

## Sensor/actuator cable - SAC-5P-M12MS/10,0-28X SH OD - 1407265

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Sensor/actuator cable, 5-position, PE-X/PE-X halogen-free, black-gray RAL 7021, shielded, Plug straight M12, coding: A, on free cable end, cable length: 10 m, for outdoor applications, with high-grade steel knurl

### Your advantages

- ✓ Easy and safe: 100% electrically tested plug-in components
- ✓ Corrosion protection for all exposed metal parts, thanks to the use of stainless steel type 1.4404
- ✓ Robust throughout: resistant to oil, UV, and ozone, withstands temperatures from -40°C to +105°C
- ✓ Reliable signal transmission – 360° shielding in environments with electromagnetic interference

RoHS

### Key Commercial Data

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                                    |
| GTIN         | <br>4 046356 773836 |
| GTIN         | 4046356773836                                                                                           |

### Technical data

#### Dimensions

|                 |      |
|-----------------|------|
| Length of cable | 10 m |
|-----------------|------|

#### Ambient conditions

|                                 |                                                                                   |
|---------------------------------|-----------------------------------------------------------------------------------|
| Ambient temperature (operation) | -40 °C ... 105 °C (Plug / socket)                                                 |
|                                 | -40 °C ... 85 °C (On sudden changes in temperature (according to IEC 60512-11-4)) |
| Degree of protection            | IP65                                                                              |
|                                 | IP67                                                                              |
|                                 | IP68                                                                              |
|                                 | IP69K                                                                             |

#### General

|                       |         |
|-----------------------|---------|
| Rated current at 40°C | 4 A     |
| Rated voltage         | 48 V AC |

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## Technical data

### General

|                              |                               |
|------------------------------|-------------------------------|
|                              | 60 V DC                       |
| Number of positions          | 5                             |
| Insulation resistance        | $\geq 100 \text{ M}\Omega$    |
| Coding                       | A - standard                  |
| Standards/regulations        | M12 connector IEC 61076-2-101 |
| Status display               | No                            |
| Protective circuit/component | unwired                       |
| Degree of pollution          | 3                             |
| Insertion/withdrawal cycles  | $\geq 100$                    |
| Torque                       | 0.4 Nm (M12 connector)        |

### Material

|                                        |                 |
|----------------------------------------|-----------------|
| Flammability rating according to UL 94 | V0              |
| Contact material                       | CuSn            |
| Contact surface material               | Ni/Au           |
| Contact carrier material               | PP              |
| Material of grip body                  | PP              |
| Material, knurls                       | Stainless steel |

### Standards and Regulations

|                                        |                               |
|----------------------------------------|-------------------------------|
| Standards/specifications               | M12 connector IEC 61076-2-101 |
| Flammability rating according to UL 94 | V0                            |

### Cable

|                                            |                                   |
|--------------------------------------------|-----------------------------------|
| Cable type                                 | PE-X black                        |
| Cable type (abbreviation)                  | 28X                               |
| Cable abbreviation                         | Li2X2X-C-V1-2X                    |
| Conductor cross section                    | 5x 0.5 mm <sup>2</sup>            |
| AWG signal line                            | 20                                |
| Conductor structure signal line            | 28x 0.15 mm                       |
| Core diameter including insulation         | 1.6 mm $\pm$ 0.5 mm               |
| Thickness, insulation                      | approx. 0.3 mm (Core insulation)  |
| Wire colors                                | Brown, white, blue, black, gray   |
| Overall twist                              | 5 wires around filler to the core |
| Length of twist, overall twist             | 68 mm                             |
| Shielding                                  | Braided copper wires              |
| Optical shield covering                    | 85 %                              |
| External sheath, color                     | black-gray RAL 7021               |
| Inner sheath thickness                     | approx. 0.5 mm                    |
| Outer sheath thickness                     | approx. 0.7 mm                    |
| External cable diameter D                  | 7.25 mm $\pm$ 0.3 mm              |
| Minimum bending radius, fixed installation | 5 x D                             |

