

## Bus system cable - SAC-3P-M12MR/ 1,0-961/M12FR VA - 1419128

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Bus system cable, PROFIBUS PA (31.25 kbps), 3-position, PVC, blue RAL 5015, shielded, Plug angled M12, coding: A, on Socket angled M12, coding: A, cable length: 1 m, For Ex area with high-grade steel knurl



### Key Commercial Data

|              |               |
|--------------|---------------|
| Packing unit | 1 pc          |
| GTIN         |               |
| GTIN         | 4046356541954 |

### Technical data

#### Dimensions

|  |       |
|--|-------|
| Length of cable                            | 1 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                             |
|                                 | IP68                             |
|                                 | IP69K                            |

#### General

|                       |  |
|-----------------------|--|
| Note                  | For applications in circuits of intrinsic safety protection type "i". Electrical values following EN 60079-14. |
| Rated current at 40°C | 4 A  |
| Rated voltage         | 48 V AC  |
|                       | 60 V DC  |
| Number of positions   | 3  |
| Color handle area     | black  |
| Coding                | B - inverse  |

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## Technical data

### General

|                             |                         |
|-----------------------------|-------------------------|
| Signal type/category        | PROFIBUS PA, 31.25 kbps |
| 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                       | Stainless steel                             |
| Sealing material                       | NBR   |

### Pin assignment

|   |                                     |
|---|-------------------------------------|
| Contact   Color (signal designation)   Contact (optional) | 1 (Plug)   OG (DATA+)   1 (Socket)  |
|   | 3 (Plug)   BU (DATA-)   3 (Socket)  |
|   | 4 (Plug)   SR (shield)   4 (Socket) |

### Standards and Regulations

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

### Cable

|   |   |
|---|---|
| Cable type                                  | Fieldbus FOUNDATION/PROFIBUS PA, blue             |
| Cable type (abbreviation)                   | 961   |
| Cable structure                             | 2xAWG18/7 + 1xAWG20/7                             |
| Conductor cross section                     | 2x 0.75 mm <sup>2</sup> (Signal line)             |
|   | 1x 0.5 mm <sup>2</sup> (Drain wire)               |
| AWG signal line                             | 18  |
| Conductor structure signal line             | 7x 0.40 mm  |
| Core diameter including insulation          | 2.24 mm ±0.05 mm                                  |
| Thickness, insulation                       | 0.5 mm  |
| Wire colors                                 | Blue, orange                                      |
| Twisted pairs                               | 2 cores to the pair                               |
| Overall twist                               | One pair with one drain wire and fillers for core |
| Shielding                                   | Plastic-coated aluminum foil with a drain wire    |
| Optical shield covering                     | 100 %   |
| External sheath, color                      | blue RAL 5015                                     |
| Outer sheath thickness                      | 1 mm  |
| External cable diameter D                   | 7.5 mm ±0.25 mm                                   |
| Smallest bending radius, fixed installation | 75 mm   |

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### Technical data

#### Cable

|                                 |   |
|---------------------------------|---|
| Cable weight                    | 56.552 kg/km                                  |
| Tensile strength GRP            | 260 N   |
| Outer sheath, material          | PVC   |
| Material conductor insulation   | PO (Signal line)                              |
| Conductor material              | Tin-plated Cu litz wires                      |
| Conductor resistance            | ≤ 19.35 Ω/km (Signal line)                    |
|                                 | 26 Ω/km (shield)                              |
| Working capacitance             | 78 nF (at 1 kHz)                              |
| Cable capacity                  | 147 pF/m (at 1 kHz, core/shield)              |
|                                 | ≤ 3.94 pF/m (capacitance unbalance)           |
| Signal speed                    | 0.66 c  |
| Shield attenuation              | 3 dB/km (at 39 kHz)                           |
| Cable impedance                 | 100 Ω ±20 % (At 31.25 kHz)                    |
| Conductor inductance            | 0.6233 μH/m                                   |
| Nominal voltage, cable          | 300 V   |
| Special properties              | UL standards PLTC-ER and ITC                  |
| Flame resistance                | UL 1685 (CSA FT 4)                            |
|                                 | UL 1685 (vertical tray)                       |
|                                 | UL 1666 (riser)                               |
| Ambient temperature (operation) | -40 °C ... 105 °C (cable, fixed installation) |

