

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

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Sensor/actuator cable, 4-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, A-coded, on Socket angled M12, A-coded, cable length: 0.6 m

### Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Our standard: robust halogen-free PUR cable

RoHS

### Key Commercial Data

|                                      |                                                                                                         |
|--------------------------------------|---------------------------------------------------------------------------------------------------------|
| Packing unit                         | 1 pc                                                                                                    |
| GTIN                                 | <br>4 017918 137267 |
| GTIN                                 | 4017918137267                                                                                           |
| Weight per Piece (excluding packing) | 37.140 g                                                                                                |
| Custom tariff number                 | 85444290                                                                                                |
| Country of origin                    | Germany                                                                                                 |

### Technical data

#### Dimensions

|                 |       |
|-----------------|-------|
| Length of cable | 0.6 m |
|-----------------|-------|

#### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket) |
| Degree of protection            | IP65                             |
|                                 | IP67                             |
|                                 | IP68                             |

#### General

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

### Technical data

#### General

|                              |                               |
|------------------------------|-------------------------------|
| Rated current at 40°C        | 4 A                           |
| Rated voltage                | 250 V AC                      |
|                              | 250 V DC                      |
| Number of positions          | 4                             |
| Insulation resistance        | ≥ 10 MΩ                       |
| Coding                       | A - standard                  |
| Standards/regulations        | M12 connector IEC 61076-2-101 |
| Status display               | No                            |
| Protective circuit/component | unwired                       |
| Overvoltage category         | II                            |
| Degree of pollution          | 3                             |
| Insertion/withdrawal cycles  | ≥ 100                         |
| Torque                       | 0.4 Nm (M12 connector)        |

#### Material

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

#### Standards and Regulations

|                                        |                 |
|----------------------------------------|-----------------|
| Standard designation                   | M12 connector   |
| Standards/regulations                  | IEC 61076-2-101 |
| Flammability rating according to UL 94 | HB              |

#### Cable

|                                    |                            |
|------------------------------------|----------------------------|
| Cable type                         | PUR halogen-free black     |
| Cable type (abbreviation)          | PUR                        |
| Cable abbreviation                 | Li9Y11Y-HF                 |
| UL AWM style                       | 20549 / 10493 (80°C/300 V) |
| Conductor cross section            | 4x 0.34 mm <sup>2</sup>    |
| AWG signal line                    | 22                         |
| Conductor structure signal line    | 42x 0.10 mm                |
| Core diameter including insulation | 1.27 mm ±0.02 mm           |
| Thickness, insulation              | ≥ 0.21 mm                  |
| Wire colors                        | brown, white, blue, black  |

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## Technical data

### Cable

|                                                 |                                                                     |
|-------------------------------------------------|---------------------------------------------------------------------|
| Overall twist                                   | 4 wires, twisted                                                    |
| External sheath, color                          | black-gray RAL 7021                                                 |
| Outer sheath thickness                          | approx. 0.5 mm                                                      |
| External cable diameter D                       | 4.2 mm $\pm$ 0.15 mm                                                |
| Minimum bending radius, fixed installation      | 5 x D                                                               |
| Minimum bending radius, flexible installation   | 10 x D                                                              |
| Number of bending cycles                        | 10000000                                                            |
| Minimum bending radius, drag chain applications | 10 x D                                                              |
| Traversing path                                 | 10 m                                                                |
| Traversing rate                                 | 3 m/s                                                               |
| Acceleration                                    | 10 m/s <sup>2</sup>                                                 |
| Cable weight                                    | 30 kg/km                                                            |
| Outer sheath, material                          | PUR                                                                 |
| Material conductor insulation                   | PP                                                                  |
| Conductor material                              | Bare Cu litz wires                                                  |
| Insulation resistance                           | $\geq 1 \text{ G}\Omega \cdot \text{km}$                            |
| Conductor resistance                            | $\leq 58 \text{ }\Omega/\text{km}$                                  |
| Nominal voltage, cable                          | $\leq 300 \text{ V}$                                                |
| Test voltage, cable                             | $\geq 3000 \text{ V}$                                               |
| Special properties                              | Flexible cable conduit capable                                      |
|                                                 | Silicone-free                                                       |
|                                                 | Free of substances which would hinder coating with paint or varnish |
|                                                 | flexible                                                            |
| Flame resistance                                | in accordance with UL 758/1581 FT2                                  |
|                                                 | DIN EN 60332-2-2 (20 s)                                             |
| Halogen-free                                    | in accordance with DIN VDE 0472 part 815                            |
|                                                 | in accordance with DIN EN 50267-2-1                                 |
| Resistance to oil                               | in accordance with DIN EN 60811-2-1                                 |
| Other resistance                                | Highly resistant to acids, alkaline solutions and solvents          |
|                                                 | hydrolysis and microbe resistant                                    |
|                                                 | partly UV-resistant in accordance with DIN EN ISO 4892-2-A          |
|                                                 | Low adhesion                                                        |
|                                                 | abrasion-resistant                                                  |
| Ambient temperature (operation)                 | -40 °C ... 80 °C (cable, fixed installation)                        |
|                                                 | -25 °C ... 80 °C (cable, flexible installation)                     |

### Environmental Product Compliance

|            |                                                         |
|------------|---------------------------------------------------------|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|------------|---------------------------------------------------------|

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

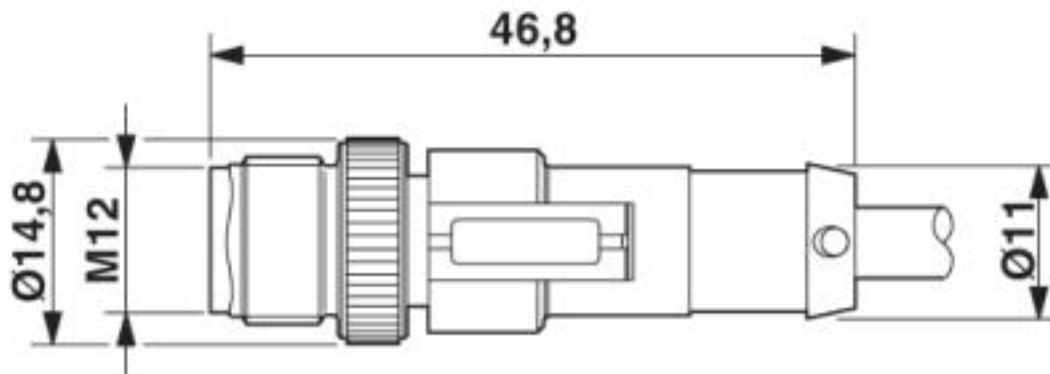
Technical data

Environmental Product Compliance

|  |                                                |
|--|------------------------------------------------|
|  | No hazardous substances above threshold values |
|--|------------------------------------------------|

