

# SAC-4P- 5,0-28X/M12FS SH OD - Sensor/actuator cable



1454163

<https://www.phoenixcontact.com/us/products/1454163>

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Sensor/actuator cable, 4-position, PE-X/PE-X halogen-free, black-gray RAL 7021, shielded, free cable end, on Socket straight M12, coding: A, cable length: 5 m, for outdoor applications, with high-grade steel knurl

## Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Robust throughout: resistant to oil, UV, and ozone, withstands temperatures from -40°C ... +105°C
- Reliable signal transmission – 360° shielding in environments with electromagnetic interference

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1454163       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1CJA        |
| GTIN                                 | 4046356568777 |
| Weight per piece (including packing) | 388.6 g       |
| Weight per piece (excluding packing) | 379.7 g       |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                      |                       |
|----------------------|-----------------------|
| Product type         | Sensor/actuator cable |
| Application          | External areas        |
| Number of positions  | 4                     |
| No. of cable outlets | 1                     |
| Shielded             | yes                   |
| Coding               | A                     |

### Insulation characteristics

|                     |   |
|---------------------|---|
| Degree of pollution | 3 |
|---------------------|---|

### Material specifications

|                                        |                 |
|----------------------------------------|-----------------|
| Flammability rating according to UL 94 | V0              |
| Seal material                          | FPM             |
| Material of grip body                  | PP              |
| Contact material                       | CuSn            |
| Contact surface material               | Ni/Au           |
| Contact carrier material               | PP              |
| Material for screw connection          | Stainless steel |

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 48 V AC                    |
|                       | 60 V DC                    |
| Nominal current $I_N$ | 4 A                        |

### Mechanical properties

#### Mechanical data

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

### Signaling

|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | no |

### Connection data

#### Conductor connection

|                   |                        |
|-------------------|------------------------|
| Tightening torque | 0.4 Nm (M12 connector) |
|-------------------|------------------------|

### Connector

#### Connection 1

|      |                |
|------|----------------|
| Type | free cable end |
|------|----------------|

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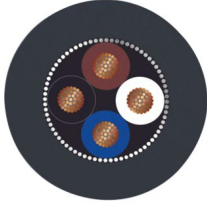
## Connection 2

|                     |                     |
|---------------------|---------------------|
| Type                | Socket straight M12 |
| Number of positions | 4                   |
| Coding type         | A                   |

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 5 m |
|--------------|-----|

## PE-X black [28X]

|                                 |                                                                                                                                                  |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensional drawing             |                                                                |
| Cable weight                    | 74 kg/km                                                                                                                                         |
| Number of positions             | 4                                                                                                                                                |
| Shielded                        | yes                                                                                                                                              |
| Cable type                      | PE-X black [28X]                                                                                                                                 |
| Conductor structure signal line | 28x 0.15 mm                                                                                                                                      |
| AWG signal line                 | 20                                                                                                                                               |
| Conductor cross section         | 4x 0.5 mm <sup>2</sup> (Signal line)                                                                                                             |
| Wire diameter incl. insulation  | 1.6 mm ±0.05 mm (Signal line)                                                                                                                    |
| External cable diameter         | 6.80 mm ±0.2 mm                                                                                                                                  |
| Outer sheath, material          | PE-X                                                                                                                                             |
| External sheath, color          | black-gray RAL 7021                                                                                                                              |
| Conductor material              | Bare Cu litz wires                                                                                                                               |
| Material wire insulation        | PE-X                                                                                                                                             |
| Single wire, color              | brown, white, blue, black                                                                                                                        |
| Thickness, insulation           | approx. 0.30 mm (Core insulation)<br>approx. 0.70 mm (Outer cable sheath)<br>approx. 0.45 mm (Inner sheath)                                      |
| Overall twist                   | 4 wires, twisted                                                                                                                                 |
| Length of twist, overall twist  | 108.8 mm                                                                                                                                         |
| Optical shield covering         | 85 %                                                                                                                                             |
| Max. conductor resistance       | ≤ 39 Ω/km (at 20 °C)                                                                                                                             |
| Insulation resistance           | ≥ 100 MΩ*km (at 20 °C)                                                                                                                           |
| Cable capacity                  | ≤ 100 nF/km (Conductor-conductor, asymmetrical/touching)<br>≤ 85 nF/km (Conductor-conductor, symmetrical/star quad)<br>≤ 150 nF/km (Wire/shield) |
| Nominal voltage, cable          | ≤ 300 V AC                                                                                                                                       |
| Test voltage                    | ≥ 3000 V AC                                                                                                                                      |

