

# Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket angled M12, coding: A, with 2 LEDs, cable length: 0.6 m

## Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Our standard: robust halogen-free PUR cable
- ✓ Convenient: increased machine availability thanks to quick and easy diagnostics

## Key Commercial Data

|              |               |
|--------------|---------------|
| Packing unit | 1 pc          |
| GTIN         |               |
| GTIN         | 4017918178437 |
| Sales Key    | 02            |

## Technical data

### Dimensions

|                 |       |
|-----------------|-------|
| Length of cable | 0.6 m |
|-----------------|-------|

### Ambient conditions

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

### General

|                       |          |
|-----------------------|----------|
| Rated current at 40°C | 4 A      |
| Rated voltage         | 24 V DC  |
| Number of positions   | 3        |
| Insulation resistance | ≥ 100 MΩ |

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## Technical data

### General

|                              |                               |
|------------------------------|-------------------------------|
| Coding                       | A - standard                  |
| Standards/regulations        | M12 connector IEC 61076-2-101 |
| Status display               | 2 LEDs                        |
| Protective circuit/component | unwired                       |
| Overvoltage category         | II                            |
| Degree of pollution          | 3                             |
| Insertion/withdrawal cycles  | ≥ 100                         |
| Torque                       | 0.4 Nm (M12 connector)        |

### 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 |
| Flammability rating according to UL 94 | HB                            |

### Cable

|   |                                       |
|---|---------------------------------------|
| Cable type                                    | PUR halogen-free black                |
| Cable type (abbreviation)                     | PUR                                   |
| Cable abbreviation                            | Li9Y11Y                               |
| UL AWM style                                  | 20549                                 |
| Conductor cross section                       | 3x 0.34 mm <sup>2</sup> (Signal line) |
| AWG signal line                               | 22                                    |
| Conductor structure signal line               | 42x 0.10 mm                           |
| Core diameter including insulation            | 1.27 mm ±0.02 mm (Signal line)        |
| Thickness, insulation                         | ≥ 0.21 mm (Core insulation)           |
|   | approx. 0.5 mm (Outer cable sheath)   |
| Wire colors                                   | brown, blue, black                    |
| Overall twist                                 | 3 wires, twisted                      |
| External sheath, color                        | black-gray RAL 7021                   |
| External cable diameter D                     | 3.85 mm ±0.15 mm                      |
| Smallest bending radius, fixed installation   | 19 mm                                 |
| Smallest bending radius, movable installation | 38 mm                                 |
| Number of bending cycles                      | 10000000                              |
| Bending radius                                | 44 mm                                 |
| Traversing path                               | 10 m                                  |

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### Technical data

#### Cable

|                                 |   |
|---------------------------------|---|
| Traversing rate                 | 3 m/s   |
| Acceleration                    | 10 m/s <sup>2</sup>   |
| Cable weight                    | 23 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 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                                 |
| 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          |
| 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 |
|            | No hazardous substances above threshold values          |

