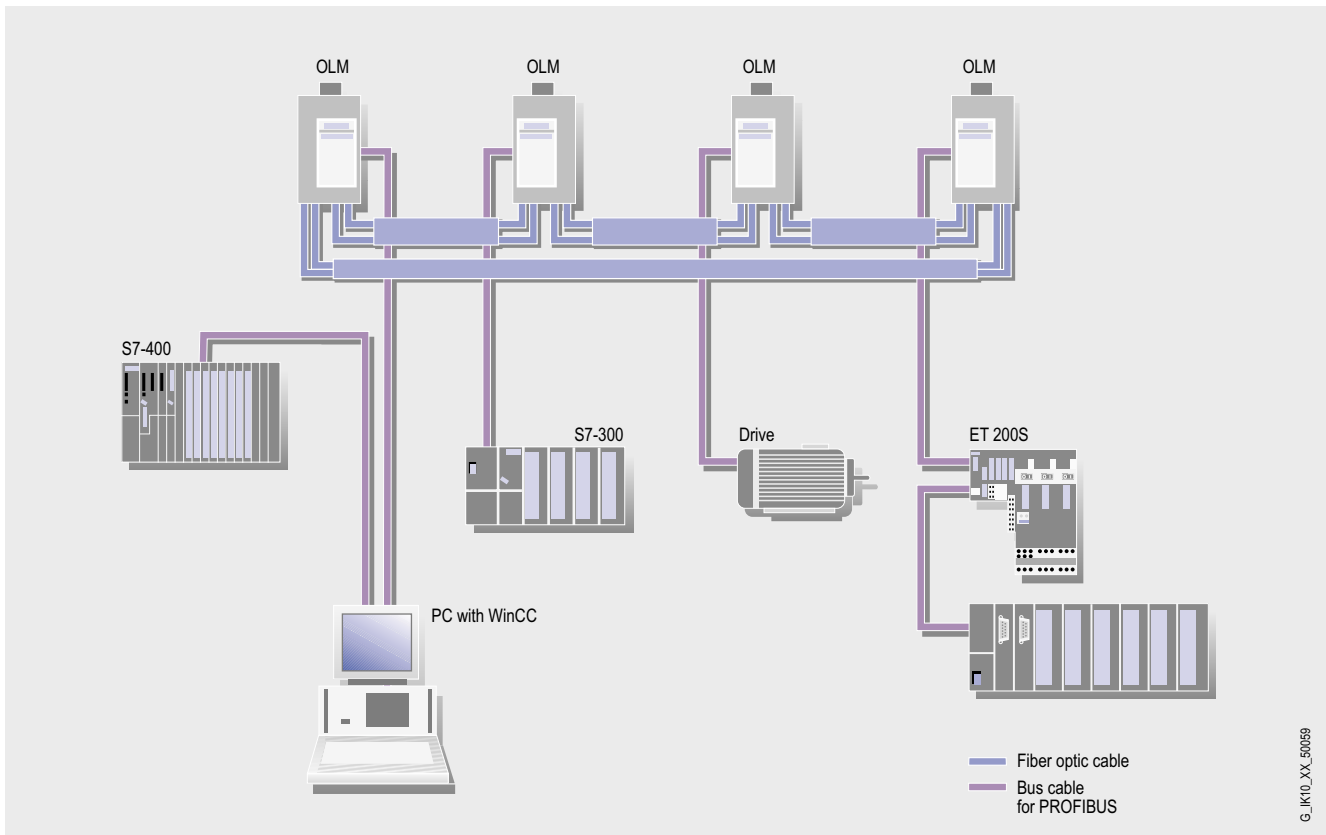
PROFIBUS

Optical networks with OLM

Optical Link Module OLM

Integration

4



Example of a system configuration with OLM for PROFIBUS

PROFIBUS Optical networks with OLM

Optical Link Module OLM

4

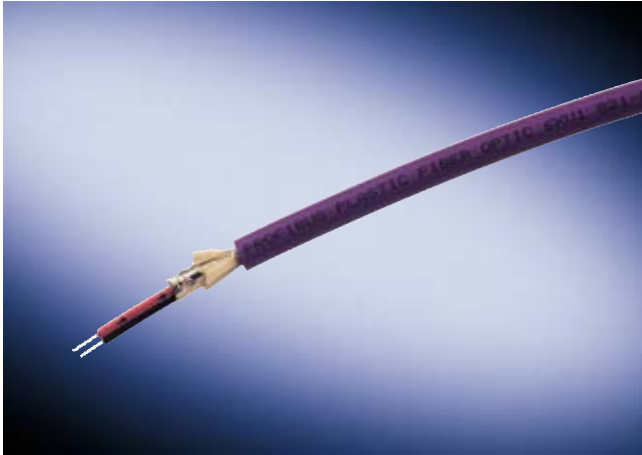
Technical specifications			Ordering data	Order No.
Transmission rates	9.6 kbit/s to 12 Mbit/s 45.45 kbit/s (PROFIBUS PA)		PROFIBUS OLM/P11	6GK1 502-2CA10
Transit delay	6 bit times		Optical link module with 1 x RS 485 and 1 x plastic FOC interface (2 BFOC sockets) with signaling contact and test port incl. 2 BFOC connectors for plastic FOC	
Interfaces	<ul style="list-style-type: none"> • Connection for bus segment station or OLM: 9-pin Sub-D socket • Connection for power supply and signaling contact: 5-pole pluggable terminal block with detent lugs • Connection for FOC: 2 or 4 BFOC sockets • Measuring device connection: 3 test sockets for test plugs, 2 mm diameter 		PROFIBUS OLM/P12	6GK1 502-3CA10
Optical interfaces OLM/P11 and OLM/P12	Plastic optical fibers 980/1000 µm 230 dB/km	PCF optical fibers 200/230 µm 10 dB/km	Optical link module with 1 x RS 485 and 2 x plastic FOC interface (4 BFOC sockets) with signaling contact and test port incl. 4 BFOC connectors for plastic FOC	
• Length of fiber-optic path	0 to 80 m	0 to 400 m	PROFIBUS OLM/G11	6GK1 502-2CB10
Optical interfaces OLM/G11, OLM/G12 and OLM/G12-EEC	Optical glass fibers 62.5/125 µm 3.5 dB/km	Optical glass fibers 50/125 µm 3 dB/km	Optical link module with 1 x RS 485 and 1 x glass FOC interface (2 BFOC sockets) for standard distances with signaling contact and test port	
• Wavelength	860 nm	860 nm	PROFIBUS OLM/G12	6GK1 502-3CB10
• Launchable transmitter power	-13 dBm	-15 dBm	Optical link module with 1 x RS 485 and 2 x glass FOC interface (4 BFOC sockets) for standard distances up to 3000 m with signaling contact and test port	
• Receiver sensitivity	-28 dBm	-28 dBm	PROFIBUS OLM/G12-EEC	6GK1 502-3CD10
• Permissible fiber-optic path attenuation (system reserve 3 dB)	12 dB	10 dB	Optical link module with 1 x RS 485 and 2 x glass FOC interface (4 BFOC sockets) for standard distances up to 3000 m for extended temperature range -20 °C to +60 °C with signaling contact and test port	
• Length of fiber-optic path	0 to 3,000 m	0 to 3,000 m	PROFIBUS OLM/G11-1300	6GK1 502-2CC10
Optical interfaces OLM/G11-1300 and OLM/G12-1300	Optical glass fibers 62.5/125 µm 1 dB/km	Optical glass fibers 10/125 µm 0.5 dB/km	Optical link module with 1 x RS 485 and 1 x glass FOC interface (2 BFOC sockets), 1300 nm wavelength for large distances up to 15 km, with signaling contact and test port	
• Wavelength	1310 nm	1310 nm	PROFIBUS OLM/G12-1300	6GK1 502-3CC10
