

# SAC-5P-M12MS/41-PUR/M12FR SHBK - Sensor/actuator cable



1401219

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Sensor/actuator cable, 5-position, PUR halogen-free, black-gray RAL 7021, shielded, Plug straight M12, coding: A, on Socket angled M12, coding: A, cable length: 41 m

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1401219       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 50 pc         |
| Product key                          | AF1CKA        |
| GTIN                                 | 4046356538206 |
| Weight per piece (including packing) | 2,072.1 g     |
| Weight per piece (excluding packing) | 2,072.1 g     |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                      |                       |
|----------------------|-----------------------|
| Product type         | Sensor/actuator cable |
| Number of positions  | 5                     |
| 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 |

### Connector

#### Connection 1

|                     |                   |
|---------------------|-------------------|
| Type                | Plug straight M12 |
| Number of positions | 5                 |
| Coding type         | A                 |

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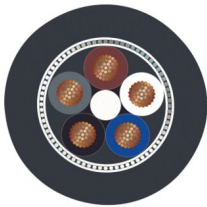
## Connection 2

|                     |                   |
|---------------------|-------------------|
| Type                | Socket angled M12 |
| Number of positions | 5                 |
| Coding type         | A                 |

## Cable/line

|              |      |
|--------------|------|
| Cable length | 41 m |
|--------------|------|

## PUR halogen-free black [PUR]

|                                               |                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Dimensional drawing                           |  |
| Cable weight                                  | 43 kg/km                                                                            |
| UL AWM Style                                  | 20549 / 10493 (80°C/300 V)                                                          |
| Number of positions                           | 5                                                                                   |
| Shielded                                      | yes                                                                                 |
| Cable type                                    | PUR halogen-free black [PUR]                                                        |
| Conductor structure signal line               | 42x 0.10 mm                                                                         |
| AWG signal line                               | 22                                                                                  |
| Conductor cross section                       | 5x 0.34 mm <sup>2</sup> (Signal line)                                               |
| Wire diameter incl. insulation                | 1.27 mm ±0.02 mm (Signal line)                                                      |
| External cable diameter                       | 5.25 mm ±0.2 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, white, blue, black, gray                                                     |
| Thickness, insulation                         | ≥ 0.21 mm                                                                           |
| Thickness, outer sheath                       | approx. 0.50 mm                                                                     |
| Overall twist                                 | 5 wires around filler to the core                                                   |
| Optical shield covering                       | 80 %                                                                                |
| Max. conductor resistance                     | max. 57 Ω/km (at 20 °C)                                                             |
| Insulation resistance                         | 70 GΩ*km (at 20 °C)                                                                 |
| Nominal voltage, cable                        | 300 V (at 20 °C)                                                                    |
| Test voltage Core/Core                        | 3000 V (at 20 °C)                                                                   |
| Smallest bending radius, fixed installation   | 26 mm                                                                               |
| Smallest bending radius, movable installation | 52 mm (up to +60 °C)                                                                |

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|                                 |                                                                                                                                                                                                                 |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dynamic load capacity (bending) | Max. bending cycles: 10000000, Bending radius: 52 mm, Traversing path: 10 m, Traversing rate: 3 m/s, Acceleration: 10 m/s <sup>2</sup>                                                                          |
| Dynamic load capacity (torsion) | Torsion: $\pm 180^\circ/\text{m}$ , Torsion cycles: $\geq 2000000$ , Torsional frequency: 35 cycles/min.                                                                                                        |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815<br>in accordance with DIN EN 50267-2-1                                                                                                                                 |
| 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                                                                                                                                                                             |
| Other resistance                | Highly resistant to acids, alkaline solutions and solvents<br>hydrolysis and microbe resistant<br>Resistant to salt water<br>partly UV-resistant (in accordance with DIN EN ISO 4892-2-A)<br>abrasion-resistant |
| Special properties              | Flexible cable conduit capable<br>Silicone-free<br>Free of substances which would hinder coating with paint or varnish<br>Low adhesion surface                                                                  |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)<br>-25 °C ... 80 °C (Cable, flexible installation)                                                                                                                 |

