

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS



1682304

<https://www.phoenixcontact.com/de/produkte/1682304>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M8, on Socket straight M12, coding: A, cable length: 0.3 m

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## Your advantages

- Easy and safe: 100% electrically tested plug-in components

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS



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## Commercial Data

|                                      |                         |
|--------------------------------------|-------------------------|
| Item number                          | 1682304                 |
| Packing unit                         | 1 pc                    |
| Minimum order quantity               | 1 pc                    |
| Sales Key                            | C1 - Sensor-Aktor-Kabel |
| Product Key                          | BF1CBA                  |
| Catalog Page                         | Page 188 (C-2-2019)     |
| GTIN                                 | 4017918158965           |
| Weight per Piece (including packing) | 20,4 g                  |
| Weight per Piece (excluding packing) | 17,44 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                     |
| Application          | Standard              |
| No. of cable outlets | 1                     |
| Shielded             | no                    |
| Coding               | A - standard          |

### Insulation characteristics

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

### Material specifications

|  |   |
|--|---|
| Flammability rating according to UL 94 | HB  |
| Sealing material                       | NBR   |
| Material of grip body                  | TPU, hardly inflammable, self-extinguishing |
| Contact material                       | CuSn  |
| Contact surface material               | Ni/Au                                       |
| Contact carrier material               | TPU GF                                      |
| Cable gland material                   | Zinc die-cast, nickel-plated                |

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Contact resistance    | $\leq 5 \text{ m}\Omega$   |
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 48 V AC                    |
|                       | 60 V DC                    |
| Nominal current $I_N$ | 4 A                        |
| Protective circuit    | unwired                    |

### Connection data

#### Conductor connection

|                   |                     |
|-------------------|---------------------|
| Tightening torque | 0.4 NmM12 connector |
|-------------------|---------------------|

### Connector

|                             |            |
|-----------------------------|------------|
| Insertion/withdrawal cycles | $\geq 100$ |
|-----------------------------|------------|

#### Header 1

|                   |          |
|-------------------|----------|
| Head design       | Plug     |
| Head cable outlet | straight |
| Head thread type  | M8       |

#### Header 2

|             |        |
|-------------|--------|
| Head design | Socket |
|-------------|--------|

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|                   |          |
|-------------------|----------|
| Head cable outlet | straight |
| Head thread type  | M12      |
| Coding            | A        |

## LED signaling

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

## Cable / line

|   |   |
|---|---|
| Cable length                                  | 0.3 m   |
| Cable weight                                  | 18 kg/km  |
| UL AWM Style                                  | 20549 / 10493 (80°C/300 V)  |
| Number of positions                           | 3   |
| Shielded                                      | no  |
| Cable type                                    | PUR halogen-free black [PUR]  |
| Conductor structure signal line               | 32x 0.10 mm   |
| AWG signal line                               | 24  |
| Conductor cross section                       | 3x 0.25 mm <sup>2</sup>   |
| Wire diameter incl. insulation                | 1.17 mm ±0.02 mm  |
| External cable diameter                       | 3.6 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)   |
| Thickness, outer sheath                       | approx. 0.5 mm  |
| Overall twist                                 | 3 wires, twisted  |
| Length of twist, overall twist                | 40 mm   |
| Max. conductor resistance                     | ≤ 78 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   | 18 mm   |
| Smallest bending radius, movable installation | 36 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                              | hydrolysis and microbe resistant<br>Highly resistant to acids, alkaline solutions and solvents<br>Resistant to salt water<br>partly UV-resistant in accordance with DIN EN ISO 4892-2-A |

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|                                 |   |
|---------------------------------|---|
| Special properties              | Flexible cable conduit capable                                      |
|                                 | Silicone-free   |
|                                 | Free of substances which would hinder coating with paint or varnish |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)                        |
|                                 | -25 °C ... 80 °C (Cable, flexible installation)                     |
| Cable weight                    | 23 kg/km  |

