

SAC-4P-M12FR FB/.../...

Order No.: 1552777

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Sensor/Actuator cable, 4-position, Variable cable type, Free cable end, on Socket angled M12, A-coded, Cable length: Free input (0.2 ... 40.0 m)

Commercial data

Note	Made-to-order
sales group	D111
Pack	1 Pcs.
Customs tariff	85444290
Catalog page information	Page 212 (PC-2011)

Product notes

WEEE/RoHS-compliant since:
11/03/2006



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Technical data**Dimensions**

Length of cable	Free input (0.2 ... 40.0 m)
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General

Rated current at 40°C	4 A
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Rated voltage	250 V
Number of positions	4
Contact resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Stripping length of the free conductor end	50 mm
Ambient temperature (operation)	-25 °C ... 90 °C (Plug / socket)

General

Standards/regulations	M12 plug-in connector IEC 61076-2-101
Coding	A - standard
Surge voltage category	II
Pollution degree	3
Degree of protection	IP65
	IP67
	IP68
	IP69K
Torque	0.4 Nm (M12 plug-in connector)
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Material of grip body	TPU, hardly inflammable, self-extinguishing
Material, knurls	High-grade steel
Sealing material	NBR
Status display	No

Line characteristics

Note	This item is a sensor/actuator cable with a freely selectable cable type. The technical data for all possible cable types is listed in the table below.
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PUR irradiated halogen-free orange [150]

Cable type	PUR irradiated halogen-free orange
Cable type (abbreviation)	150
Cable abbreviation	D12YSL11X-OB
Conductor cross section	4x 0.34 mm ²
AWG signal line	22
Conductor structure signal line	19x 0.15 mm
Core diameter including insulation	1.05 mm ±0.05 mm (signal line)

Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	27 mm
External sheath, color	orange RAL 2003
External cable diameter D	5.2 mm ± 0.2 mm
Smallest bending radius, fixed installation	min. 15 mm
Smallest bending radius, movable installation	min. 30 mm
Number of bending cycles	5000000
Bending radius	52 mm
Traversing path	10 m
Traversing rate	3 m/s
Torsion force	± 360 °/m
Outer sheath, material	PUR
Material conductor insulation	PE
Conductor material	Bare Cu litz wires
Conductor resistance	max. 57 Ω/km
Nominal voltage, cable	320 V (AC)
Test voltage, cable	2500 V (50 Hz, 5 minutes)
Halogen-free	The cable is halogen-free
Other resistance	hydrolysis and microbe resistant Resistant to welding splashes
Ambient temperature (operation)	-50 °C ... 105 °C (cable, fixed installation) -40 °C ... 105 °C (cable, flexible installation)

PUR irradiated halogen-free yellow [160]

Cable type	PUR irradiated halogen-free yellow
Cable type (abbreviation)	160
Conductor cross section	4x 0.34 mm ² (signal line)
AWG signal line	22
Conductor structure signal line	19x 0.15 mm
Core diameter including insulation	1.05 mm ±0.05 mm (signal line)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	27 mm
External sheath, color	Yellow RAL 1021
External cable diameter D	5.2 mm ± 0.2 mm

Smallest bending radius, fixed installation	min. 15 mm
Smallest bending radius, movable installation	min. 30 mm
Number of bending cycles	5000000
Bending radius	52 mm
Traversing path	10 m
Traversing rate	3 m/s
Torsion force	360 °/m
Outer sheath, material	PUR
Material conductor insulation	PE
Conductor material	Bare Cu litz wires
Conductor resistance	≤ 57 Ω/km
Nominal voltage, cable	320 V AC
Test voltage, cable	2500 V AC (50 Hz, 5 minutes)
Special properties	Silicone-free
Flame resistance	DIN VDE 0472 part 804, test type B
Halogen-free	The cable is halogen-free
Other resistance	hydrolysis and microbe resistant
Ambient temperature (operation)	-50 °C ... 105 °C (cable, fixed installation) -40 °C ... 105 °C (cable, flexible installation)

PUR halogen-free yellow [240]

Cable type	PUR halogen-free yellow
Cable type (abbreviation)	240
Cable abbreviation	Li9Y11Y
Conductor cross section	0.34 mm ²
AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.27 mm ±0.02 mm
Thickness, insulation	≥ 0.21 mm (Core insulation) approx. 0.8 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	49.5 mm
External sheath, color	Yellow RAL 1021
External cable diameter D	4.7 mm ±0.15 mm
Smallest bending radius, fixed installation	23.5 mm

