

# SAC-3P-M12MS/5,0-PUR/M 8FR - Sensor/actuator cable



1681224

<https://www.phoenixcontact.com/in/products/1681224>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket angled M8, cable length: 5 m

## Commercial data

Item number	1681224
Packing unit	5 pc
Minimum order quantity	25 pc
Note	Made to order (non-returnable)
Sales key	BF1
Product key	AF1CBA
GTIN	4017918331375
Weight per piece (including packing)	106.1 g
Weight per piece (excluding packing)	106.1 g
Customs tariff number	85444290
Country of origin	DE

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## Technical data

### Product properties

Product type	Sensor/actuator cable
Number of positions	3
No. of cable outlets	1
Shielded	no
Coding	A

### Insulation characteristics

Overvoltage category	II
Degree of pollution	3

### Material specifications

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

### Electrical properties

Insulation resistance	$\geq 100 \text{ M}\Omega$
Nominal voltage $U_N$	48 V AC
	60 V DC
Nominal current $I_N$	4 A

### Mechanical properties

#### Mechanical data

Insertion/withdrawal cycles	$\geq 100$
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### Signaling

Status display	no
Status display present	No

### Connector

#### Connection 1

Type	Plug straight M12
Number of positions	3
Coding type	A

#### Connection 2

Type	Socket angled M8
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# SAC-3P-M12MS/5,0-PUR/M 8FR - Sensor/actuator cable



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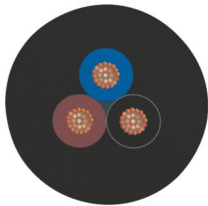
<https://www.phoenixcontact.com/in/products/1681224>

Number of positions	3
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## Cable/line

Cable length	5 m
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### PUR halogen-free black [PUR]

Dimensional drawing	
Cable weight	18 kg/km
UL AWM Style	20549 / 10493 (80°C/300 V)
Number of positions	3
Shielded	no
Cable type	PUR halogen-free black [PUR]
Conductor structure signal line	32x 0.10 mm
AWG signal line	24
Conductor cross section	3x 0.25 mm² (Signal line)
Wire diameter incl. insulation	1.17 mm ±0.02 mm
External cable diameter	3.60 mm ±0.15 mm
Outer sheath, material	PUR
External sheath, color	black-gray RAL 7021
Conductor material	Bare Cu litz wires
Material wire insulation	PP
Single wire, color	brown, blue, black
Thickness, insulation	≥ 0.21 mm (Core insulation)
Thickness, outer sheath	approx. 0.50 mm
Overall twist	3 wires, twisted
Length of twist, overall twist	40 mm
Max. conductor resistance	≤ 78 Ω/km (at 20 °C)
Insulation resistance	≥ 100 GΩ*km (at 20 °C)
Nominal voltage, cable	≤ 300 V
Test voltage	≥ 3000 V
Smallest bending radius, fixed installation	18 mm
Smallest bending radius, movable installation	36 mm
Dynamic load capacity (bending)	Max. bending cycles: 10000000, Bending radius: 44 mm, Traversing path: 10 m, Traversing rate: 3 m/s, Acceleration: 10 m/s²
Halogen-free	in accordance with DIN VDE 0472 part 815
Flame resistance	in accordance with UL 758/1581 FT2 DIN EN 60332-2-2 (20 s)

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Resistance to oil	in accordance with DIN EN 60811-2-1
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)
Special properties	Flexible cable conduit capable
	Silicone-free
	Free of substances which would hinder coating with paint or varnish
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-25 °C ... 80 °C (Cable, flexible installation)

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP65
	IP67
	IP68
Ambient temperature (operation)	-25 °C ... 90 °C (Plug / socket)
	-40 °C ... 80 °C (cable, fixed installation)
	-5 °C ... 80 °C (Cable, flexible installation)

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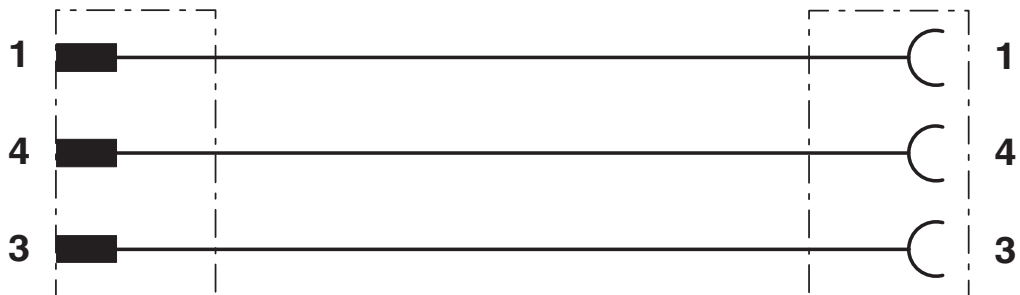


