

# SAC-8P-M12MS/ 2,0-28X/M12FS OD - Sensor/actuator cable



1407277

<https://www.phoenixcontact.com/us/products/1407277>

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Sensor/actuator cable, 8-position, PE-X halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: 2 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

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1407277                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF03                           |
| Product key                          | AF1CFA                         |
| GTIN                                 | 4046356773959                  |
| Weight per piece (including packing) | 147.8 g                        |
| Weight per piece (excluding packing) | 147.8 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  | 8                     |
| No. of cable outlets | 1                     |
| Shielded             | no                    |
| 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 $U_N$ | 30 V AC                    |
|                       | 30 V DC                    |
| Nominal current $I_N$ | 2 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 | Plug straight M12 |
|------|-------------------|

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|                     |   |
|---------------------|---|
| Number of positions | 8 |
| Coding type         | A |

## Connection 2

|                     |                     |
|---------------------|---------------------|
| Type                | Socket straight M12 |
| Number of positions | 8                   |
| Coding type         | A                   |

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 2 m |
|--------------|-----|

## PE-X black [28X]

|                                               |                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Dimensional drawing                           |  |
| Cable weight                                  | 65 kg/km                                                                            |
| Number of positions                           | 8                                                                                   |
| Shielded                                      | no                                                                                  |
| Cable type                                    | PE-X black [28X]                                                                    |
| Conductor structure signal line               | 32x 0.10 mm                                                                         |
| AWG signal line                               | 24                                                                                  |
| Conductor cross section                       | 8x 0.25 mm <sup>2</sup>                                                             |
| Wire diameter incl. insulation                | 1.17 mm ±0.02 mm                                                                    |
| 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, filler                              | PP yarn                                                                             |
| Material wire insulation                      | PE-X                                                                                |
| Single wire, color                            | white, brown, green, yellow, gray, pink, blue, red                                  |
| Thickness, insulation                         | approx. 0.25 mm (Core insulation)                                                   |
| Thickness, outer sheath                       | approx. 1.30 mm                                                                     |
| Overall twist                                 | 8 wires around filler to the core                                                   |
| Length of twist, overall twist                | 67 mm                                                                               |
| Max. conductor resistance                     | ≤ 78 Ω/km (at 20 °C)                                                                |
| Insulation resistance                         | ≥ 100 MΩ*km (at 20 °C)                                                              |
| Nominal voltage, cable                        | ≤ 300 V AC                                                                          |
| Test voltage                                  | ≥ 3000 V AC (Spark test)                                                            |
| Minimum bending radius, fixed installation    | 5 x D                                                                               |
| Minimum bending radius, flexible installation | 10 x D                                                                              |

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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: 2000000, Bending radius: 10 x D, 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                                                                                               |
|                                               | in accordance with DIN EN 50267-2-1                                                                                                    |
| Flame resistance                              | According to DIN EN 60332-1-2                                                                                                          |
|                                               | according to DIN EN 50266-2-5                                                                                                          |
| 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)                                                                                           |
| Special properties                            | Irradiated                                                                                                                             |
| 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 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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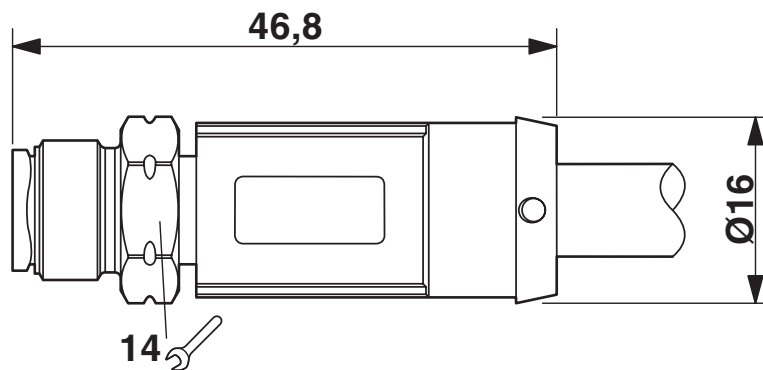


