

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

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Sensor/actuator cable, 5-position, PUR halogen-free, welding sputter-resistant, orange RAL 2003, Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: 0.3 m, for robots and drag chains

### Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Flexible: cable supports a high degree of torsion and bending
- ✓ Reliable solution for the body shop as cable is welding sputter resistant

RoHS

### Key Commercial Data

|              |                                                                                      |
|--------------|--------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                 |
| GTIN         |  |
| GTIN         | 4055626063713                                                                        |

### Technical data

#### Dimensions

|                 |       |
|-----------------|-------|
| Length of cable | 0.3 m |
|-----------------|-------|

#### Ambient conditions

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

#### General

|                       |          |
|-----------------------|----------|
| Rated current at 40°C | 4 A      |
| Rated voltage         | 48 V AC  |
|                       | 60 V DC  |
| Number of positions   | 5        |
| Insulation resistance | ≥ 100 MΩ |

# Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

## Technical data

### General

|                              |                               |
|------------------------------|-------------------------------|
| 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

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

### Cable

|                                                 |                                                                                                  |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Note                                            | Due to the extremely robust outer sheath, this cable should only be stripped in 5 cm increments. |
| Cable type                                      | PUR, halogen-free, highly flexible, welding-sputter resistant, orange                            |
| Cable type (abbreviation)                       | 810                                                                                              |
| Cable abbreviation                              | LiF9Y11Y                                                                                         |
| UL AWM style                                    | 20549 (80°C/300 V)                                                                               |
| Conductor cross section                         | 5x 0.34 mm <sup>2</sup>                                                                          |
| AWG signal line                                 | 22                                                                                               |
| Conductor structure signal line                 | 42x 0.10 mm                                                                                      |
| Core diameter including insulation              | 1.55 mm ±0.05 mm (Signal line)                                                                   |
| Wire colors                                     | brown, white, blue, black, green-yellow                                                          |
| Overall twist                                   | 5 wires around filler to the core                                                                |
| External sheath, color                          | orange RAL 2003                                                                                  |
| External cable diameter D                       | 6.9 mm ±0.1 mm                                                                                   |
| Minimum bending radius, fixed installation      | 5 x D                                                                                            |
| Minimum bending radius, flexible installation   | 10 x D                                                                                           |
| Number of bending cycles                        | 5000000                                                                                          |
| Minimum bending radius, drag chain applications | 10 x D                                                                                           |
| Traversing path                                 | 10 m                                                                                             |
| Traversing rate                                 | 3 m/s                                                                                            |

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

### Technical data

#### Cable

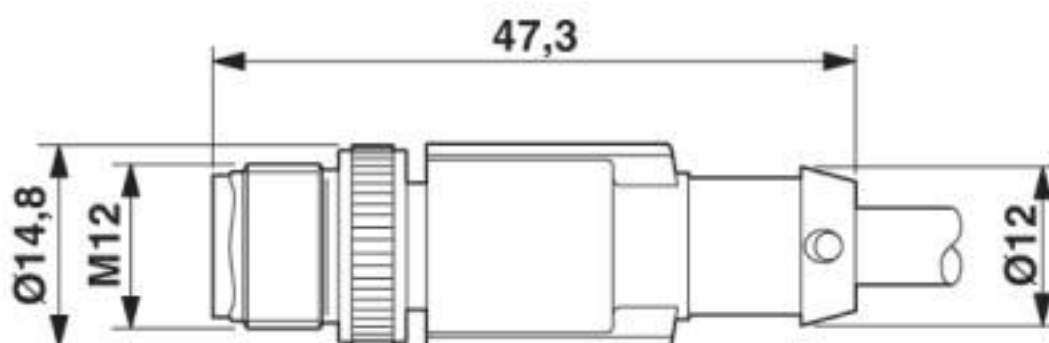
|                                 |                                                                                                                                    |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Acceleration                    | 10 m/s <sup>2</sup>                                                                                                                |
| Outer sheath, material          | PUR                                                                                                                                |
| Material conductor insulation   | PP                                                                                                                                 |
| Conductor material              | Bare Cu litz wires                                                                                                                 |
| Insulation resistance           | ≥ 20 MΩ*km                                                                                                                         |
| Conductor resistance            | approx. 57 Ω/km                                                                                                                    |
| Nominal voltage, cable          | 300 V (Peak value, not for high-power applications)                                                                                |
| Test voltage Core/Core          | 3000 V (Spark test)                                                                                                                |
| Special properties              | Sheath resistant to welding beads, can be recycled, matt, without adhesion, wear-resistant, flame resistant and self-extinguishing |
|                                 | Free from silicone and cadmium                                                                                                     |
|                                 | Free of substances which would hinder coating with paint or varnish                                                                |
| Flame resistance                | in acc. with UL FT-2                                                                                                               |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815                                                                                           |
| Other resistance                | hydrolysis and microbe resistant                                                                                                   |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)                                                                                       |
|                                 | -25 °C ... 80 °C (cable, flexible installation)                                                                                    |
|                                 | ≤ 60 °C (cable, drag chain applications)                                                                                           |

