# SAC-5P-M12MS/ 2,0-92X SH OD - Bus system cable

1410471

https://www.phoenixcontact.com/us/products/1410471

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Bus system cable, CANopen®, DeviceNet™, 5-position, FRNC halogen-free, black, shielded, Plug straight M12, coding: A, on free cable end, 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
- Reliable signal transmission – 360° shielding in environments with electromagnetic interference

## Commercial data

| | |
|---|---|
| Item number | 1410471 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF04 |
| Product key | AF1CKD |
| GTIN | 4046356899376 |
| Weight per piece (including packing) | 159.5 g |
| Weight per piece (excluding packing) | 152.9 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

# Technical data

## Product properties

| | |
|---|---|
| Product type | Data cable preassembled |
| Application | External areas |
| Number of positions | 5 |
| No. of cable outlets | 1 |
| Shielded | yes |
| Coding | A |

### Insulation characteristics

| | |
|---|---|
| Degree of pollution | 3 |

## Interfaces

| | |
|---|---|
| Bus system | CANopen®/DeviceNet™ |
| Signal type/category | CANopen® |
| | DeviceNet™ |

## Signaling

| | |
|---|---|
| Status display | no |
| Status display present | no |

## Electrical properties

| | |
|---|---|
| Insulation resistance | ≥ 100 MΩ |
| Nominal voltage $U_N$ | 48 V AC |
| | 60 V DC |
| Nominal current $I_N$ | 4 A |
| Transmission medium | Copper |

## Mechanical properties

### Mechanical data

| | |
|---|---|
| Insertion/withdrawal cycles | ≥ 100 |

## Material specifications

| | |
|---|---|
| Flammability rating according to UL 94 | V0 |
| Material of grip body | PP |
| Contact material | CuSn |
| Contact surface material | Ni/Au |
| Contact carrier material | PP |
| Material for screw connection | Stainless steel |

## Connection data

### Connection assignment

| | |
|---|---|
| Contact \| Color (signal designation) \| Contact (optional) | 1 (Plug) \| SR (shield) |
| | 2 (Plug) \| RD (V+) |
| | 3 (Plug) \| BK (V-) |
| | 4 (Plug) \| WH (CAN_H) |
| | 5 (Plug) \| BU (CAN_L) |

## Connector

Connection 1

| | |
|---|---|
| Type | Plug straight M12 |
| Number of positions | 5 |
| Coding type | A (Standard) |

Connection 2

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

## Cable/line

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

CANopen®/DeviceNet™ outdoor installation, FRNC, black [92X]

| | |
|---|---|
| Dimensional drawing |  |
| Cable weight | 70 kg/km |
| UL AWM Style | 21281 (80°C/300 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | CANopen®/DeviceNet™ outdoor installation, FRNC, black [92X] |
| Conductor structure | 2xAWG24/19+2xAWG22/19 |
| Signal runtime | 4.46 ns/m |
| Conductor structure signal line | 19x 0.13 mm |
| AWG signal line | 24 |
| Conductor structure, voltage supply | 19x 0.16 mm |
| AWG power supply | 22 |
| Conductor cross-section | 2x 0.25 mm² (Signal) |
| | 2x 0.34 mm² (Power) |
| | 1x 0.38 mm² (Drain wire) |
| Wire diameter incl. insulation | 1.9 mm (Signal) |
| | 1.4 mm (Power) |
| External cable diameter | 6.90 mm ±0.3 mm |

| | |
|---|---|
| Outer sheath, material | FRNC |
| External sheath, color | black |
| Conductor material | Tin-plated Cu litz wires |
| Material wire insulation | PE |
| Single wire, color | red-black, blue-white |
| Thickness, insulation | 0.60 mm (Signal) |
| | 0.30 mm (Power) |
| Thickness, outer sheath | 1.15 mm |
| Twisted pairs | 2 cores to the pair |
| Type of pair shielding | Aluminum-lined foil |
| Overall twist | 2 pairs around a drain wire in the center to the core |
| Optical shield covering | 70 % |
| Max. conductor resistance | 90 Ω/km (Signal) |
| | 55 Ω/km (Power) |
| Insulation resistance | ≥ 200 MΩ*km (at 20 °C) |
| Wave impedance | 120 Ω ±12 Ω (f = 1 MHz) |
| Working capacitance | 39.8 nF (at 1 kHz, core/core) |
| Nominal voltage, cable | ≤ 300 V |
| Test voltage Core/Core | 2000 V (50 Hz, 1 min.) |
| Test voltage Core/Shield | 2000.00 V (50 Hz, 1 min.) |
| Minimum bending radius, fixed installation | 5 x D |
| Minimum bending radius, flexible installation | 10 x D |
| Smallest bending radius, fixed installation | 35 mm |
| Smallest bending radius, movable installation | 69 mm |
| Halogen-free | yes |
| Flame resistance | According to IEC 60332-3-25 (Cat. D) |
| Resistance to oil | yes |
| Other resistance | UV resistant |
| Ambient temperature (operation) | -40 °C ... 105 °C |
| Ambient temperature (installation) | -40 °C ... 105 °C |