• Launchable transmitter power	-17 dBm	-19 dBm	Optical link module with 1 x RS 485 and 2 x glass FOC interface (4 BFOC sockets), 1300 nm wavelength for large distances up to 15 km, with signaling contact and test port	
• Receiver sensitivity	-29 dBm	-29 dBm	Manual for PROFIBUS networks	
• Permissible fiber-optic path attenuation (system reserve 3 dB)	10 dB	8 dB	Paper version	
• Length of fiber-optic path	0 to 10 km	0 to 15 km	Network architecture, project management, network components, mounting	
Power supply	24 V DC (18 V to 30 V DC)		• German	6GK1 970-5CA20-0AA0
Current consumption (at rated voltage)	max. 200 mA		• English	6GK1 970-5CA20-0AA1
Power consumption	max. 6 W		SIMATIC NET Manual Collection	6GK1 975-1AA00-3AA0
Mounting	DIN rail or screwed cable glands		Electronic manuals for communication systems, communication protocols and communication products; on CD-ROM	
Perm. ambient conditions	<ul style="list-style-type: none"> • Operating temperature except OLM/G12-EEC: 0 °C ... +60 °C • OLM/G12-EEC: -20 °C ... +60 °C • Transport/storage temperature: -40 °C ... +70 °C • Relative humidity: max. 95% at +25 °C 		German/English	
Construction	<ul style="list-style-type: none"> • Dimensions (W x H x D) in mm: 39.5 x 110 x 73.2 • Weight: approx. 500 g 			
Degree of protection	IP40			

PROFIBUS

Optical networks with OBT and integrated interface

Plastic and PCF fiber-optic cables

Overview



- Electrical isolation of DP devices
- Protection of the transmission path against electromagnetic interference
- Up to 50 m cable length with plastic fiber-optic cables and up to 300 m with PCF fiber-optic cables
- Rugged fiber-optic standard cables, designed for industrial applications
- Hybrid cable for the shared transmission of data and power supply
- Extensive approvals (UL)

Benefits



- Plastic and PCF fiber-optic cables can be pre-assembled on site
- Easy connector assembly on site
- Time savings on start-up thanks to pre-assembled cables
- Protection of the transmission path against electromagnetic interference
- Tap-proof, because the cable does not radiate
- A cable for the shared transmission of data and power

Application

SIMATIC NET plastic and PCF fiber-optic conductors are used to construct optical indoor PROFIBUS DP networks.

Plastic fiber-optic cables and segmented PCF fiber-optic cables can be assembled easily on site with 2 x 2 simplex plugs. The maximum cable length between two DP devices is 50 m.

Longer cable lengths up to 300 m can be achieved using PCF fiber-optic cables. These cables are also available preassembled with 4 simplex plugs.

Devices that are equipped with an integral optical interface (simplex connection) include OBT, CP 342-5 FO, CP 5613 FO, CP 5614 FO, IM 153-2 FO and IM 467 FO.

