

# SAC-5P-M12MS/10,0-92X SH OD - Bus system cable



1410473

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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: 10 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                          | 1410473             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF04                |
| Product key                          | BF1CKD              |
| Catalog page                         | Page 187 (NTK-2014) |
| GTIN                                 | 4046356899390       |
| Weight per piece (including packing) | 679.7 g             |
| Weight per piece (excluding packing) | 665.3 g             |
| Customs tariff number                | 85444290            |
| Country of origin                    | PL                  |

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## Technical data

### Product properties

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

### Data management status

|                  |    |
|------------------|----|
| Article revision | 04 |
|------------------|----|

### 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 <sub>N</sub> | 48 V AC  |
|                                | 60 V DC  |
| Nominal current I <sub>N</sub> | 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 |

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## Connection data

### Pin 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)      |

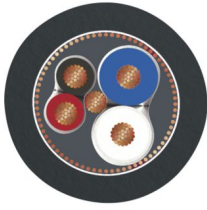
### Connection 2

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

## Cable/line

|              |      |
|--------------|------|
| Cable length | 10 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 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)                                                                       |

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|                                               |                                                       |
|-----------------------------------------------|-------------------------------------------------------|
| 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) | -40 °C ... 105 °C (Plug / socket)                                                 |
|                                 | -40 °C ... 85 °C (On sudden changes in temperature (according to IEC 60512-11-4)) |

## Standards and regulations

# SAC-5P-M12MS/10,0-92X SH OD - Bus system cable



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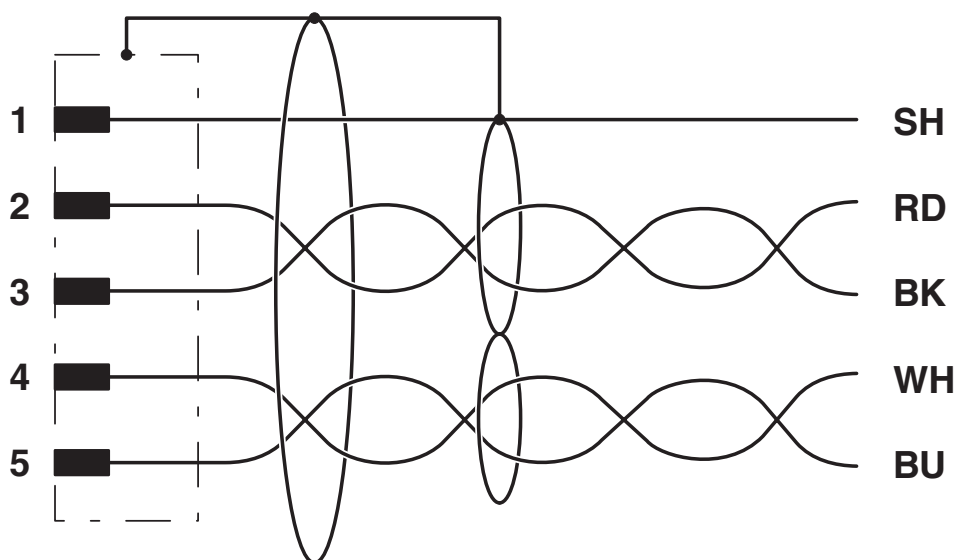
<https://www.phoenixcontact.com/us/products/1410473>

M12

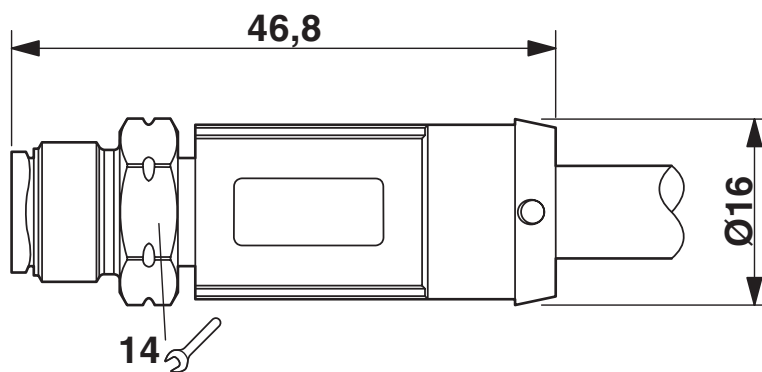
|                          |                 |
|--------------------------|-----------------|
| Standard designation     | M12 connector   |
| Standards/specifications | IEC 61076-2-101 |

## Drawings

Circuit diagram



Dimensional drawing

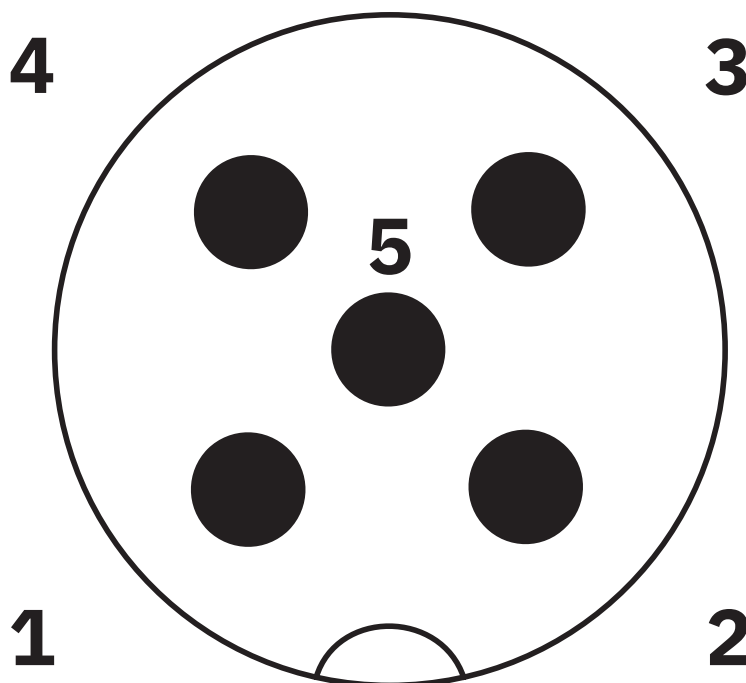


Plug, M12 x 1, straight, shielded

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Schematic diagram



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

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## Approvals

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**EAC-RoHS**

Approval ID: RU D-DE.HB35.B.00387

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27060307 |
| ECLASS-12.0 | 27060307 |
| ECLASS-13.0 | 27060307 |

### 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% |
|-------------------------------------|----------------------------|

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