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#### Cable

|                                                 |                                                             |
|-------------------------------------------------|-------------------------------------------------------------|
| Minimum bending radius, flexible installation   | 10 x D                                                      |
| Number of bending cycles                        | 1000000                                                     |
| 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                                    | 85 kg/km                                                    |
| Outer sheath, material                          | PE-X                                                        |
| Material, inner sheath                          | PE-X                                                        |
| Material, filler                                | PP yarn                                                     |
| Material conductor insulation                   | PE-X                                                        |
| Conductor material                              | Bare Cu litz wires                                          |
| Insulation resistance                           | ≥ 100 MΩ*km (at 20 °C)                                      |
| Conductor resistance                            | ≤ 39 Ω/m (at 20 °C)                                         |
| Working capacitance                             | ≤ 110 pF (core-core)                                        |
|                                                 | ≤ 200 pF (core-shield)                                      |
| Nominal voltage, cable                          | ≤ 300 V AC                                                  |
| Test voltage, cable                             | ≥ 3000 V AC (Spark test)                                    |
| Test voltage Core/Shield                        | ≥ 1000 V AC (for 10 s)                                      |
| Special properties                              | Inductance approx. 0.48 mH/km                               |
|                                                 | Irradiated                                                  |
| Flame resistance                                | According to DIN EN 60332-1-2                               |
|                                                 | according to DIN EN 50266-2-5                               |
| Halogen-free                                    | in accordance with DIN VDE 0472 part 815                    |
|                                                 | in accordance with DIN EN 50267-2-1                         |
| Resistance to oil                               | According to DIN EN 60811-2-1, 168 h at 100°C               |
|                                                 | According to DIN EN 50306                                   |
| Other resistance                                | Resistance to fuels according to IEC 60811, 168 h at 70°C   |
|                                                 | UV resistant according to DIN VDE 0276-605                  |
|                                                 | UV resistant in accordance with DIN EN ISO 4892-2-A (750 h) |
| Ambient temperature (operation)                 | -40 °C ... 105 °C (cable, fixed installation)               |
|                                                 | -15 °C ... 105 °C (cable, flexible installation)            |
|                                                 | 20 °C ±5 °C (cable, drag chain applications)                |

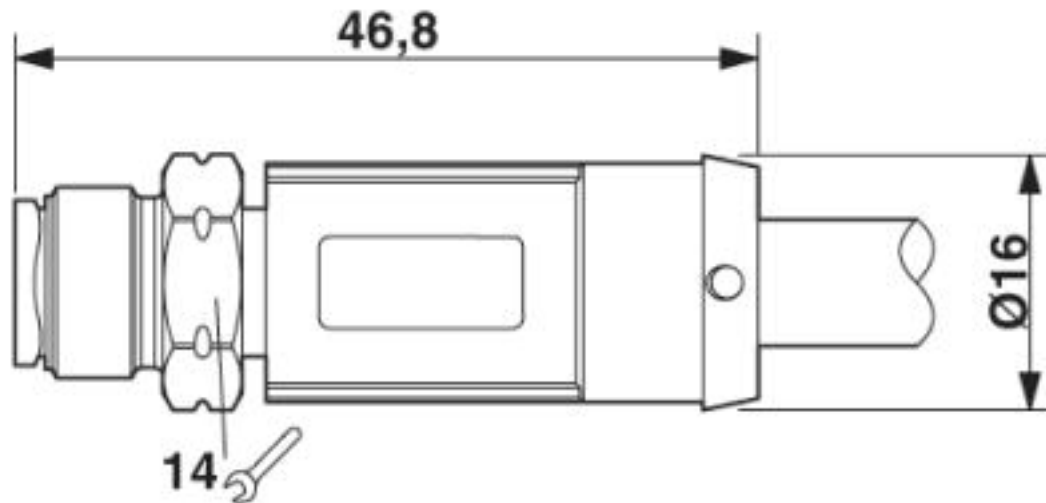
#### Environmental Product Compliance

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| REACH SVHC | Lead 7439-92-1                                                                                      |
| China RoHS | Environmentally Friendly Use Period = 50 years                                                      |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

