

# SAC-4P-M12MS/ 2,0-186/M12FS - Sensor/actuator cable



1509555

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Sensor/actuator cable, 4-position, PUR, black-gray RAL 7021, Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: 2 m

## Your advantages

- Easy and safe: 100 % electrically tested plug-in components

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1509555       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1CCA        |
| GTIN                                 | 4017918899196 |
| Weight per piece (including packing) | 132.5 g       |
| Weight per piece (excluding packing) | 131.3 g       |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

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

### Insulation characteristics

|                      |    |
|----------------------|----|
| Overvoltage category | II |
| Degree of pollution  | 3  |

### Material specifications

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

### Electrical properties

|                       |                            |
|-----------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage $U_N$ | 250 V AC                   |
|                       | 250 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 |
|-------------------|--------|

### Connector

#### Connection 1

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

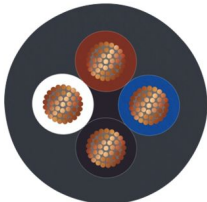
## Connection 2

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

## Cable/line

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

## PUR POWER 0.75 mm² black [186]

|                                               |                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Dimensional drawing                           |  |
| Cable weight                                  | 57 kg/km                                                                            |
| UL AWM Style                                  | 20549 / 1061 (80°C/300 V)                                                           |
| Number of positions                           | 4                                                                                   |
| Shielded                                      | no                                                                                  |
| Cable type                                    | PUR POWER 0.75 mm² black [186]                                                      |
| Conductor structure signal line               | 42x 0.15 mm                                                                         |
| AWG signal line                               | 18                                                                                  |
| Conductor cross-section                       | 4x 0.75 mm² (power line)                                                            |
| Wire diameter incl. insulation                | 1.75 mm ±0.05 mm                                                                    |
| External cable diameter                       | 5.90 mm ±0.15 mm                                                                    |
| Outer sheath, material                        | PUR                                                                                 |
| External sheath, color                        | black-gray RAL 7021                                                                 |
| Conductor material                            | Bare Cu litz wires                                                                  |
| Material wire insulation                      | PVC                                                                                 |
| Single wire, color                            | brown, white, blue, black                                                           |
| Thickness, insulation                         | ≥ 0.23 mm (Core insulation)<br>≥ 0.76 mm (Outer cable sheath)                       |
| Overall twist                                 | 4 wires, twisted                                                                    |
| Max. conductor resistance                     | max. 26 Ω/km (at 20 °C)                                                             |
| Insulation resistance                         | ≥ 1 MΩ*km (at 20 °C)                                                                |
| Nominal voltage, cable                        | ≤ 300 V                                                                             |
| Test voltage                                  | ≥ 3000 V                                                                            |
| 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   | 30 mm                                                                                                                   |
| Smallest bending radius, movable installation | 59 mm                                                                                                                   |
| Dynamic load capacity (bending)               | Max. bending cycles: 2000000, Bending radius: 59 mm, Traversing path: 5 m, Traversing rate: 3 m/s, Acceleration: 5 m/s² |
| Flame resistance                              | according to UL 758/1581 (horizontal)                                                                                   |
|                                               | in accordance with UL 758/1581 FT2                                                                                      |
| Resistance to oil                             | According to DIN EN 60811-2-1, 168 h at 100°C                                                                           |
| Other resistance                              | hydrolysis and microbe resistant                                                                                        |
|                                               | Low adhesion                                                                                                            |
|                                               | abrasion-resistant                                                                                                      |
|                                               | Resistant to salt water                                                                                                 |
| Ambient temperature (operation)               | -25 °C ... 80 °C (cable, fixed installation)                                                                            |
|                                               | -5 °C ... 80 °C (Cable, flexible installation)                                                                          |

## Environmental and real-life conditions

### Ambient conditions

|                                                                   |                                                |
|-------------------------------------------------------------------|------------------------------------------------|
| Degree of protection                                              | IP65                                           |
|                                                                   | IP67                                           |
|                                                                   | IP68                                           |
| Ambient temperature (operation) (male connector/female connector) | -25 °C ... 90 °C (Plug / socket)               |
| Ambient temperature (operation) (Cable, fixed installation)       | -25 °C ... 80 °C (cable, fixed installation)   |
| Ambient temperature (operation) (Cable, flexible installation)    | -5 °C ... 80 °C (Cable, flexible installation) |