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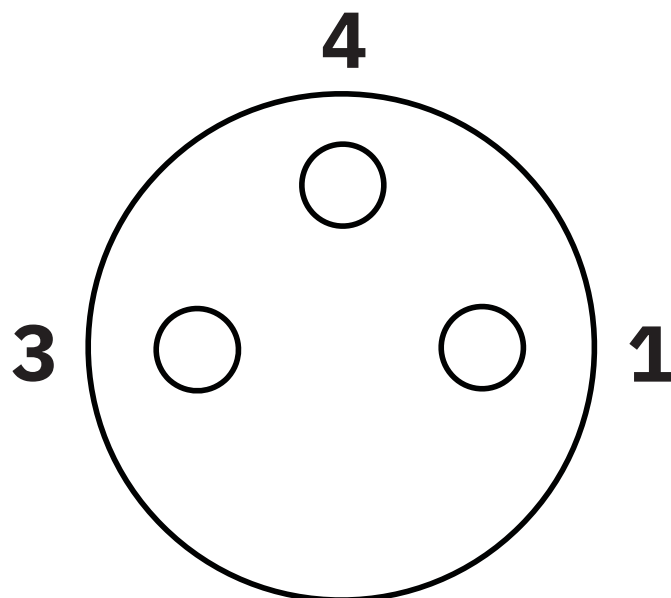
## Drawings

Circuit diagram



Contact assignment of M12 plugs / M8 sockets

Schematic diagram



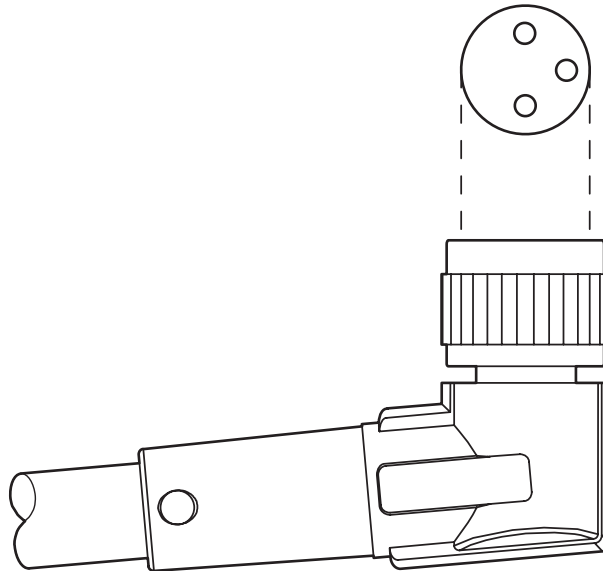
Pin assignment M8 socket, 3-pos., view female side

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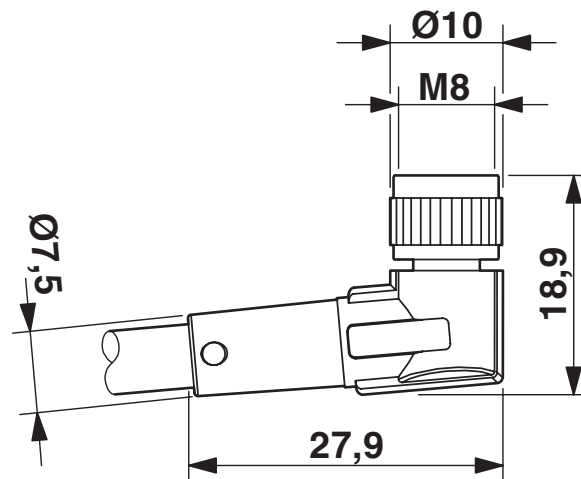
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Schematic diagram