### Drawings

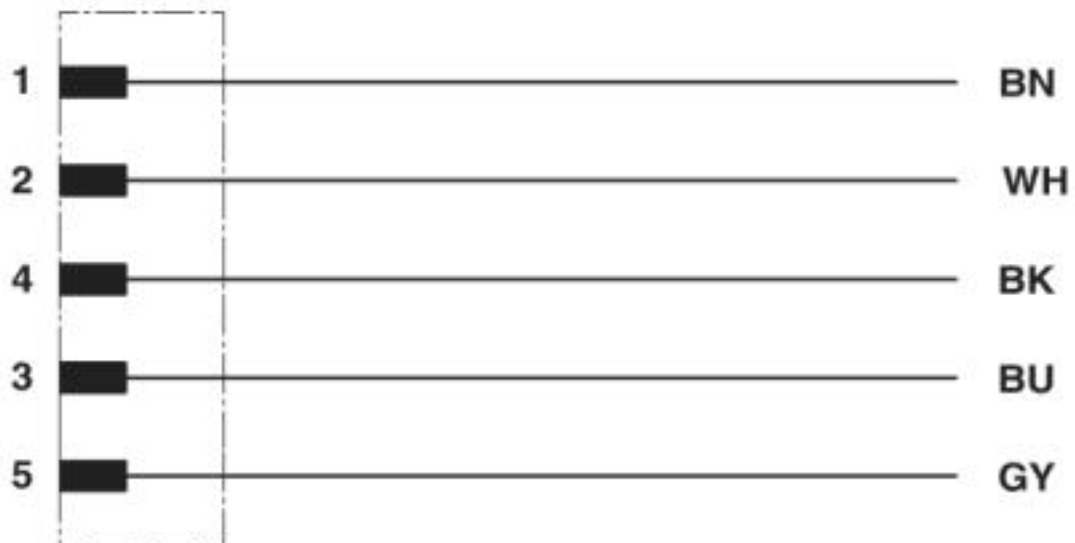
## Sensor/actuator cable - SAC-5P-M12MS/10,0-28X SH OD - 1407265

