

1419048  
<https://www.phoenixcontact.com/us/products/1419048>

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Bus system cable, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, PUR halogen-free, silver-grey RAL 7001, shielded (Tinned copper braided shield), Plug angled M12 SPEEDCON, coding: A, on free cable end, cable length: 20 m, Connector unshielded

Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1419048             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF04                |
| Product key                          | BF1CDD              |
| Catalog page                         | Page 431 (C-2-2019) |
| GTIN                                 | 4046356542920       |
| Weight per piece (including packing) | 1,201.8 g           |
| Weight per piece (excluding packing) | 1,201.8 g           |
| Customs tariff number                | 85444290            |
| Country of origin                    | PL                  |

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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## Technical data

### Product properties

|                      |                         |
|----------------------|-------------------------|
| Product type         | Data cable preassembled |
| Application          | Standard                |
| Sensor type          | CANopen <sup>®</sup>    |
| Number of positions  | 5                       |
| No. of cable outlets | 1                       |
| Coding               | A                       |

### Insulation characteristics

|                      |    |
|----------------------|----|
| Overvoltage category | II |
| Degree of pollution  | 3  |

### Interfaces

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

### Signaling

|                        |    |
|------------------------|----|
| Status display         | No |
| Status display present | No |

### Electrical properties

|                       |         |
|-----------------------|---------|
| Nominal voltage $U_N$ | 48 V AC |
|                       | 60 V DC |
| Nominal current $I_N$ | 4 A     |
| Transmission medium   | Copper  |

### 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                |

### 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)  |

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5 (Plug) | BU (CAN\_L)

## Connector

### Connection 1

|                     |                          |
|---------------------|--------------------------|
| Type                | Plug angled M12 SPEEDCON |
| Number of positions | 5                        |
| Locking type        | SPEEDCON                 |
| Coding type         | A (Standard)             |

### Connection 2

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

## Cable/line

|              |      |
|--------------|------|
| Cable length | 20 m |
|--------------|------|

### CANopen<sup>®</sup>/DeviceNet<sup>™</sup>, PUR, gray [923]

|                                 |                                                                                                                        |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------|
| Dimensional drawing             |                                    |
| Cable weight                    | 90 kg/km                                                                                                               |
| UL AWM Style                    | 21198 (80°C/300 V)                                                                                                     |
| Number of positions             | 4                                                                                                                      |
| Shielded                        | yes                                                                                                                    |
| Cable type                      | CANopen <sup>®</sup> /DeviceNet <sup>™</sup> , PUR, gray [923]                                                         |
| Conductor structure             | 2xAWG24/19+2xAWG22/19                                                                                                  |
| Conductor structure signal line | 19x 0.13 mm                                                                                                            |
| AWG signal line                 | 24                                                                                                                     |
| Conductor cross section         | 2x 0.25 mm <sup>2</sup> (Data cable)<br>2x 0.34 mm <sup>2</sup> (Power supply)<br>1x 0.34 mm <sup>2</sup> (Drain wire) |
| Wire diameter incl. insulation  | 1.95 mm ±0.05 mm (Data cable)<br>1.4 mm ±0.05 mm (Power supply)                                                        |
| External cable diameter         | 6.70 mm ±0.3 mm                                                                                                        |
| Outer sheath, material          | PUR                                                                                                                    |
| External sheath, color          | silver-grey RAL 7001                                                                                                   |
| Conductor material              | Tin-plated Cu litz wires                                                                                               |
| Material wire insulation        | Foamed PE (Data cable)<br>PE (Power supply)                                                                            |
| Single wire, color              | red-black, blue-white                                                                                                  |

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|                                               |                                                       |
|-----------------------------------------------|-------------------------------------------------------|
| Twisted pairs                                 | 2 cores to the pair                                   |
| Type of pair shielding                        | Plastic-coated aluminum foil, aluminum side outside   |
| Overall twist                                 | 2 pairs around a drain wire in the center to the core |
| Optical shield covering                       | 80 %                                                  |
| Insulation resistance                         | ≥ 5 GΩ*km (Data cable)                                |
|                                               | ≥ 5 GΩ*km (Power supply)                              |
| Loop resistance                               | ≤ 181.80 Ω/km (Data cable)                            |
|                                               | ≤ 114.80 Ω/km (Power supply)                          |
| Wave impedance                                | 120 Ω ±10 % (with 1 MHz)                              |
| Cable capacity                                | nom. 40 nF/km (Data cable)                            |
| Nominal voltage, cable                        | ≤ 300 V (Peak value, not for high-power applications) |
| 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   | 34 mm                                                 |
| Smallest bending radius, movable installation | 67 mm                                                 |
| Max. bending cycles                           | 5000000                                               |
| Shield attenuation                            | ≤ 22.9 dB/km (with 1 MHz)                             |
|                                               | ≤ 16.4 dB/km (At 500 kHz)                             |
|                                               | ≤ 9.5 dB/km (At 125 kHz)                              |
| Halogen-free                                  | in accordance with DIN VDE 0472 part 815              |
|                                               | according to IEC 60754-1                              |
| Flame resistance                              | UL 1581, Sec. 1060 (FT-1)                             |
|                                               | IEC 60332-1                                           |
| Other resistance                              | Low adhesion                                          |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)          |
|                                               | -20 °C ... 80 °C (Cable, flexible installation)       |
|                                               | ≤ 70 °C (cable, drag chain applications)              |

