

# SAC-5P-10,0-92X/M12FS SH OD - Bus system cable



1410496

<https://www.phoenixcontact.com/us/products/1410496>

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Bus system cable, CANopen®, DeviceNet™, 5-position, FRNC halogen-free, black, shielded, free cable end, on Socket straight M12, coding: A, 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                          | 1410496       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF04          |
| Product key                          | AF1CKD        |
| GTIN                                 | 4046356899420 |
| Weight per piece (including packing) | 687.2 g       |
| Weight per piece (excluding packing) | 687.2 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          |
| 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®<br>DeviceNet™ |

### Signaling

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

### Electrical properties

|                       |                    |
|-----------------------|--------------------|
| Insulation resistance | ≥ 100 MΩ           |
| Nominal voltage $U_N$ | 48 V AC<br>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              |
| Seal material                          | FPM             |
| 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

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## Connection assignment

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

## Connector

### Connection 1

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

### Connection 2

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

## 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 structure, voltage supply | 19x 0.16 mm   |
| AWG power supply                    | 22  |
| Conductor cross-section             | 2x 0.25 mm <sup>2</sup> (Signal)<br>2x 0.34 mm <sup>2</sup> (Power)<br>1x 0.38 mm <sup>2</sup> (Drain wire) |
| Wire diameter incl. insulation      | 1.9 mm (Signal)<br>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)<br>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)<br>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

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## M12

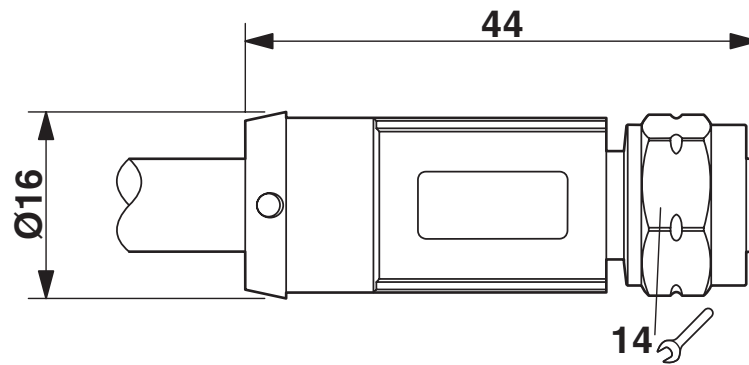
|                          |                 |
|--------------------------|-----------------|
| Standard designation     | M12 connector   |
| Standards/specifications | IEC 61076-2-101 |

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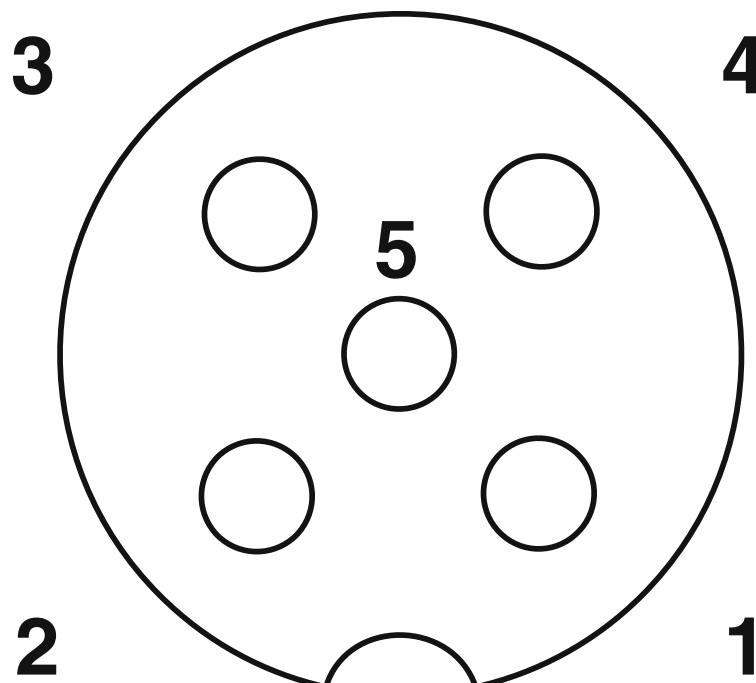
## Drawings

Dimensional drawing



M12 x 1 socket, straight

Schematic diagram



Pin assignment M12 socket, 5-pos., A-coded, socket side view

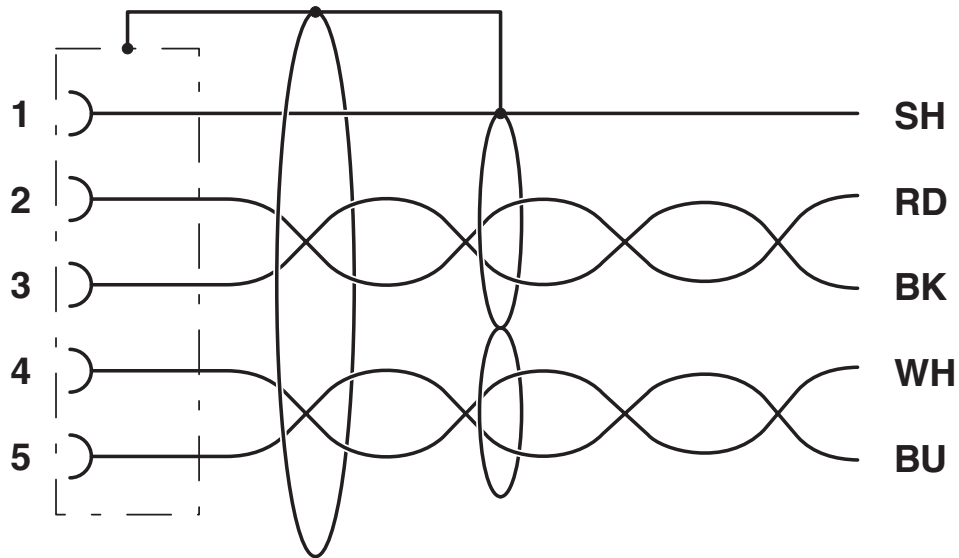
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Circuit diagram



Contact assignment of the M12 socket

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

### 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 | 15.605 kg CO2e |
|---------|----------------|

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