

## Sensor/actuator cable - SAC-3P-M12MR/1,5-PUR/M 8FR - 1668933

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug angled M12, coding: A, on Socket angled M8, cable length: 1.5 m

### Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Our standard: robust halogen-free PUR cable



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 017918 135690
GTIN	4017918135690
Weight per Piece (excluding packing)	48.900 g
Custom tariff number	85444290
Country of origin	Germany

### Technical data

#### Dimensions

Length of cable	1.5 m
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#### Ambient conditions

Ambient temperature (operation)	-25 °C ... 90 °C (Plug / socket)
	-25 °C ... 90 °C (Plug / socket)
Degree of protection	IP65
	IP67
	IP68

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### Technical data

#### General

Rated current at 40°C	4 A
Rated voltage	48 V AC
	60 V DC
Number of positions	3
Insulation resistance	≥ 100 MΩ
Coding	A - standard
Standards/regulations	M12 connector IEC 61076-2-101
	M8 connector IEC 61076-2-104
Status display	No
Protective circuit/component	unwired
Overvoltage category	II
Degree of pollution	3
Insertion/withdrawal cycles	≥ 100
Torque	0.4 Nm (M12 connector)
	0.2 Nm (M8 connectors)

#### Material

Flammability rating according to UL 94	HB
Contact material	CuSn
Contact surface material	Ni/Au
Contact carrier material	TPU GF
Material of grip body	TPU, hardly inflammable, self-extinguishing
Material, knurls	Zinc die-cast, nickel-plated
Sealing material	NBR

#### Standards and Regulations

Standards/specifications	M12 connector IEC 61076-2-101
	M8 connector IEC 61076-2-104
Flammability rating according to UL 94	HB

#### Cable

Cable type	PUR halogen-free black
Cable type (abbreviation)	PUR
Cable abbreviation	Li9Y11Y-HF
UL AWM style	20549 / 10493 (80°C/300 V)
Conductor cross section	3x 0.25 mm <sup>2</sup>
AWG signal line	24
Conductor structure signal line	32x 0.10 mm
Core diameter including insulation	1.17 mm ±0.02 mm

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### Technical data

#### Cable

Thickness, insulation	≥ 0.21 mm (Core insulation)
Wire colors	brown, blue, black
Overall twist	3 wires, twisted
Length of twist, overall twist	40 mm
External sheath, color	black-gray RAL 7021
Outer sheath thickness	approx. 0.5 mm
External cable diameter D	3.6 mm ±0.15 mm
Smallest bending radius, fixed installation	18 mm
Smallest bending radius, movable installation	36 mm
Number of bending cycles	10000000
Bending radius	44 mm
Traversing path	10 m
Traversing rate	3 m/s
Acceleration	10 m/s <sup>2</sup>
Cable weight	18 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	≤ 78 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
Other resistance	hydrolysis and microbe resistant
	Highly resistant to acids, alkaline solutions and solvents
	Resistant to salt water
	partly UV-resistant in accordance with DIN EN ISO 4892-2-A
Flame resistance	in accordance with UL 758/1581 FT2
	DIN EN 60332-2-2 (20 s)
Halogen-free	in accordance with DIN VDE 0472 part 815
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)

#### Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
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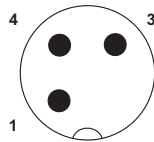
## Technical data

### Environmental Product Compliance

	No hazardous substances above threshold values
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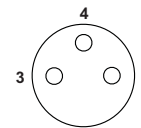
## Drawings

Schematic diagram



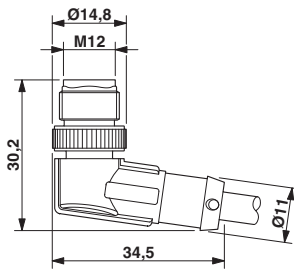
Pin assignment M12 plug, 3-pos., A-coded, view male side

Schematic diagram



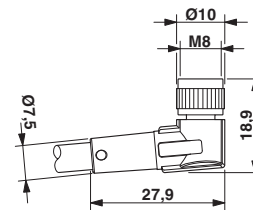
Pin assignment M8 socket, 3-pos., view female side