Drawings

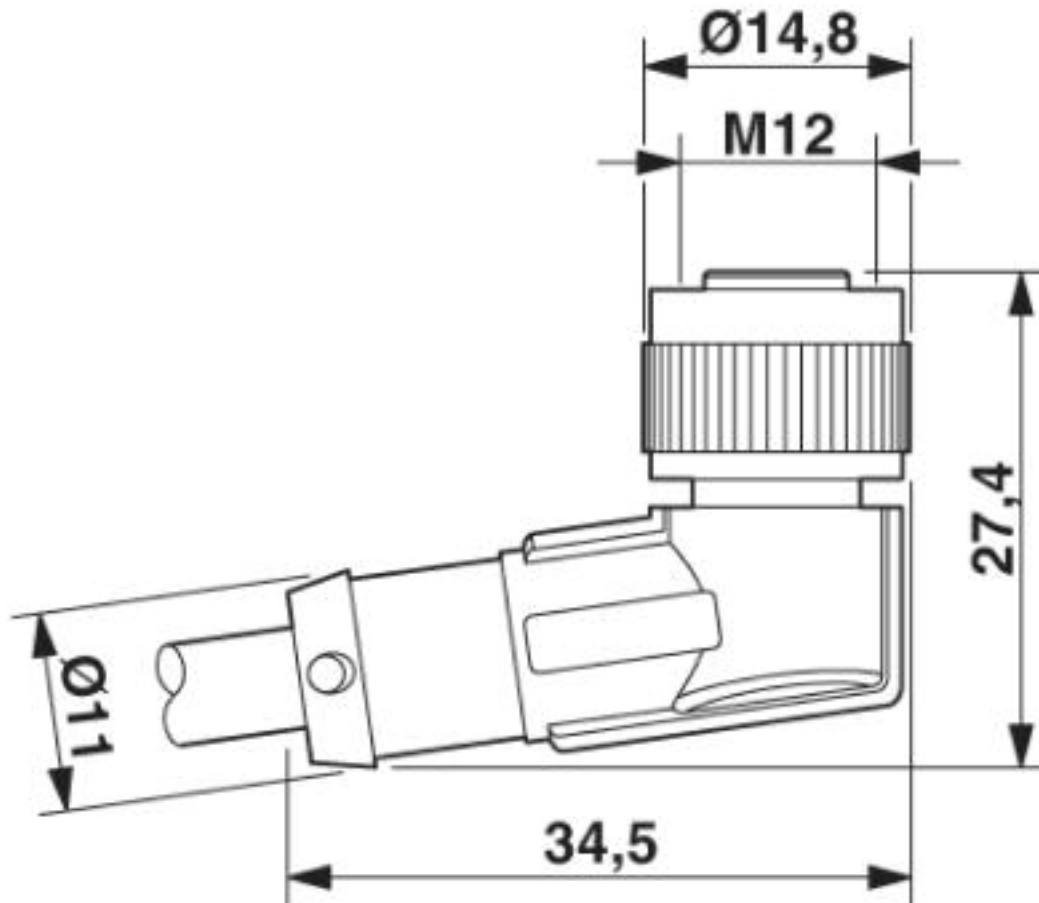
Dimensional drawing



Plug, M12 x 1, straight, shielded

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

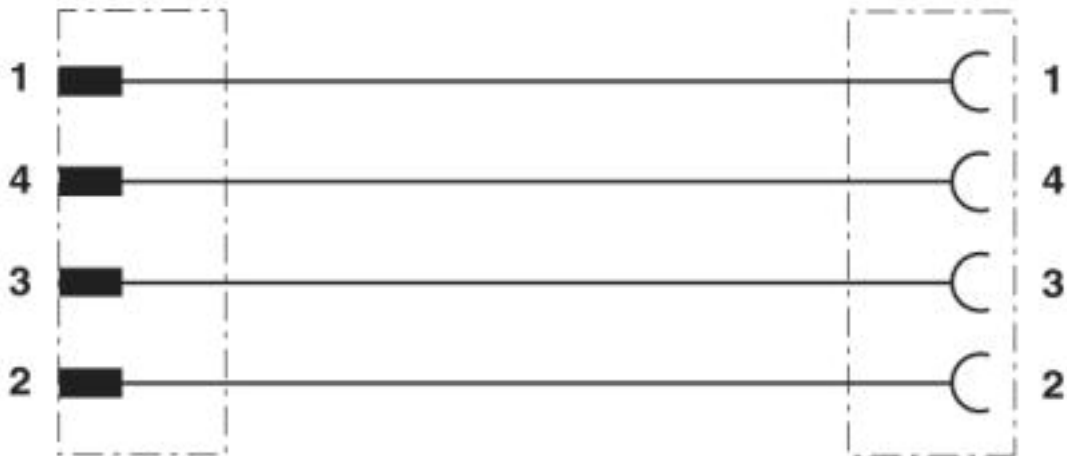
Dimensional drawing



M12 x 1 socket, angled

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

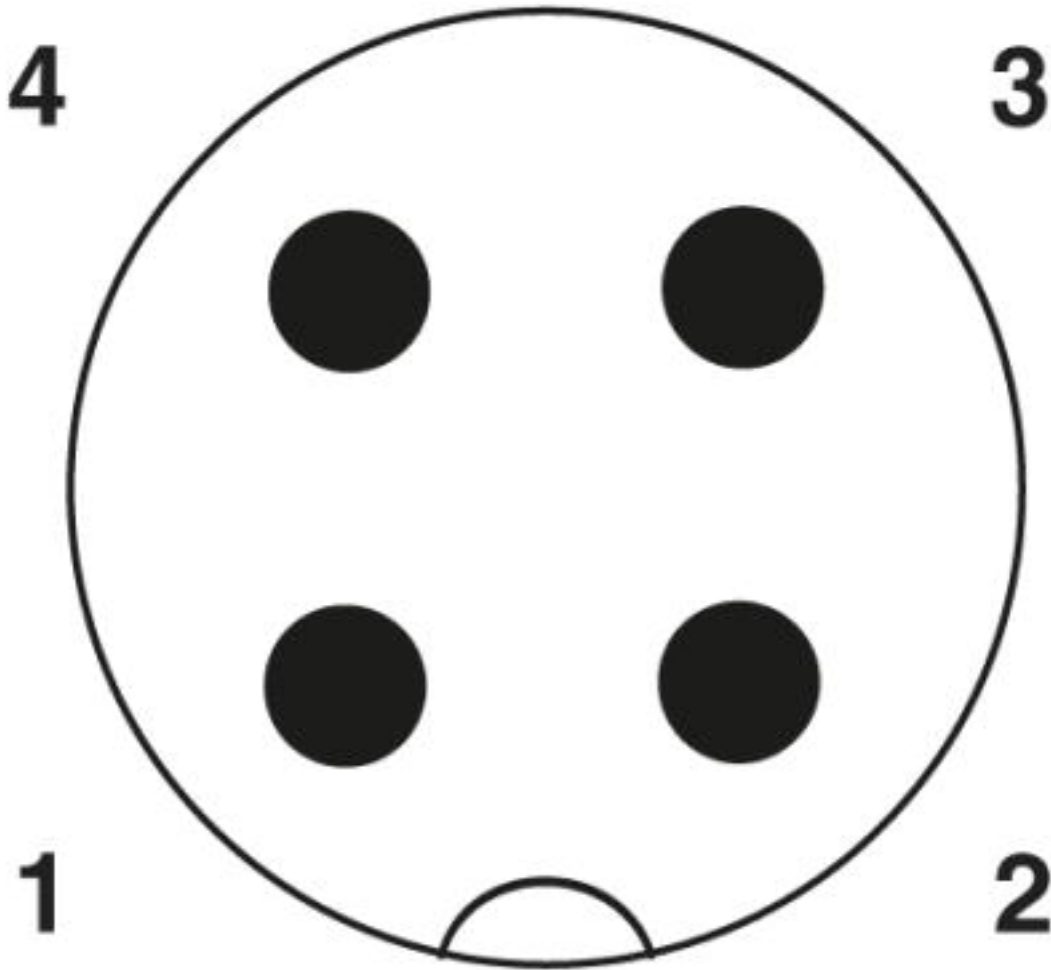
Circuit diagram



Contact assignment of the M12 plug and the M12 socket

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

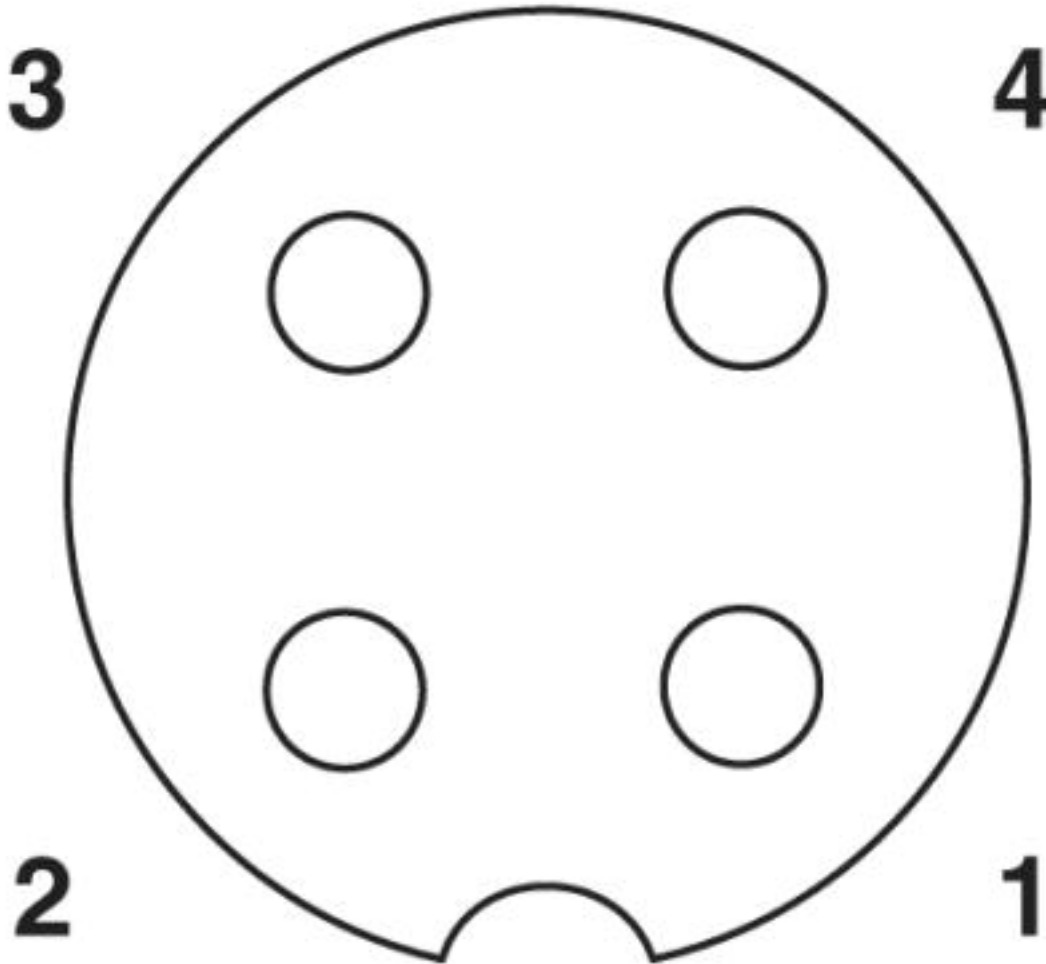
Schematic diagram



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

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

Schematic diagram

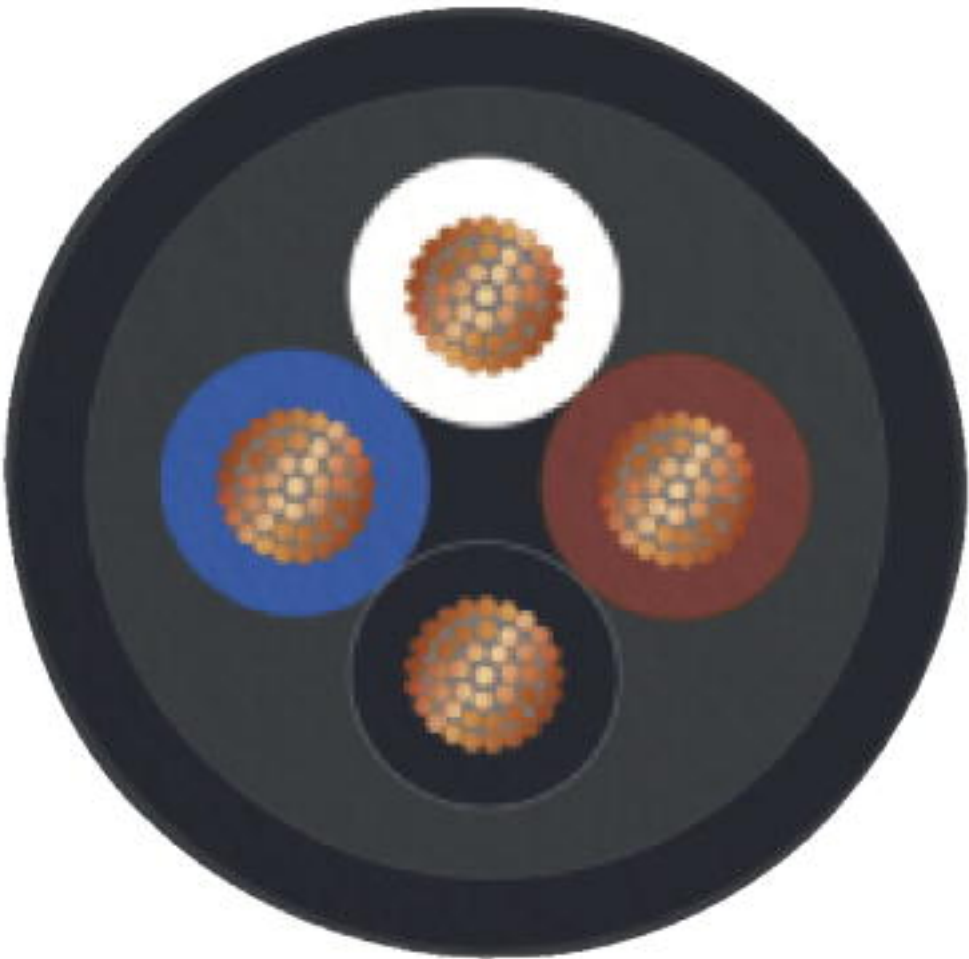


Pin assignment M12 socket, 4-pos., A-coded, view female side



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Cable cross section



PUR halogen-free black [PUR]

Classifications

eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060300 |
| eCl@ss 4.1 | 27060300 |
| eCl@ss 5.0 | 27061800 |
| eCl@ss 5.1 | 27061800 |
| eCl@ss 6.0 | 27279200 |
| eCl@ss 7.0 | 27279218 |
| eCl@ss 8.0 | 27279218 |

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### Classifications

eCl@ss

|            |          |
|------------|----------|
| eCl@ss 9.0 | 27060311 |
|------------|----------|

### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000830 |
| ETIM 3.0 | EC001855 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |
| ETIM 6.0 | EC001855 |
| ETIM 7.0 | EC001855 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 31251501 |