Layout of connector pin assignments

Dimensional drawing



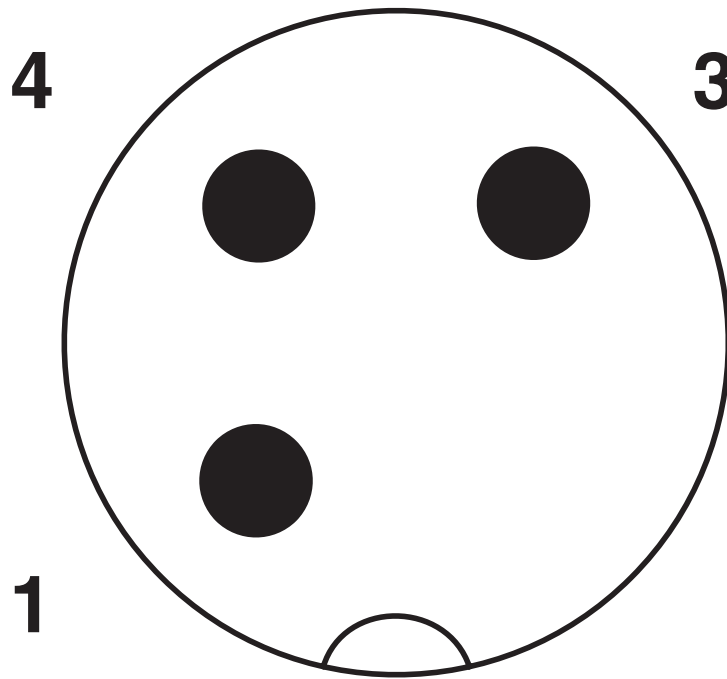
Socket M8 x 1, angled

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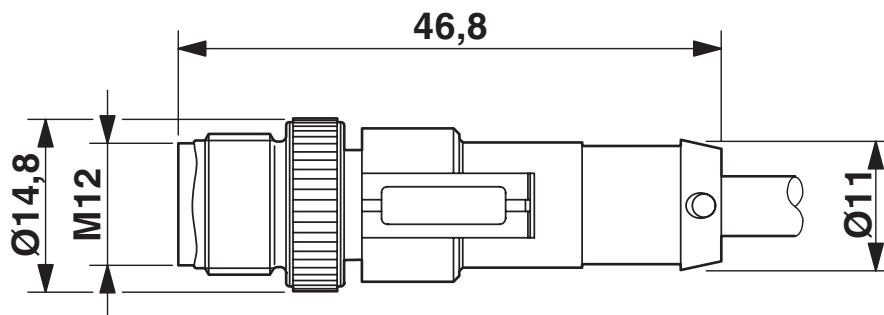
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Schematic diagram



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

Dimensional drawing



Plug, M12 x 1, straight, shielded

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1681224>



### UL Listed

Approval ID: FILE E 221474

	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
	60 V	4 A	-	-



### cUL Listed

Approval ID: FILE E 221474

	Nominal voltage $U_N$	Nominal current $I_N$	Cross section AWG	Cross section $\text{mm}^2$
	60 V	4 A	-	-



### EAC-RoHS

Approval ID: RU D-DE.HB35.B.00387

### cULus Listed



# SAC-3P-M12MS/5,0-PUR/M 8FR - Sensor/actuator cable



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## Classifications

### ECLASS

ECLASS-11.0	27060311
ECLASS-12.0	27060311
ECLASS-13.0	27060311

### ETIM

ETIM 9.0	EC001855
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### UNSPSC

UNSPSC 21.0	26121600
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## Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes, No exemptions
China RoHS	
Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits
EU REACH SVHC	
REACH candidate substance (CAS No.)	No substance above 0.1 wt%

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## Accessories

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

1430873

<https://www.phoenixcontact.com/in/products/1430873>

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



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### SAC-M12-EXCLIP-M - Locking clip

1558988

<https://www.phoenixcontact.com/in/products/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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## UCT-WMT (23X4) - Conductor marker

0801453

<https://www.phoenixcontact.com/in/products/0801453>



Conductor marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: insert, cable diameter range: 1.5 ... 35 mm, Number of individual labels: 30, text field height: 4 mm, text field width: 23 mm

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## UC-WMT (23X4) - Conductor marker

0819411

<https://www.phoenixcontact.com/in/products/0819411>



Conductor marker, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: insert, cable diameter range: 1.5 ... 35 mm, Number of individual labels: 24, text field height: 4 mm, text field width: 23 mm

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## US-WMT (23X4) - Cable marker

0828769

<https://www.phoenixcontact.com/in/products/0828769>



Cable marker, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, Number of individual labels: 56, text field height: 4 mm, text field width: 23 mm

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## WMTW (23X4)R - Cable marker

0831004

<https://www.phoenixcontact.com/in/products/0831004>



Cable marker, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMaster 300/600, THERMOMARK X1.2, mounting type: insert, cable diameter range: 1.5 ... 35 mm, Number of individual labels: 3000, text field height: 4 mm, text field width: 23 mm

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

1430860

<https://www.phoenixcontact.com/in/products/1430860>

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



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## B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/in/products/1051993>

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



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## TSD 02 SAC - Torque screwdriver

1208487

<https://www.phoenixcontact.com/in/products/1208487>



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

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## SAC BIT M8-D10 - Tool

1208461

<https://www.phoenixcontact.com/in/products/1208461>



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

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## TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/in/products/1208429>



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

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

1212224

<https://www.phoenixcontact.com/in/products/1212224>



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



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

1212600

<https://www.phoenixcontact.com/in/products/1212600>



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

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## SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/in/products/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

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