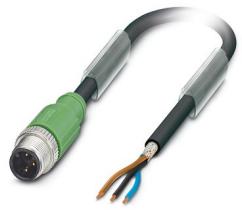
# SAC-3P-M12MS/ 1,5-PUR SH - Sensor/actuator cable

1682650

https://www.phoenixcontact.com/us/products/1682650

Please be informed that the data shown in this PDF document is generated from our Online Catalog. Please find the complete data in the user documentation. Our General Terms of Use for Downloads are valid.



Sensor/actuator cable, 3-position halogen-free, shielded, Plug straight M12, coding: A, on free cable end, cable length: 1.5 m

## Your advantages

- Easy and safe: 100% electrically tested plug-in components
- Reliable signal transmission – 360° shielding in environments with electromagnetic interference

## Commercial Data

| | |
|---|---|
| Item number | 1682650 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales Key | BF03 |
| Product Key | BF1CIA |
| Catalog Page | Page 193 (C-2-2019) |
| GTIN | 4017918168933 |
| Weight per Piece (including packing) | 62.6 g |
| Weight per Piece (excluding packing) | 62.4 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

# Technical Data

## Product properties

| | |
|---|---|
| Product type | Sensor/actuator cable |
| Number of positions | 3 |
| Application | Standard |
| No. of cable outlets | 1 |
| Shielded | yes |
| 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

| | |
|---|---|
| Contact resistance | ≤ 5 mΩ |
| Insulation resistance | ≥ 100 MΩ |
| Nominal voltage $U_N$ | 48 V AC |
| | 60 V DC |
| Nominal current $I_N$ | 4 A |
| Protective circuit | unwired |

## Mechanical properties

### Mechanical data

| | |
|---|---|
| Insertion/withdrawal cycles | ≥ 100 |

## Signaling

| | |
|---|---|
| Status display | No |
| Status display present | No |

## Connection data

### Conductor connection

| | |
|---|---|
| Tightening torque | 0.4 Nm (M12 connector) |

## Connector

Connection 1

| | |
|---|---|
| Type | Plug straight M12 |
| Number of positions | 3 |
| Coding type | A |
| Number of positions | 3 |

Connection 2

| | |
|---|---|
| Type | free cable end |

## Cable/line

| | |
|---|---|
| Cable length | 1.5 m |

PUR halogen-free black [PUR]

| | |
|---|---|
| Cable weight | 31 kg/km |
| UL AWM Style | 20549 |
| Number of positions | 3 |
| Shielded | yes |
| Cable type | PUR halogen-free black [PUR] |
| Conductor structure signal line | 42x 0.10 mm |
| AWG signal line | 22 |
| Conductor cross section | 3x 0.34 mm² (Signal line) |
| Wire diameter incl. insulation | 1.27 mm ±0.02 mm (Signal line) |
| External cable diameter | 4.65 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) |
| | approx. 0.5 mm (Outer cable sheath) |
| Overall twist | 3 wires, twisted |
| Optical shield covering | 80 % |
| Max. conductor resistance | max. 58 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 | 23 mm |
| Smallest bending radius, movable installation | 47 mm |
| Max. bending cycles | 10000000 |
| 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) |
| 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 |
| | 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 |
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket) |

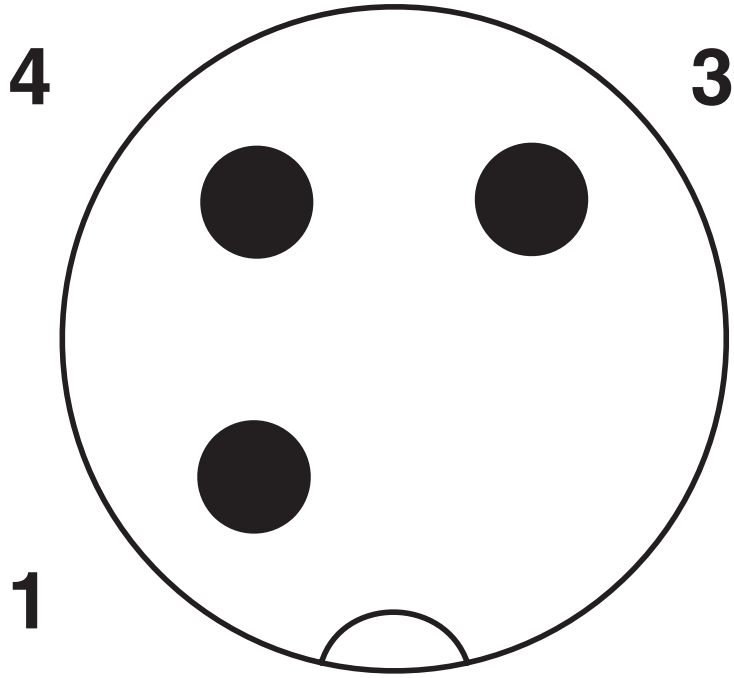
## Standards and regulations

M12

| | |
|---|---|
| Standard designation | M12 connector |
| Standards/specifications | IEC 61076-2-101 |

