

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

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Bus system cable, CANopen®, DeviceNet™, 5-position, PUR halogen-free, silver-gray RAL 7001, shielded, Plug angled M12 SPEEDCON, coding: A, on free cable end, cable length: 5 m, Connector unshielded

RoHS



### Key Commercial Data

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                                    |
| GTIN         | <br>4 046356 542890 |
| GTIN         | 4046356542890                                                                                           |

### Technical data

#### Dimensions

|                                            |       |
|--------------------------------------------|-------|
| Length of cable                            | 5 m   |
| Stripping length of the free conductor end | 50 mm |

#### Ambient conditions

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

#### General

|                       |              |
|-----------------------|--------------|
| Rated current at 40°C | 4 A          |
| Rated voltage         | 48 V AC      |
|                       | 60 V DC      |
| Number of positions   | 5            |
| Color handle area     | black        |
| Coding                | A - standard |
| Signal type/category  | CANopen®     |
|                       | DeviceNet™   |
| Status display        | No           |

# Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

## Technical data

### General

|                      |                        |
|----------------------|------------------------|
| Overvoltage category | II                     |
| Degree of pollution  | 3                      |
| 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) |
|                                                           | 2 (Plug)   RD (V+)     |
|                                                           | 3 (Plug)   BK (V-)     |
|                                                           | 4 (Plug)   WH (CAN_H)  |
|                                                           | 5 (Plug)   BU (CAN_L)  |

### Standards and Regulations

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

### Cable

|                                     |                                                          |
|-------------------------------------|----------------------------------------------------------|
| Cable type                          | CANopen <sup>®</sup> /DeviceNet <sup>™</sup> , PUR, gray |
| Cable type (abbreviation)           | 923                                                      |
| UL AWM style                        | 21198 (80°C/300 V)                                       |
| Cable structure                     | 2xAWG24/19+2xAWG22/19                                    |
| Conductor cross section             | 2x 0.25 mm <sup>2</sup> (Data cable)                     |
|                                     | 2x 0.34 mm <sup>2</sup> (Power supply)                   |
|                                     | 1x 0.34 mm <sup>2</sup> (Drain wire)                     |
| AWG signal line                     | 24                                                       |
| 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 %                                                     |

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## Technical data

### Cable

|                                                 |                                                                    |
|-------------------------------------------------|--------------------------------------------------------------------|
| External sheath, color                          | silver-gray RAL 7001                                               |
| External cable diameter D                       | 6.7 mm $\pm$ 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                           | $\geq 5 \text{ G}\Omega \cdot \text{km}$ (Data cable)              |
|                                                 | $\geq 5 \text{ G}\Omega \cdot \text{km}$ (Power supply)            |
| Loop resistance                                 | $\leq 181.80 \text{ }\Omega/\text{km}$ (Data cable)                |
|                                                 | $\leq 114.80 \text{ }\Omega/\text{km}$ (Power supply)              |
| Cable capacity                                  | nom. 40 nF/km (Data cable)                                         |
| Wave impedance                                  | 120 $\Omega \pm 10 \%$ (with 1 MHz)                                |
| Attenuation                                     | $\leq 22.9 \text{ dB/km}$ (with 1 MHz)                             |
|                                                 | $\leq 16.4 \text{ dB/km}$ (At 500 kHz)                             |
|                                                 | $\leq 9.5 \text{ dB/km}$ (At 125 kHz)                              |
| Nominal voltage, cable                          | $\leq 300 \text{ V}$ (Peak value, not for high-power applications) |
| Test voltage Core/Core                          | 2000 V (50 Hz, 1 min.)                                             |
| Test voltage Core/Shield                        | 2000 V (50 Hz, 1 min.)                                             |
| Flame resistance                                | UL 1581, Sec. 1060 (FT-1)                                          |
|                                                 | IEC 60332-1                                                        |
| 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)                    |

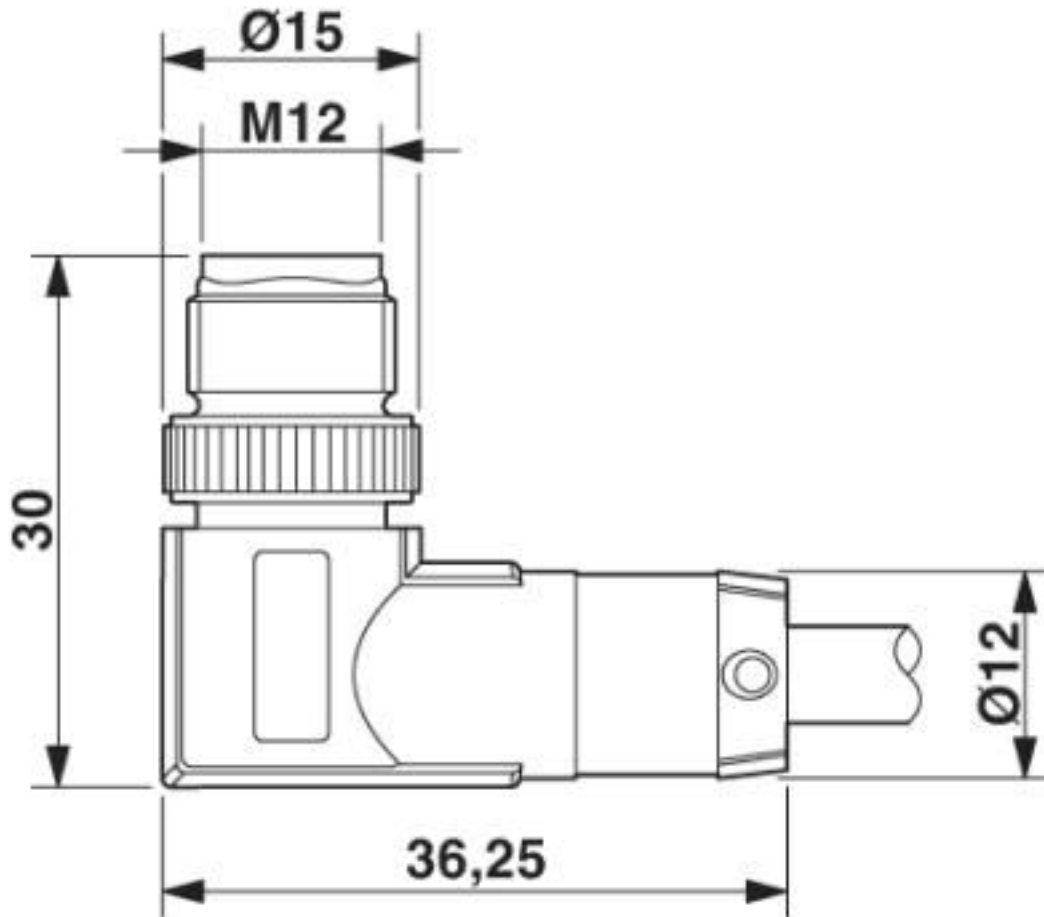
### Environmental Product Compliance

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

### Drawings

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

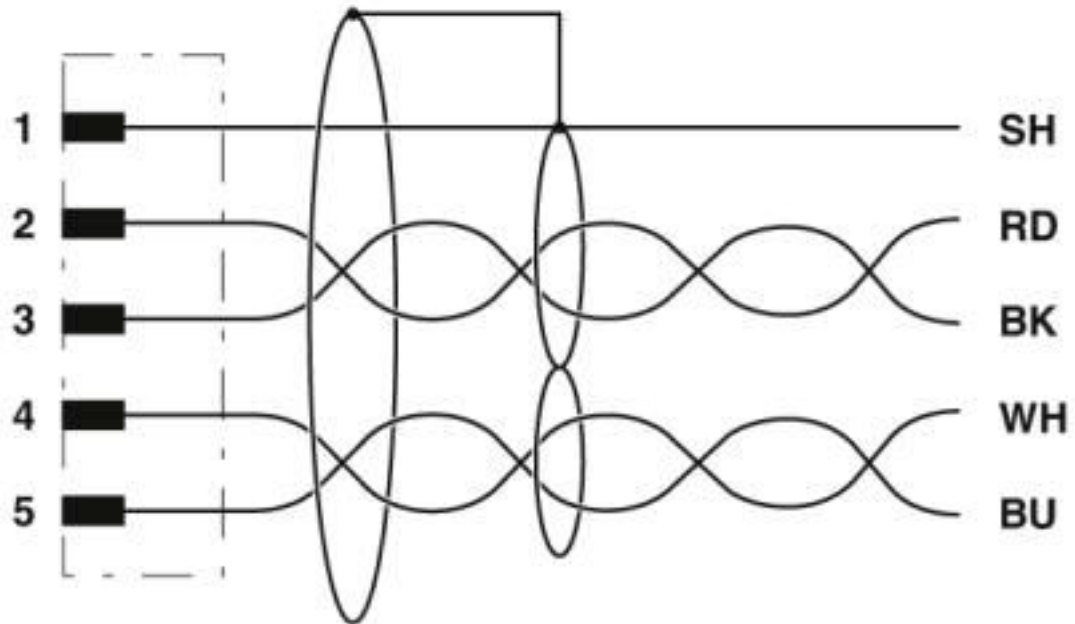
Dimensional drawing



M12 x 1 male plug, angled

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

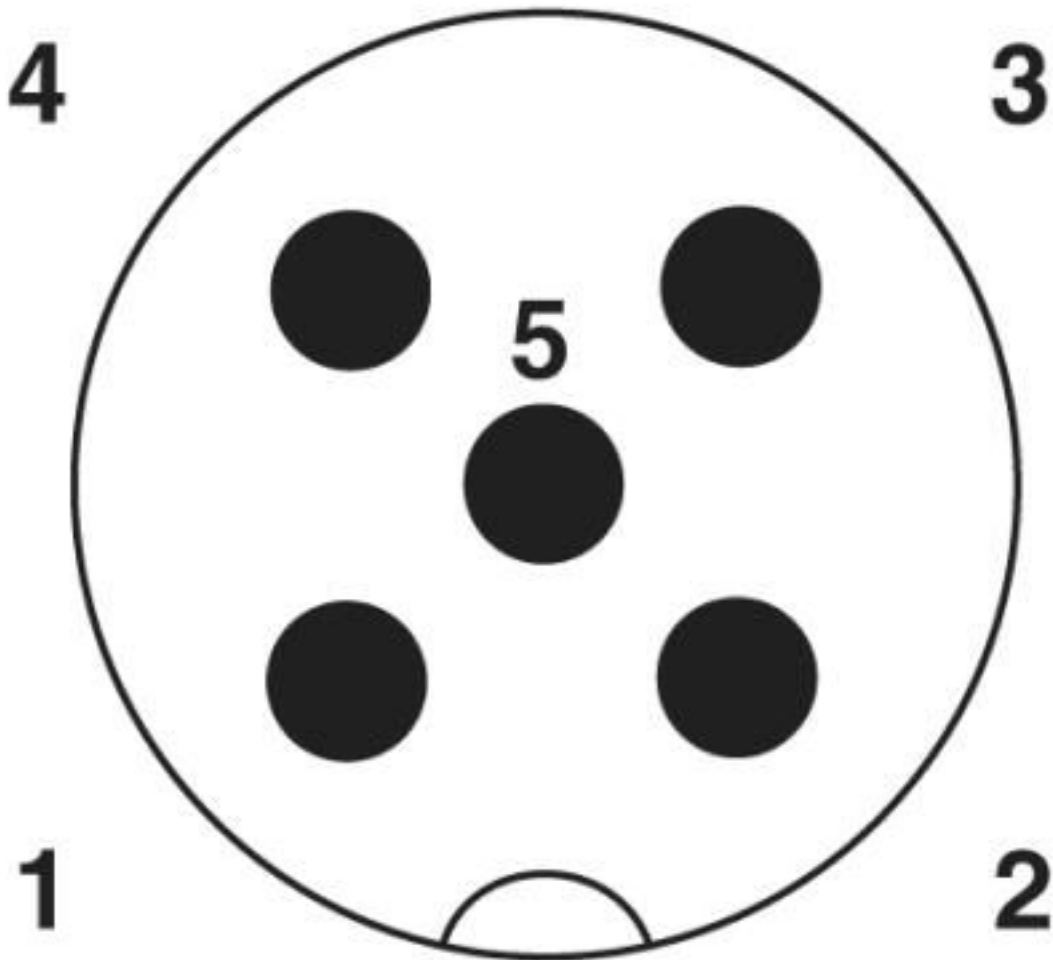
Circuit diagram



Contact assignment of the M12 plug

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

Schematic diagram



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

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

Cable cross section



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

### Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27060308 |
| eCl@ss 4.0    | 27060300 |
| eCl@ss 4.1    | 27060300 |
| eCl@ss 5.0    | 27060300 |
| eCl@ss 5.1    | 27060300 |
| eCl@ss 6.0    | 27279200 |
| eCl@ss 7.0    | 27279218 |
| eCl@ss 8.0    | 27279218 |
| eCl@ss 9.0    | 27060308 |

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### Classifications

#### ETIM

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

#### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 26121616 |
| UNSPSC 7.0901 | 26121616 |
| UNSPSC 11     | 26121604 |
| UNSPSC 12.01  | 26121616 |
| UNSPSC 13.2   | 31251501 |
| UNSPSC 18.0   | 26121604 |
| UNSPSC 19.0   | 26121604 |
| UNSPSC 20.0   | 26121604 |
| UNSPSC 21.0   | 26121604 |

### Approvals

#### Approvals

#### Approvals

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

#### Ex Approvals

#### Approval details

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

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

### Approvals

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

Circular connector (cable-side)

Data connector - SACC-M12FS-5PL SH DN - 1424672



Data connector, CANopen®, DeviceNet™, 5-position, shielded, Socket straight M12, Coding: A, Push-in connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

Data connector - SACC-M12MS-5PL SH DN - 1424670



Data connector, CANopen®, DeviceNet™, 5-position, shielded, Plug straight M12, Coding: A, Push-in connection, knurl material: Zinc die-cast, nickel-plated, external cable diameter 4 mm ... 8 mm

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

### Accessories

Data connector - SACC-M12FR-5PL SH DN - 1424673



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

Data connector - SACC-M12MR-5PL SH DN - 1424671



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

### 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

### Protective cap

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

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



### 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

### Screwdriver tools

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

### Accessories

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

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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

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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®, DeviceNet™, 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®/DeviceNet™ M12

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### Torque tool

## Bus system cable - SAC-5P-MR/ 5,0-923 CAN SCO - 1419045

### Accessories

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



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

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Data connector - SACC-FS-5QO SH DN SCO - 1422760



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

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Data connector - SACC-MS-5QO SH DN SCO - 1422759



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

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