

# SAC-3P-15,0-PUR/M12FR - Sensor/actuator cable



1501980

<https://www.phoenixcontact.com/us/products/1501980>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, free cable end, on Socket angled M12, coding: A, cable length: 15 m

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1501980                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 25 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF03                           |
| Product key                          | BF1CBA                         |
| GTIN                                 | 4017918618728                  |
| Weight per piece (including packing) | 352 g                          |
| Weight per piece (excluding packing) | 339.4 g                        |
| Customs tariff number                | 85444290                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

|                      |                       |
|----------------------|-----------------------|
| Product type         | Sensor/actuator cable |
| Number of positions  | 3                     |
| No. of cable outlets | 1                     |
| Shielded             | no                    |
| Coding               | A                     |

### Insulation characteristics

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

### Material specifications

|                                        |                                             |
|----------------------------------------|---------------------------------------------|
| Flammability rating according to UL 94 | HB                                          |
| Material of grip body                  | TPU, hardly inflammable, self-extinguishing |
| Contact material                       | CuSn                                        |
| Contact surface material               | Ni/Au                                       |
| Contact carrier material               | TPU                                         |
| Material for screw connection          | Zinc die-cast, nickel-plated                |
| Outer sheath, material                 | PUR                                         |
| Conductor material                     | Bare Cu litz wires                          |

### Electrical properties

|                           |                          |
|---------------------------|--------------------------|
| Contact resistance        | $\leq 5 \text{ m}\Omega$ |
| Nominal voltage $U_N$     | 250 V AC                 |
|                           | 250 V DC                 |
| Nominal current $I_N$     | 4 A                      |
| Max. conductor resistance | 58 $\Omega/\text{m}$     |

### Mechanical properties

#### Mechanical data

|                             |            |
|-----------------------------|------------|
| Insertion/withdrawal cycles | $\geq 100$ |
| Max. bending cycles         | 4000000    |

### Signaling

|                        |    |
|------------------------|----|
| Status display         | No |
| Status display present | No |

### Connection data

#### Conductor connection

|                   |        |
|-------------------|--------|
| Tightening torque | 0.4 Nm |
|-------------------|--------|

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## Connector

### Connection 1

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

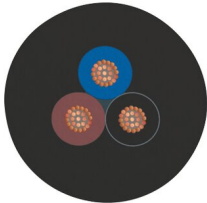
### Connection 2

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

## Cable/line

|              |      |
|--------------|------|
| Cable length | 15 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. 0.5 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                                                                             |

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|                                               |                                                                                                                                                              |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test voltage                                  | ≥ 3000 V                                                                                                                                                     |
| Smallest bending radius, fixed installation   | 19 mm                                                                                                                                                        |
| Smallest bending radius, movable installation | 38 mm                                                                                                                                                        |
| Max. bending cycles                           | 10000000                                                                                                                                                     |
| 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)                                                              |

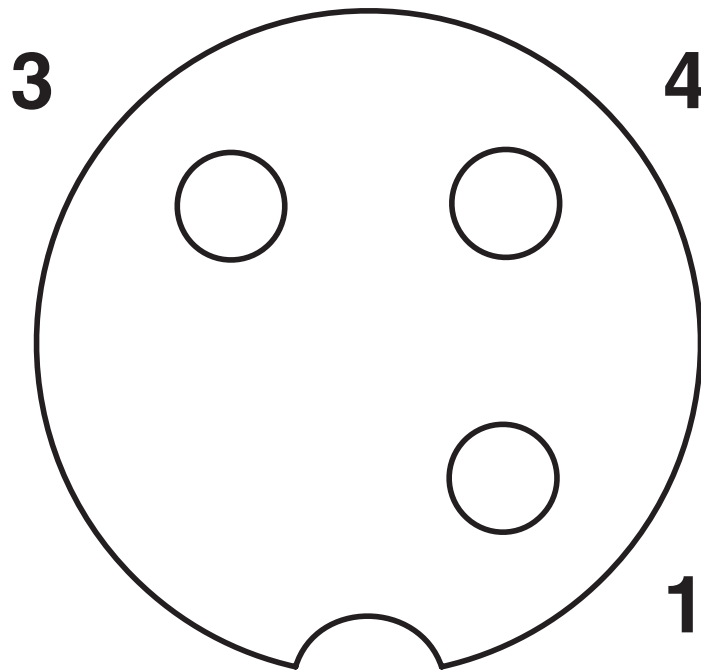
## Environmental and real-life conditions

