

# SAC-5P-M12MS/ 1,5-PUR/M12FR SH - Sensor/actuator cable



1501045

<https://www.phoenixcontact.com/us/products/1501045>

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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: 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                          | 1501045             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF03                |
| Product key                          | BF1CKA              |
| Catalog page                         | Page 204 (C-2-2019) |
| GTIN                                 | 4017918612375       |
| Weight per piece (including packing) | 92.4 g              |
| Weight per piece (excluding packing) | 91.9 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  | 5                     |
| No. of cable outlets | 1                     |
| Shielded             | yes                   |
| Coding               | A                     |

### Data management status

|                  |    |
|------------------|----|
| Article revision | 15 |
|------------------|----|

### 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) |
|-------------------|------------------------|

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## Connector

### Connection 1

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

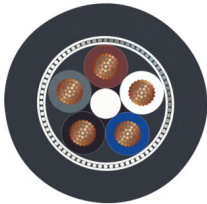
### Connection 2

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

## Cable/line

|              |       |
|--------------|-------|
| Cable length | 1.5 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)                                                              |

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|                                               |                                                                                                                                                                                                                 |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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)                                                                                                                                                                                            |
| Max. bending cycles                           | 10000000                                                                                                                                                                                                        |
| Bending radius                                | 52 mm                                                                                                                                                                                                           |
| Traversing path                               | 10 m                                                                                                                                                                                                            |
| Traversing rate                               | 3 m/s                                                                                                                                                                                                           |
| Acceleration                                  | 10 m/s <sup>2</sup>                                                                                                                                                                                             |
| 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) |

## Standards and regulations

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

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## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



M12 x 1 socket, angled, shielded

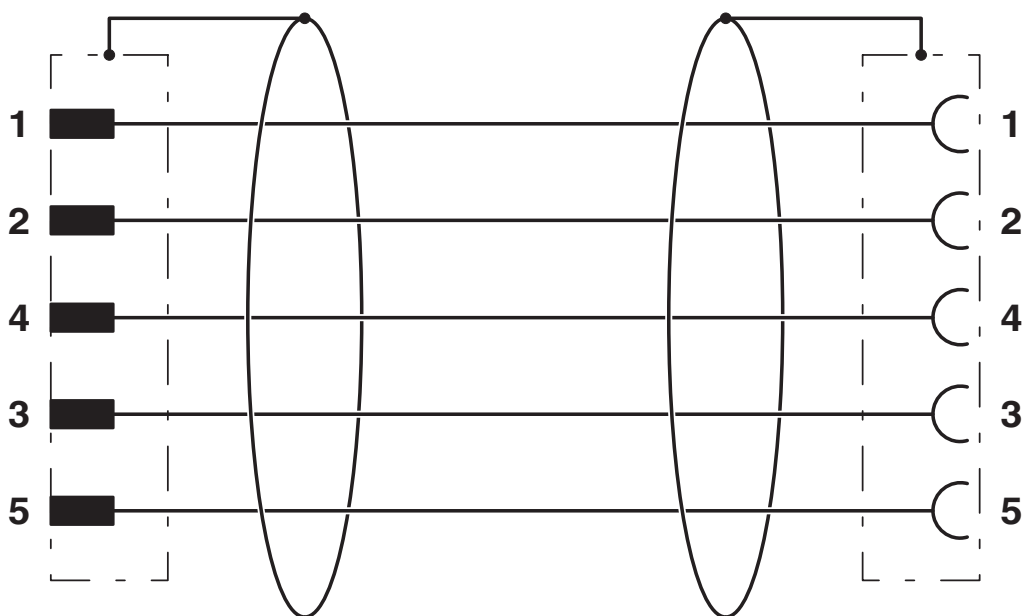
# SAC-5P-M12MS/ 1,5-PUR/M12FR SH - Sensor/actuator cable



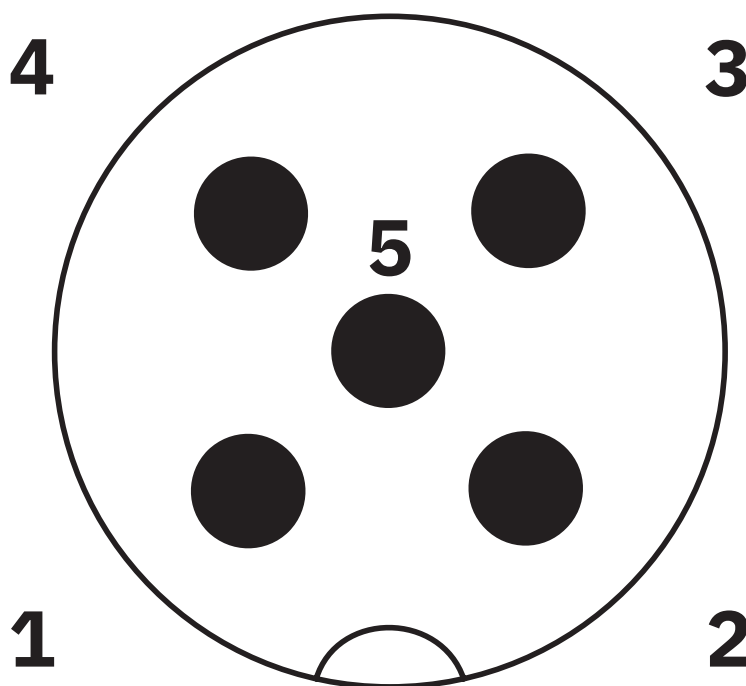
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Circuit diagram



Schematic diagram



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

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Schematic diagram



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

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1501045>

|                                                                                   |                                                |                                |                   |                               |
|-----------------------------------------------------------------------------------|------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <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> |
|                                                                                   | 125 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> |
|                                                                                   | 125 V                                           | 4 A                            | -                 | -                             |

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

|                     |
|---------------------|
| <b>cULus Listed</b> |
|---------------------|

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## Classifications

### ECLASS

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