

# SAC-3P-10,0-PUR/M12FS SH - Sensor/actuator cable



1500680

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, shielded (Advanced Shielding Technology), free cable end, on Socket straight M12, coding: A, cable length: 10 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                          | 1500680       |
| Packing unit                         | 10 pc         |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1CIA        |
| GTIN                                 | 4017918610814 |
| Weight per piece (including packing) | 330 g         |
| Weight per piece (excluding packing) | 351.27 g      |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                      |                       |
|----------------------|-----------------------|
| Product type         | Sensor/actuator cable |
| Application          | Standard              |
| Number of positions  | 3                     |
| 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

|                       |                            |
|-----------------------|----------------------------|
| 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 | $\geq 100$ |
|-----------------------------|------------|

### Signaling

|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | no |

### Connection data

#### Conductor connection

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

### Connector

#### Connection 1

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

## Connection 2

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

## Cable/line

|              |      |
|--------------|------|
| Cable length | 10 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 mm <sup>2</sup> (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)<br>approx. 0.50 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                                                                                                                                  |
| Dynamic load capacity (bending)                            | Max. bending cycles: 10000000, Bending radius: 47 mm, Traversing path: 10 m, Traversing rate: 3 m/s, Acceleration: 10 m/s <sup>2</sup> |
| Dynamic load capacity (torsion)                            | Torsion: ±180 °/m, Torsion cycles: ≥2000000, Torsional frequency: 35 cycles/min.                                                       |
| Halogen-free                                               | in accordance with DIN VDE 0472 part 815                                                                                               |
| Flame resistance                                           | in accordance with UL 758/1581 FT2<br>DIN EN 60332-2-2 (20 s)                                                                          |
| Resistance to oil                                          | in accordance with DIN EN 60811-2-1                                                                                                    |
| Highly resistant to acids, alkaline solutions and solvents |                                                                                                                                        |

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|                                 |                                                                     |
|---------------------------------|---------------------------------------------------------------------|
| Other resistance                | 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

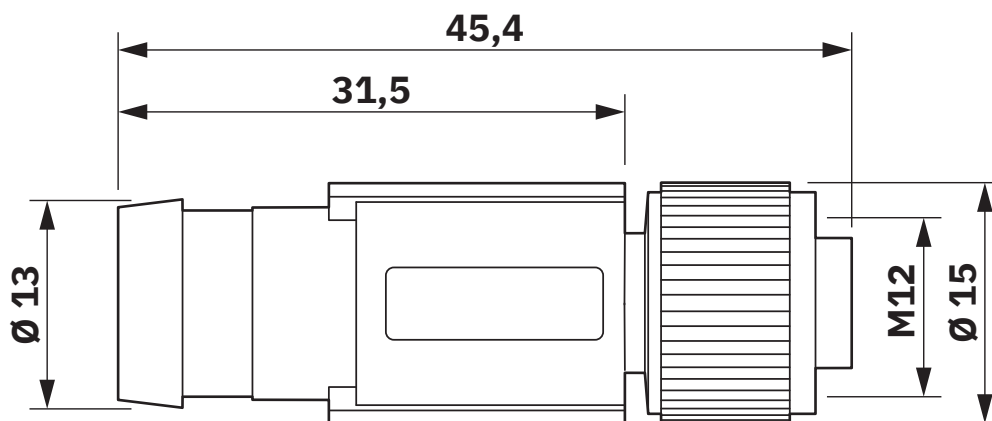
|                                                                   |                                  |
|-------------------------------------------------------------------|----------------------------------|
| Degree of protection                                              | IP65                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