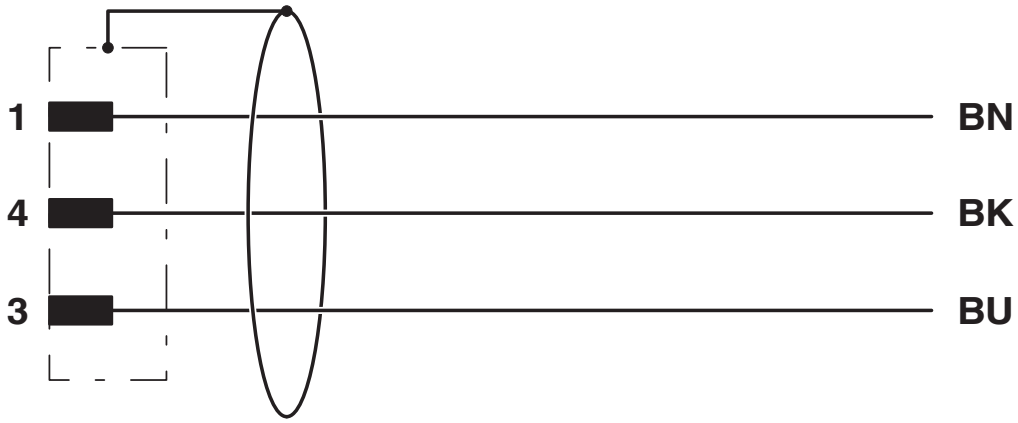
## Drawings

Schematic diagram

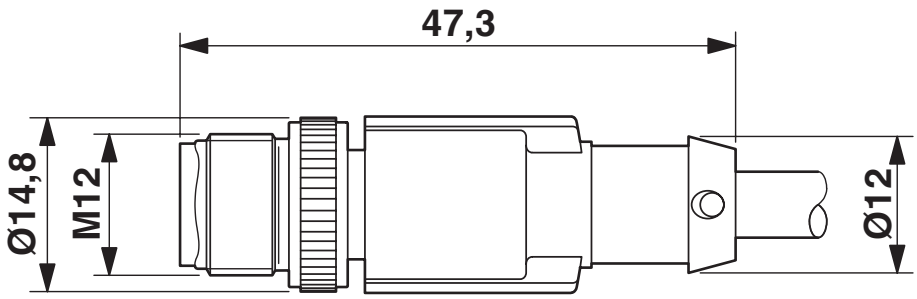



Pin assignment M12 plug, 3-pos., A-coded, view male side

Circuit diagram

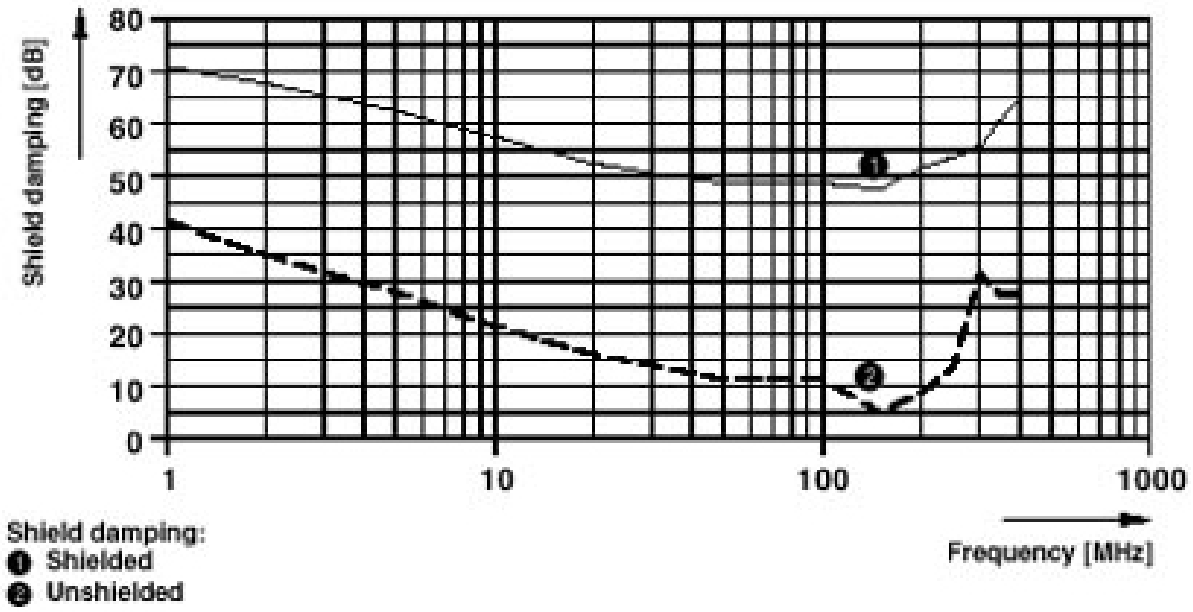


Dimensional drawing




Plug, M12 x 1, straight, shielded

Diagram


Shield damping [dB]
80
70
60
50
40
30
20
10
0
1
10
100
1000
Frequency [MHz]
Shield damping:
1 Shielded
2 Unshielded

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1682650

**EAC**
Approval ID: RU C-DE.BL08.B.00286

**UL Listed**
Approval ID: FILE E 221474

| | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
|---|---|---|---|---|
| | 300 V | 4 A | - | - |

**cUL Listed**
Approval ID: FILE E 221474

| | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $mm^2$ |
|---|---|---|---|---|
| | 300 V | 4 A | - | - |

**EAC-RoHS**
Approval ID: RU D-DE.HB35.B.00387

**cULus Listed**

## Classifications

### ECLASS

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

### ETIM

| | |
|---|---|
| ETIM 8.0 | EC001855 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 26121600 |

## Environmental Product Compliance

| | |
|---|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
| | No hazardous substances above threshold values |

## Accessories

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

1430873

https://www.phoenixcontact.com/us/products/1430873



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

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

1558988

https://www.phoenixcontact.com/us/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

## PABA WH/23 - Insert label

1013779

https://www.phoenixcontact.com/us/products/1013779

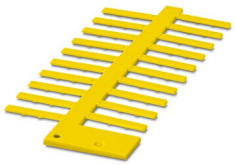


Insert label, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

## PABA YE/23 - Insert label

1013782

https://www.phoenixcontact.com/us/products/1013782



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

## B-STIFT - Marker pen

1051993

https://www.phoenixcontact.com/us/products/1051993



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

## CUTFOX-S VDE - Diagonal cutter

1212207

https://www.phoenixcontact.com/us/products/1212207