#### Environmental Product Compliance

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

### Drawings

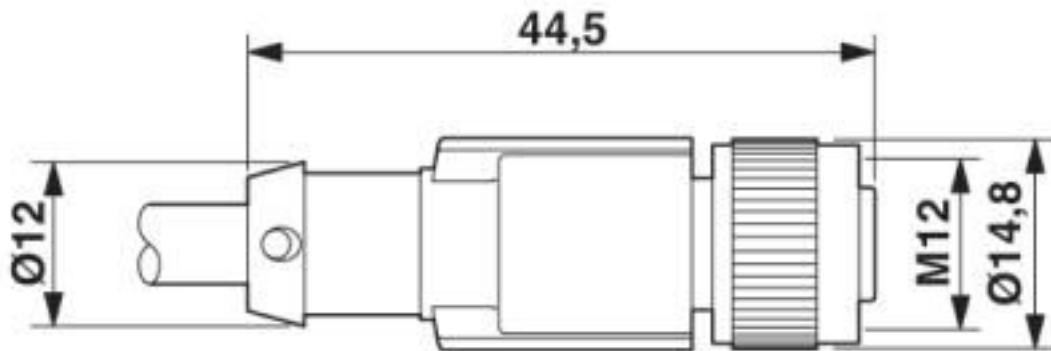
Dimensional drawing



Plug, M12 x 1, straight, shielded

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

Dimensional drawing



M12 x 1 socket, straight

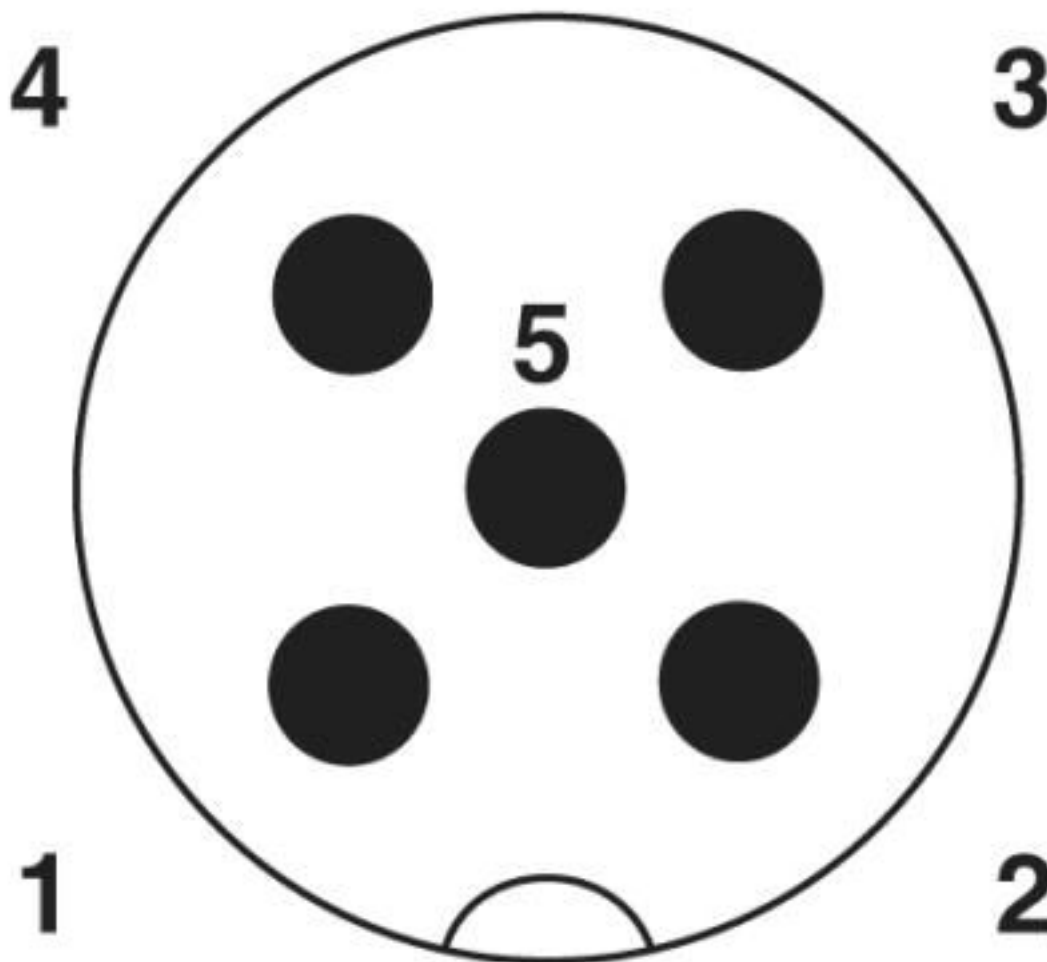
Circuit diagram



Contact assignment of the M12 plug and the M12 socket

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

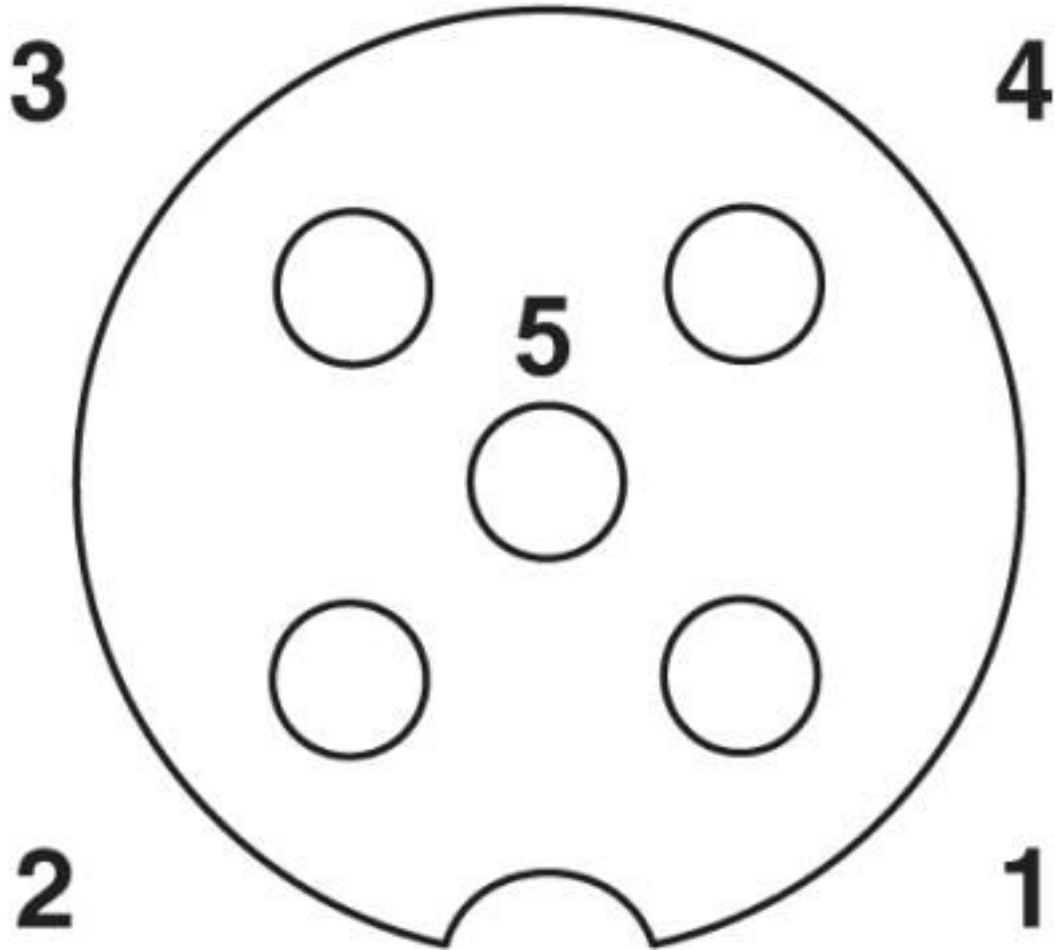
Schematic diagram



Pin assignment M12 male connector, 5-pos., A-coded, male side

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

Schematic diagram



Pin assignment M12 socket, 5-pos., A-coded, socket side view

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

Cable cross section



PUR, halogen-free, highly flexible, welding-sputter resistant, orange [810]

### Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27060311 |
| 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 |
| eCl@ss 9.0    | 27060311 |

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### Classifications

#### ETIM

|          |          |
|----------|----------|
| ETIM 5.0 | EC001855 |
| ETIM 6.0 | EC001855 |
| ETIM 7.0 | EC001855 |

#### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 13.2 | 31251501 |
| UNSPSC 19.0 | 31251501 |
| UNSPSC 20.0 | 31251501 |
| UNSPSC 21.0 | 31251501 |

### Approvals

#### Approvals

#### Approvals

UL Listed / cUL Listed / EAC-RoHS / 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 | 125 V                                                                               |                                                                                                                                                       |               |
| Nominal current IN | 4 A                                                                                 |                                                                                                                                                       |               |

|                    |                                                                                     |                                                                                                                                                       |               |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 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 | 125 V                                                                               |                                                                                                                                                       |               |
| Nominal current IN | 4 A                                                                                 |                                                                                                                                                       |               |

|          |                                                                                     |                          |
|----------|-------------------------------------------------------------------------------------|--------------------------|
| EAC-RoHS |  | RU D-<br>DE.HB35.B.00387 |
|----------|-------------------------------------------------------------------------------------|--------------------------|

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

### Approvals

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

Marker pen - B-STIFT - 1051993



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

#### Plug for cable screw gland

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

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



#### Protective cap

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

### Accessories

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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### 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

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

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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

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

## Sensor/actuator cable - SAC-5P-M12MS/0,3-810/M12FS - 1416100

### Accessories

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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PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>

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