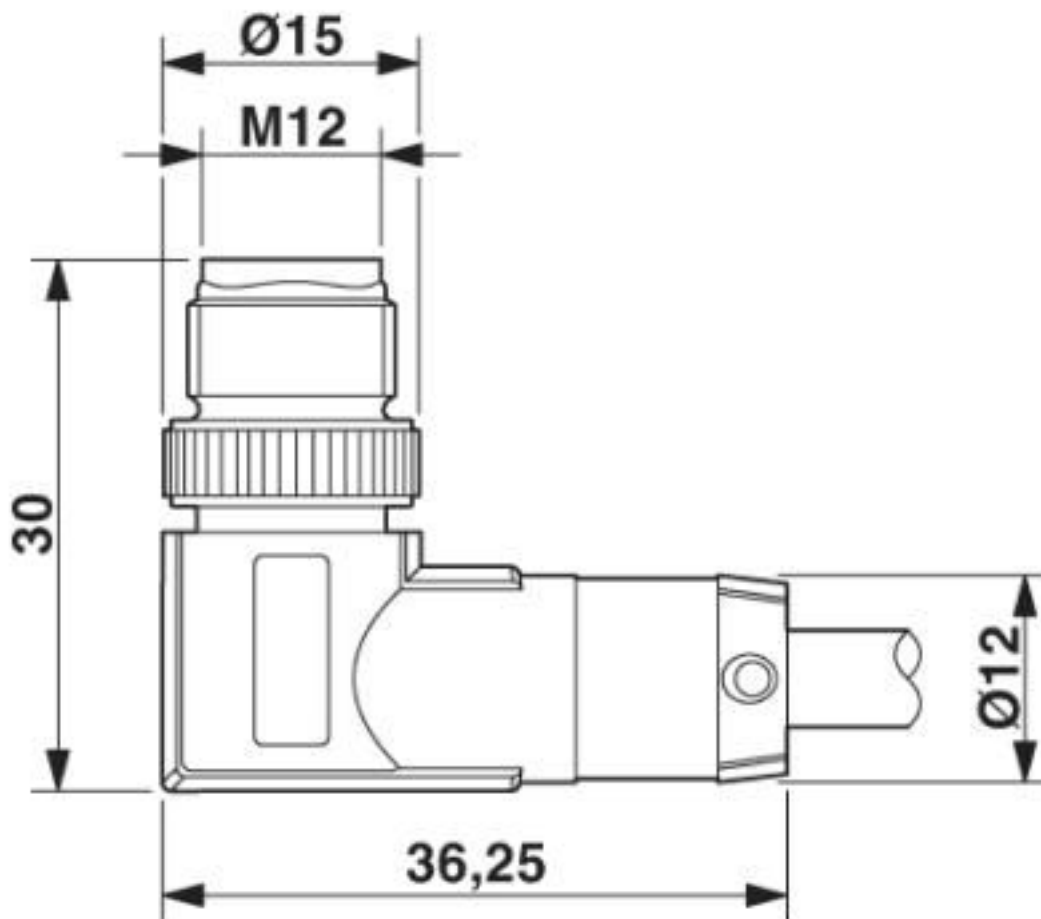
#### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally Friendly Use Period = 50 years  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