## Cable structure

|                                 |                             |
|---------------------------------|-----------------------------|
| Cable abbreviation              | Li9Y11Y-HF                  |
| Cable type                      | PUR halogen-free black      |
| External cable diameter         | 4.40 mm                     |
| Outer sheath, material          | PUR                         |
| External sheath, color          | black-gray RAL 7021         |
| Conductor material              | Bare Cu litz wires          |
| Conductor structure signal line | 32x 0.10 mm                 |
| AWG signal line                 | 24                          |
| Material wire insulation        | PP                          |
| Thickness, insulation           | ≥ 0.38 mm (Core insulation) |
| Wire diameter incl. insulation  | 1.15 mm ±0.05 mm            |
| Single wire, color              | brown, blue, black          |
| Overall twist                   | 3 wires, twisted            |

## Electrical properties

|                             |             |
|-----------------------------|-------------|
| Nominal voltage, cable      | 300 V       |
| Test voltage, cable         | 4000 V      |
| Conductor resistance        | ≤ 77.6 Ω/m  |
| Cable insulation resistance | ≥ 100 GΩ*km |

## Mechanical properties

|   |         |
|---|---------|
| Smallest bending radius, movable installation | 44 mm   |
| Number of bending cycles                      | 4000000 |
| Bending radius                                | 44 mm   |
| Traversing path                               | 10 m    |
| Traversing rate                               | 3 m/s   |

## Bending cycles

|   |         |
|---|---------|
| Smallest bending radius, movable installation | 44 mm   |
| Number of bending cycles                      | 4000000 |
| Bending radius                                | 44 mm   |
| Traversing path                               | 10 m    |
| Traversing rate                               | 3 m/s   |

## Ambient conditions

|                      |      |
|----------------------|------|
| Degree of protection | IP65 |
|                      | IP67 |

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|                                 |                                  |
|---------------------------------|----------------------------------|
|                                 | IP68                             |
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket) |

## Standards and regulations

|                          |                 |
|--------------------------|-----------------|
| Standards/specifications | IEC 61076-2-101 |
| Standards/specifications | IEC 61076-2-104 |

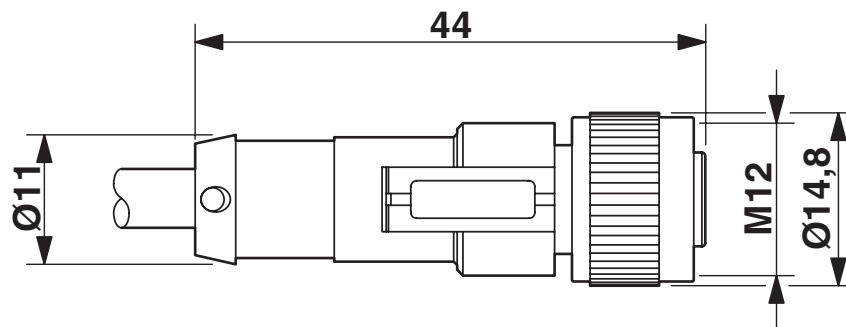
# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS

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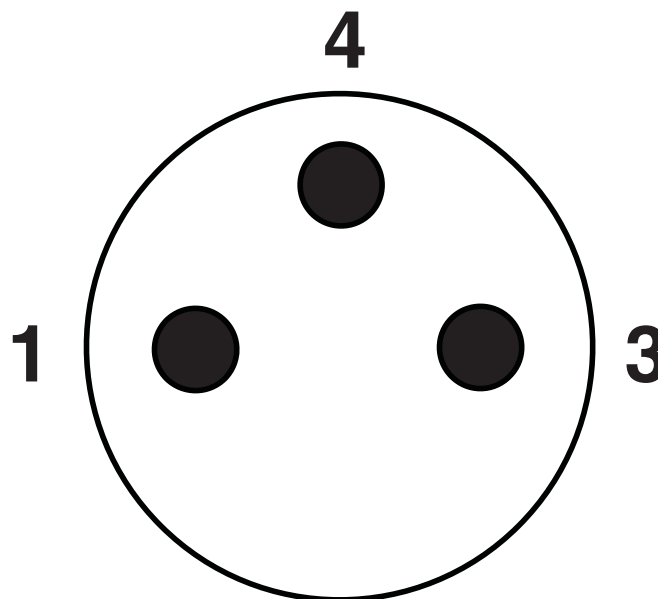
## Drawings