Design

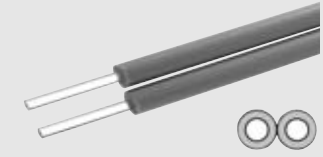
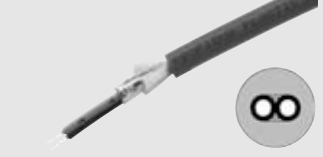

Different types of plastic and PCF fiber-optic cables are offered:

- **Plastic FOC, duplex core;**
Two flat cores with PVC inner sheath and without outer sheath for indoor applications with low mechanical stress such as laboratory setups or inside cabinets. Cable lengths up to 50 m.
- **Plastic FOC, standard cable;**
Rugged round cable with violet PVC outer sheath and Kevlar tension components as well as two plastic fibers with a rugged polyamide inner sheath. For indoor applications with cable lengths up to 50 m.
- **PCF fiber-optic cable, standard cables:**
 - PCF Fiber Optic standard cable;
rugged round cable with violet PVC outer sheath and Kevlar tension components for indoor applications with cable lengths of up to 300 m.
The cable is not suitable for assembly in the field (only available pre-assembled with an insertion tool)
 - PCF Standard Cable GP (general purpose);
rugged round cable with green PVC outer sheath and Kevlar tension elements for indoor and outdoor applications with cable lengths of up to 300 m;
the cable is suitable for assembly in the field.
- **PCF fiber-optic trailing cable;**
Rugged round cable with green outer sheath and Kevlar tension elements for trailing cable applications with cable lengths of up to 300 m. The cable is suitable for assembly in the field. Two cable versions are available for this application:
 - PCF Trailing Cable;
cable for high mechanical stress, PUR outer sheath, no UL approval
 - PCF Trailing Cable GP (general purpose);
cable for low mechanical stress, PVC outer sheath, with UL approval

PROFIBUS Optical networks with OBT and integrated interface

Plastic and PCF fiber-optic cables

Technical specifications

Cable type	PROFIBUS Plastic Fiber Optic Duplex Core	PROFIBUS Plastic Fiber Optic Standard Cable	PROFIBUS PCF Fiber Optic Standard Cable
Core cross-section			
Fields of application	Indoor applications with low mechanical loading, such as laboratory setups or inside cabinets, with cable lengths up to 50 m	For indoor applications with cable lengths up to 50 m	Pre-assembled cable for indoor applications with cable lengths up to 300 m; not suitable for connector assembly in the field.
Delivery format	Sold by the meter; for assembly on site with 2 x 2 simplex plugs	Sold by the meter; for assembly on site with 2 x 2 simplex plugs	Only preassembled with 2 x 2 simplex plugs
Cable type (standard designation)	I-VY2P 980/1000 150A	I-VY4Y2P 980/1000 160A	I-VY2K 200/230 10A17+8B20
Fiber type	Step-index fiber	Step-index fiber	Step-index fiber
Damping • at 660 nm	≤ 230 dB/km	≤ 230 dB/km	≤ 10 dB/km
Number of fibers	2	2	2
Materials	<ul style="list-style-type: none"> Fiber core: Polymethylmethacrylate (PMMA) Cladding: Fluoridated special polymer Inner sheath/color: PVC, gray Outer sheath/color: – Strain relief: – 	<ul style="list-style-type: none"> Fiber core: Polymethylmethacrylate (PMMA) Cladding: Fluoridated special polymer Inner sheath/color: PA, black or orange Outer sheath/color: PVC, violet Strain relief: Kevlar fibers 	<ul style="list-style-type: none"> Fiber core: Quartz glass Cladding: Fluoridated special polymer¹⁾ Inner sheath/color: PVC, violet Strain relief: Kevlar fibers
Mechanical characteristics	<ul style="list-style-type: none"> Diameter of fiber core: 980 μm Outer diameter of cladding: 1000 μm Diameter of inner sheath: 2.2 ± 0.01 mm Ø Cable dimensions: 2.2 × 4.4 mm ± 0.01 mm Cable weight: 7.8 kg/km Maximum permissible tensile force: <ul style="list-style-type: none"> temporary: ≤ 50 N continuous: Not suitable for continuous tensile load Bending radius: <ul style="list-style-type: none"> once without tensile force: ≥ 30 mm more than once with tensile force: ≥ 50 mm (only over flat side) Resistance to lateral force per 10 cm cable length (temporary): ≤ 35 N/10 cm Resistance against: <ul style="list-style-type: none"> mineral oil ASTM No. 2: Limited mineral fat/water: Limited UV radiation: Not UV resistant 	<ul style="list-style-type: none"> Diameter of fiber core: 980 μm Outer diameter of cladding: 1000 μm Diameter of inner sheath: 2.2 ± 0.01 mm Ø Cable dimensions: 7.8 ± 0.3 mm Ø Cable weight: 65 kg/km Maximum permissible tensile force: <ul style="list-style-type: none"> temporary: ≤ 100 N continuous: Not suitable for continuous tensile load Bending radius: <ul style="list-style-type: none"> once without tensile force: ≥ 100 mm more than once with tensile force: ≥ 150 mm Resistance to lateral force per 10 cm cable length (temporary): ≤ 1000 N/10 cm Resistance against: <ul style="list-style-type: none"> mineral oil ASTM No. 2: Limited mineral fat/water: Limited UV radiation: Limited 	<ul style="list-style-type: none"> Diameter of fiber core: 200 μm Outer diameter of cladding: 230 μm Diameter of inner sheath: – Cable dimensions: 4.7 ± 0.3 mm Ø Cable weight: 22 kg/km Maximum permissible tensile force: <ul style="list-style-type: none"> temporary: ≤ 500 N continuous: ≤ 100 N (only on strain relief, ≤ 50 N on plug or single core) Bending radius: <ul style="list-style-type: none"> once without tensile force: ≥ 75 mm more than once with tensile force: ≥ 75 mm Resistance to lateral force per 10 cm cable length (temporary): ≤ 750 N/10 cm Resistance against: <ul style="list-style-type: none"> mineral oil ASTM No. 2: Limited mineral fat/water: Limited UV radiation: Limited
Perm. ambient conditions	<ul style="list-style-type: none"> Operating temperature: –30 °C ... +70 °C Transport/storage temperature: –35 °C ... +85 °C Routing: 0 °C ... +50 °C 	<ul style="list-style-type: none"> Operating temperature: –30 °C ... +70 °C Transport/storage temperature: –30 °C ... +70 °C Routing: 0 °C ... +50 °C 	<ul style="list-style-type: none"> Operating temperature: –20 °C ... +70 °C Transport/storage temperature: –30 °C ... +70 °C Routing: –5 °C ... +50 °C
Behavior in fire	Flame retardant in accordance with the VW-1 flame test to UL 1581	IEC 60332-1	Flame retardant in accordance with the VW-1 flame test to UL 1581
UL/CSA approvals	No	OFN-FT1 c(UL)us OFN (NEC Article 770, UL 1651)	No
UV-resistant	No	No	No
Halogen-free	No	No	No
Silicone-free	Yes	Yes	Yes