Smallest bending radius, movable installation	47 mm
Number of bending cycles	4000000
Bending radius	47 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s ²
Cable weight	30 kg/km
Outer sheath, material	PUR
Material conductor insulation	PP
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 100 GΩ*km (at 20 °C)
Conductor resistance	max. 58 Ω/km (at 20 °C)
Nominal voltage, cable	≤ 300 V
Test voltage, cable	≥ 3000 V
Special properties	Flexible cable conduit capable
	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Flame resistance	in accordance with DIN UL-Style 20549
	in accordance with FT1 as per UL 758
Halogen-free	in accordance with DIN VDE 0472 part 815
	in accordance with DIN EN 50267-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	Highly resistant to acids, alkaline solutions and solvents
	hydrolysis and microbe resistant
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

PUR halogen-free gray [280]

Cable type	PUR halogen-free gray
Cable type (abbreviation)	280
Cable abbreviation	Li9Y11Y
Conductor cross section	0.34 mm ²
AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.27 mm ±0.02 mm

Thickness, insulation	≥ 0.21 mm (Core insulation)
	approx. 0.8 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
Length of twist, overall twist	49.5 mm
External sheath, color	Gray RAL 7001
External cable diameter D	4.7 mm ±0.15 mm
Smallest bending radius, fixed installation	23.5 mm
Smallest bending radius, movable installation	47 mm
Number of bending cycles	4000000
Bending radius	47 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s ²
Cable weight	30 kg/km
Outer sheath, material	PUR
Material conductor insulation	PP
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 100 MΩ*km
Conductor resistance	max. 58 Ω/km (at 20 °C)
Nominal voltage, cable	≤ 300 V
Test voltage, cable	≥ 3000 V
Special properties	Flexible cable conduit capable
	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Flame resistance	in accordance with DIN UL-Style 20549
	in accordance with FT1 as per UL 758
Halogen-free	in accordance with DIN VDE 0472 part 815
	in accordance with DIN EN 50267-2-1
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	Highly resistant to acids, alkaline solutions and solvents
	hydrolysis and microbe resistant
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

PVC gray [500]

Cable type	PVC gray
Cable type (abbreviation)	500
Cable abbreviation	LiYY
Conductor cross section	0.34 mm ²
AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.45 mm ±0.02 mm
Thickness, insulation	≥ 0.23 mm (Core insulation)
	≥ 0.76 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	Gray RAL 7001
External cable diameter D	5.2 mm ±0.15 mm
Smallest bending radius, fixed installation	26 mm
Smallest bending radius, movable installation	52 mm
Cable weight	40 kg/km
Outer sheath, material	PVC
Material conductor insulation	PVC
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 1 GΩ*km (at 20 °C)
Conductor resistance	max. 58 Ω/km (at 20 °C)
Nominal voltage, cable	≤ 300 V (AC)
Test voltage, cable	≥ 3000 V (AC)
Flame resistance	in accordance with FT1 as per UL 758
Resistance to oil	in accordance with DIN EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

PVC black FDA [511]

Cable type	PVC black FDA
Cable type (abbreviation)	511
Cable abbreviation	LiYY-HF
Conductor cross section	0.34 mm ²
AWG signal line	22
Conductor structure signal line	42x 0.10 mm

Core diameter including insulation	1.52 mm ±0.05 mm
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	Black RAL 9005
External cable diameter D	5.2 mm ± 0.2 mm
Outer sheath, material	Special mixture on PVC base
Material conductor insulation	PVC
Conductor material	Bare Cu litz wires
Nominal voltage, cabel	300 V
Test voltage, cable	1500 V
Special properties	FDA compliant
Resistance to oil	good oil-resistance
Other resistance	UV resistant
	Silicone-free
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 90 °C (cable, flexible installation)

PVC yellow 105 °C [542]

Cable type	PVC yellow 105 °C
Cable type (abbreviation)	542
Cable abbreviation	LiYY
Conductor cross section	0.34 mm ²
AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.55 mm ±0.05 mm
Thickness, insulation	≥ 0.38 mm (Core insulation)
	≥ 0.76 mm (Outer cable sheath)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	Yellow RAL 1021
External cable diameter D	5.5 mm ± 0.2 mm
Cable weight	43 kg/km
Outer sheath, material	PVC
Material conductor insulation	PVC
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 100 MΩ*km (at 20 °C)