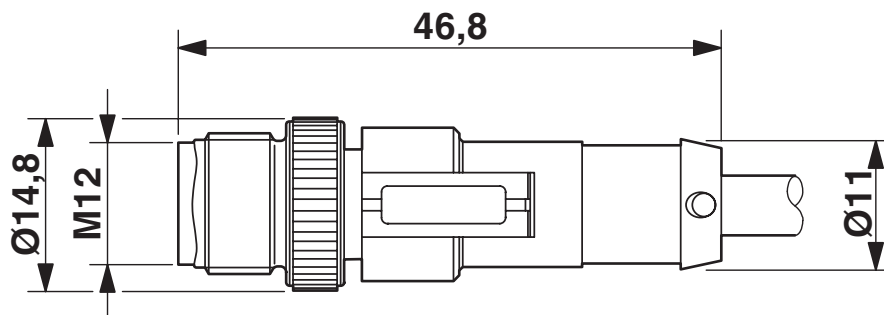
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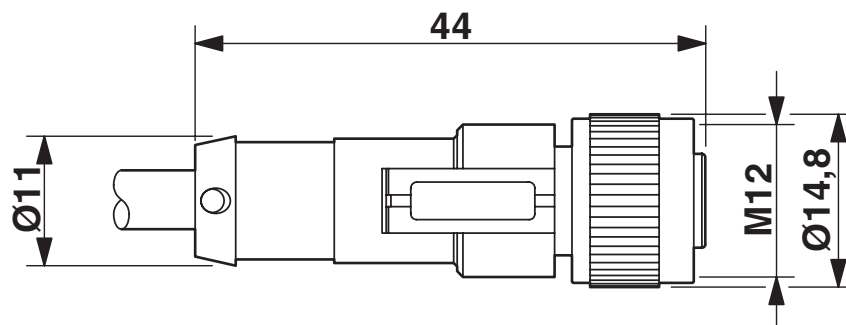
## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