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|                                               |                                                                                                                                       |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Smallest bending radius, fixed installation   | 34 mm                                                                                                                                 |
| Smallest bending radius, movable installation | 68 mm                                                                                                                                 |
| Dynamic load capacity (bending)               | Max. bending cycles: 1000000, Bending radius: 68 mm, Traversing path: 10 m, Traversing rate: 3 m/s, Acceleration: 10 m/s <sup>2</sup> |
| Halogen-free                                  | in accordance with DIN VDE 0472 part 815                                                                                              |
| Flame resistance                              | according to DIN 60332-1-2                                                                                                            |
|                                               | according to DIN EN 50266-2-5                                                                                                         |
| Resistance to oil                             | in accordance with DIN EN 60811-2-1                                                                                                   |
| Other resistance                              | UV resistant (according to DIN VDE 0276-605)                                                                                          |
| Special properties                            | Irradiated                                                                                                                            |
| Ambient temperature (operation)               | -40 °C ... 105 °C (cable, fixed installation)                                                                                         |
|                                               | -15 °C ... 105 °C (Cable, flexible installation)                                                                                      |

## Environmental and real-life conditions

### Ambient conditions

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

## Standards and regulations

### M12

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

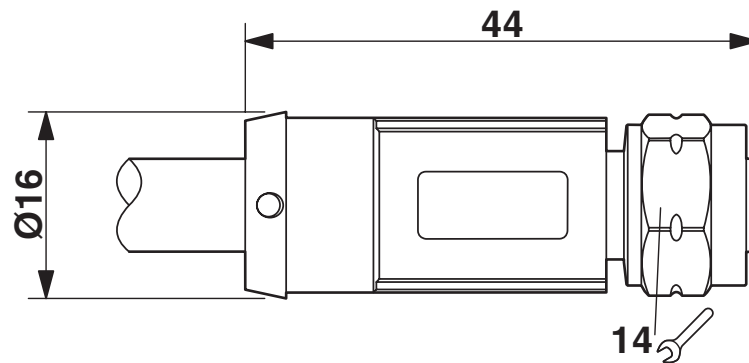
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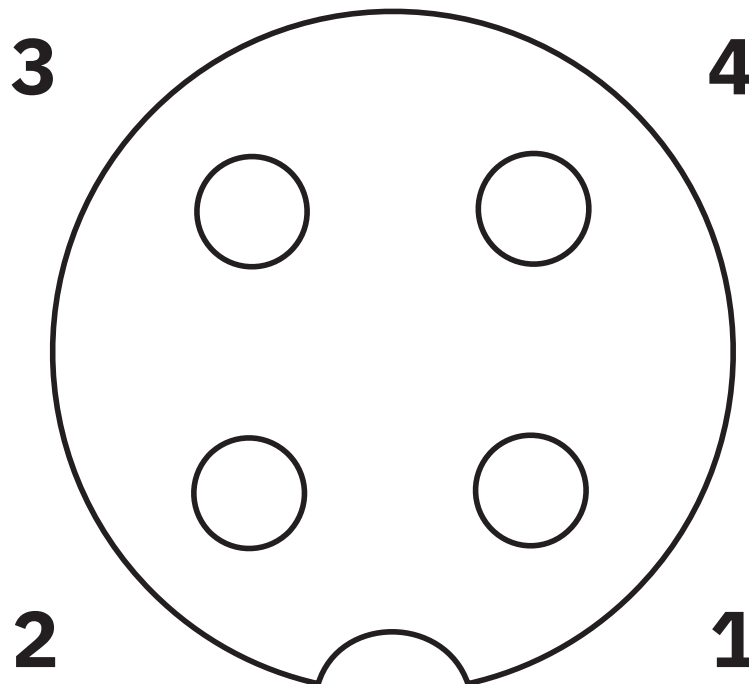
## Drawings

Dimensional drawing



M12 x 1 socket, straight

Schematic diagram



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

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Circuit diagram



Contact assignment of the M12 socket

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## Approvals

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### DNV

Approval ID: TAE00002K4



### EAC-RoHS

Approval ID: RU D-DE.HB35.B.00387

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27060311 |
| ECLASS-15.0 | 27060311 |

### 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%               |
| EF3.0 Climate Change                    |                                          |
| CO2e kg                                 | 3.157 kg CO2e                            |

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