#### Drawings

# Bus system cable - SAC-3P-M12MR/ 1,0-961/M12FR VA - 1419128

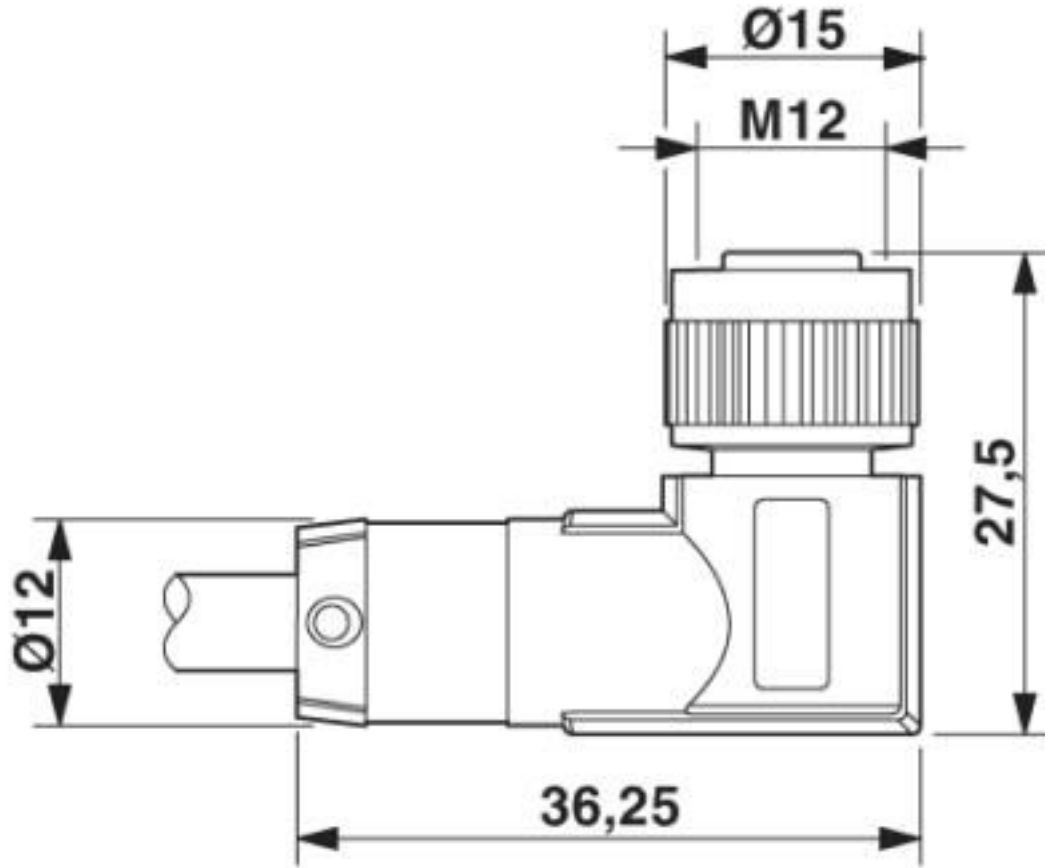
Dimensional drawing



M12 x 1 male plug, angled

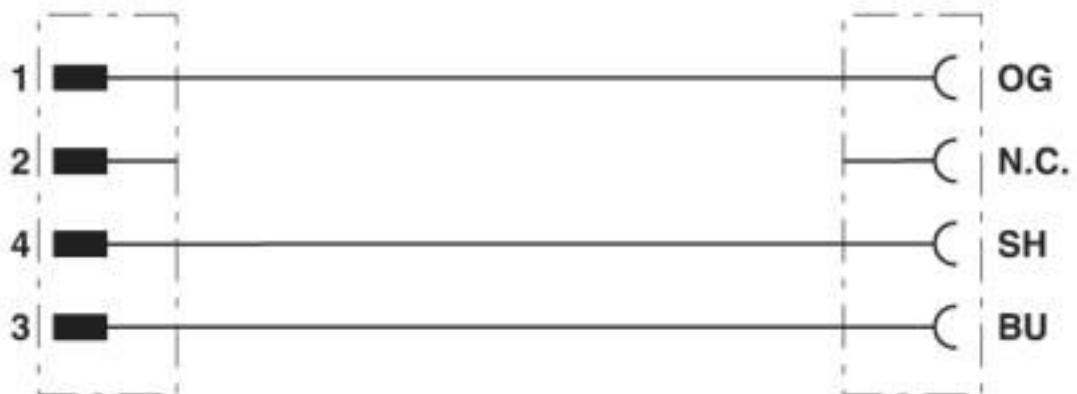
# Bus system cable - SAC-3P-M12MR/ 1,0-961/M12FR VA - 1419128