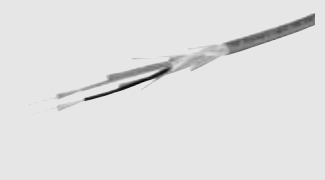


1) Sold by the meter without inner sheath, not suitable for assembly in the field.

PROFIBUS

Optical networks with OBT and integrated interface

Plastic and PCF fiber-optic cables

Technical specifications (continued)

Cable type	PCF Standard Cable GP	PCF Trailing Cable	PCF Trailing Cable GP
			
Fields of application	For permanent indoor and outdoor installation	For moving applications	For moving applications
Delivery format	Sold by the meter	Sold by the meter	Sold by the meter
Cable type (standard designation)	I-V(ZN)YY 2K200/230	AT-V(ZN)Y(ZN)11Y 2K200/230	AT-V(ZN)Y(ZN)Y 2K200/230
Fiber type	Step index 200/230	Step index 200/230	Step index 200/230
Damping			
• at 650 nm	10 dB/km	10 dB/km	10 dB/km
Modal bandwidth			
• at 650 nm	17 MHz * km	17 MHz * km	17 MHz * km
Number of fibers	2	2	2
Materials			
• Fiber core	Quartz glass	Quartz glass	Quartz glass
• Cladding	Special polymer	Special polymer	Special polymer
• Inner sheath/color	PVC, orange/black	PVC, orange/black	PVC, orange/black
• Outer sheath/color	PVC, green	PUR, green	PVC, green
• Strain relief	Aramide fiber	Aramide fiber	Aramide fiber
Mechanical characteristics			
• Diameter of fiber core	200 µm	200 µm	200 µm
• Outer diameter of cladding	230 µm	230 µm	230 µm
• Diameter of inner sheath	2.2 mm diam.	2.2 mm diam.	2.2 mm diam.
• Cable dimensions	7.2 mm	9 mm	9 mm
• Cable weight	45 kg/km	85 kg/km	85 kg/km
• Maximum permissible tensile force	100 N	800 N	800 N
• Bending radius	105 mm	200 mm	200 mm
• Bending cycles	–	5000000	>3500000
• Resistance to lateral force per 10 cm cable length (temporary)	100 N/cm	300 N/cm	300 N/cm
• Resistant to			
- mineral oil ASTM No. 2	Limited resistance	Highly resistant	Limited resistance
- mineral fat/water	limited endurance/ -	highly resistant/ -	limited endurance/ -
- UV radiation	Yes	Yes	Yes
Perm. ambient conditions			
• Operating temperature	-25 °C ... 75 °C	-25 °C ... 70 °C	-25 °C ... 75 °C
• Transport/storage temperature	-25 °C ... 75 °C	-30 °C ... 75 °C	-30 °C ... 75 °C
• Routing	-5 °C ... 50 °C	-5 °C ... 50 °C	-5 °C ... 50 °C
• In short-circuit on conductor			
Behavior in fire			
UL/CSA approvals	OFN (NEC Article 770, UL1651)/ OFN, 90°C, FT1, FT4 (CSA standard C22.2 No232-M1988)	–	OFN (NEC Article 770, UL1651)/ OFN, 90°C, FT1, FT4 (CSA standard C22.2 No232-M1988)
UV-resistant	Yes	Yes	Yes
No halogen	–	–	–
Silicone-free	Yes	Yes	Yes