## 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)) |

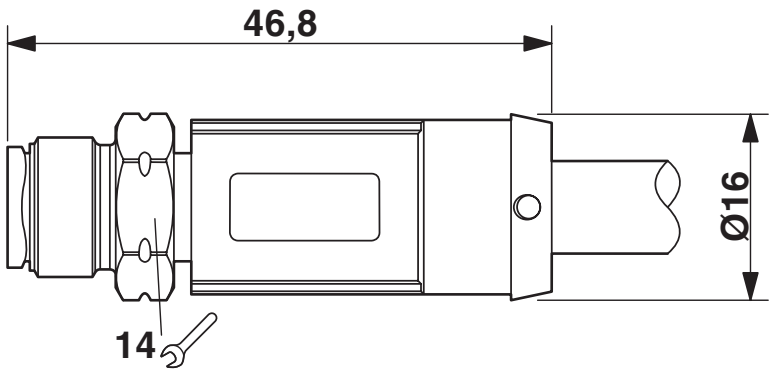
## Standards and regulations

### M12

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

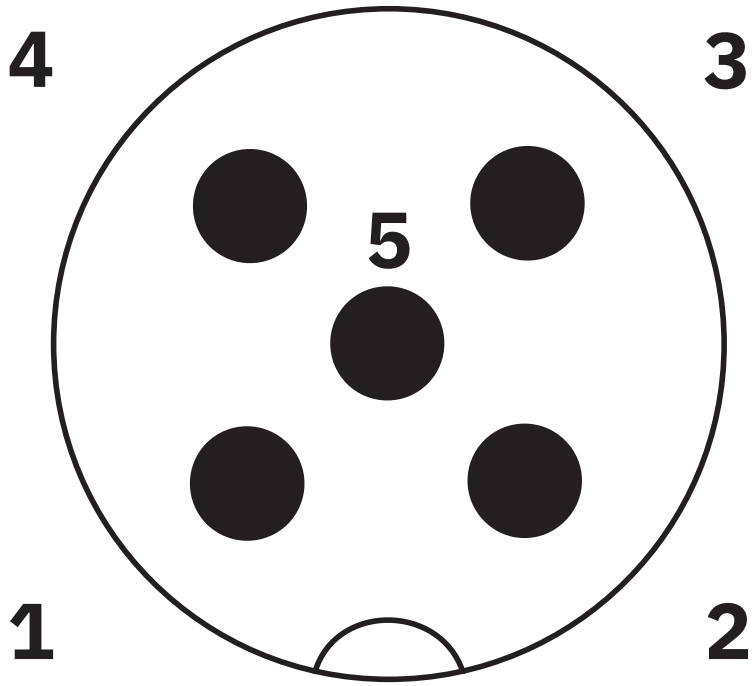
## Drawings

Dimensional drawing



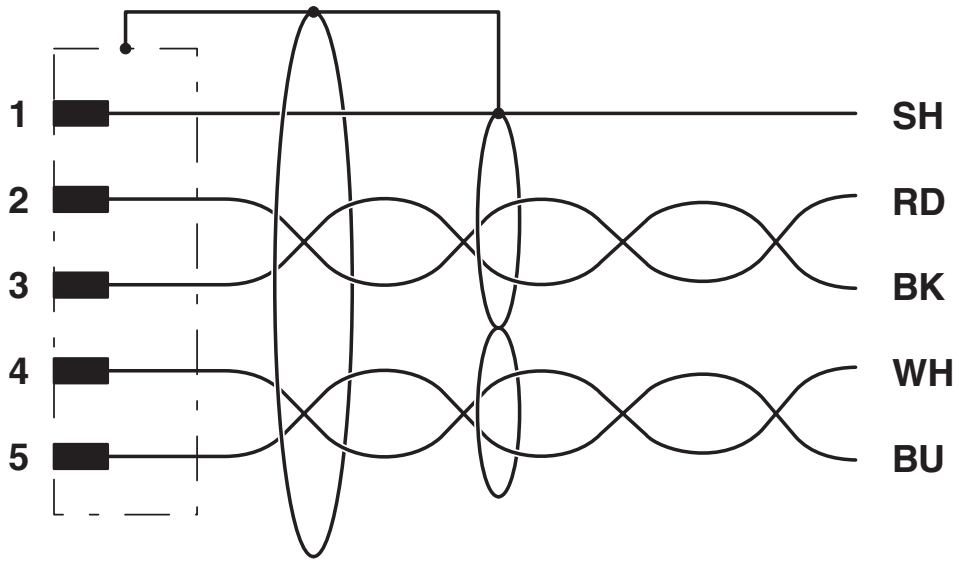

Plug, M12 x 1, straight, shielded

Schematic diagram




Pin assignment M12 male connector, 5-pos., A-coded, male side

Circuit diagram




Contact assignment of the M12 plug

## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1410471

**EAC-RoHS**
Approval ID: RU D-DE.HB35.B.00387

## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-13.0 | 27060307 |
| ECLASS-15.0 | 27060307 |

### ETIM

| | |
|---|---|
| ETIM 10.0 | EC002599 |

### UNSPSC

| | |
|---|---|
| UNSPSC 21.0 | 26121600 |

## 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 | 7.179 kg CO2e |


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