Dimensional drawing



M12 x 1 socket, straight

Schematic diagram



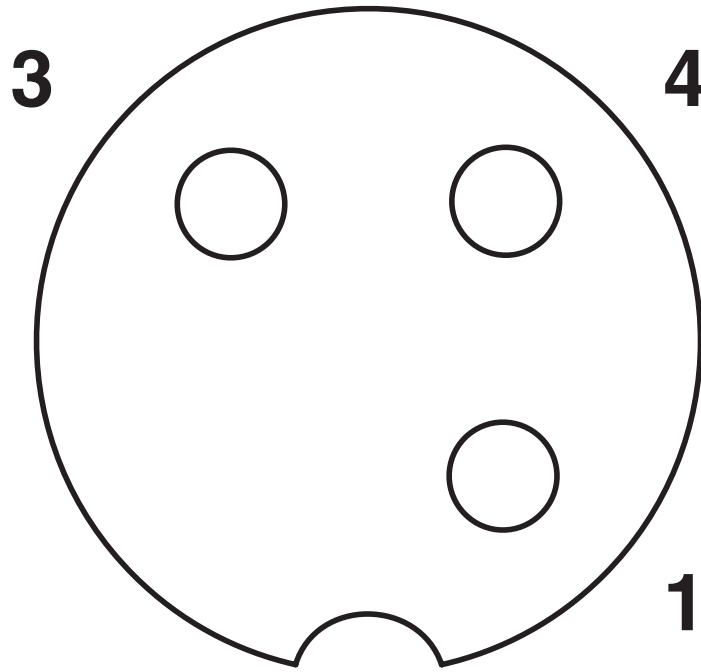
Pin assignment M8 plug, 3-pos., view male side

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS

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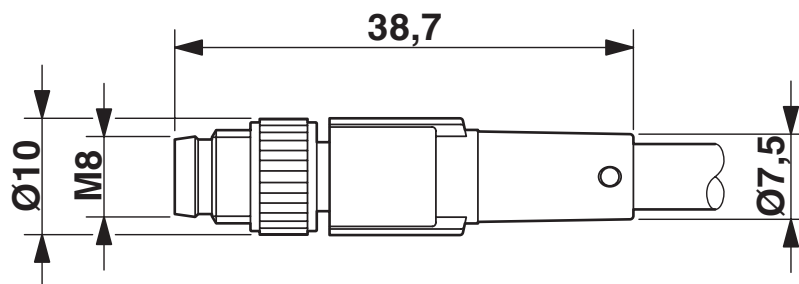
<https://www.phoenixcontact.com/de/produkte/1682304>

Schematic diagram



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

Dimensional drawing



M8 x 1 male plug, straight version



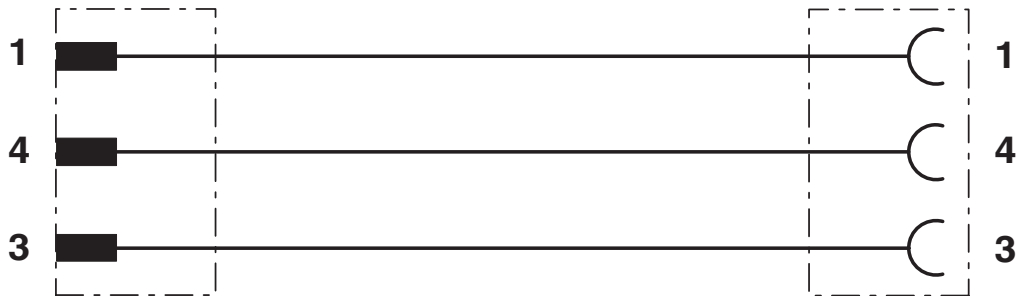
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Circuit diagram