### Ambient conditions

|                                 |                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Degree of protection            | IP65<br>IP67<br>IP68                                                                                                               |
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket)<br>-40 °C ... 80 °C (cable, fixed installation)<br>-5 °C ... 80 °C (Cable, flexible installation) |

## Drawings

Schematic diagram



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

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1501980>



### UL Listed

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> |
|--|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  | 300 V                          | 4 A                            | -                 | -                             |



### cUL Listed

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> |
|--|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  | 300 V                          | 4 A                            | -                 | -                             |

### cULus Listed

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC001855 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 26121600 |
|-------------|----------|

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## Environmental product compliance

|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

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## Accessories

### UCT-WMT (23X4) - Conductor marker

0801453

<https://www.phoenixcontact.com/us/products/0801453>



Conductor marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: insert, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 30

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### UC-WMT (23X4) - Conductor marker

0819411

<https://www.phoenixcontact.com/us/products/0819411>



Conductor marker, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: insert, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 24

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## US-WMT (23X4) - Cable marker

0828769

<https://www.phoenixcontact.com/us/products/0828769>



Cable marker, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 56

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## WMTW (23X4)R - Cable marker

0831004

<https://www.phoenixcontact.com/us/products/0831004>



Cable marker, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: insert, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 3000

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## B-STIFT - Marker pen

1051993

<https://www.phoenixcontact.com/us/products/1051993>



Marker pen, for manual labeling of unprinted Zack strips, smear-proof and waterproof, line thickness 0.5 mm

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## CUTFOX-S VDE - Diagonal cutter

1212207

<https://www.phoenixcontact.com/us/products/1212207>



Diagonal cutter for hard (piano wire) and soft wires, VDE 1000 V AC/1500 V DC tested

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## WIREFOX SAC-1 - Stripping tool

1212757

<https://www.phoenixcontact.com/us/products/1212757>



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from Ø of 3.2 to 4.4 mm, any stripping length

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## WIREFOX SAC - Stripping tool

1212623

<https://www.phoenixcontact.com/us/products/1212623>



Stripping pliers, for halogen-free sensor/actuator cables (SAC cables), with PUR and PVC insulation, from Ø of 4.4 to 7 mm, any stripping length

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## WIREFOX 10 - Stripping tool

1212150

<https://www.phoenixcontact.com/us/products/1212150>



Stripping tool, for cables and conductors from 0.02 - 10 mm<sup>2</sup>, self-adjusting, stripping length of up to 18 mm, cutting capacity of up to 10 mm<sup>2</sup> stranded/1.5 mm<sup>2</sup> solid, replaceable stripping blade

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## WP-CTA POM 13,0 BK - Protective hose adapter

1422884

<https://www.phoenixcontact.com/us/products/1422884>



Protective hose adapter, for corrugated hoses with a nominal size of 13 (10 x 13), corrugated in parallel

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## WP-PA HF 13,0 BK - Protective hose

3240681

<https://www.phoenixcontact.com/us/products/3240681>



Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: V0, inner diameter: 10 mm, Total length: 50 m

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## WP-PA HF-HB 13,0 BK - Protective hose

3240839

<https://www.phoenixcontact.com/us/products/3240839>



Protective hose, material: PA 6, UV-resistant: yes, flexible, degree of protection: IP68, color: black, flammability rating in acc. with UL 94: HB, inner diameter: 10 mm, Total length: 50 m

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## PROT-M12 MS-PA-CHAIN - Screw plug

1430899

<https://www.phoenixcontact.com/us/products/1430899>

M12 sealing cap with fixing band, for sensor cables, for free M12 sockets



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## SAC-M12-EXCLIP-F - Locking clip

1558991

<https://www.phoenixcontact.com/us/products/1558991>

Locking clip for the socket side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools



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## TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/us/products/1208429>



Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

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## TSD-M 1,2NM - Torque screwdriver

1212224

<https://www.phoenixcontact.com/us/products/1212224>



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm

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## TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

<https://www.phoenixcontact.com/us/products/1212600>



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

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## SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/us/products/1208432>



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

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