PROFIBUS

Optical networks with OBT and integrated interface

Plastic and PCF fiber-optic cables

4

Ordering data	Order No.	Order No.
<p>PROFIBUS Plastic Fiber Optic, standard cable</p> <p>Rugged round cable with 2 plastic fiber-optic cores, PVC outer sheath and PA inner sheath, for indoor use; without connector</p> <ul style="list-style-type: none"> Sold by the meter 50 m ring 100 m ring 	<p>6XV1 821-0AH10</p> <p>6XV1 821-0AN50</p> <p>6XV1 821-0AT10</p>	<p>PROFIBUS PCF Trailing Cable 200/230</p> <p>Trailing cable, segmentable, sold by the meter; max. quantity 2000 m; minimum order 20 m;</p> <p>Preferred lengths; pre-assembled with 4 Simplex connectors</p> <ul style="list-style-type: none"> 50 m 75 m 100 m 150 m 200 m 250 m 300 m
<p>PROFIBUS Plastic Fiber Optic, duplex core</p> <p>Plastic fiber-optic cable with 2 cores, PVC outer sheath, for use in environments with low mechanical stress; without connector</p> <ul style="list-style-type: none"> 50 m ring 	<p>6XV1 821-2AN50</p>	<p>6XV1 861-7CN50</p> <p>6XV1 861-7CN75</p> <p>6XV1 861-7CT10</p> <p>6XV1 861-7CT15</p> <p>6XV1 861-7CT20</p> <p>6XV1 861-7CT25</p> <p>6XV1 861-7CT30</p>
<p>PROFIBUS Plastic Fiber Optic, simplex plug/polishing set</p> <p>100 simplex connectors and 5 polishing sets for assembling PROFIBUS plastic fiber optic cables for the optical PROFIBUS DP</p>	<p>6GK1 901-0FB00-0AA0</p>	<p>PROFIBUS PCF Trailing Cable GP 200/230</p> <p>Trailing cable, segmentable, sold by the meter; max. quantity 2000 m; minimum order 20 m;</p> <p>Preferred lengths; pre-assembled with 4 Simplex connectors</p> <ul style="list-style-type: none"> 50 m 75 m 100 m 150 m 200 m 250 m 300 m
<p>PROFIBUS Plastic Fiber Optic, stripping tool set</p> <p>Tools for removing the outer sheath or core sheath of Plastic Fiber Optic cables</p>	<p>6GK1 905-6PA10</p>	<p>6XV1 861-7DN50</p> <p>6XV1 861-7DN75</p> <p>6XV1 861-7DT10</p> <p>6XV1 861-7DT15</p> <p>6XV1 861-7DT20</p> <p>6XV1 861-7DT25</p> <p>6XV1 861-7DT30</p>
<p>PROFIBUS PCF Fiber Optic</p> <p>PCF fiber-optic cable with 2 cores, PVC outer sheath, for covering larger distances up to 300 m, for connecting devices to the optical PROFIBUS DP</p> <p>Preferred lengths; Precut/preassembled with 2 × 2 Simplex connectors, arm length 30 cm each, with aid for pulling in at one end</p> <ul style="list-style-type: none"> 50 m 75 m 100 m 150 m 200 m 250 m 300 m 	<p>6XV1 821-1CN50</p> <p>6XV1 821-1CN75</p> <p>6XV1 821-1CT10</p> <p>6XV1 821-1CT15</p> <p>6XV1 821-1CT20</p> <p>6XV1 821-1CT25</p> <p>6XV1 821-1CT30</p>	<p>Plug-in adapter</p> <p>For assembling the plastic Simplex connector in combination with IM 467 FO, CP 342-5 FO, IM 151 FO and IM 153-2 FO, 50 units</p> <p>6ES7 195-1BE00-0XA0</p>
<p>PROFIBUS PCF Standard Cable GP 200/230</p> <p>Standard cable, segmentable, sold by the meter; max. quantity 2000 m; minimum order 20 m;</p> <p>Preferred lengths; pre-assembled with 4 Simplex connectors</p> <ul style="list-style-type: none"> 50 m 75 m 100 m 150 m 200 m 250 m 300 m 	<p>6XV1 861-2A</p> <p>6XV1 861-7AN50</p> <p>6XV1 861-7AN75</p> <p>6XV1 861-7AT10</p> <p>6XV1 861-7AT15</p> <p>6XV1 861-7AT20</p> <p>6XV1 861-7AT25</p> <p>6XV1 861-7AT30</p>	<p>Termination Kit for Simplex Plug</p> <p>Assembly case for local assembly of PCF Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope</p> <p>6GK1 900-0KL00-0AA0</p>
		<p>Termination Kit for BFOC Plug</p> <p>Assembly case for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope</p> <p>6GK1 900-0HL00-0AA0</p>
		<p>Simplex Plug</p> <p>Crimp connector with cleaning materials; 50 connectors for assembly on PCF fiber-optic cables on site</p> <p>6GK1 900-0KB00-0AC0</p>
		<p>BFOC Plug</p> <p>Screw connector with cleaning materials; 20 connectors for assembly on PCF fiber-optic cables on site</p> <p>6GK1 900-0HB00-0AC0</p>

PROFIBUS

Optical networks with OBT and integrated interface

Plastic and PCF fiber-optic cables

Ordering data

Order No.