#### Drawings

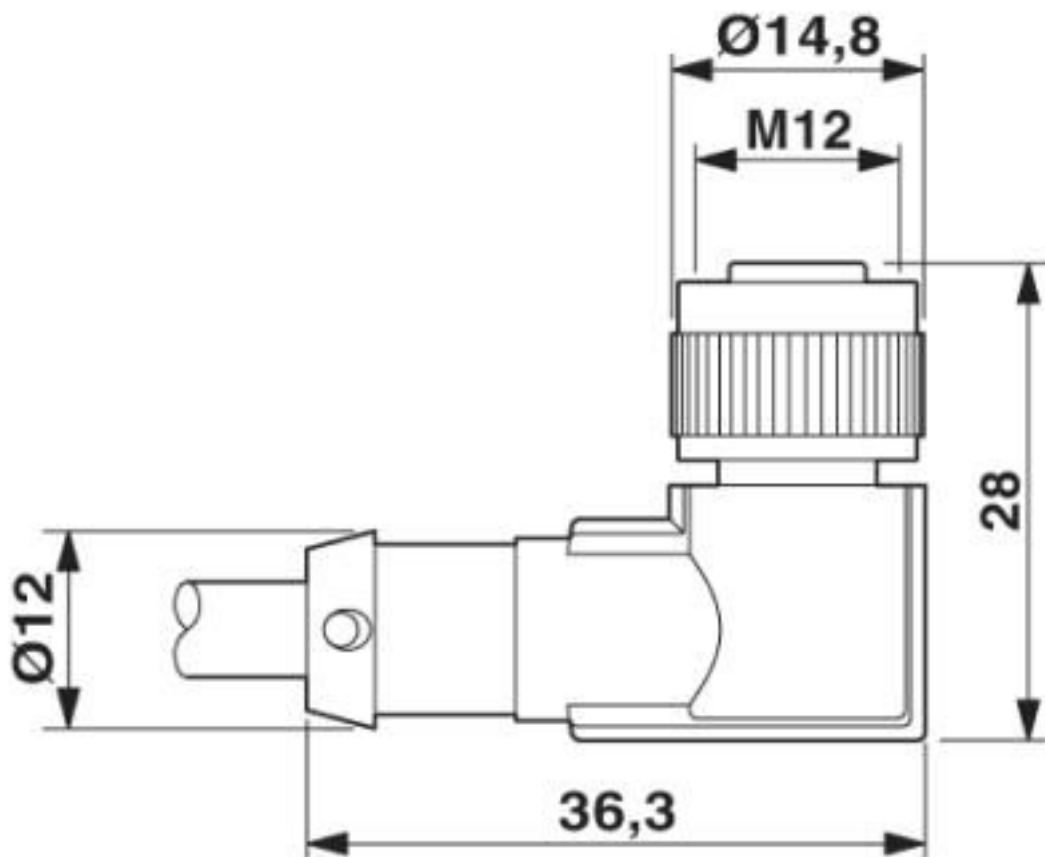
# Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