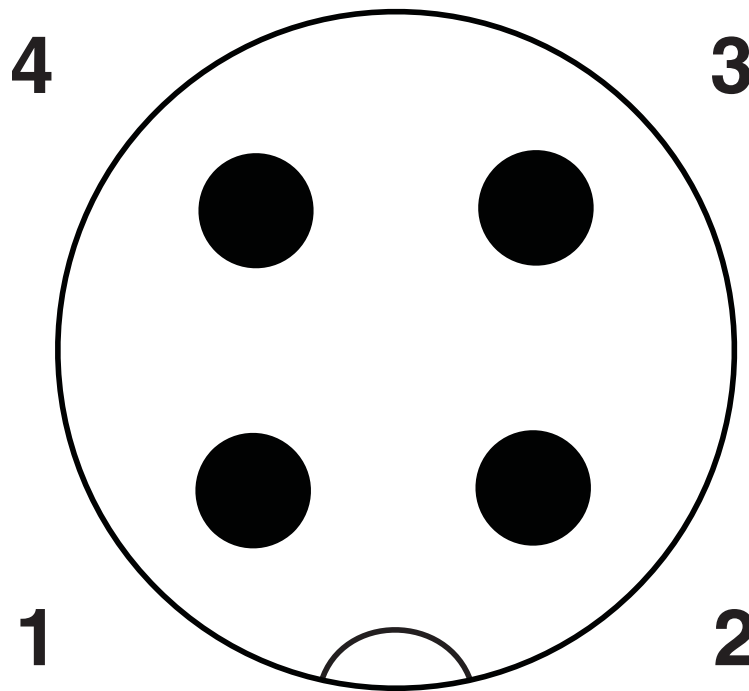
M12 x 1 socket, straight

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Schematic diagram



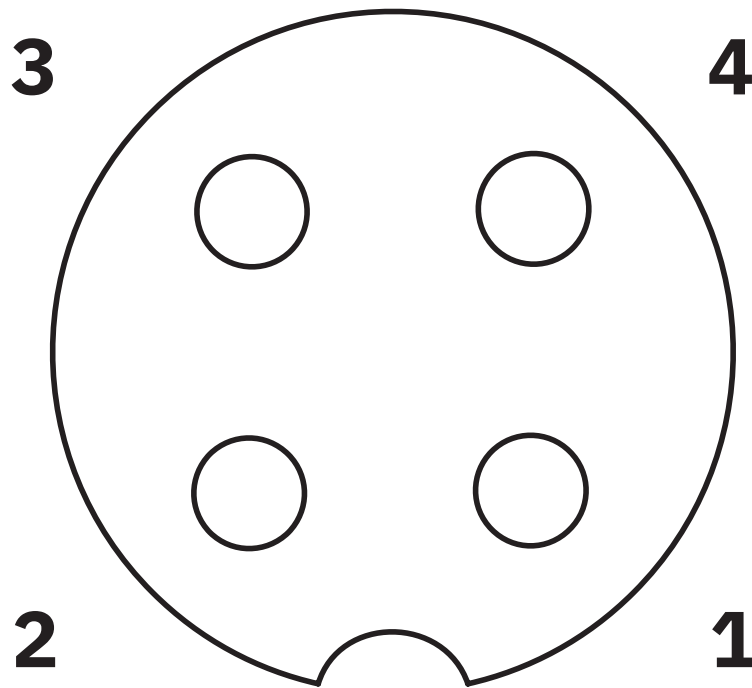
Pin assignment M12 plug, 4-pos., A-coded, view plug side

# SAC-4P-M12MS/ 2,0-186/M12FS - Sensor/actuator cable

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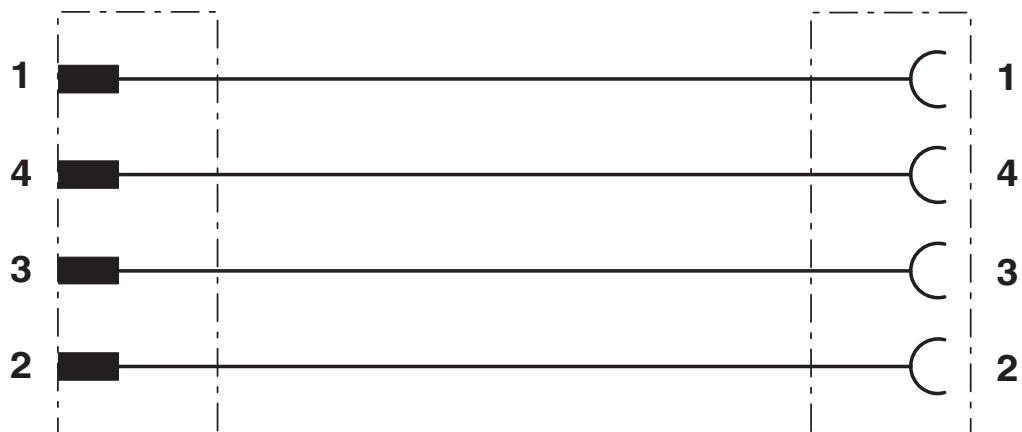
<https://www.phoenixcontact.com/us/products/1509555>

Schematic diagram



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

Circuit diagram



Contact assignment of the M12 connector and the M12 socket

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1509555>

|       |  <b>UL Listed</b><br>Approval ID: FILE E 221474 |                                |                   |                               |
|-------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|       | Nominal voltage U <sub>N</sub>                                                                                                   | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine |                                                                                                                                  |                                |                   |                               |
|       | 300 V                                                                                                                            | 4 A                            | -                 | -                             |

|       |  <b>cUL Listed</b><br>Approval ID: FILE E 221474 |                                |                   |                               |
|-------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|       | Nominal voltage U <sub>N</sub>                                                                                                    | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine |                                                                                                                                   |                                |                   |                               |
|       | 300 V                                                                                                                             | 4 A                            | -                 | -                             |

|  <b>EAC-RoHS</b><br>Approval ID: RU D-DE.HB35.B.00387 |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|
|------------------------------------------------------------------------------------------------------------------------------------------|--|

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## Classifications

### ECLASS

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

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 1.189 kg CO2e |
|---------|---------------|

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