

# SAC-3P-M12Y/2X0,6-PUR/M12FR2LB - Sensor/actuator cable



1669042  
<https://www.phoenixcontact.com/us/products/1669042>

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Sensor/actuator cable, 3-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket angled M12, coding: A, with 2 LEDs, PIN 2+4 bridged and Socket angled M12, coding: A, with 2 LEDs, PIN 2+4 bridged, cable length: 0.6 m

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1669042             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF03                |
| Product key                          | BF1COA              |
| Catalog page                         | Page 250 (C-2-2019) |
| GTIN                                 | 4017918135997       |
| Weight per piece (including packing) | 61.7 g              |
| Weight per piece (excluding packing) | 61.7 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 $U_N$ | 24 V DC                    |
| Nominal current $I_N$ | 4 A                        |

### Mechanical properties

#### Mechanical data

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

### Signaling

|                        |        |
|------------------------|--------|
| Status display         | 2 LEDs |
| Status display present | Yes    |

### Connector

#### Connection 1

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

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## Connection 2

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

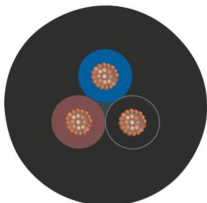
## Connection 3

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

## Cable/line

|              |       |
|--------------|-------|
| Cable length | 0.6 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                                                                               |
| Smallest bending radius, movable installation | 38 mm                                                                               |

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|                                 |                                                                                                                                                                |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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) |

## Standards and regulations

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

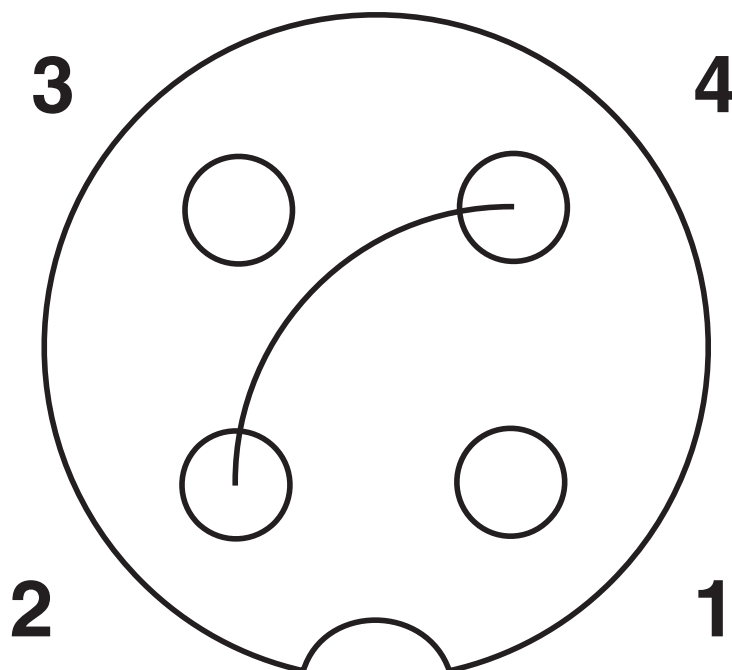
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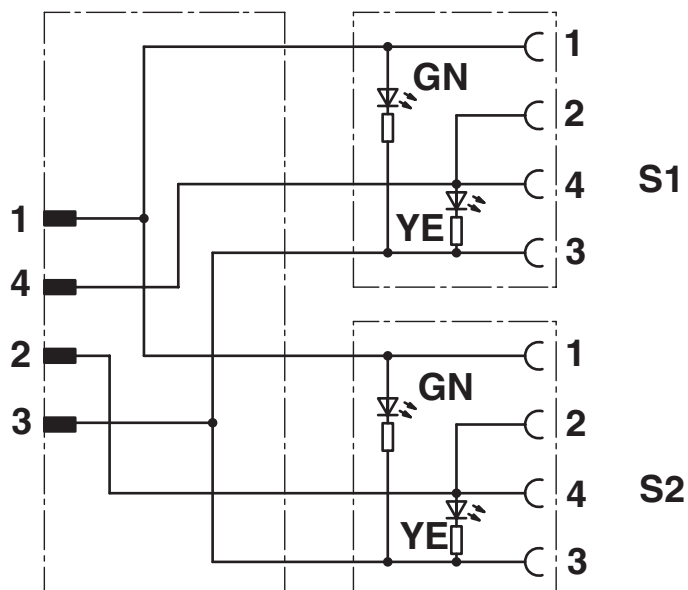
## Drawings