Manual for PROFIBUS networks

Paper version:
Network architecture,
project management, network
components, mounting

- German
- English

6GK1 970-5CA20-0AA0

6GK1 970-5CA20-0AA1

SIMATIC NET Manual Collection

Electronic manuals
for communication systems,
communication protocols and
communication products;
on CD-ROM
German/English

6GK1 975-1AA00-3AA0

More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact. Technical advice on this subject is available from:

J. Hertlein A&D SE PS
Tel. +49 (0) 911/750 44 65
Fax. +49 (0) 911/750 99 91
E-mail: juergen.hertlein@siemens.com

PROFIBUS Optical networks with OBT and integrated interface

ECOFAST fiber optic hybrid cable

Overview



- Electrical isolation of DP devices
- Protection of the transmission path against electromagnetic interference
- Up to 50 m cable length with plastic fiber-optic cable
- Rugged fiber-optic cables, designed for industrial applications
- Hybrid cable for the shared transmission of data and power supply

Benefits



- Savings in wiring, installation, commissioning and operation as result of standardized connection system (copper or fiber-optic) with high degree of protection (IP65)
- With ECOFAST, the turnaround times for offers, planning and engineering of machines and plants can be reduced:
- ECOFAST permits fast and problem-free startup of automation and drive systems
- Minimization of sources of error by means of standardized interfaces and plug connectors.
- With ECOFAST plants remain highly available: No interruption of power and field bus when replacing equipment.

Application

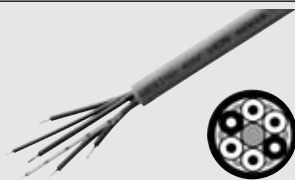
The ECOFAST Fiber Optic Hybrid Cable of SIMATIC NET is used to construct optical PROFIBUS DP networks indoors. It is particularly suitable for connecting DESINA components installed at machine level, and is easy to assemble on site. The maximum cable length between two DP devices is 50 m.

Design

The rugged, hybrid trailing cable contains two plastic fiber-optic cables for data transmission and four copper wires (1.5 mm²) for supplying power to DESINA¹⁾ stations.

1) DESINA is the trademark for **DE**centralized and **S**tandardized **IN**stall**A**tion technology for machine tools.

Technical specifications

Cable type	ECOFAST fiber optic hybrid cable (DESINA-compatible)
Core cross-section	
Applications	DESINA-compatible devices, e.g. for ET 200X
Delivery format	Sold by the meter; can be assembled on site with DESINA plugs or preassembled with 2 DESINA plugs
Cable type (standard designation)	J-V11Y 4Y2P980/1000 230A10 FFLIY 4 × 1.5
Fiber type	Step-index fiber
Damping	
• at 660 nm	≤ 260 dB/km
Number of fibers	2 × FOC, 4 × copper
Materials	
• Fiber core	Polymethyl methacrylate (PMMA)
• Cladding	Fluorinated special polymer
• Inner sheath/color	PA, black, orange
• Outer sheath/color	PUR, violet
• Strain relief	–
• Copper cores	
- rated voltage	300 V
- current load	10 A
- nominal area	1.5 mm ²
- sheath material/color	PVC, black
Mechanical characteristics	
• Diameter of fiber core	980 μm
• Cladding outer diameter	1000 μm
• Diameter of inner sheath	2.2 ± 0.01 mm Ø
• Cable dimensions	10.6 mm Ø
• Cable weight	135 kg/km
• Maximum permissible tensile force	
- temporary	≤ 100 N
- constant	≤ 30 N
• Bending radius	
- once without tensile force	–
- more than once with tensile force	≥ 106 mm
• Resistance to lateral force per 10 cm cable length (temporary)	≤ 100 N/10 cm
• Resistance against	
- mineral oil ASTM No. 2	Limited
- mineral grease/water	Limited
- UV radiation	No
Perm. ambient conditions	
• Operating temperature	+5 °C ... +70 °C
• Transport/storage temperature	-30 °C ... +70 °C
• Routing	+5 °C ... +70 °C
• In short-circuit on conductor	+160 °C (max. 5 sec)
Behavior in fire	Flame retardant in acc. with the VW-1 flame test to UL 1581
UL/CSA approvals	No
UV-resistant	No
Halogen-free	No
Silicone-free	Yes

1) Sold by the meter without inner sheath, not suitable for assembly in the field.

PROFIBUS

Optical networks with OBT and integrated interface

ECOFAST fiber optic hybrid cable

Ordering data

Order No.

ECOFAST fiber optic hybrid cable (DESINA-compatible)

Trailing cable with 2 plastic fiber-optic conductors and 4 copper cores, 1.5 mm² for use in DESINA-compatible devices only

Sold by the meter;
max. quantity 1000 m,
minimum order 20 m

Not pre-assembled

- 20 m
- 50 m
- 100 m

Preassembled
with 2 DESINA connectors

- 1.5 m
- 3 m
- 5 m
- 10 m
- 15 m

6XV1 830-6CH10

6XV1 830-6CN20

6XV1 830-6CN50

6XV1 830-6CT10

6XV1 830-6DH15

6XV1 830-6DH30

6XV1 830-6DH50

6XV1 830-6DN10

6XV1 830-6DN15

ECOFAST Fiber Optic Hybrid Plug 180, DESINA-compatible (ECOFAST FOC)

2 x FO; 4 x 1.5 mm² Cu

- With male pins (Hanbrid connector)
- With female pins (Hanbrid connector)

6GK1 905-0BA00

6GK1 905-0BB00

Manual for PROFIBUS networks

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- German
- English

6GK1 970-5CA20-0AA0

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Fax. +49 (0) 911/750 99 91
E-mail: juergen.hertlein@siemens.com

