

# SAC-3P-P12MS/ 1,5-PUR/P12FR SH - Sensor/actuator cable



1224014

<https://www.phoenixcontact.com/us/products/1224014>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, shielded (Advanced Shielding Technology), Plug straight M12 Push Pull, coding: A, on Socket angled M12 Push Pull, 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                          | 1224014       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF06          |
| Product key                          | AF1CIC        |
| GTIN                                 | 4063151314590 |
| Weight per piece (including packing) | 87 g          |
| Weight per piece (excluding packing) | 22.22 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 | V0  |
| Material of grip body                  | TPU, hardly inflammable, self-extinguishing |
| Contact material                       | CuSn  |
| Contact surface material               | Ni/Au                                       |

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 48 V AC<br>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

#### Connection technology

|                   |           |
|-------------------|-----------|
| Connection method | Push-Pull |
|-------------------|-----------|

#### Conductor connection

|                   |                          |
|-------------------|--------------------------|
| Connection method | Push-Pull                |
| Tightening torque | M12 push-pull connectors |

### Connector

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## Connection 1

|                     |                             |
|---------------------|-----------------------------|
| Type                | Plug straight M12 Push Pull |
| Number of positions | 3                           |
| Locking type        | Push Pull                   |
| Coding type         | A                           |

## Connection 2

|                     |                             |
|---------------------|-----------------------------|
| Type                | Socket angled M12 Push Pull |
| Number of positions | 3                           |
| Locking type        | Push Pull                   |
| Coding type         | A                           |

## Cable/line

|              |       |
|--------------|-------|
| Cable length | 1.5 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,<br>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  |

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|                                 |  |
|---------------------------------|--|
|                                 | 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  |
| Other resistance                | Highly resistant to acids, alkaline solutions and solvents<br>hydrolysis and microbe resistant<br>partly UV-resistant (in accordance with DIN EN ISO 4892-2-A) |
| Special properties              | Flexible cable conduit capable<br>Silicone-free<br>Free of substances which would hinder coating with paint or varnish   |
| 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 ... 85 °C (Plug / socket)               |
| Ambient temperature (operation) (Cable, fixed installation)    | -25 °C ... 80 °C (cable, fixed installation)   |
| Ambient temperature (operation) (Cable, flexible installation) | -5 °C ... 80 °C (Cable, flexible installation) |

## Standards and regulations

|                          |                 |
|--------------------------|-----------------|
| Standard designation     | M12-Push-Pull   |
| Standards/specifications | IEC 61076-2-010 |

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## Drawings

Dimensional drawing



M12 push-pull plug, straight, shielded

Dimensional drawing



M12 push-pull female, angled, shielded

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Schematic diagram



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

Schematic diagram



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

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Circuit diagram



Contact assignment of the M12 connector and the M12 socket

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## Approvals

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|  <b>cULus Listed</b><br>Approval ID: E221474 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine   |                       |                       |                   |                             |
|   | 300 V                 | 4 A                   | - 22              | -                           |

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## Classifications

### ECLASS

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

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | 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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