

SAC-4P-M12MS/1,5-PUR/M12FR-3L - Sensor/actuator cable



1668535

<https://www.phoenixcontact.com/us/products/1668535>

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Sensor/actuator cable, 4-position, PUR halogen-free, black-gray RAL 7021, Plug straight M12, coding: A, with 3 LEDs, on Socket angled M12, coding: A, with 3 LEDs, cable length: 1.5 m

Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Convenient: increased machine availability thanks to quick and easy diagnostics

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1668535 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF03 |
| Product key | AF1CCA |
| GTIN | 4017918136208 |
| Weight per piece (including packing) | 59 g |
| Weight per piece (excluding packing) | 56 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 |
| Outer sheath, material | PUR |
| Conductor material | Bare Cu litz wires |

Electrical properties

| | |
|---------------------------|----------------------------|
| Insulation resistance | $\geq 100 \text{ M}\Omega$ |
| Nominal voltage U_N | 24 V DC |
| Nominal current I_N | 4 A |
| Max. conductor resistance | 58 Ω/km |

Mechanical properties

Mechanical data

| | |
|-----------------------------|------------|
| Insertion/withdrawal cycles | ≥ 100 |
| Max. bending cycles | 4000000 |

Signaling

| | |
|------------------------|--------|
| Status display | 3 LEDs |
| Status display present | yes |

Connection data

Conductor connection

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

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Connector

Connection 1

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

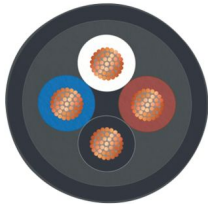
Connection 2

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

Cable/line

| | |
|--------------|-------|
| Cable length | 1.5 m |
|--------------|-------|

PUR halogen-free black [PUR]

| | |
|---------------------------------|--|
| Dimensional drawing |  |
| Cable weight | 30 kg/km |
| UL AWM Style | 20549 / 10493 (80°C/300 V) |
| Number of positions | 4 |
| Shielded | no |
| Cable type | PUR halogen-free black [PUR] |
| Conductor structure signal line | 42x 0.10 mm |
| AWG signal line | 22 |
| Conductor cross-section | 4x 0.34 mm ² (Signal line) |
| Wire diameter incl. insulation | 1.27 mm ±0.02 mm |
| External cable diameter | 4.20 mm ±0.15 mm |
| Outer sheath, material | PUR |
| External sheath, color | black-gray RAL 7021 |
| Conductor material | Bare Cu litz wires |
| Material wire insulation | PP |
| Single wire, color | brown, white, blue, black |
| Thickness, insulation | ≥ 0.21 mm |
| Thickness, outer sheath | approx. 0.50 mm |
| Overall twist | 4 wires, twisted |
| Max. conductor resistance | ≤ 58 Ω/km |
| Insulation resistance | ≥ 1 GΩ*km |

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| | |
|---|--|
| 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 |
| Smallest bending radius, fixed installation | 21 mm |
| Smallest bending radius, movable installation | 42 mm |
| Dynamic load capacity (bending) | Max. bending cycles: 10000000, Bending radius: 42 mm, Bending radius: 10 x D, Traversing path: 10 m, Traversing rate: 3 m/s, Acceleration: 10 m/s ² |
| Dynamic load capacity (torsion) | Torsion: ±180 °/m, Torsion cycles: ≥5000000, Torsional frequency: 35 cycles/min. |
| Halogen-free | in accordance with DIN VDE 0472 part 815 |
| | in accordance with DIN EN 50267-2-1 |
| Flame resistance | in accordance with UL 758/1581 FT2 |
| | DIN EN 60332-2-2 (20 s) |
| Resistance to oil | in accordance with DIN EN 60811-2-1 |
| Other resistance | Highly resistant to acids, alkaline solutions and solvents |
| | hydrolysis and microbe resistant |
| | partly UV-resistant (in accordance with DIN EN ISO 4892-2-A) |
| | Low adhesion |
| | abrasion-resistant |
| Special properties | Flexible cable conduit capable |
| | Silicone-free |
| | Free of substances which would hinder coating with paint or varnish |
| | flexible |
| 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 ... 80 °C (cable, fixed installation) |
| Ambient temperature (operation) (Cable, flexible installation) | -5 °C ... 80 °C (Cable, flexible installation) |

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

Dimensional drawing



Socket M12 x 1, angled, with LED

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Schematic diagram



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

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Schematic diagram



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

Circuit diagram



Contact assignment of the M12 plug and the M12 socket

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1668535>

|  UL Listed Approval ID: FILE E 221474 | | | | |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | | | | |
| | 24 V | 4 A | - | - |

|  cUL Listed Approval ID: FILE E 221474 | | | | |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | | | | |
| | 24 V | 4 A | - | - |

|  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 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 | 0.896 kg CO2e |
|---------|---------------|

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