

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

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Network cable, Ethernet CAT5 (1 Gbps), 8-position, PUR, water blue RAL 5021, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Plug straight M12 SPEEDCON / IP67, coding: A, cable length: 5 m



### Key Commercial Data

|              |                                                                                      |
|--------------|--------------------------------------------------------------------------------------|
| Packing unit | 1 pc                                                                                 |
| GTIN         |  |
| GTIN         | 4046356775588                                                                        |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 5 m |
|-----------------|-----|

#### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Degree of protection            | IP65                             |
|                                 | IP67                             |
| Ambient temperature (operation) | -25 °C ... 90 °C (M12 connector) |

#### General data

|                          |                                                                                                             |
|--------------------------|-------------------------------------------------------------------------------------------------------------|
| Note                     | Further products with variable cable type and variable cable length can be found in the accessories section |
| Rated current at 40°C    | 2 A                                                                                                         |
| Rated voltage            | 48 V AC                                                                                                     |
|                          | 60 V DC                                                                                                     |
| Number of positions      | 8                                                                                                           |
| Signal type/category     | Ethernet CAT5 (on the basis of IEC 11801), 1 Gbps                                                           |
| Standards/regulations    | M12 connector IEC 61076-2-101                                                                               |
| Contact material         | CuSn                                                                                                        |
| Contact carrier material | TPU GF                                                                                                      |
| Contact surface material | Ni/Au                                                                                                       |

# Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

## Technical data

### General data

|                                         |           |
|-----------------------------------------|-----------|
| Degree of protection                    | IP65/IP67 |
| Transmission characteristics (category) | CAT5      |

### Characteristics head 1

|                                          |                                                    |
|------------------------------------------|----------------------------------------------------|
| Head type                                | Plug straight M12 SPEEDCON / IP67                  |
| No. of positions (pin connector pattern) | 8                                                  |
| Coding                                   | A (Standard)                                       |
| Color                                    | black                                              |
| Material (component)                     | CuZn (Contact)                                     |
|                                          | Ni/Au (Contact surface)                            |
|                                          | TPU GF (Contact carriers)                          |
|                                          | TPU, hardly inflammable, self-extinguishing (Grip) |
|                                          | Zinc die-cast, nickel-plated (Screw connection)    |
| Insulation resistance                    | $\geq 100 \text{ M}\Omega$                         |
| Insertion/withdrawal cycles              | $\geq 100$                                         |
| Torque                                   | 0.4 Nm                                             |
| Ambient temperature (operation)          | -25 °C ... 90 °C                                   |
| Shielded                                 | yes                                                |
| Outer sheath, material                   | PUR                                                |
| External sheath, color                   | water blue RAL 5021                                |
| Type type, plug side                     | Plug straight                                      |
| Type type, socket side                   | Plug, straight                                     |

### Characteristics head 2

|                                          |                                                    |
|------------------------------------------|----------------------------------------------------|
| Head type                                | Plug straight M12 SPEEDCON / IP67                  |
| No. of positions (pin connector pattern) | 8                                                  |
| Coding                                   | A (Standard)                                       |
| Color                                    | black                                              |
|                                          | black                                              |
| Material (component)                     | CuZn (Contact)                                     |
|                                          | Ni/Au (Contact surface)                            |
|                                          | TPU GF (Contact carriers)                          |
|                                          | TPU, hardly inflammable, self-extinguishing (Grip) |
|                                          | Zinc die-cast, nickel-plated (Screw connection)    |
| Insulation resistance                    | $\geq 100 \text{ M}\Omega$                         |
| Insertion/withdrawal cycles              | $\geq 100$                                         |
| Torque                                   | 0.4 Nm                                             |
| Ambient temperature (operation)          | -25 °C ... 90 °C                                   |

