

## Sensor/Actuator cable - SAC-3P-M12MR/3,0-PUR/M12FS B - 1668580

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Sensor/Actuator cable, 3-position, PUR halogen-free, Black-gray RAL 7021, Plug angled M12, A-coded, on Socket straight M12, A-coded, PIN 2+4 bridged, Cable length: 3 m

### Product Features

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Our standard: robust halogen-free PUR cable
- ✓ Efficient integration of bridging functions directly in the connector



### Key commercial data

|                                      |           |
|--------------------------------------|-----------|
| Packing unit                         | 1 1       |
| Weight per Piece (excluding packing) | 120.5 GRM |
| Custom tariff number                 | 85444290  |
| Country of origin                    | Poland    |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 3 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         | 250 V  |
| Number of positions   | 3      |
| Contact resistance    | ≤ 5 mΩ |

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## Technical data

### General

|                              |                               |
|------------------------------|-------------------------------|
| Insulation resistance        | $\geq 100 \text{ M}\Omega$    |
| Coding                       | A - standard                  |
| Standards/regulations        | M12 connector IEC 61076-2-101 |
| Status display               | No                            |
| Protective circuit/component | Unwired                       |
| Surge voltage category       | II                            |
| Pollution degree             | 3                             |
| Insertion/withdrawal cycles  | $\geq 100$                    |
| Torque                       | 0.4 Nm (M12 connector)        |

### Material

|                                         |                                             |
|-----------------------------------------|---------------------------------------------|
| Inflammability class 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                                         |

### 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 $\pm$ 0.02 mm (signal line)      |
| Thickness, insulation                         | $\geq 0.21 \text{ mm}$ (Core insulation) |
|                                               | approx. 0.8 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                     | 4.4 mm $\pm$ 0.15 mm                     |
| Smallest bending radius, fixed installation   | 22 mm                                    |
| Smallest bending radius, movable installation | 44 mm                                    |
| Number of bending cycles                      | 4000000                                  |
| Bending radius                                | 44 mm                                    |

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### Technical data

#### Cable

|                                 |                                                                     |
|---------------------------------|---------------------------------------------------------------------|
| Traversing path                 | 10 m                                                                |
| Traversing rate                 | 3 m/s                                                               |
| Acceleration                    | 10 m/s <sup>2</sup>                                                 |
| Cable weight                    | 26 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                               |
| 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)                     |

### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060306 |
| eCl@ss 4.1 | 27060306 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 27061801 |
| eCl@ss 6.0 | 27061801 |
| eCl@ss 7.0 | 27061801 |
| eCl@ss 8.0 | 27061801 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000830 |
| ETIM 3.0 | EC001855 |

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### Classifications

#### ETIM

|          |          |
|----------|----------|
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 31251501 |
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 31251501 |

### Approvals

#### Approvals

#### Approvals

UL Listed / GOST / cUL Listed / GOST / cULus Listed

#### Ex Approvals

#### Approvals submitted

### Approval details

|                                                                                               |       |
|-----------------------------------------------------------------------------------------------|-------|
| UL Listed  |       |
| Nominal current I <sub>N</sub>                                                                | 4 A   |
| Nominal voltage U <sub>N</sub>                                                                | 300 V |

|                                                                                          |
|------------------------------------------------------------------------------------------|
| GOST  |
|------------------------------------------------------------------------------------------|

## Sensor/Actuator cable - SAC-3P-M12MR/3,0-PUR/M12FS B - 1668580

### Approvals

|                                                                                              |       |
|----------------------------------------------------------------------------------------------|-------|
| cUL Listed  |       |
| Nominal current I <sub>N</sub>                                                               | 4 A   |
| Nominal voltage U <sub>N</sub>                                                               | 300 V |

|                                                                                        |
|----------------------------------------------------------------------------------------|
| GOST  |
|----------------------------------------------------------------------------------------|