## Environmental and real-life conditions

### Ambient conditions

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

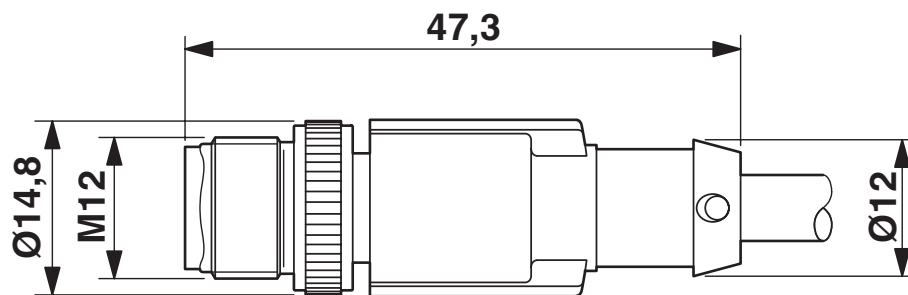
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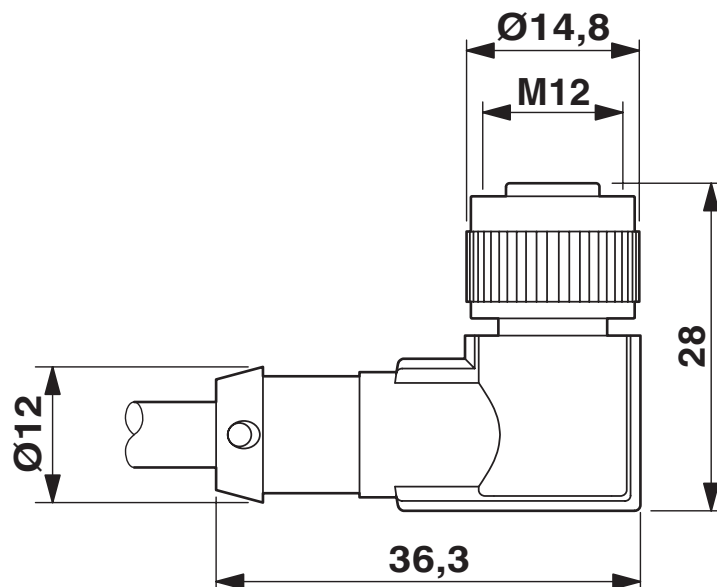
## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



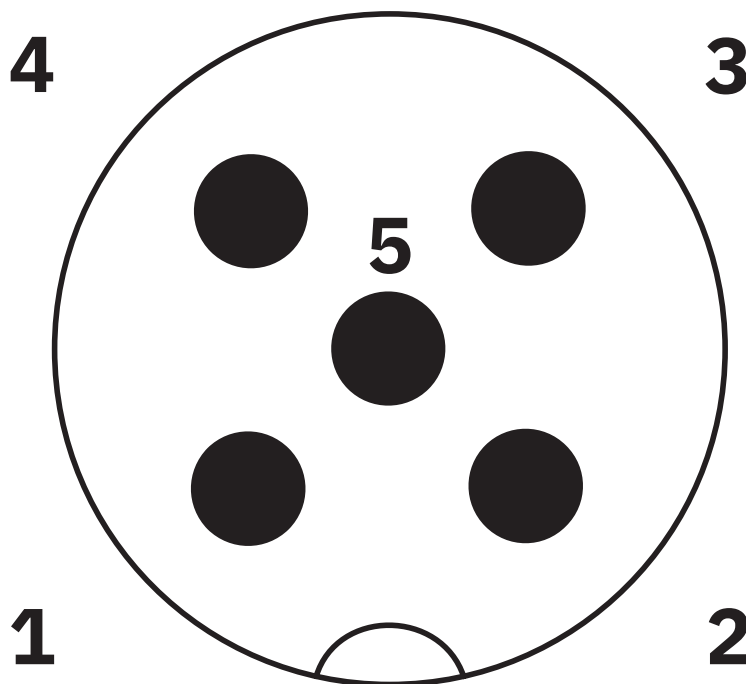
M12 x 1 socket, angled, shielded

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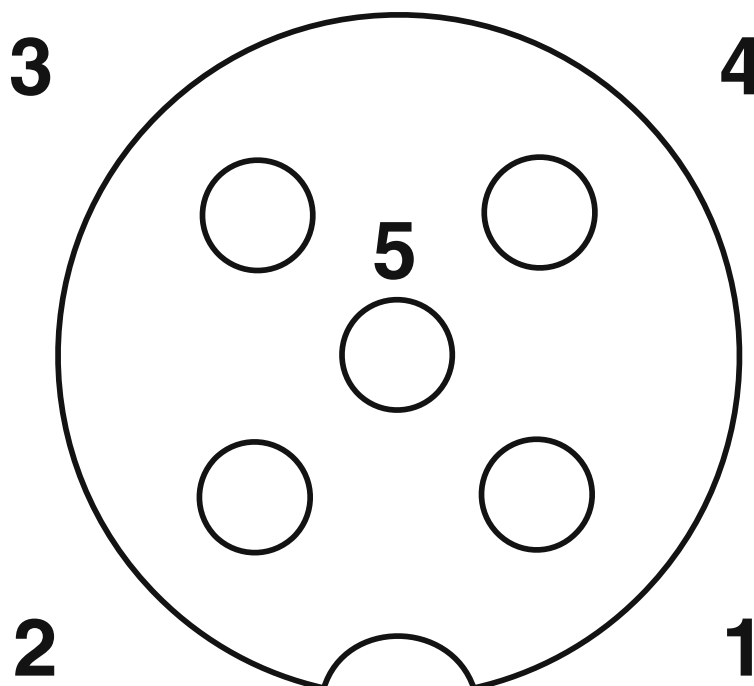
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Schematic diagram



Pin assignment M12 male connector, 5-pos., A-coded, male side

Schematic diagram



Pin assignment M12 socket, 5-pos., A-coded, socket side view

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Circuit diagram



Contact assignment of the M12 plug and the M12 socket

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## Classifications

### ECLASS

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

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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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