Dimensional drawing



M12 x 1 socket, angled

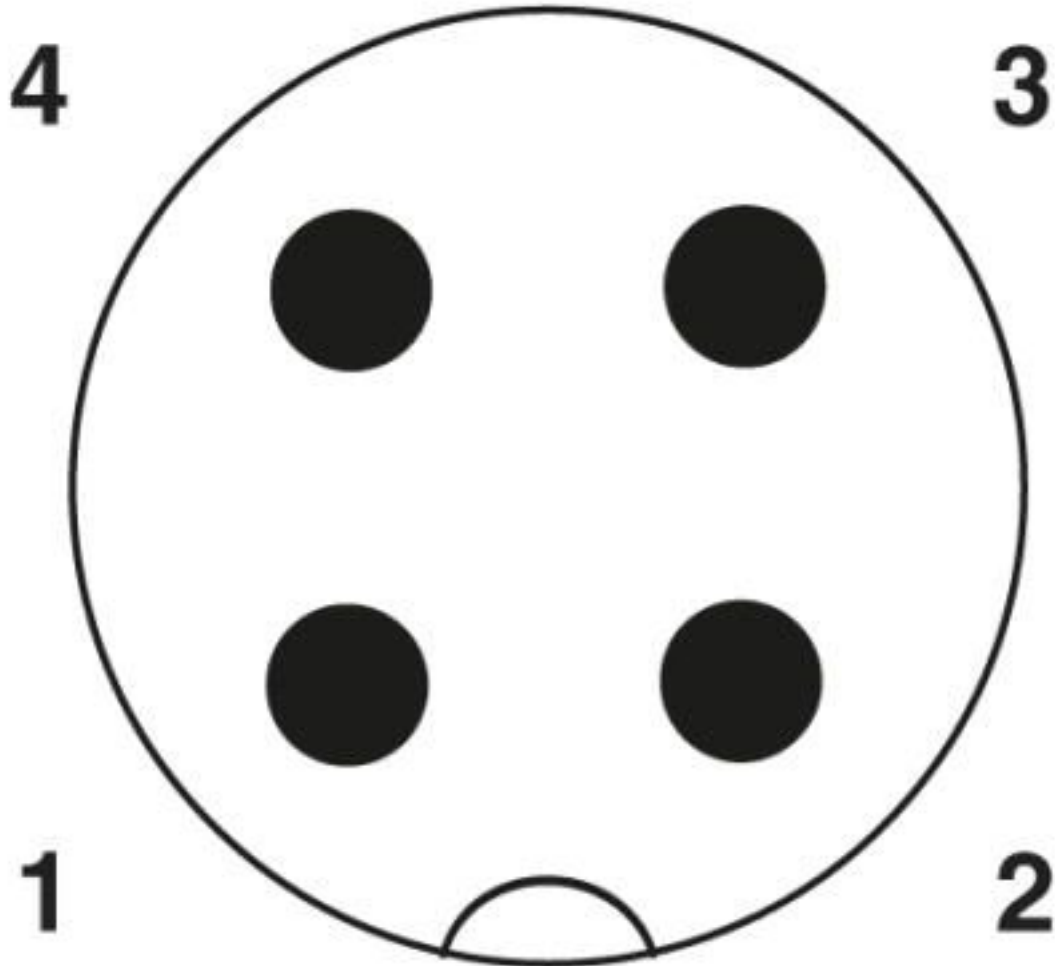
Circuit diagram



Contact assignment of the M12 connector and the M12 socket

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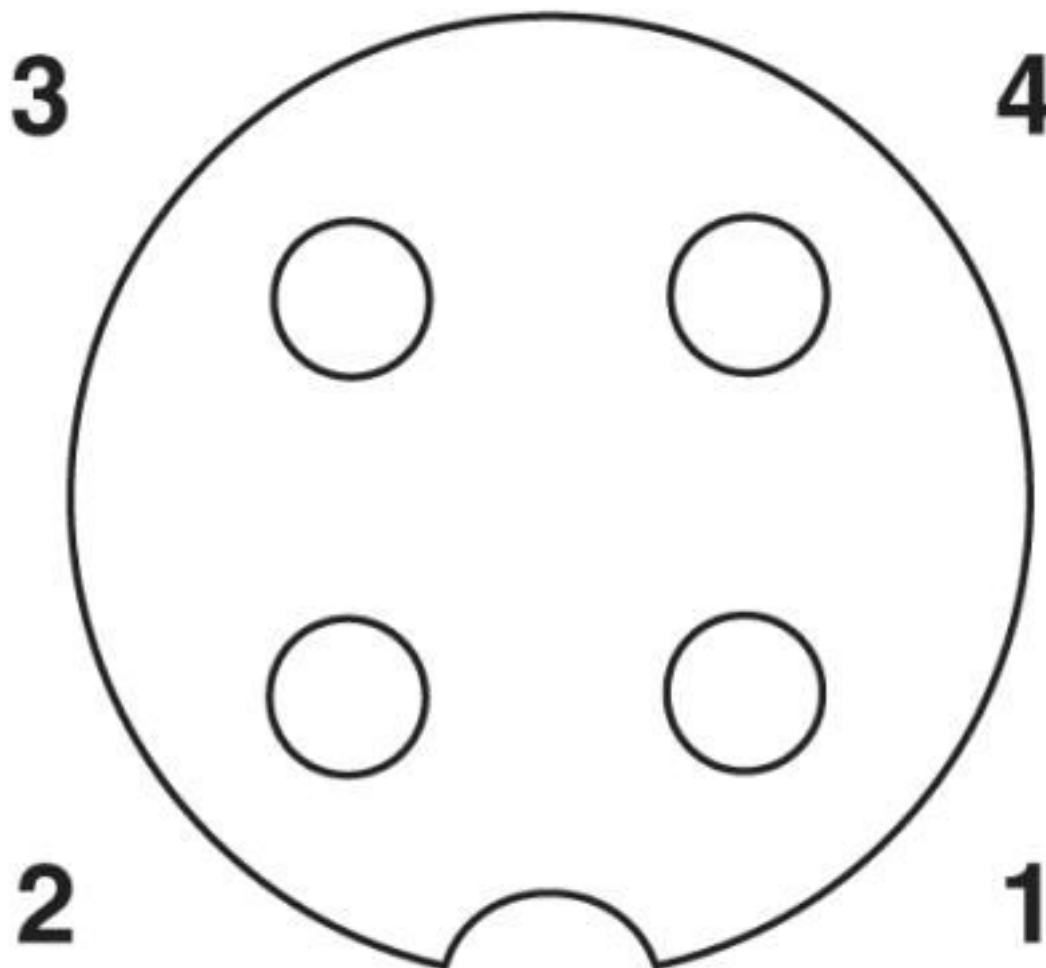
Schematic diagram



