

# SAC-4P- 5,0-800/M12FR - Sensor/actuator cable



1456970

<https://www.phoenixcontact.com/us/products/1456970>

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Sensor/actuator cable, 4-position, PUR halogen-free, resistant to welding sparks, highly flexible, gray RAL 7001, free cable end, on Socket angled M12, coding: A, cable length: 5 m, for robots and drag chains

## Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Reliable solution for the body shop as cable is resistant to welding sparks

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1456970       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1CCA        |
| GTIN                                 | 4046356593335 |
| Weight per piece (including packing) | 161.4 g       |
| Weight per piece (excluding packing) | 155.2 g       |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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## Technical data

### Product properties

|                      |                        |
|----------------------|------------------------|
| Product type         | Sensor/actuator cable  |
| Application          | Robots and drag chains |
| 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 | $\geq 10 \text{ M}\Omega$ |
| 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 (M12 connector) |
|-------------------|------------------------|

### Connector

#### Connection 1

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

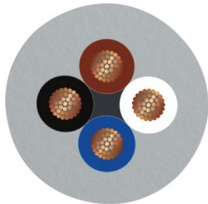
## Connection 2

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

## Cable/line

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

## Gray, highly flexible PUR [800]

|   |  |
|---|--|
| Dimensional drawing                           |               |
| Note  | Due to the extremely robust outer sheath, this cable should only be stripped in 5 cm increments. |
| Cable weight                                  | 33.5 kg/km   |
| UL AWM Style                                  | 20549  |
| Number of positions                           | 4  |
| Shielded                                      | no   |
| Cable type                                    | Gray, highly flexible PUR [800]  |
| Conductor structure signal line               | 42x 0.10 mm  |
| AWG signal line                               | 22   |
| Conductor cross section                       | 4x 0.34 mm <sup>2</sup> (Signal line)  |
| Wire diameter incl. insulation                | 1.3 mm ±0.05 mm (Signal line)  |
| External cable diameter                       | 4.80 mm ±0.2 mm  |
| Outer sheath, material                        | PUR  |
| External sheath, color                        | gray RAL 7001  |
| Conductor material                            | Bare Cu litz wires   |
| Material wire insulation                      | PP   |
| Single wire, color                            | brown, white, blue, black  |
| Overall twist                                 | 4 wires, twisted   |
| Max. conductor resistance                     | approx. 53 Ω/km  |
| Insulation resistance                         | ≥ 20 MΩ*km   |
| Nominal voltage, cable                        | 300 V  |
| Test voltage                                  | 2000 V   |
| Minimum bending radius, fixed installation    | 4 x D  |
| Minimum bending radius, flexible installation | 7.5 x D  |
| Smallest bending radius, fixed installation   | 20 mm  |
| Smallest bending radius, movable installation | 36 mm  |

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|                                 |  |
|---------------------------------|--|
| Dynamic load capacity (bending) | Max. bending cycles: 10000000, Bending radius: 7,5 x D, Traversing path: 5 m, Traversing rate: 3.3 m/s, Acceleration: 5 m/s <sup>2</sup> |
|                                 | Max. bending cycles: 15000000, Bending radius: 50 mm, Traversing path: 0.9 m, Traversing rate: 5 m/s, Acceleration: 30 m/s <sup>2</sup>  |
| Dynamic load capacity (torsion) | Torsion: $\pm 360$ °/m, Torsion cycles: 1000000, Torsional frequency: 35 cycles/min.   |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815   |
| Flame resistance                | in accordance with UL 758/1581 FT2   |
| Resistance to oil               | in accordance with DIN EN 60811-2-1  |
| Other resistance                | Highly resistant to acids, alkaline solutions and solvents   |
|                                 | Silicone-free  |
| Special properties              | Cable jacket is welding spark-resistant, recyclable, matt, low-adhesion, abrasion-resistant, flame-retardant, and self-extinguishing     |
|                                 | Free from silicone and cadmium   |
|                                 | Free of substances which would hinder coating with paint or varnish  |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)   |
|                                 | -25 °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)       | -40 °C ... 90 °C (cable, fixed installation)    |
| Ambient temperature (operation) (Cable, flexible installation)    | -30 °C ... 90 °C (Cable, flexible installation) |
| Ambient temperature (operation)                                   | to 120 °C (for 3000 h)                          |
|   | to 80 °C (in acc. with UL)                      |

## Standards and regulations

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

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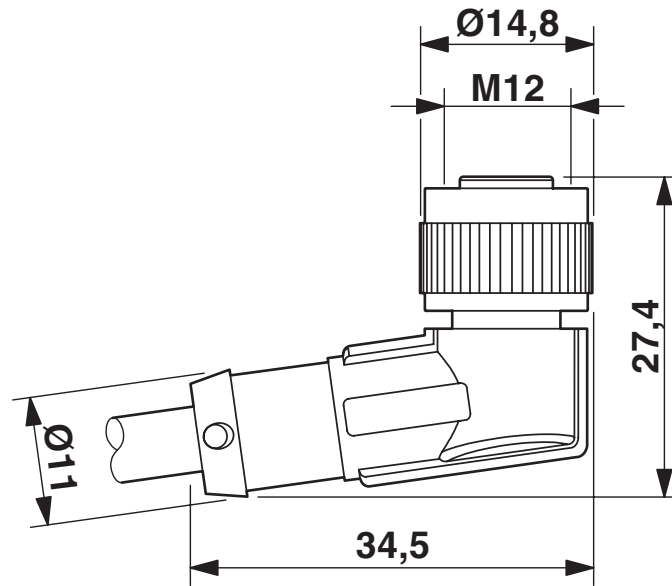
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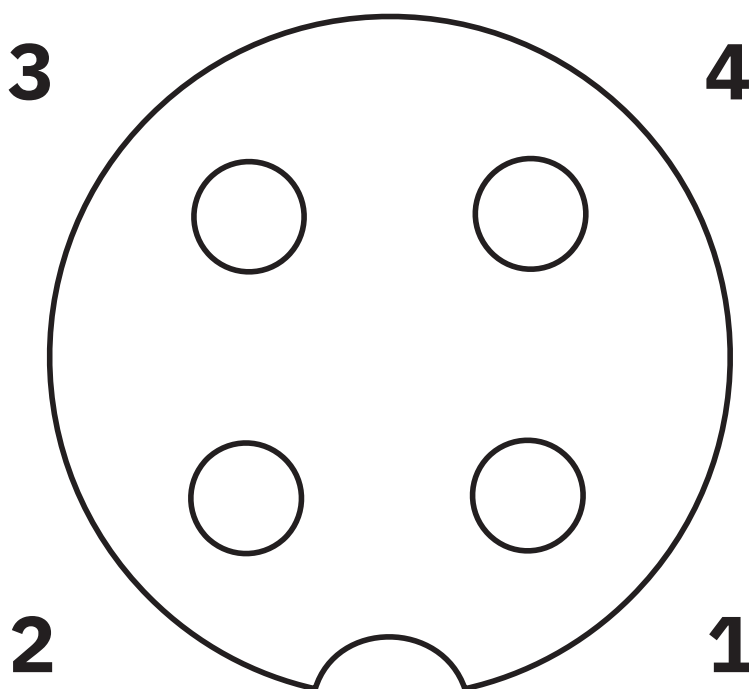
## Drawings

Dimensional drawing



M12 x 1 socket, angled

Schematic diagram



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

Circuit diagram



Contact assignment of the M12 socket

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1456970>

|  <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 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 | 0.716 kg CO2e |
|---------|---------------|

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)