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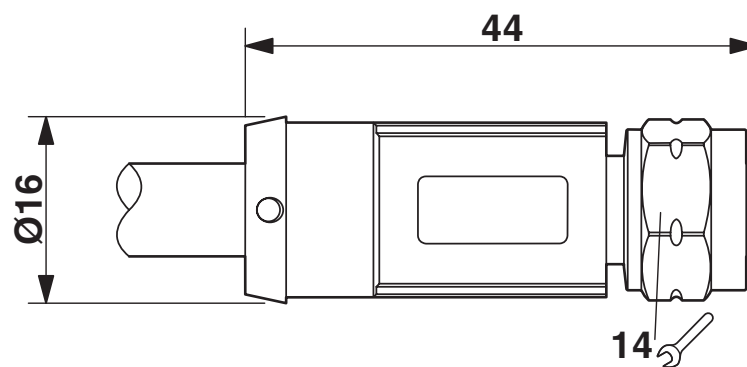
## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



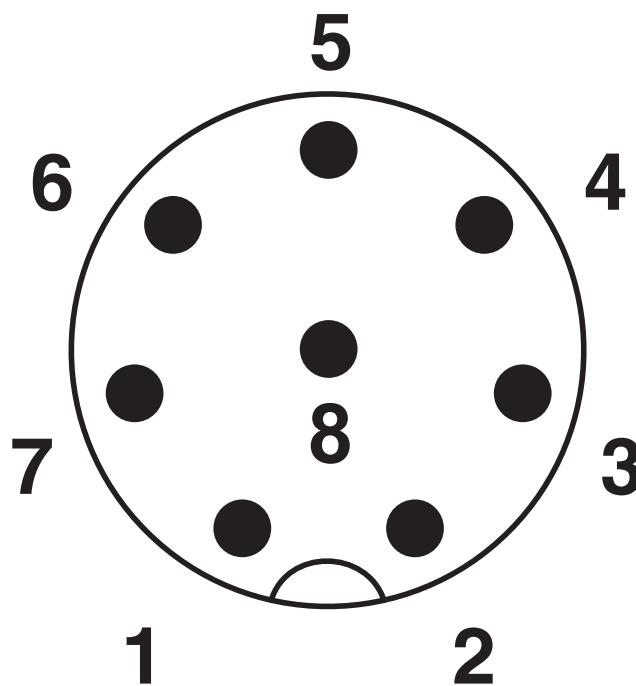
M12 x 1 socket, straight

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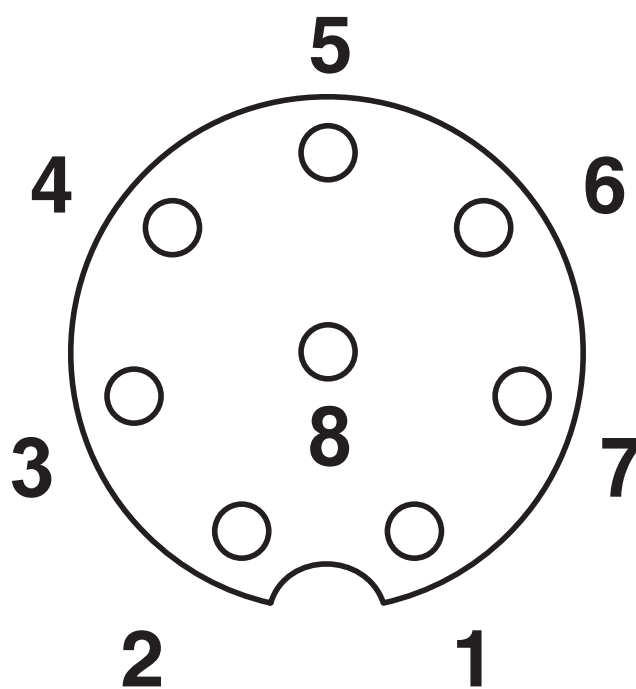
<https://www.phoenixcontact.com/us/products/1407277>

Schematic diagram



Pin assignment M12 plug, 8-pos., A-coded, view plug side

Schematic diagram



Pin assignment M12 socket, 8-pos., A-coded, view female side

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Circuit diagram



Contact assignment of the M12 connector and 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                                 | 3.114 kg CO2e                            |

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