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

### Accessories

#### Accessories

#### Conductor marking

Insert label - PABA WH/15 - 1013151



Insert label, Strip, white, Unlabeled, Can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 0.6-50 mm, Lettering field: 15 x 4 mm

Insert label - PABA YE/15 - 1013698



Insert label, Strip, yellow, Unlabeled, Can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 0.6-50 mm, Lettering field: 15 x 4 mm

## Sensor/Actuator cable - SAC-3P-M12MR/3,0-PUR/M12FS B - 1668580

### Accessories

Insert label - PABA RD/15 - 1013944



Insert label, Strip, red, Unlabeled, Can be labeled with: Plotter, Mounting type: Thread on, Cable diameter: 0.6-50 mm, Lettering field: 15 x 4 mm

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### Marker carrier cable

Conductor marker carrier - PATO 2/15 - 1013122



Conductor marker carrier, transparent, Unlabeled, Mounting type: Clip on, Cable diameter: 2.8-4.4 mm, Lettering field: 4 x 15 mm

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Conductor marker carrier - PATO 3/15 - 1013135



Conductor marker carrier, transparent, Unlabeled, Mounting type: Clip on, Cable diameter: 4.4-6.7 mm, Lettering field: 4 x 15 mm

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Conductor marker carrier - PATO 4/15 - 1013148



Conductor marker carrier, transparent, Unlabeled, Mounting type: Clip on, Cable diameter: 6.7-10 mm, Lettering field: 4 x 15 mm

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### 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

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### Accessories

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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 sockets



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

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



#### Safety locking

Fuse clip - SAC-M12-EXCLIP-M - 1558988



Fuse clip for the pin side of various M12 sensor/actuator connectors prevents plug-in connections being interrupted without using a tool

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Fuse clip - SAC-M12-EXCLIP-F - 1558991



Fuse clip for the socket side of various M12 sensor/actuator connectors prevents plug-in connections being interrupted without using a tool

#### Screwdriver tools

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## Sensor/Actuator cable - SAC-3P-M12MR/3,0-PUR/M12FS B - 1668580

### Accessories

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

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Tool - SAC BIT M12-D15 - 1208432



Nut for assembling sensor/actuator cables with M12 connector and for M12 connectors with QUICKON fast connection technology, 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



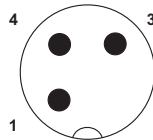
Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm

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### Drawings

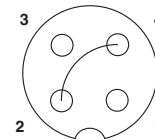
## Sensor/Actuator cable - SAC-3P-M12MR/3,0-PUR/M12FS B - 1668580

Schematic diagram



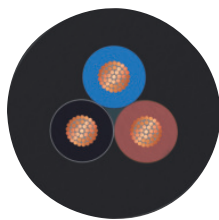
Pin assignment M12 plug, 3-pos., A-coded, view male side

Schematic diagram



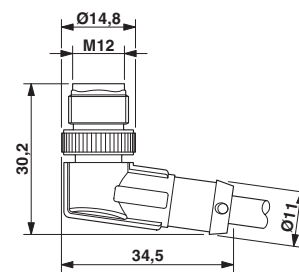
Pin assignment M12 socket, 3-pos., PIN 2+4 bridged, A-coded, view female side

Cable cross section



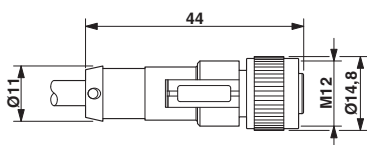
PUR halogen-free black [PUR]

Dimensioned drawing



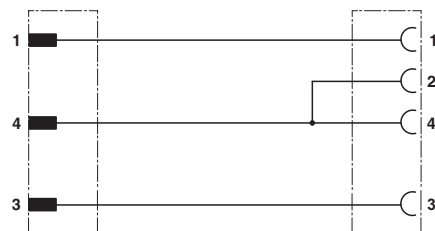
M12 x 1 male plug, angled

Dimensioned drawing



M12 x 1 socket, straight

Circuit diagram



Contact assignment of M12 plugs / sockets bridged