Conductor resistance	≤ 58 Ω/km (at 20 °C)
Nominal voltage, cabel	≤ 300 V
Test voltage, cable	≥ 3000 V
Flame resistance	in accordance with UL-Style 2517 According to UL VW1
Ambient temperature (operation)	-25 °C ... 105 °C (cable, fixed installation)

PVC black [PVC]

Cable type	PVC black
Cable type (abbreviation)	PVC
Cable abbreviation	LIYY
UL AWM style	2464 / 1729 (80°C/300 V)
Conductor cross section	4x 0.34 mm ² (signal line)
AWG signal line	22
Conductor structure signal line	42x 0.10 mm
Core diameter including insulation	1.45 mm ±0.02 mm
Thickness, insulation	≥ 0.23 mm (Core insulation)
Wire colors	brown, white, blue, black
Overall twist	4 wires, twisted
External sheath, color	Black RAL 9005
Outer sheath thickness	≥ 0.76 mm
External cable diameter D	5.2 mm ±0.15 mm
Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	10 x D
Cable weight	40 kg/km
Outer sheath, material	PVC
Material conductor insulation	PVC
Conductor material	Bare Cu litz wires
Insulation resistance	≥ 200 MΩ*km (at 20 °C)
Conductor resistance	max. 58 Ω/km (at 20 °C)
Nominal voltage, cabel	≤ 300 V
Test voltage, cable	≥ 3000 V
Flame resistance	As per UL-Style 2464 According to UL 758/1581 FT1
Resistance to oil	According to DIN EN 60811-2-1, 168 h at 90°C

Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (cable, flexible installation)

Certificates / Approvals



Certification GOST

Certifications applied for:

Certification Ex:

Configuration options

Cable type	PVC black [PVC] PUR irradi. halogen-free orange [150] PUR irradi. halogen-free yellow [160] PUR halogen-free yellow [240] PUR halogen-free gray [280] PVC gray [500] PVC black FDA [511] PVC yellow 105 °C [542]
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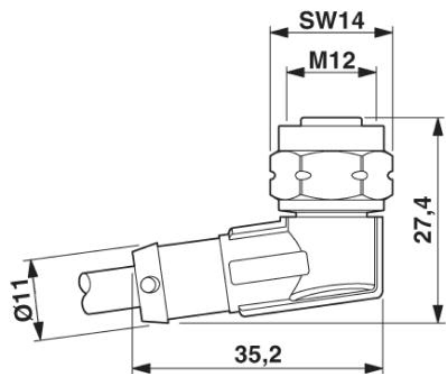
Accessories

Item	Designation	Description
General		
1553200	SACC-M12MR-4CON-PG 7-VA	Sensor/actuator connector, male, angled, 4-pos., M12, screw connection, high-grade steel knurl, cable screw connection Pg7
1553161	SACC-M12MS-4CON-PG 7-VA	Sensor/actuator connector, male, straight, 4-pos., M12, screw connection, high-grade steel knurl, cable screw connection Pg7
Tools		
1212513	SAC BIT M12-W14	SAC nut, for assembling M12 connectors with hexagonal high-grade steel knurl, with 4 mm hexagonal drive
1208429	TSD 04 SAC	Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