## Environmental and real-life conditions

### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Degree of protection            | IP65                             |
|                                 | IP67                             |
| Ambient temperature (operation) | -25 °C ... 90 °C (Plug / socket) |

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable

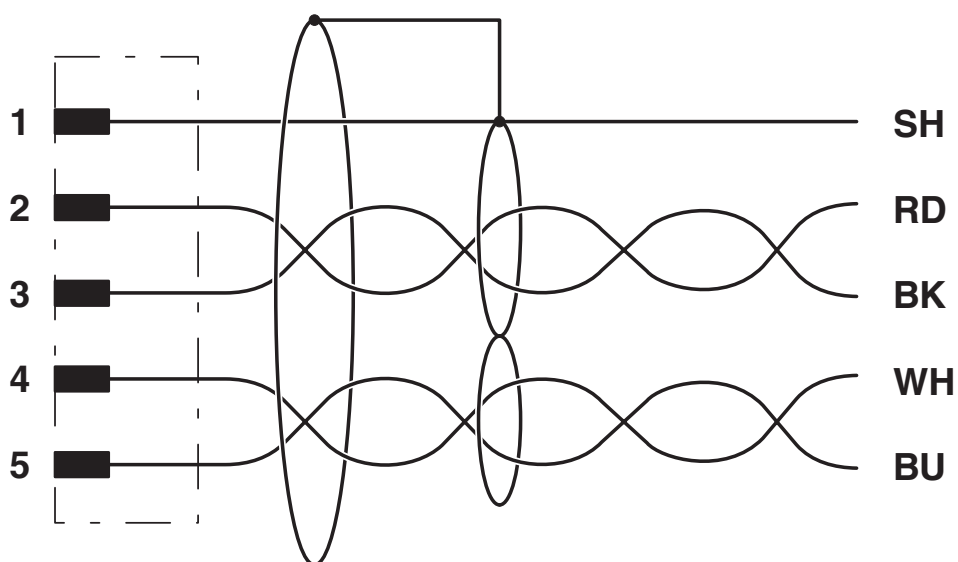
1419048

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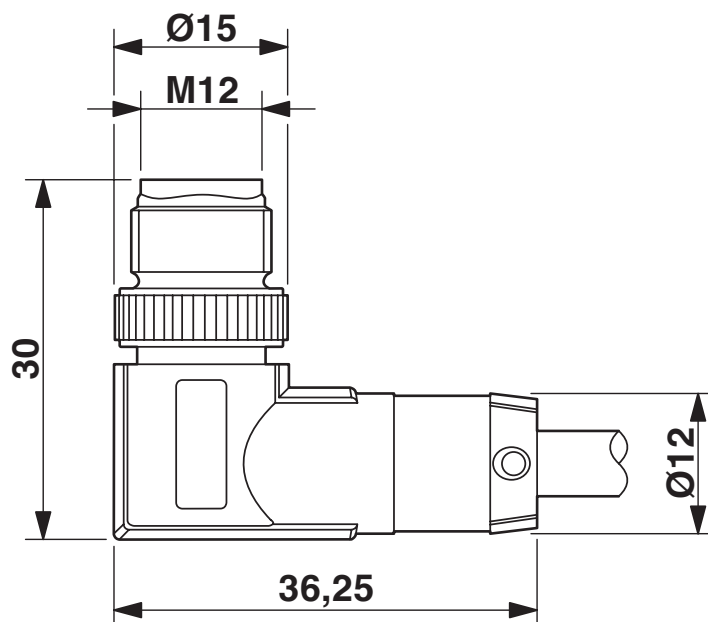