Dimensional drawing



Plug, M12 x 1, straight, shielded

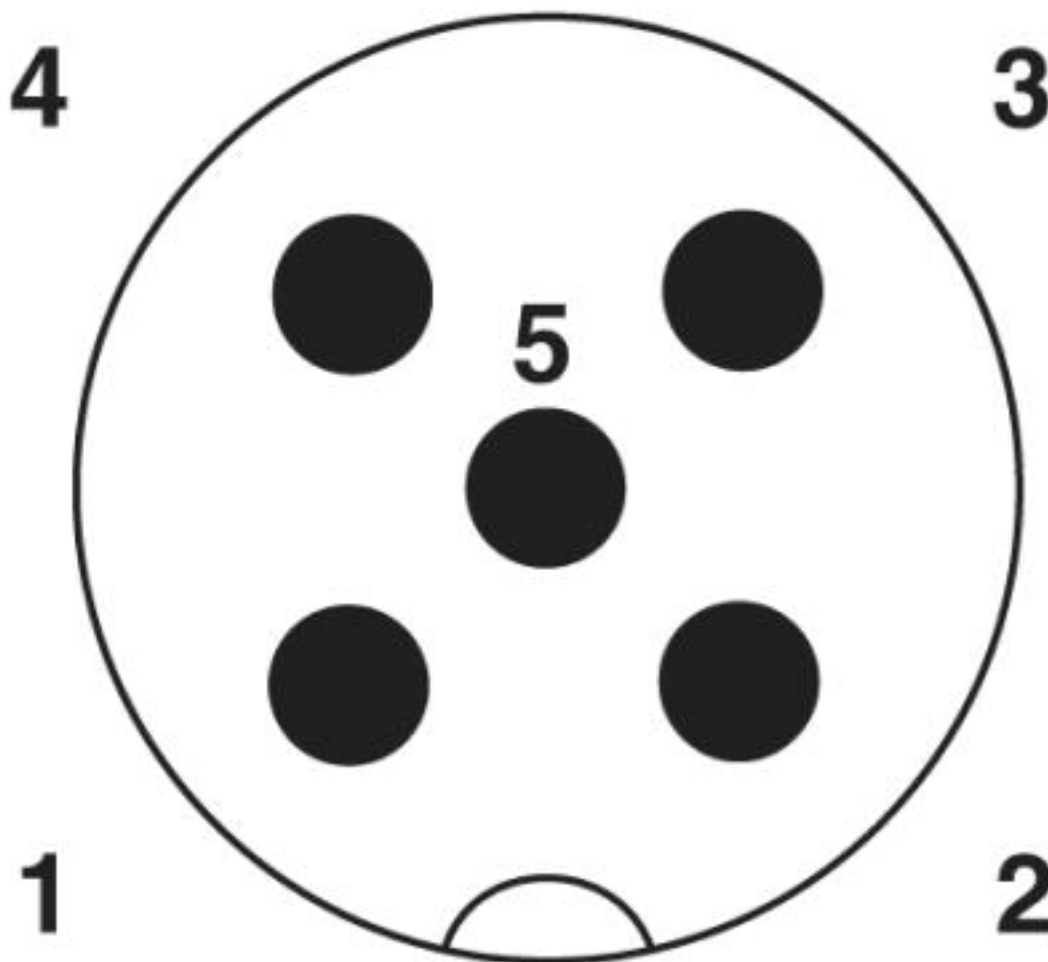
Circuit diagram



Contact assignment of the M12 plug

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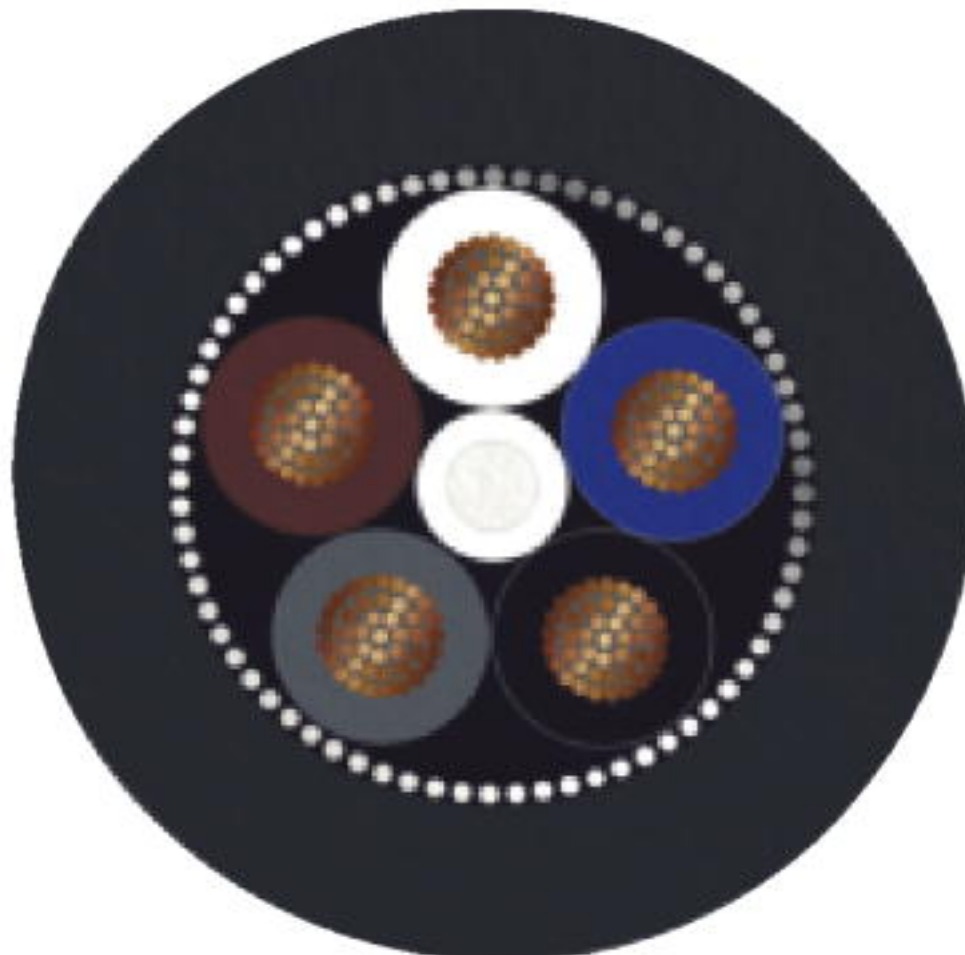
Schematic diagram



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

## Sensor/actuator cable - SAC-5P-M12MS/10,0-28X SH OD - 1407265

Cable cross section



PE-X black [28X]

### 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 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 |
| UNSPSC 19.0   | 31251501 |
| UNSPSC 20.0   | 31251501 |
| UNSPSC 21.0   | 31251501 |

### Approvals

#### Approvals

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Approvals

DNV GL

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Ex Approvals

#### Approval details

|        |                                                                                     |                                                                                   |            |
|--------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------|
| DNV GL |  | <a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a> | TAE00002K4 |
|--------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------|

### Accessories

#### Accessories

Screwdriver tools

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### Accessories

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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Adapter - SAC BIT M12-W14 - 1212513



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a hexagonal knurl wrench size of 14 mm, with 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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