Drawings

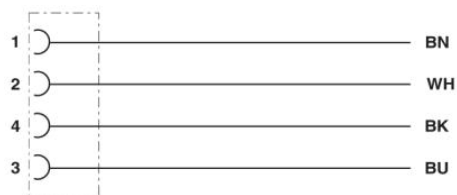
Dimensioned drawing

M12 x 1 socket, angled

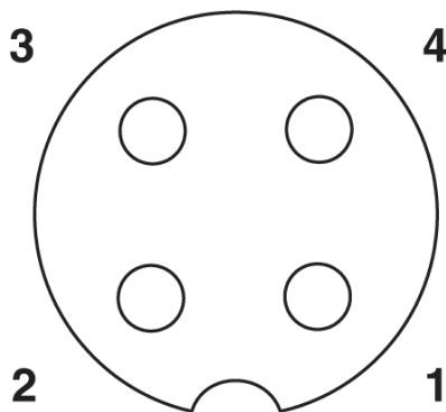


Circuit diagram

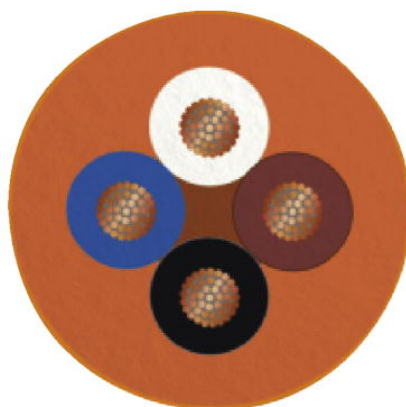
Contact assignment of the M12 socket



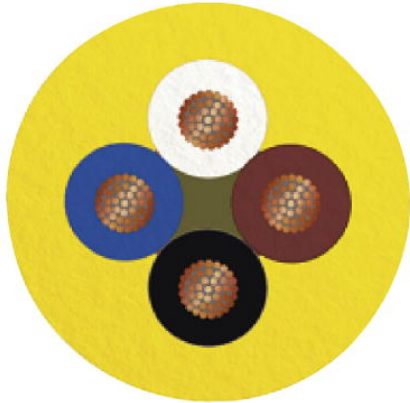
Schematic diagram



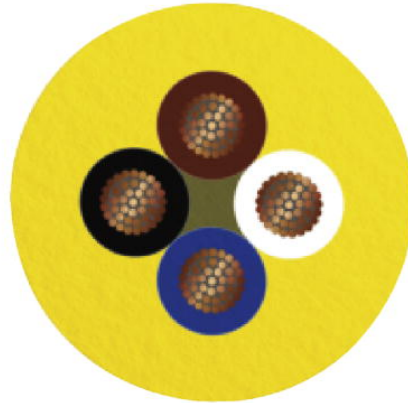
Pin assignment M12 socket, 4-pos., A-coded, view female side



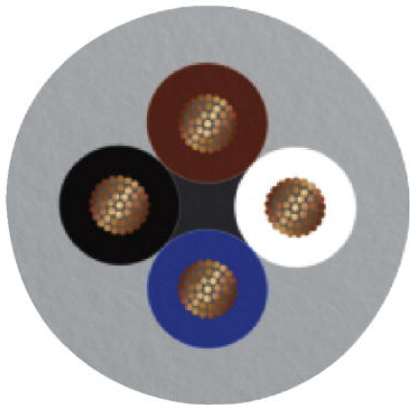
PUR irradiated halogen-free orange [150]



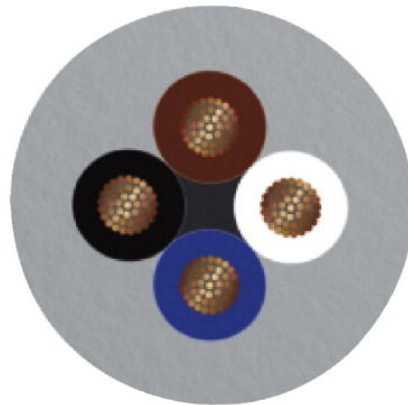
PUR irradiated halogen-free yellow [160]



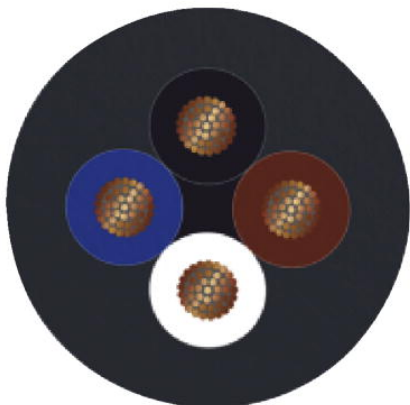
PUR halogen-free yellow [240]



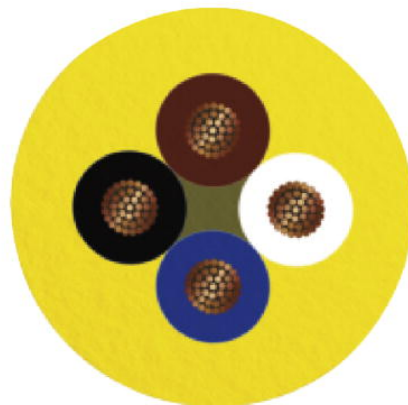
PUR halogen-free gray [280]



PVC gray [500]

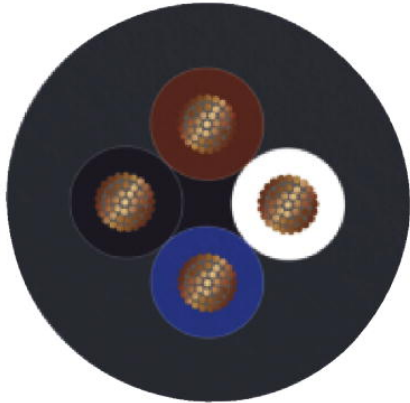


PVC black FDA [511]



PVC yellow 105 °C [542]

PVC black [PVC]



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