Dimensional drawing



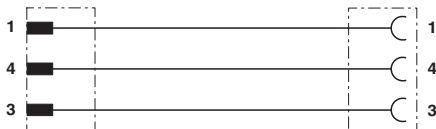
M12 x 1 male plug, angled

Dimensional drawing



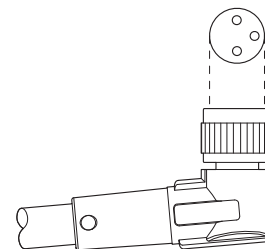
Socket M8 x 1, angled

Circuit diagram



Contact assignment of M12 plugs / M8 sockets

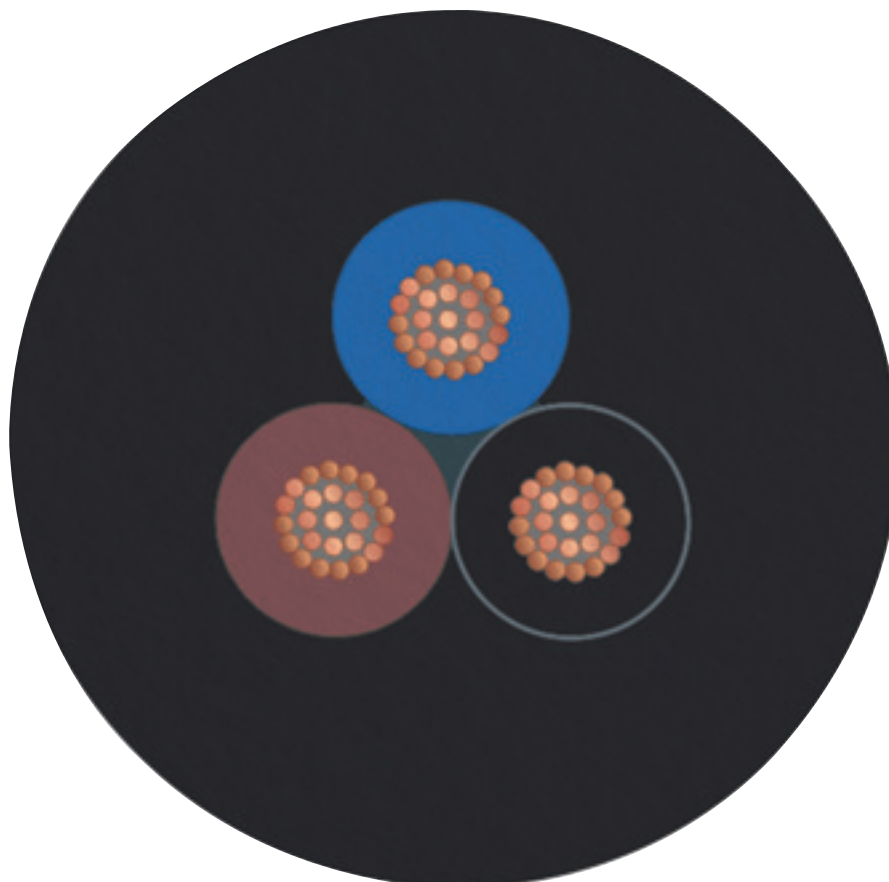
Schematic diagram



Layout of connector pin assignments

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Cable cross section



PUR halogen-free black [PUR]

## Classifications

eCl@ss

eCl@ss 10.0.1	27060311
eCl@ss 11.0	27060311
eCl@ss 4.0	27060300
eCl@ss 4.1	27060300
eCl@ss 5.0	27061800
eCl@ss 5.1	27061800
eCl@ss 6.0	27279200
eCl@ss 7.0	27279218
eCl@ss 9.0	27060311

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## Classifications

### ETIM

ETIM 2.0	EC000830
ETIM 3.0	EC001855
ETIM 4.0	EC001855
ETIM 6.0	EC001855
ETIM 7.0	EC001855

### UNSPSC

UNSPSC 6.01	31251501
UNSPSC 7.0901	31251501
UNSPSC 11	31251501
UNSPSC 12.01	31251501
UNSPSC 13.2	31251501
UNSPSC 19.0	31251501
UNSPSC 20.0	31251501
UNSPSC 21.0	31251501

## Approvals


### Approvals

Approvals

UL Listed / cUL Listed / EAC-RoHS / EAC / cULus Listed

Ex Approvals

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 221474
Nominal voltage UN	60 V		
Nominal current IN	4 A		

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## Approvals

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Nominal voltage UN		60 V	
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EAC-RoHS		RU D-DE.HB35.B.00387
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EAC		EAC-Zulassung
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cULus Listed	
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## Accessories

### Accessories

#### Conductor marking

Insert label - PABA WH/23 - 1013779



Insert label, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: thread on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

Insert label - PABA YE/23 - 1013782



Insert label, Strip, yellow, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: thread on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

#### Marker pen

## Sensor/actuator cable - SAC-3P-M12MR/1,5-PUR/M 8FR - 1668933

### Accessories

Marker pen - B-STIFT - 1051993



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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### Plug for cable screw gland

Screw plug - PROT-M 8 MS-PA-CHAIN - 1430860



M8 sealing cap made of plastic with fixing band for sensor cables, for M8 sockets

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### Protective cap

Sealing cap - PROT-M12 FS-PA-CHAIN - 1430873



M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs

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### Safety locking

Locking clip - SAC-M12-EXCLIP-M - 1558988



Locking clip for the pin side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools

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### Screwdriver tools

## Sensor/actuator cable - SAC-3P-M12MR/1,5-PUR/M 8FR - 1668933

### Accessories

Tool - SAC BIT M8-D10 - 1208461



Nut for assembling M8 connectors with longitudinal knurl and a knurl diameter of 10 mm, for 4 mm hexagonal drive

Adapter insert - TSD-M SAC-BIT ADAPTER - 1212600



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

Tool - SAC BIT M12-D15 - 1208432



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

### Torque tool

Torque screwdriver - TSD 02 SAC - 1208487



Torque screwdriver, with preset torque of 0.2 Nm and 4 mm hexagonal drive for M8 connectors

Torque screwdriver - TSD 04 SAC - 1208429



Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

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### Accessories

Torque screwdriver - TSD-M 1,2NM - 1212224



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm