

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

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Bus system cable, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, PUR halogen-free, violet RAL 4001, shielded, Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: 1 m

RoHS

DeviceNet CANopen

### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 017918 900335 |
| GTIN                                 | 4017918900335   |
| Weight per Piece (excluding packing) | 95.300 g  |
| Custom tariff number                 | 85444290  |
| Country of origin                    | Poland  |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 1 m |
|-----------------|-----|

#### Ambient conditions

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

#### General

|                       |  |
|-----------------------|--|
| Note                  | Further products with variable cable lengths can be found in the accessories section |
| Rated current at 40°C | 4 A  |
| Rated voltage         | 48 V AC  |
|                       | 60 V DC  |

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

### Technical data

#### General

|                             |                        |
|-----------------------------|------------------------|
| Number of positions         | 5                      |
| Insulation resistance       | ≥ 100 MΩ               |
| Coding                      | A - standard           |
| Signal type/category        | CANopen®               |
|                             | DeviceNet™             |
| Status display              | No                     |
| Overvoltage category        | II                     |
| Degree of pollution         | 3                      |
| Insertion/withdrawal cycles | ≥ 100                  |
| Torque                      | 0.4 Nm (M12 connector) |

#### Material

|  |   |
|--|---|
| Flammability rating according to UL 94 | HB  |
| Contact material                       | CuSn  |
| Contact surface material               | Ni/Au                                       |
| Contact carrier material               | TPU GF                                      |
| Material of grip body                  | TPU, hardly inflammable, self-extinguishing |
| Material, knurls                       | Zinc die-cast, nickel-plated                |
| Sealing material                       | NBR   |

#### Pin assignment

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

#### Standards and Regulations

|  |    |
|--|----|
| Flammability rating according to UL 94 | HB |
|--|----|

#### Cable

|                           |                                  |
|---------------------------|----------------------------------|
| Cable type                | CANopen®/DeviceNet™, PUR, violet |
| Cable type (abbreviation) | 920                              |
| UL AWM style              | 21198 (80°C/300 V)               |
| Cable structure           | 2xAWG24/19+2xAWG22/19            |
| Conductor cross section   | 2x 0.25 mm² (Data cable)         |
|                           | 2x 0.34 mm² (Power supply)       |
|                           | 1x 0.34 mm² (Drain wire)         |
| AWG signal line           | 24                               |

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### Technical data

#### Cable

|   |   |
|---|---|
| AWG power supply                                | 22  |
| Conductor structure signal line                 | 19x 0.13 mm   |
| Conductor structure, voltage supply             | 19x 0.15 mm   |
| Core diameter including insulation              | 1.95 mm ±0.05 mm (Data cable)                         |
|   | 1.4 mm ±0.05 mm (Power supply)                        |
| Wire colors                                     | Red-black, blue-white                                 |
| 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 |
| Shielding                                       | Tinned copper braided shield                          |
| Optical shield covering                         | 80 %  |
| External sheath, color                          | violet RAL 4001                                       |
| External cable diameter D                       | 6.7 mm ±0.3 mm  |
| Minimum bending radius, fixed installation      | 5 x D   |
| Minimum bending radius, flexible installation   | 10 x D  |
| Number of bending cycles                        | 5000000   |
| Bending radius                                  | 70 mm   |
| Minimum bending radius, drag chain applications | 10 x D  |
| Traversing path                                 | 4.5 m   |
| Traversing rate                                 | 3 m/s   |
| Acceleration                                    | 3 m/s <sup>2</sup>                                    |
| Cable weight                                    | 90 kg/km  |
| Outer sheath, material                          | PUR   |
| Material conductor insulation                   | Foamed PE (Data cable)                                |
|   | PE (Power supply)                                     |
| Conductor material                              | Tin-plated Cu litz wires                              |
| 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)                          |
| Cable capacity                                  | nom. 40 nF/km (Data cable)                            |
| Wave impedance                                  | 120 Ω ±10 % (with 1 MHz)                              |
| Attenuation                                     | ≤ 22.9 dB/km (with 1 MHz)                             |
|   | ≤ 16.4 dB/km (At 500 kHz)                             |
|   | ≤ 9.5 dB/km (At 125 kHz)                              |
| Nominal voltage, cable                          | ≤ 300 V (Peak value, not for high-power applications) |
| Test voltage Core/Core                          | 2000 V (50 Hz, 1 min.)                                |

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

### Technical data

#### Cable

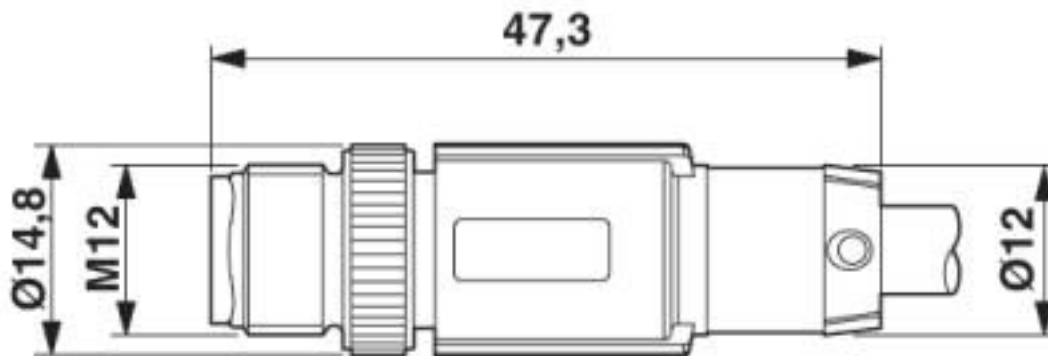
|                                 |  |
|---------------------------------|--|
| Test voltage Core/Shield        | 2000 V (50 Hz, 1 min.)                               |
| Flame resistance                | UL 1581, Sec. 1060 (FT-1)                            |
|                                 | IEC 60332-1  |
|                                 | in accordance with ISO 6722-1 5.22 (UN ECE-R 118.01) |
| Halogen-free                    | in accordance with DIN VDE 0472 part 815             |
|                                 | according to IEC 60754-1                             |
| Other resistance                | Low adhesion   |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation)         |
|                                 | -20 °C ... 80 °C (cable, flexible installation)      |

#### Environmental Product Compliance

|            |   |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

### Drawings

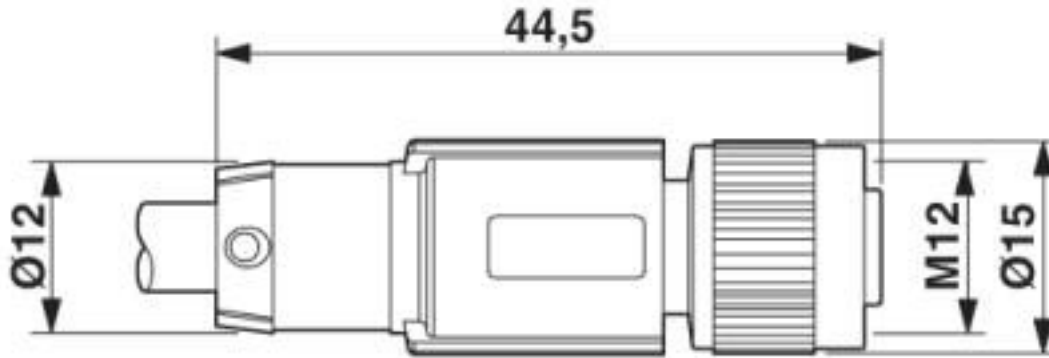
Dimensional drawing



Plug, M12 x 1, straight, shielded

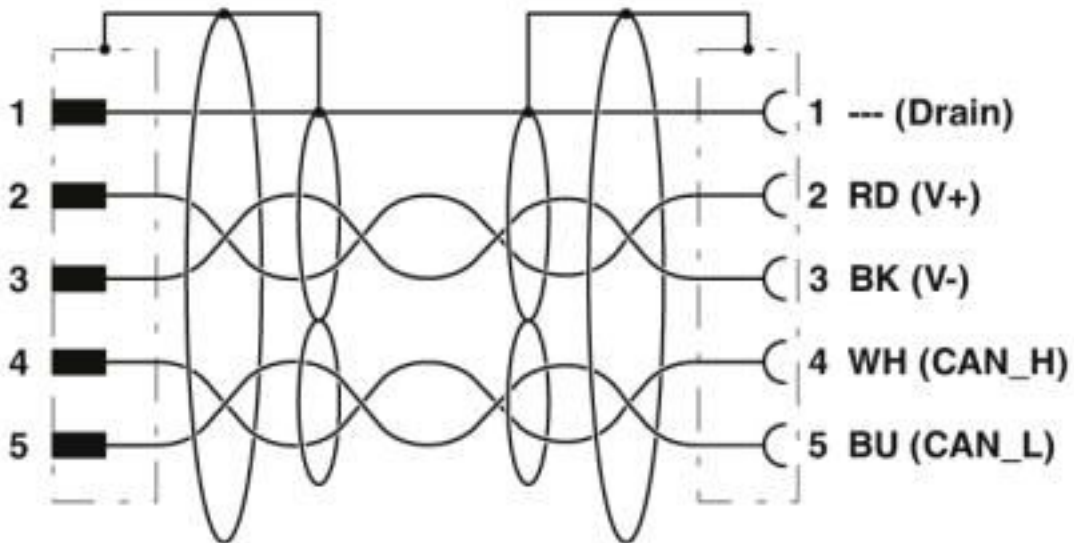
## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

Dimensional drawing



M12 x 1 socket, straight, shielded

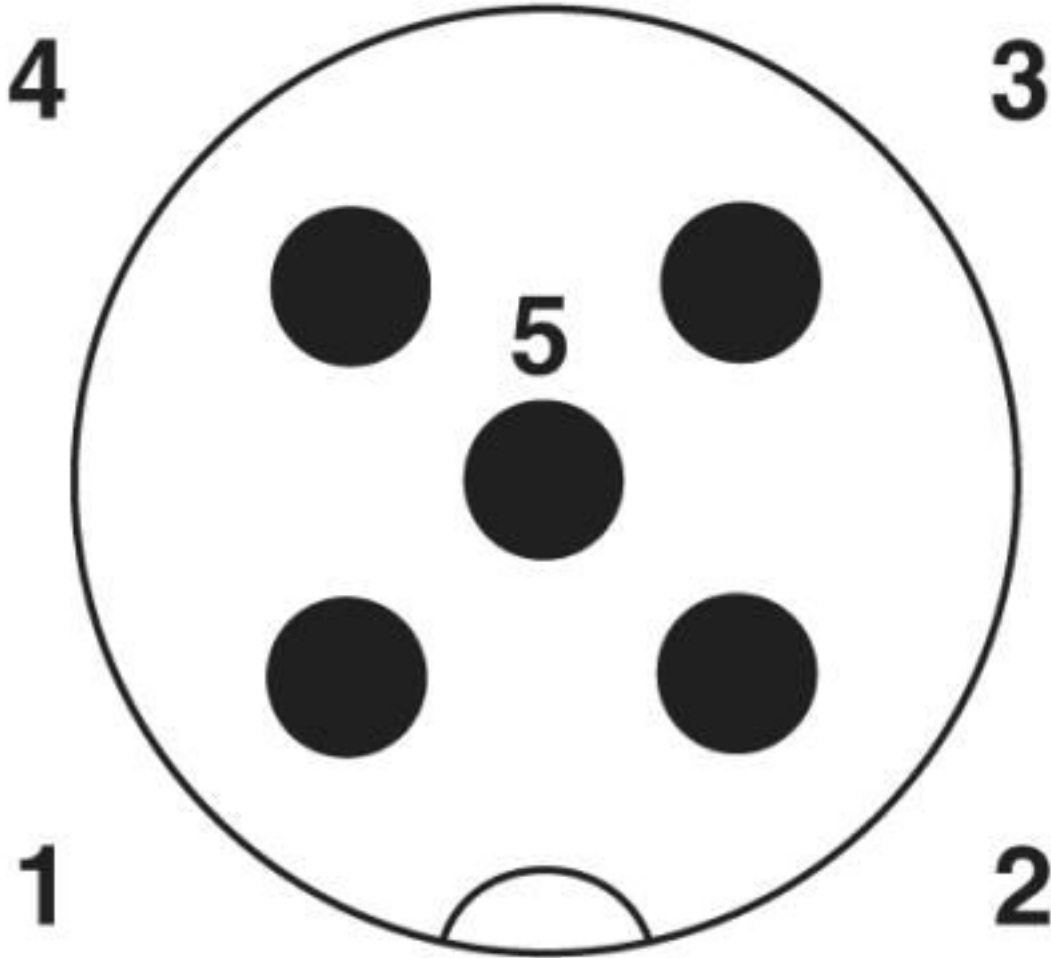
Circuit diagram



Contact assignment of the M12 connector and the M12 socket

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

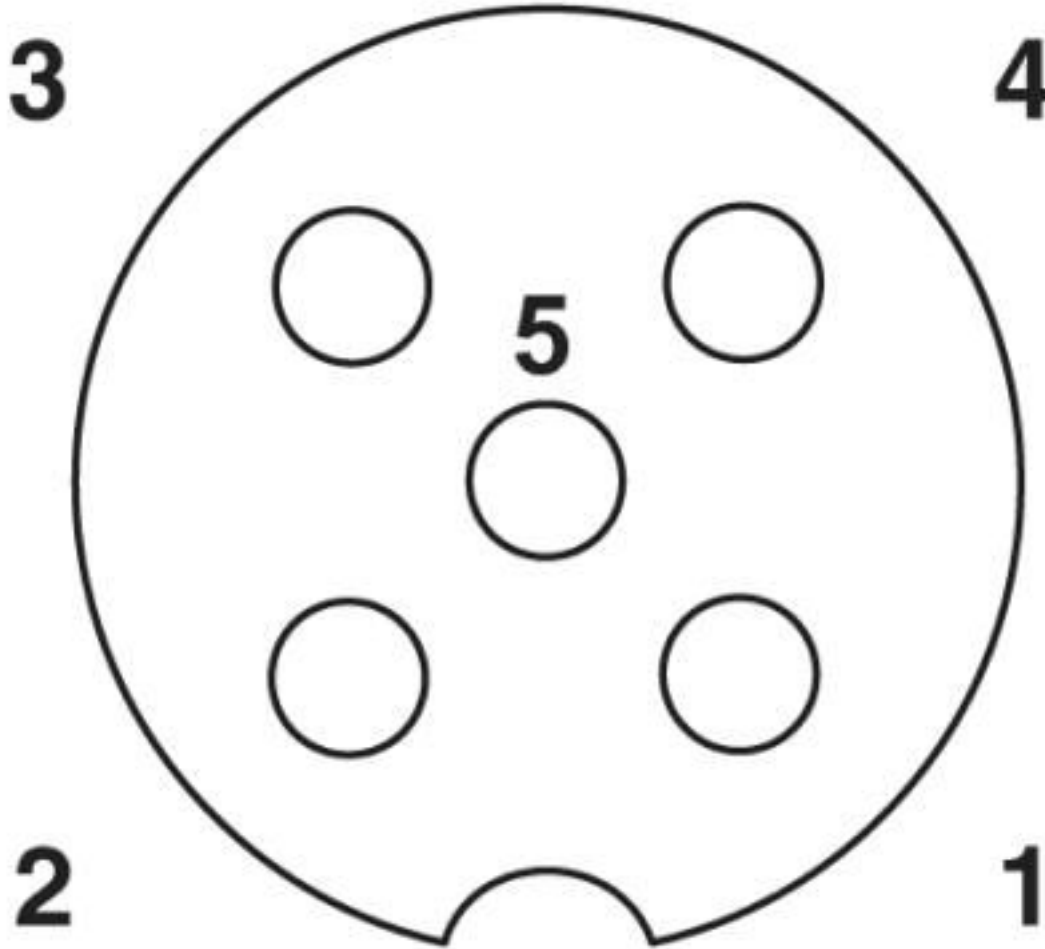
Schematic diagram



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

# Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

Schematic diagram



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

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

Cable cross section



CANopen<sup>®</sup>/DeviceNet<sup>™</sup>, PUR, violet [920]

### Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27060308 |
| eCl@ss 4.0    | 27060300 |
| eCl@ss 4.1    | 27060300 |
| eCl@ss 5.0    | 27061800 |
| eCl@ss 5.1    | 27061800 |
| eCl@ss 6.0    | 27279200 |
| eCl@ss 7.0    | 27279218 |