Dimensional drawing



Plug, M12 x 1, straight, shielded

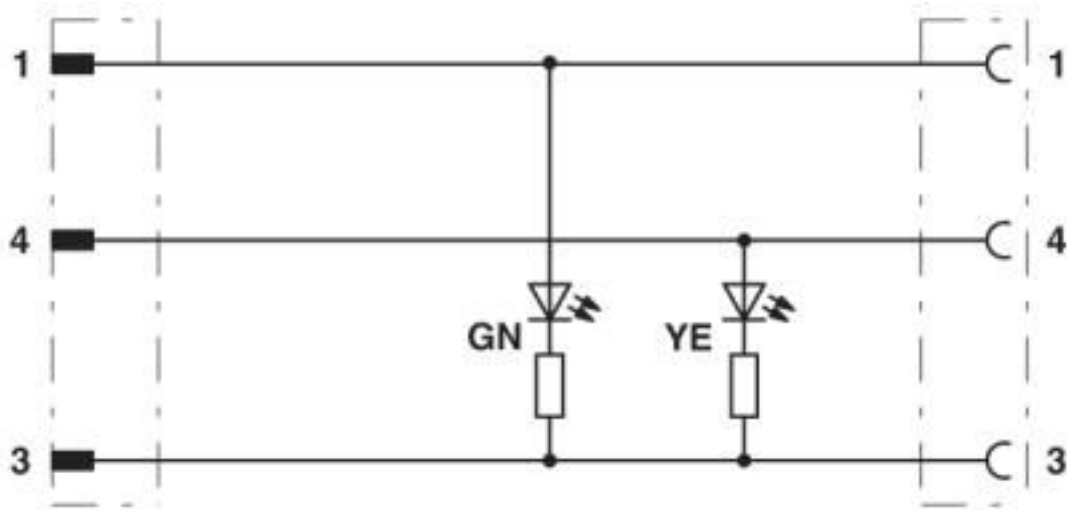
Dimensional drawing



Socket M12 x 1, angled, with LED

# Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

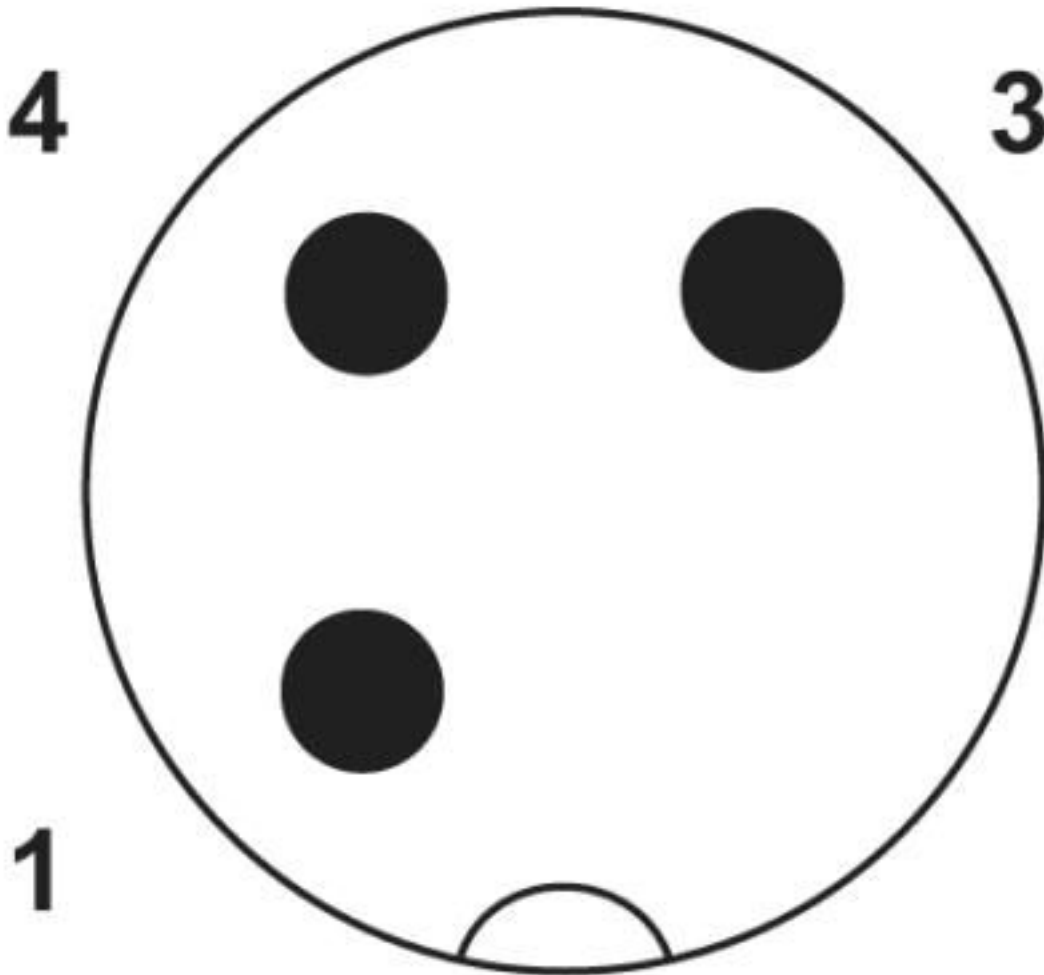
Circuit diagram



Contact assignment of the M12 plug and the M12 socket

## Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

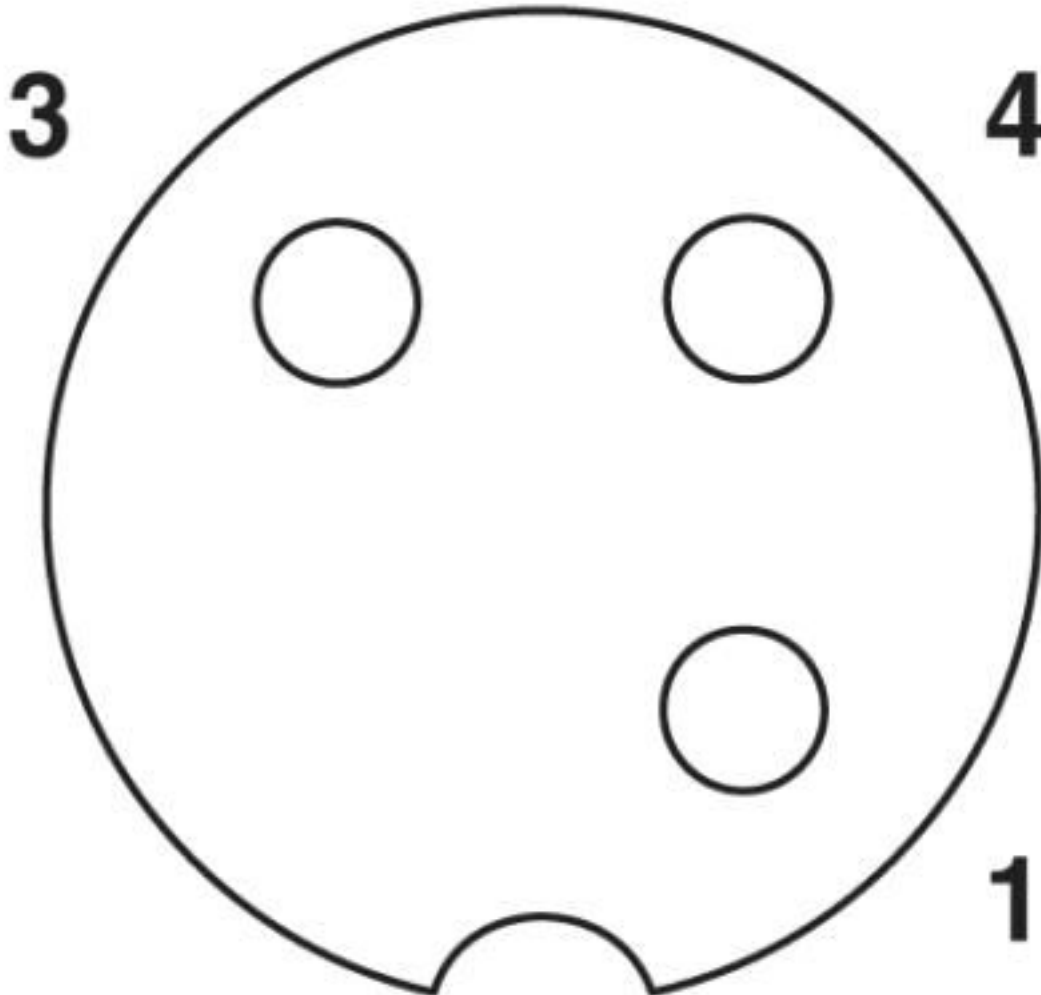
Schematic diagram



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

# Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

Schematic diagram



Pin assignment M12 socket, 3-pos., A-coded, view female side

## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 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 8.0    | 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 5.0 | 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 | 24 V |   |               |
| Nominal current IN | 4 A  |   |               |

|                    |      |   |               |
|--------------------|------|---|---------------|
| cUL 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 | 24 V |   |               |



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## Approvals

|                                |     |
|--------------------------------|-----|
| Nominal current I <sub>N</sub> | 4 A |
|--------------------------------|-----|

|          |  |                      |
|----------|--|----------------------|
| EAC-RoHS |  | RU D-DE.HB35.B.00387 |
|----------|--|----------------------|

|     |  |               |
|-----|--|---------------|
| EAC |  | EAC-Zulassung |
|-----|--|---------------|

|              |  |  |
|--------------|--|--|
| cULus Listed |  |  |
|--------------|--|--|

## 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

Marker pen - B-STIFT - 1051993



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

## Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

### Accessories

#### Plug for cable screw gland

Screw plug - PROT-M12 MS-PA-CHAIN - 1430899

M12 sealing cap with fixing band, for sensor cables, for free M12 sockets



#### 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



#### 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

Locking clip - SAC-M12-EXCLIP-F - 1558991



Locking clip for the socket 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

#### Screwdriver tools

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

## Sensor/actuator cable - SAC-3P-M12MS/ 0,6-PUR/M12FR-2L - 1694567

### Accessories

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

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### Torque tool

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



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

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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>

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