Contact assignment of M8 plugs / M12 sockets

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS




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## Approvals

|  <b>UL Listed</b><br>Approval ID: FILE E 221474 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal Voltage $U_N$ | Nominal Current $I_N$ | Cross Section AWG | Cross Section $\text{mm}^2$ |
|  | 60 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 $\text{mm}^2$ |
|   | 60 V                  | 4 A                   | -                 | -                           |

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

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

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS



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## Classifications

### ECLASS

|               |          |
|---------------|----------|
| ECLASS-9.0    | 27060311 |
| ECLASS-10.0.1 | 27060311 |
| ECLASS-11.0   | 27060311 |

### ETIM

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

### UNSPSC

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

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS



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## Environmental Product Compliance

|            |  |
|------------|--|
| REACH SVHC | Lead 7439-92-1   |
| China RoHS | Environmentally Friendly Use Period = 50 years   |
|            | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS



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## Accessories

### Sealing cap

Sealing cap - PROT-M 8 FS-PA-CHAIN - 1430857

<https://www.phoenixcontact.com/de/produkte/1430857>

M8 sealing cap made of plastic with fixing band for sensor cables, for M8 plugs



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### Insert label

Insert label - PABA WH/23 - 1013779

<https://www.phoenixcontact.com/de/produkte/1013779>

Insert label, Strip, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20



# Sensor/actuator cable - SAC-3P-M 8MS/0,3-PUR/M12FS

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<https://www.phoenixcontact.com/de/produkte/1682304>

## Insert label

Insert label - PABA YE/23 - 1013782

<https://www.phoenixcontact.com/de/produkte/1013782>



Insert label, Strip, yellow, unlabeled, can be labeled with: CMS-P1-PLOTTER, mounting type: slide-on, cable diameter range: 1.5 ... 35 mm, lettering field size: 23 x 4 mm, Number of individual labels: 20

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## Marker pen

Marker pen - B-STIFT - 1051993

<https://www.phoenixcontact.com/de/produkte/1051993>



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

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## Screw plug

Screw plug - PROT-M12 MS-PA-CHAIN - 1430899

<https://www.phoenixcontact.com/de/produkte/1430899>

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



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## Locking clip

Locking clip - SAC-M12-EXCLIP-F - 1558991

<https://www.phoenixcontact.com/de/produkte/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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## Torque screwdriver

Torque screwdriver - TSD 02 SAC - 1208487

<https://www.phoenixcontact.com/de/produkte/1208487>



Torque screwdriver, with preset torque of 0.2 Nm and 4 mm hexagonal drive for M8 connectors

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## Tool

Tool - SAC BIT M8-D10 - 1208461

<https://www.phoenixcontact.com/de/produkte/1208461>



Nut for assembling M8 connectors with longitudinal knurl and a knurl diameter of 10 mm, for 4 mm hexagonal drive



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## Torque screwdriver

Torque screwdriver - TSD 04 SAC - 1208429

<https://www.phoenixcontact.com/de/produkte/1208429>



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

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## Torque screwdriver

Torque screwdriver - TSD-M 1,2NM - 1212224

<https://www.phoenixcontact.com/de/produkte/1212224>



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

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## Adapter insert

Adapter insert - TSD-M SAC-BIT ADAPTER - 1212600

<https://www.phoenixcontact.com/de/produkte/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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## Tool

Tool - SAC BIT M12-D15 - 1208432

<https://www.phoenixcontact.com/de/produkte/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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