Pin assignment M12 plug, 3-pos., A-coded, view male side

# Bus system cable - SAC-3P-M12MR/ 1,0-961/M12FR VA - 1419128

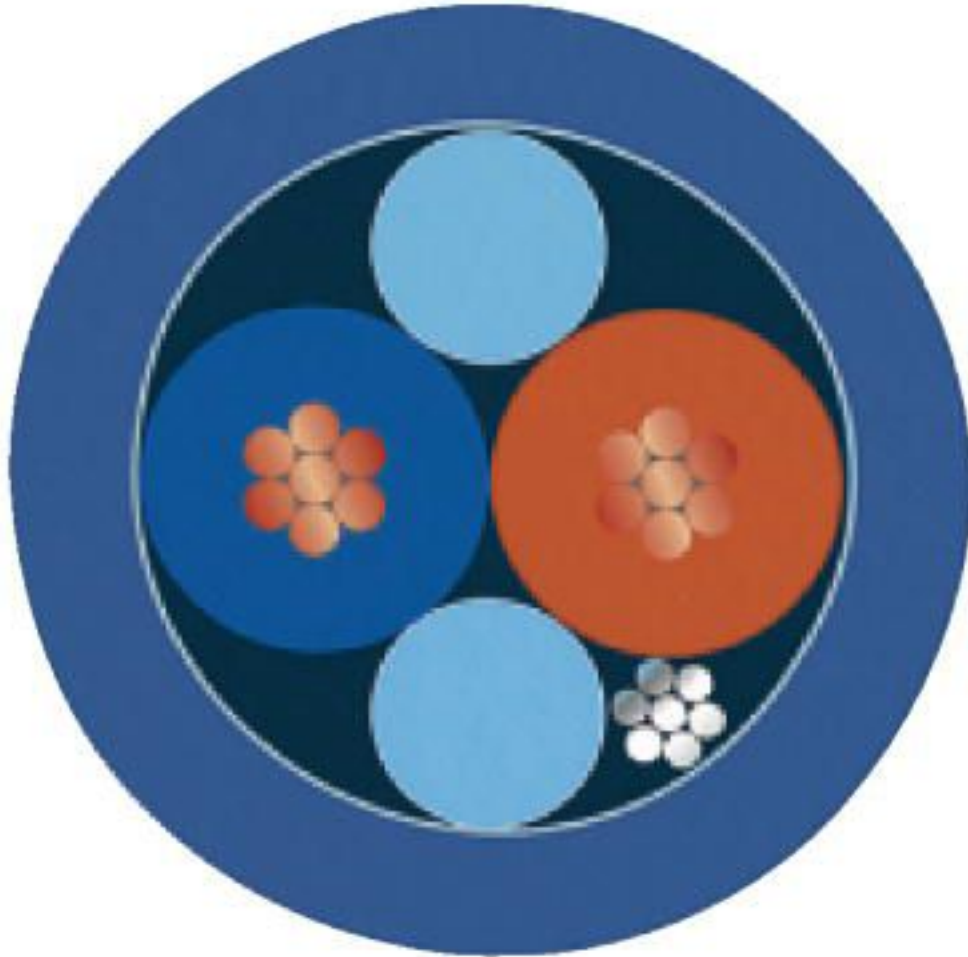
Schematic diagram



Pin assignment M12 socket, 3-pos., A-coded, view female side

## Bus system cable - SAC-3P-M12MR/ 1,0-961/M12FR VA - 1419128

Cable cross section



Fieldbus FOUNDATION/PROFIBUS PA, blue [961]

### 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

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Approvals

EAC-RoHS / EAC

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Ex Approvals

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### Approval details

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

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

## Accessories

Accessories

Screwdriver tools

## Bus system cable - SAC-3P-M12MR/ 1,0-961/M12FR VA - 1419128

### 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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Adapter - SAC BIT M12-W14 - 1212513



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a hexagonal knurl wrench size of 14 mm, with 4 mm hexagonal drive

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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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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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