

Overview



- Different versions for different fields of application (e.g. underground cables, trailing cables)
- High interference immunity thanks to double shielding
- Flame-retardant bus cable (halogen-free)
- Easy length measurement thanks to printed meter markings

Benefits



- Flexible application possibilities thanks to special bus cables
- Network is immune to interference thanks to double shielded cables and a uniform grounding concept
- Time saving due to simple and fast connector assembly with FastConnect cables
- Silicon-free, therefore particularly suitable for use in the automotive industry (e.g. on paint shop conveyors)

Application

For the construction of PROFIBUS networks, different cable types are offered to suit the different types of application. The listed bus cables should always be used. For further information on network configuration, see PROFIBUS network manual.

UL approvals

Different cable versions are offered with appropriate UL approvals for laying in cable bundles and cable racks according to the specifications of NEC (National Electrical Code) Article 800/725.

Design

Shielded, twisted-pair cable with circular cross-section

The following applies for all PROFIBUS bus cables:

- The double shield makes it especially suitable for routing through industrial areas with strong electro-magnetic fields
- System-wide grounding concept can be implemented using the external shield of the bus cable and the grounding terminals on the bus terminal
- Printed meter marks

Cable types

The shape of the FastConnect (FC) bus cables is radially symmetric and allows an insulation stripping tool to be used. This means that bus connectors can be assembled quickly and easily.

- PROFIBUS FC Standard Cable:
Standard bus cable specially designed for fast installation
- PROFIBUS FC Robust Cable:
Special cable for use in corrosive atmospheres and under severe mechanical loading
- PROFIBUS FC Food Cable:
The PE casing of the cable makes this cable suitable for use in the food, beverage and tobacco industries
- PROFIBUS FC Ground Cable:
Special cable for laying underground. It differs from the PROFIBUS bus cable in that it has an additional sheath
- PROFIBUS FC Flexible Cable
Flexible (stranded conductors), halogen-free bus cable with PUR sheath for occasional moving
- PROFIBUS FC Trailing Cable:
Bus cable specially designed for forced motion control in a trailing cable, e.g. with continuously moving machine parts (stranded core)
- PROFIBUS FC FRNC Cable:
Two-core, shielded, flame-retardant, halogen-free bus cable with Copolymer outer sheath FRNC (Flame Retardant Non Corrosive)

Bus cables without FastConnect technology (due to type of construction)

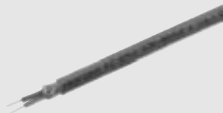


- PROFIBUS Festoon Cable:
Flexible bus cable (stranded cores) specially designed for festoon suspension.
For round cables, cable-carrying trolleys are recommended
- PROFIBUS Torsion Cable
Bus cable for highly flexible applications:
Special cable (stranded cores) for use on moving parts of machines
(5 million torsion movements on 1 m length of cable, $\pm 180^\circ$)
- PROFIBUS Hybrid Cable:
Rugged hybrid cable suitable for trailing with two copper conductors for data transmission and two copper conductors for the power supply of ET 200pro
- SIENOPYR FR marine cable
Halogen-free, non-crush, flame-retardant, marine-approved cable for permanent installation on ships and offshore platforms indoors and on open deck. Sold by the meter.

PROFIBUS

Electrical networks (RS 485)

PROFIBUS bus cables

Technical specifications

Cable type ¹⁾	PROFIBUS FC Standard Cable	PROFIBUS FC Robust Cable	PROFIBUS FC Food Cable
			
Applications	Universally implementable	In corrosive atmospheres and under severe mechanical stress	Food, beverages and tobacco industries
Damping			
• at 16 MHz	≤ 42 dB/km	≤ 42 dB/km	≤ 42 dB/km
• at 4 MHz	≤ 22 dB/km	≤ 22 dB/km	≤ 22 dB/km
• at 9.6 kHz	≤ 2.5 dB/km	≤ 2.5 dB/km	≤ 2.5 dB/km
Characteristic impedance			
• at 9.6 kHz	270 ± 27 Ω	270 ± 27 Ω	270 ± 27 Ω
• at 38.4 kHz	185 ± 18.5 Ω	185 ± 18.5 Ω	185 ± 18.5 Ω
• at 3 to 20 MHz	150 ± 15 Ω	150 ± 15 Ω	150 ± 15 Ω
Rated value	150 Ω	150 Ω	150 Ω
Loop resistance	≤ 110 Ω/km	≤ 110 Ω/km	≤ 110 Ω/km
Shield resistance	≤ 9.5 Ω/km	≤ 9.5 Ω/km	≤ 9.5 Ω/km
Effective capacitance at 1 kHz	approx. 28.5 nF/km	approx. 28.5 nF/km	approx. 28.5 nF/km
Operating voltage (rms value)	≤ 100 V	≤ 100 V	≤ 100 V
Cable type (standard designation)	02YSY (ST) CY 1 × 2 × 0.64/2.55-150 KF 40 FR VI	02YSY (ST) CY 1 × 2 × 0.64/2.55-150 KF 40 FR VI	02YSY (ST) CY 1 × 2 × 0.64/2.55-150 KF 40 FR VI
Jacket			
• Material	PVC	PUR	PE
• Diameter	8.0 ± 0.4 mm	8.0 ± 0.4 mm	8.0 ± 0.4 mm
• Color	Violet	Violet	Black
Perm. ambient conditions			
• Operating temperature	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
• Transport/storage temperature	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
• Installation temperature	-40 °C ... +60 °C	-40 °C ... +60 °C	-40 °C ... +60 °C
Bending radii			
• Single bend	≥ 75 mm	≥ 75 mm	≥ 75 mm
• Multiple bends	≥ 150 mm	≥ 150 mm	≥ 150 mm
Permissible tensile force	≤ 100 N	≤ 100 N	≤ 100 N
Weight	76 kg/km	73 kg/km	67 kg/km
Halogen-free	No	No	No
Behavior in fire	Flame-retardant to VDE 0482-266-2-4, IEC 60332-3-24	Flame-retardant to VDE 0482-265-2-1, IEC 60332-1	Inflammable
UL listing / 300 V rating	Yes / CM/CMG/PLTC/Sun Res	Yes / CMX	No
UL style / 600 V rating	Yes	No	No
Resistance to mineral oils and grease	Limited resistance	Highly resistant	Limited resistance
UV-resistant	Yes	Yes	Yes
Silicone-free	Yes	Yes	Yes
FastConnect cable installation	Yes	Yes	Yes

1) Electrical characteristics at 20 °C, tests according to DIN 47 250 Part 4 or DIN VDE 0472