PROFIBUS Optical networks with OBT and integrated interface

PCF FOC termination kits

Overview



- Compact, rugged assembly case for PCF fiber-optic cables
- Special versions for easy assembly of HP Simplex and BFOC plugs on PCF fiber-optic cables
- The quality of the assembly can be checked using the enclosed microscope

Benefits



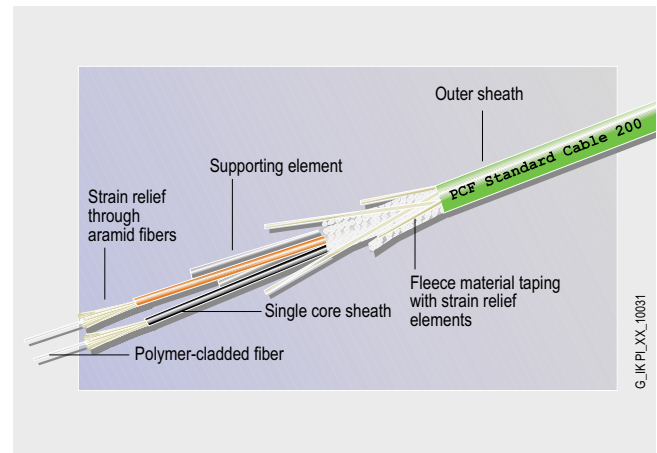
- Easy installation of the unassembled cables in industrial plants
- Flexible assembly of connectors on PCF fiber-optic cables on site (HP Simplex, BFOC connectors)
- Mistakes are prevented with easy visual inspection of the assembled connector on site using a microscope
- PCF fiber-optic cables are easily repaired on site by installing a new PCF cable

Application

SIMATIC NET PCF fiber-optic conductors are used to construct optical indoor and outdoor PROFIBUS DP networks. They are easily assembled on site with 2 x 2 Simplex connectors or 2 x 2 BFOC connectors. The maximum cable length between two DP devices is 300 m, and between two OLMs it is 400 m.

PROFIBUS DP devices that are equipped with an integral optical interface (Simplex connection) include OBT, CP 342-5 FO, CP 5613 FO, CP 5614 FO, IM 153-2 FO and IM 467 FO.

Design



Two types of assembly cases for PCF fiber-optic cables are offered:

- Assembly case for HP Simplex connectors; for local assembly of HP Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope
- Assembly case for BFOC connectors; for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope.

Ordering data

Order No.

Termination Kit for Simplex connectors

6GK1 900-0KL00-0AA0

Assembly case for local assembly of PCF Simplex connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, crimping tool and microscope

Termination Kit for BFOC connectors

6GK1 900-0HL00-0AA0

Assembly case for local assembly of BFOC connectors; comprising a stripping tool, buffer stripping tool, Kevlar cutters, fiber breaking tool, and microscope

Connector

Simplex connector

6GK1 900-0KB00-0AC0

with cleaning materials; 50 crimp connectors for assembly on PCF fiber-optic cables on site

BFOC connector

6GK1 900-0HB00-0AC0

with cleaning materials; 20 screw connectors for assembly on PCF fiber-optic cables on site

More information

You can order components supplementary to the SIMATIC NET cabling range from your local contact. For technical support, please contact:

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Fax. +49 (0) 911/750 99 91
E-mail: juerg.hertlein@siemens.com

PROFIBUS

Optical networks with OBT and integrated interface

Optical Bus Terminal OBT

Overview



- For connecting a PROFIBUS station without an integrated fiber-optic cable interface or an RS 485 segment to an optical line
- Quick and easy installation of the plastic fiber-optic cable without the need for special tools

Benefits



- Option of connecting existing devices or an RS 485 segment with electrical interface to the optical PROFIBUS
- "Socket outlet" for connecting mobile devices (e.g. programming devices) without interruption of the bus
- Time saved through simple and fast connector mounting without special tools

Application

The OBT (Optical Bus Terminal) is used to connect a PROFIBUS station without integral optical interface or a PROFIBUS DP RS 485 segment to an optical line. Existing DP devices are then provided with the advantages of optical data transmission.

The PROFIBUS station is connected to the RS 485 interface of the OBT via a cable terminated at both ends, e.g. connecting cable 830-1T. The OBT is integrated into the optical line using two optical interfaces.

The following optical transmission media can be connected to the OBT:

- Plastic fiber-optic cables can be used up to an individual segment length of 50 m. They can be configured very easily on site with 2 x 2 Simplex connectors.
- PCF¹⁾ fiber-optic cables can be used for an individual segment length up to 300 m. These cables are preassembled. The OBT supports all PROFIBUS data transmission rates up to 12 Mbit/s.

1) Also known as HCS[®] fiber-optic cable:
HCS[®] is a registered trademark of Lucent Technologies.

Design

The OBT has compact plastic housing. Two tapped holes make it suitable for installation on standard DIN rails as well as for wall mounting.

The OBT has the following interfaces:

- 9-pin Sub-D connector for connecting the PROFIBUS DP station such as programming device, PC, Operator Panel (OP), S7-300 or station without integrated optics, e.g. ET 200S or PROFIBUS DP components from other manufacturers or an RS 485 segment
- Two optical interfaces for connecting plastic and PCF fiber-optic cables with simplex connectors (connection to CP 342-5 FO, CP 5613 FO, CP 5614 FO, IM 153-2 FO, IM 467 FO or to ET 200 with integrated optics)
- 24 V DC power supply.

