

# SAC-4P-M12MS/ 3,0-800 - Sensor/actuator cable



1457021

<https://www.phoenixcontact.com/us/products/1457021>

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Sensor/actuator cable, 4-position, PUR halogen-free, resistant to welding sparks, highly flexible, gray RAL 7001, Plug straight M12, coding: A, on free cable end, cable length: 3 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                          | 1457021       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF03          |
| Product key                          | AF1CCA        |
| GTIN                                 | 4046356593380 |
| Weight per piece (including packing) | 100.8 g       |
| Weight per piece (excluding packing) | 101.2 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                                          |
| 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 | ≥ 100 MΩ |
| Nominal voltage $U_N$ | 250 V AC |
|                       | 250 V DC |
| Nominal current $I_N$ | 4 A      |

### Mechanical properties

#### Mechanical data

|                             |       |
|-----------------------------|-------|
| Insertion/withdrawal cycles | ≥ 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 | 4 |
| Coding type         | A |

## Connection 2

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

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 3 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                                                                                            |
| Dynamic load capacity (bending)               | Max. bending cycles: 10000000, Bending radius: 7,5 x D,                                          |

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|                                 |                                                                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
|                                 | 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                                                                              |
| Special properties              | Silicone-free                                                                                                                           |
|                                 | Cable jacket is welding spark-resistant, recyclable, matt, low-adhesion, abrasion-resistant, flame-retardant, and self-extinguishing    |
|                                 | Free from silicone and cadmium                                                                                                          |
| 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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## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram



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

Circuit diagram



Contact assignment of the M12 plug

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1457021>

|  <b>UL Listed</b><br>Approval ID: FILE E 221474 |                       |                       |                   |                             |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine                                                                                                                            |                       |                       |                   |                             |
|                                                                                                                                  | 300 V                 | 4 A                   | -                 | -                           |

|  <b>cUL Listed</b><br>Approval ID: FILE E 221474 |                       |                       |                   |                             |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| 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 | 0.451 kg CO2e |
|---------|---------------|

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