Schematic diagram



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

Circuit diagram



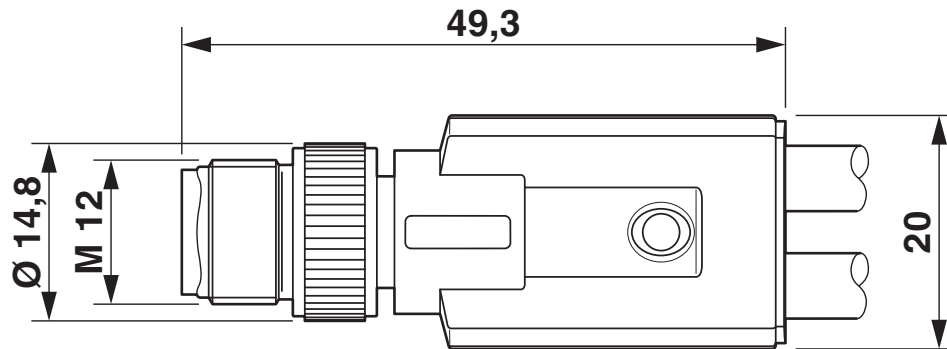
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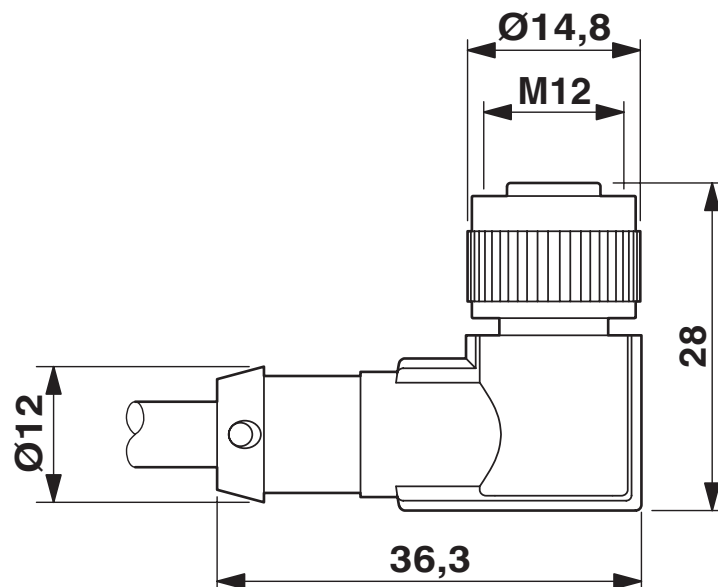
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Dimensional drawing



Plug M12 x 1, Y distributor

Dimensional drawing



Socket M12 x 1, angled, with LED

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Schematic diagram



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

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1669042>

|  |                                                |                       |                   |                             |
|--|------------------------------------------------|-----------------------|-------------------|-----------------------------|
|  | <b>UL Listed</b><br>Approval ID: FILE E 221474 |                       |                   |                             |
|  | Nominal voltage $U_N$                          | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
|  | 24 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 $\text{mm}^2$ |
|  | 24 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 | 27060313 |
| ECLASS-12.0 | 27060313 |
| ECLASS-13.0 | 27060313 |

### 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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## Accessories

### PROT-M12 FS-PA-CHAIN - Sealing cap

1430873

<https://www.phoenixcontact.com/us/products/1430873>

M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs



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### SAC-M12-EXCLIP-M - Locking clip

1558988

<https://www.phoenixcontact.com/us/products/1558988>

Locking clip for the pin 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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## 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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## 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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## 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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## 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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