## Drawings

Circuit diagram

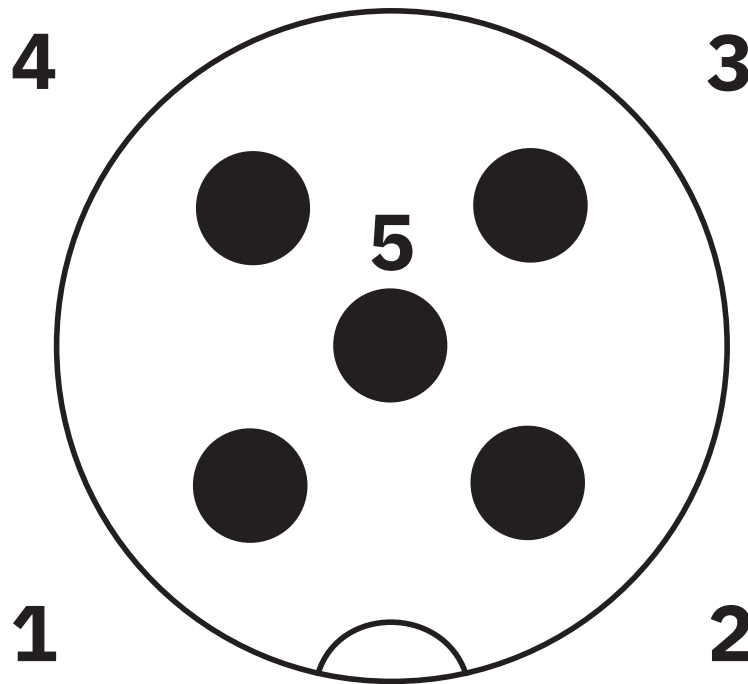


Dimensional drawing



M12 x 1 male plug, angled

Schematic diagram



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

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1419048>

|                                                                                   |                                                |                                |                   |                               |
|-----------------------------------------------------------------------------------|------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>UL Listed</b><br>Approval ID: FILE E 221474 |                                |                   |                               |
|                                                                                   | Nominal voltage U <sub>N</sub>                 | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
|                                                                                   | 125 V                                          | 4 A                            | -                 | -                             |

|                                                                                   |                                                 |                                |                   |                               |
|-----------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------|-------------------|-------------------------------|
|  | <b>cUL Listed</b><br>Approval ID: FILE E 221474 |                                |                   |                               |
|                                                                                   | Nominal voltage U <sub>N</sub>                  | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
|                                                                                   | 125 V                                           | 4 A                            | -                 | -                             |

|                                                                                    |                                                      |  |  |  |
|------------------------------------------------------------------------------------|------------------------------------------------------|--|--|--|
|  | <b>EAC-RoHS</b><br>Approval ID: RU D-DE.HB35.B.00387 |  |  |  |
|                                                                                    |                                                      |  |  |  |

|                     |
|---------------------|
| <b>cULus Listed</b> |
|---------------------|

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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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 |
|-------------|----------|



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%               |

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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## Accessories

### PROT-M12 FS-PA-CHAIN - Sealing cap

1430873

<https://www.phoenixcontact.com/us/products/1430873>

M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs



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### SAC-M12-EXCLIP-M - Locking clip

1558988

<https://www.phoenixcontact.com/us/products/1558988>

Locking clip for the pin side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools



# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



1419048

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## SACC-M12FS-5PL SH DN - Data connector

1424672

<https://www.phoenixcontact.com/us/products/1424672>



Data connector, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, shielded, Socket straight M12, coding: A, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

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## SACC-M12MS-5PL SH DN - Data connector

1424670

<https://www.phoenixcontact.com/us/products/1424670>



Data connector, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, shielded, Plug straight M12, coding: A, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



1419048

<https://www.phoenixcontact.com/us/products/1419048>

## SACC-M12FR-5PL SH DN - Data connector

1424673

<https://www.phoenixcontact.com/us/products/1424673>



Data connector, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, shielded, Socket angled M12, coding: A, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

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## SACC-M12MR-5PL SH DN - Data connector

1424671

<https://www.phoenixcontact.com/us/products/1424671>



Data connector, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, shielded, Plug angled M12, coding: A, Push-lock spring connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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<https://www.phoenixcontact.com/us/products/1419048>

## SACC-M12FS-5QO SH DN - Data connector

1422760

<https://www.phoenixcontact.com/us/products/1422760>



Data connector, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, halogen-free, shielded, Socket straight M12, coding: A, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

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## SACC-M12MS-5QO SH DN - Data connector

1422759

<https://www.phoenixcontact.com/us/products/1422759>



Data connector, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, halogen-free, shielded, Plug straight M12, coding: A, Insulation displacement connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 5 mm ... 9.7 mm

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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## SAC-5PH-M-F/2XF SH1 SCO - H distributor

1417414

<https://www.phoenixcontact.com/us/products/1417414>



H distributor, 5-position, Plug straight M12, coding: A, on Socket straight M12, coding: A and Socket straight M12, coding: A, Thread M12 not rotatable, Parallel distributor

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## SAC-5P-M12T/2XM12 VP - T distributor

1541186

<https://www.phoenixcontact.com/us/products/1541186>



T distributor, 5-position, Plug straight M12, coding: A, on Socket straight M12, coding: A and Socket straight M12, coding: A, Parallel distributor

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



1419048

<https://www.phoenixcontact.com/us/products/1419048>

## SAC-5PT-F/F-M VP - T distributor

1424712

<https://www.phoenixcontact.com/us/products/1424712>



T distributor, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, Socket straight M12, coding: A, on Socket straight M12, coding: A and Plug straight M12, coding: A, Parallel distributor

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## SAC-5P-M12MS CAN TR - Termination resistor

1507816

<https://www.phoenixcontact.com/us/products/1507816>



Terminating resistor CANopen<sup>®</sup>/DeviceNet<sup>™</sup> M12

# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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## TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/us/products/1208429>



Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

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## TSD-M 1,2NM - Torque screwdriver

1212224

<https://www.phoenixcontact.com/us/products/1212224>



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm



# SAC-5P-MR/20,0-923 CAN SCO - Bus system cable



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## TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

<https://www.phoenixcontact.com/us/products/1212600>



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

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## SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/us/products/1208432>



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

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