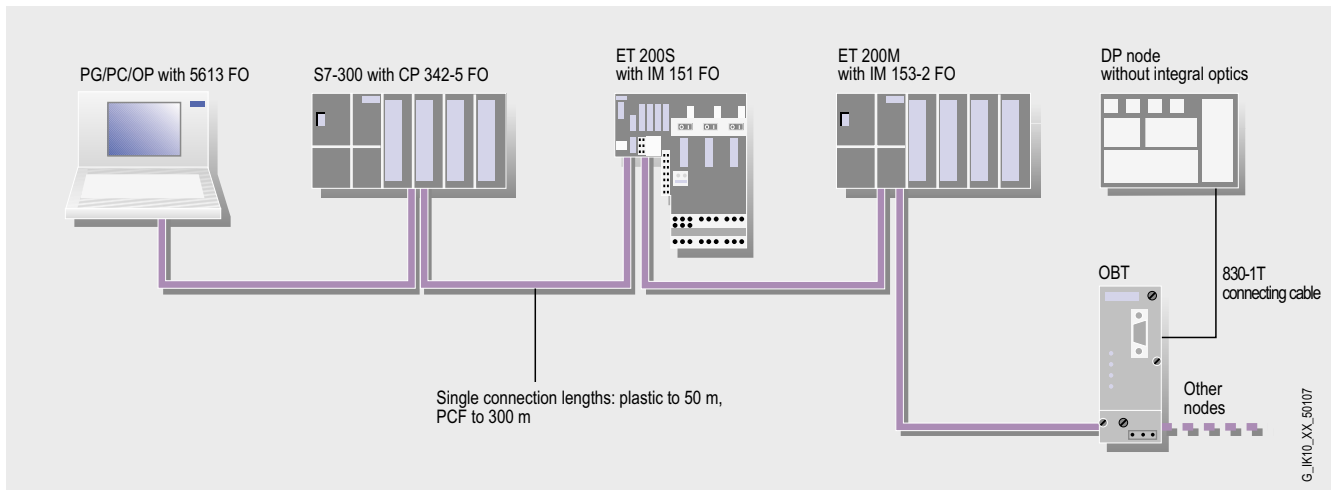
Function

- Connection of a station with RS 485 interface via 830-1T connecting cable or PROFIBUS cable with bus connectors (terminated at both ends) or an RS 485 segment
- Provision of an electrical connection point on the optical line (e.g. PG connection for startup and diagnostics).
- Support for all PROFIBUS data rates from 9.6 kbit/s to 12 Mbit/s including 45.45 kbit/s for PROFIBUS PA
- Regeneration of the signals in amplitude and time
- Cascade depth when using user-defined bus parameters up to 126 stations
- Galvanic isolation of the station via fiber optic cable
- Simple diagnostics via LED display for operating voltage as well as for receipt of data CH1, CH2 and CH3.

PROFIBUS Optical networks with OBT and integrated interface

Optical Bus Terminal OBT

Integration



System configuration of optical PROFIBUS DP with PROFIBUS OBT

Technical specifications

Data transmission rates	9.6 kbit/s to 12 Mbit/s 45.45 kbit/s (PROFIBUS PA)	
Interfaces	<ul style="list-style-type: none"> • Connection for DP stations or a RS 485 segment: 9-pin Sub-D connector • Connection for power supply: 2-pin terminal • Connection for FOC: 2 duplex sockets 	
Optical interfaces:	Plastic fiber optic cable 980/1000 µm	PCF fiber-optic cable 200/230 µm
• Wavelength	640 ... 660 nm	640 ... 660 nm
• Transmitter power	-5.9 dBm	-16 dB
• Receiver sensitivity	-20 dBm	-22 dBm
• Permissible FO path attenuation	13 dB	3 dB
Supply voltage	24 V DC (18 ... 30 V DC)	
Current consumption (at rated voltage)	max. 200 mA	
Power loss	6 W	
Assembly	Standard DIN rail or wall mounting	
Perm. environmental conditions	<ul style="list-style-type: none"> • Operating temperature: 0 °C ... +60 °C • Transport/storage temperature: -40 °C ... +70 °C • Relative humidity: max. 95% to +25 °C 	
Design	<ul style="list-style-type: none"> • Dimensions (W x H x D) in mm: 50.5 x 138 x 78 • Weight: approx. 400 g 	
Degree of protection	IP30	

Ordering data

Ordering data	Order No.
PROFIBUS OBT Optical bus terminal for connecting a PROFIBUS station or an RS 485 segment without integrated optical interface to the optical PROFIBUS; without simplex connector	6GK1 500-3AA00
830-1T PROFIBUS connecting cable For data terminal connection, completely preassembled with 2 Sub-D plugs, 9-pin	<ul style="list-style-type: none"> • 1.5 m: 6XV1 830-1CH15 • 3 m: 6XV1 830-1CH30
Manual for PROFIBUS networks Paper version Network architecture, configuring, network components, installation	<ul style="list-style-type: none"> • German: 6GK1 970-5CA20-0AA0 • English: 6GK1 970-5CA20-0AA1
SIMATIC NET manual collection Electronic manuals and communication systems, protocols, products on CD-ROM German/English	6GK1 975-1AA00-3AA0