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### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 8.0 | 27279218 |
| eCl@ss 9.0 | 27060308 |

#### ETIM

|          |          |
|----------|----------|
| ETIM 2.0 | EC000830 |
| ETIM 3.0 | EC001855 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC002599 |
| ETIM 6.0 | EC001262 |
| ETIM 7.0 | EC001262 |

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 31251501 |
| UNSPSC 7.0901 | 31251501 |
| UNSPSC 11     | 31251501 |
| UNSPSC 12.01  | 31251501 |
| UNSPSC 13.2   | 31251501 |
| UNSPSC 18.0   | 26121604 |
| UNSPSC 19.0   | 26121604 |
| UNSPSC 20.0   | 26121604 |
| UNSPSC 21.0   | 26121604 |

### Approvals

#### Approvals

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#### Approvals

UL Listed / cUL Listed / EAC-RoHS / EAC / cULus Listed

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#### Ex Approvals

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#### Approval details

# Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

## Approvals

|                    |       |   |               |
|--------------------|-------|---|---------------|
| UL Listed          |       | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 221474 |
|                    |       |   |               |
| Nominal voltage UN | 125 V |   |               |
| Nominal current IN | 4 A   |   |               |

|                    |       |   |               |
|--------------------|-------|---|---------------|
| cUL Listed         |       | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 221474 |
|                    |       |   |               |
| Nominal voltage UN | 125 V |   |               |
| Nominal current IN | 4 A   |   |               |

|          |  |                          |
|----------|--|--------------------------|
| EAC-RoHS |  | RU D-<br>DE.HB35.B.00387 |
|----------|--|--------------------------|

|     |  |                          |
|-----|--|--------------------------|
| EAC |  | RU C-<br>DE.BL08.B.00286 |
|-----|--|--------------------------|

|              |  |
|--------------|--|
| cULus Listed |  |
|--------------|--|

## Accessories

### Accessories

Data cable preassembled

Bus system cable - SAC-5P-M12MS-M12FS/920/... - 1538144



Bus system cable, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, PUR halogen-free, violet RAL 4001, shielded, Plug straight M12, coding: A, on Socket straight M12, coding: A, cable length: Free input (0.2 ... 40.0 m)

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

### Accessories

Bus system cable - SAC-5P-M12MS/920/... - 1538102



Bus system cable, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, PUR halogen-free, violet RAL 4001, shielded, Plug straight M12, coding: A, on free cable end, cable length: Free input (0.2 ... 40.0 m)

Bus system cable - SAC-5P-M12FS/920/... - 1538128



Bus system cable, CANopen<sup>®</sup>, DeviceNet<sup>™</sup>, 5-position, PUR halogen-free, violet RAL 4001, shielded, free cable end, on Socket straight M12, coding: A, cable length: Free input (0.2 ... 40.0 m)

### H-distributor

H distributor - SAC-5PH-M-F/2XF SH1 SCO - 1417414



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

### Plug for cable screw gland

Screw plug - PROT-M12 MS-PA-CHAIN - 1430899

M12 sealing cap with fixing band, for sensor cables, for free M12 sockets



### Protective cap

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

### Accessories

Sealing cap - PROT-M12 FS-PA-CHAIN - 1430873

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



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### Safety locking

Locking clip - SAC-M12-EXCLIP-M - 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

Locking clip - SAC-M12-EXCLIP-F - 1558991



Locking clip for the socket 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

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### Screwdriver tools

Adapter insert - TSD-M SAC-BIT ADAPTER - 1212600



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

Tool - SAC BIT M12-D15 - 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

## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

### Accessories

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#### T-distributor

T distributor - SAC-5P-M12T/2XM12 VP - 1541186



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

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T distributor - SAC-5PT-F/F-M VP - 1424712



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

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#### Terminal resistor

Termination resistor - SAC-5P-M12MS CAN TR - 1507816



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

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#### Torque tool

Torque screwdriver - TSD 04 SAC - 1208429



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

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## Bus system cable - SAC-5P-M12MS/ 1,0-920/M12FS - 1507544

### Accessories

Torque screwdriver - TSD-M 1,2NM - 1212224



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