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 31251501 |

### Approvals

#### Approvals

Approvals

UL Listed / cUL Listed / EAC / cULus Listed

Ex Approvals

#### Approval details

|                    |                                                                                     |                                                                                                                                                       |               |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Listed          |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 221474 |
| Nominal voltage UN | 300 V                                                                               |                                                                                                                                                       |               |
| Nominal current IN | 4 A                                                                                 |                                                                                                                                                       |               |

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### Approvals

|                    |                                                                                   |                                                                                                                                                       |               |
|--------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| cUL Listed         |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 221474 |
| Nominal voltage UN | 300 V                                                                             |                                                                                                                                                       |               |
| Nominal current IN | 4 A                                                                               |                                                                                                                                                       |               |

|     |                                                                                   |                          |
|-----|-----------------------------------------------------------------------------------|--------------------------|
| EAC |  | RU C-<br>DE.BL08.B.00286 |
|-----|-----------------------------------------------------------------------------------|--------------------------|

|              |                                                                                   |
|--------------|-----------------------------------------------------------------------------------|
| cULus Listed |  |
|--------------|-----------------------------------------------------------------------------------|

### Accessories

#### Accessories

#### Conductor marking

Insert label - PABA WH/23 - 1013779



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

Insert label - PABA YE/23 - 1013782



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

#### Marker pen

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

### Accessories

Marker pen - B-STIFT - 1051993



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

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### Protective cap

Sealing cap - PROT-M12 FS-PA-CHAIN - 1430873

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



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

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



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### Safety locking

Locking clip - SAC-M12-EXCLIP-M - 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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Locking clip - SAC-M12-EXCLIP-F - 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

## Sensor/actuator cable - SAC-4P-M12MS/ 0,6-PUR/M12FR - 1668483

### Accessories

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#### Screwdriver tools

Adapter insert - TSD-M SAC-BIT ADAPTER - 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 - SAC BIT M12-D15 - 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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#### Torque tool

Torque screwdriver - TSD 04 SAC - 1208429



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

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



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

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