Diagonal cutter for hard (piano wire) and soft wires, VDE 1000 V AC/1500 V DC tested

## WIREFOX SAC-1 - Stripping tool

1212757

https://www.phoenixcontact.com/us/products/1212757



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from Ø of 3.2 to 4.4 mm, any stripping length

## WIREFOX SAC - Stripping tool

1212623

https://www.phoenixcontact.com/us/products/1212623



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from Ø of 4.4 to 7 mm, any stripping length

## WIREFOX 10 - Stripping tool

1212150

https://www.phoenixcontact.com/us/products/1212150



Stripping tool, for cables and conductors from 0.02 - 10 $mm^2$, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 $mm^2$ stranded/1.5 $mm^2$ solid, replaceable stripping blade

## WP-CTA POM 13,0 BK - Protective hose adapter

1422884

https://www.phoenixcontact.com/us/products/1422884



Protective hose adapter, for corrugated hoses with a nominal size of 13 (10 x 13), corrugated in parallel

## WP-PA HF 13,0 BK - Protective hose

3240681

https://www.phoenixcontact.com/us/products/3240681



Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: V0, inner diameter: 10 mm, Total length: 50 m

## WP-PA HF-HB 13,0 BK - Protective hose

3240839

https://www.phoenixcontact.com/us/products/3240839



Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: HB, inner diameter: 10 mm, Total length: 50 m

## TSD 04 SAC - Torque screwdriver

1208429

https://www.phoenixcontact.com/us/products/1208429



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

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

1212224

https://www.phoenixcontact.com/us/products/1212224



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0. 3 - 1.2 Nm

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

1212600

https://www.phoenixcontact.com/us/products/1212600



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

## SAC BIT M12-D15 - Tool

1208432

https://www.phoenixcontact.com/us/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


Phoenix Contact 2023 © - all rights reserved
https://www.phoenixcontact.com



Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com