

# SAC-3P-M12Y/2X0,3-PUR/M12FS B - Sensor/actuator cable



1668959

<https://www.phoenixcontact.com/us/products/1668959>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket straight M12, coding: A, PIN 2+4 bridged and Socket straight M12, coding: A, PIN 2+4 bridged, cable length: 0.3 m

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1668959       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1COA        |
| GTIN                                 | 4017918135782 |
| Weight per piece (including packing) | 48.5 g        |
| Weight per piece (excluding packing) | 48 g          |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                      |                        |
|----------------------|------------------------|
| Product type         | Distributor with cable |
| Application          | Standard               |
| Number of positions  | 3                      |
| No. of cable outlets | 2                      |
| Shielded             | no                     |
| Coding               | A                      |

### Insulation characteristics

|                      |    |
|----------------------|----|
| Overvoltage category | II |
| Degree of pollution  | 3  |

### Connection data

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

### 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 $U_N$ | 250 V AC                   |
|                       | 250 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 |
|------|-------------------|

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|             |   |
|-------------|---|
| Coding type | A |
|-------------|---|

## Connection 2

|             |                     |
|-------------|---------------------|
| Type        | Socket straight M12 |
| Coding type | A                   |

## Connection 3

|             |                     |
|-------------|---------------------|
| Type        | Socket straight M12 |
| Coding type | A                   |

## Cable/line

|              |       |
|--------------|-------|
| Cable length | 0.3 m |
|--------------|-------|

## PUR halogen-free black [PUR]

|   |   |
|---|---|
| Dimensional drawing                         |  |
| Cable weight                                | 23 kg/km  |
| UL AWM Style                                | 20549   |
| Number of positions                         | 3   |
| Shielded                                    | no  |
| 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                     | 3.85 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  |
| 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 | 19 mm   |

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|   |  |
|---|--|
| Smallest bending radius, movable installation | 38 mm  |
| Dynamic load capacity (bending)               | Max. bending cycles: 10000000, Bending radius: 38 mm, Bending radius: 10 x D, 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: ≥5000000, 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  |
| 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<br>IP68                           |
| Ambient temperature (operation) (male connector/female connector) | -25 °C ... 90 °C (Plug / socket)               |
| Ambient temperature (operation) (Cable, fixed installation)       | -40 °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 connector   |
| Standards/specifications | IEC 61076-2-101 |

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## Drawings

Dimensional drawing



Plug M12 x 1, Y distributor

Dimensional drawing



M12 x 1 socket, straight

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Schematic diagram



Pin assignment M12 Y plug, 4-pos., A-coded, view plug side

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Schematic diagram



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

Circuit diagram



Contact assignment of the M12 plug and the M12 socket

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1668959>

|  <b>UL Listed</b><br>Approval ID: FILE E 221474 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 300 V                 | 4 A                   | -                 | -                           |

|  <b>cUL Listed</b><br>Approval ID: FILE E 221474 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| 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 | 27060313 |
| ECLASS-15.0 | 27060313 |

### 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 0.541 kg CO2e |
|---------|---------------|

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