## Standards and regulations

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

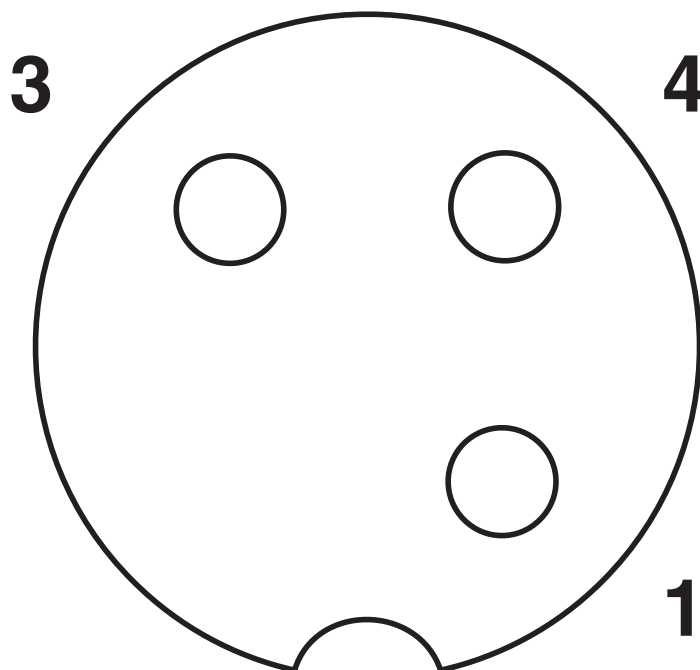
## Drawings

Dimensional drawing



M12 x 1 socket, straight, shielded

Schematic diagram

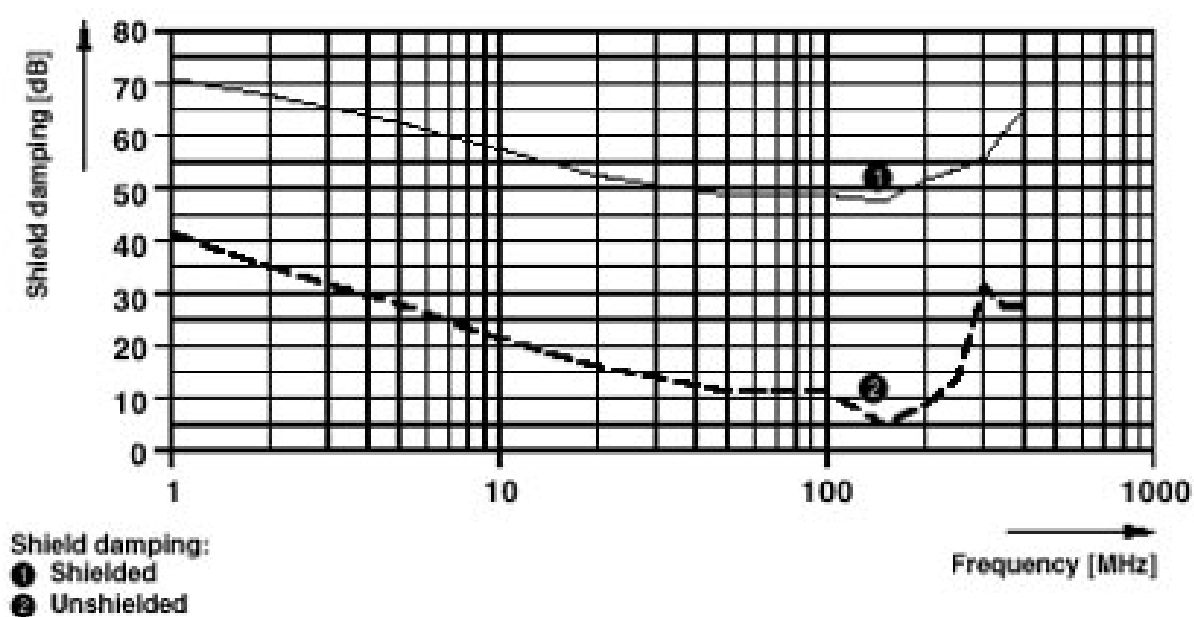


Pin assignment M12 socket, 3-pos., A-coded, view female side

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Diagram



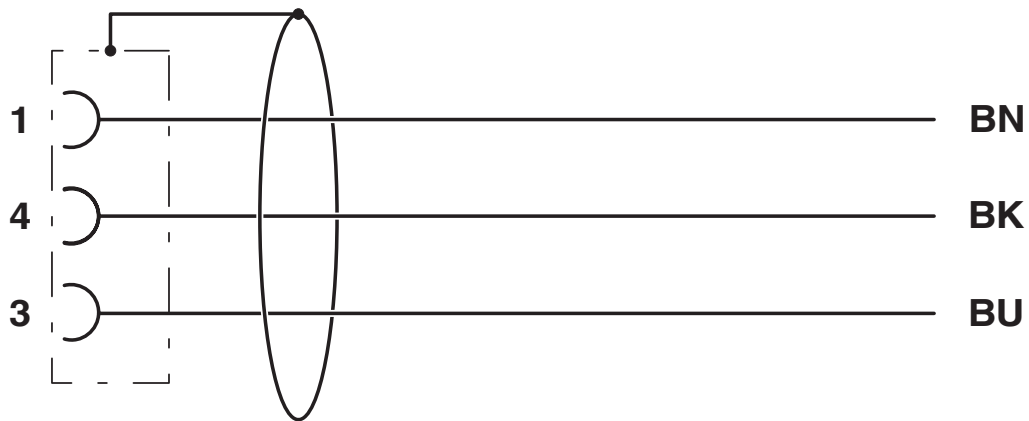
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Circuit diagram



Contact assignment of the M12 socket

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## Approvals

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|  <b>UL Listed</b><br>Approval ID: FILE E 221474 |                                |                                |                   |                               |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|                                                                                                                                  | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine                                                                                                                            |                                |                                |                   |                               |
|                                                                                                                                  | 300 V                          | 4 A                            | -                 | -                             |

|  <b>cUL Listed</b><br>Approval ID: FILE E 221474 |                                |                                |                   |                               |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|                                                                                                                                   | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine                                                                                                                             |                                |                                |                   |                               |
|                                                                                                                                   | 300 V                          | 4 A                            | -                 | -                             |

|  <b>EAC-RoHS</b><br>Approval ID: RU D-DE.HB35.B.00387 |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27060311 |
| ECLASS-15.0 | 27060311 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001855 |
|----------|----------|

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