### Standards and Regulations

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

### Cable

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

### Technical data

#### Cable

|                                                      |                                                                            |
|------------------------------------------------------|----------------------------------------------------------------------------|
| Cable type                                           | Ethernet flexible CAT5, 4-pair                                             |
| Cable type (abbreviation)                            | 94B                                                                        |
| UL AWM style                                         | 20963 (80°C/30 V)                                                          |
| Signal type/category                                 | Ethernet CAT5 (IEC 11801), 1 Gbps                                          |
| Cable structure                                      | 4x2xAWG26/7; SF/UTP                                                        |
| Conductor cross section                              | 4x 2x 0.14 mm <sup>2</sup>                                                 |
| AWG signal line                                      | 26                                                                         |
| Conductor structure signal line                      | 7x 0.16 mm                                                                 |
| Core diameter including insulation                   | 0.96 mm                                                                    |
| Wire colors                                          | white/blue-blue, white/orange-orange, white/green-green, white/brown-brown |
| Twisted pairs                                        | 2 cores to the pair                                                        |
| Overall twist                                        | 4 pairs for core                                                           |
| Shielding                                            | Aluminum-coated foil, tinned copper braided shield                         |
| Optical shield covering                              | 70 %                                                                       |
| External sheath, color                               | water blue RAL 5021                                                        |
| Outer sheath thickness                               | 1.05 mm                                                                    |
| External cable diameter D                            | 6.4 mm ±0.2 mm                                                             |
| Minimum bending radius, fixed installation           | 4 x D                                                                      |
| Minimum bending radius, flexible installation        | 8 x D                                                                      |
| Tensile strength GRP                                 | ≤ 100 N                                                                    |
| Cable weight                                         | 47 kg/km                                                                   |
| Outer sheath, material                               | PUR                                                                        |
| Material conductor insulation                        | Foamed PE                                                                  |
| Conductor material                                   | Bare Cu litz wires                                                         |
| Insulation resistance                                | ≥ 500 MΩ*km                                                                |
| Loop resistance                                      | ≤ 290.00 Ω/km                                                              |
| Cable capacity                                       | 48 nF/km (at 1 kHz)                                                        |
| Wave impedance                                       | 100 Ω ±5 Ω (at 100 MHz)                                                    |
| Near end crosstalk attenuation (NEXT)                | 71.3 dB (with 1 MHz)                                                       |
|                                                      | 62.3 dB (at 4 MHz)                                                         |
|                                                      | 56.3 dB (at 10 MHz)                                                        |
|                                                      | 53.2 dB (at 16 MHz)                                                        |
|                                                      | 51.8 dB (at 20 MHz)                                                        |
|                                                      | 48.9 dB (at 31.25 MHz)                                                     |
|                                                      | 44.4 dB (at 62.5 MHz)                                                      |
|                                                      | 41.3 dB (at 100 MHz)                                                       |
| Power-summed near end crosstalk attenuation (PSNEXT) | 62.3 dB (with 1 MHz)                                                       |
|                                                      | 53.3 dB (at 4 MHz)                                                         |
|                                                      | 47.3 dB (at 10 MHz)                                                        |
|                                                      | 44.2 dB (at 16 MHz)                                                        |

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

### Technical data

#### Cable

|                                         |                                                 |
|-----------------------------------------|-------------------------------------------------|
|                                         | 42.8 dB (at 20 MHz)                             |
|                                         | 39.9 dB (at 31.25 MHz)                          |
|                                         | 35.4 dB (at 62.5 MHz)                           |
|                                         | 32.3 dB (at 100 MHz)                            |
| Attenuation                             | 3.2 dB (with 1 MHz)                             |
|                                         | 6 dB (at 4 MHz)                                 |
|                                         | 9.5 dB (at 10 MHz)                              |
|                                         | 12.1 dB (at 16 MHz)                             |
|                                         | 13.6 dB (at 20 MHz)                             |
|                                         | 17.1 dB (at 31.25 MHz)                          |
|                                         | 24.8 dB (at 62.5 MHz)                           |
|                                         | 32 dB (at 100 MHz)                              |
| Return loss (RL)                        | 23 dB (at 4 MHz)                                |
|                                         | 24.1 dB (at 8 MHz)                              |
|                                         | 25 dB (at 10 MHz)                               |
|                                         | 25 dB (at 16 MHz)                               |
|                                         | 25 dB (at 20 MHz)                               |
|                                         | 23.6 dB (at 31.25 MHz)                          |
|                                         | 21.5 dB (at 62.5 MHz)                           |
|                                         | 20.1 dB (at 100 MHz)                            |
| Signal runtime                          | 5.3 ns/m                                        |
| Coupling resistance                     | ≤ 100.00 mΩ/m (at 10 MHz)                       |
| Nominal voltage, cable                  | ≤ 100 V                                         |
| Test voltage Core/Core                  | 700 V (50 Hz, 1 min.)                           |
| Test voltage Core/Shield                | 700 V (50 Hz, 1 min.)                           |
| Flame resistance                        | according to IEC 60332-1-2                      |
| Halogen-free                            | according to IEC 60754-1                        |
| Resistance to oil                       | according to EN 60811-2-1                       |
| Ambient temperature (operation)         | -40 °C ... 80 °C (cable, fixed installation)    |
|                                         | -20 °C ... 80 °C (cable, flexible installation) |
| Ambient temperature (installation)      | -20 °C ... 80 °C                                |
| Ambient temperature (storage/transport) | -20 °C ... 80 °C                                |

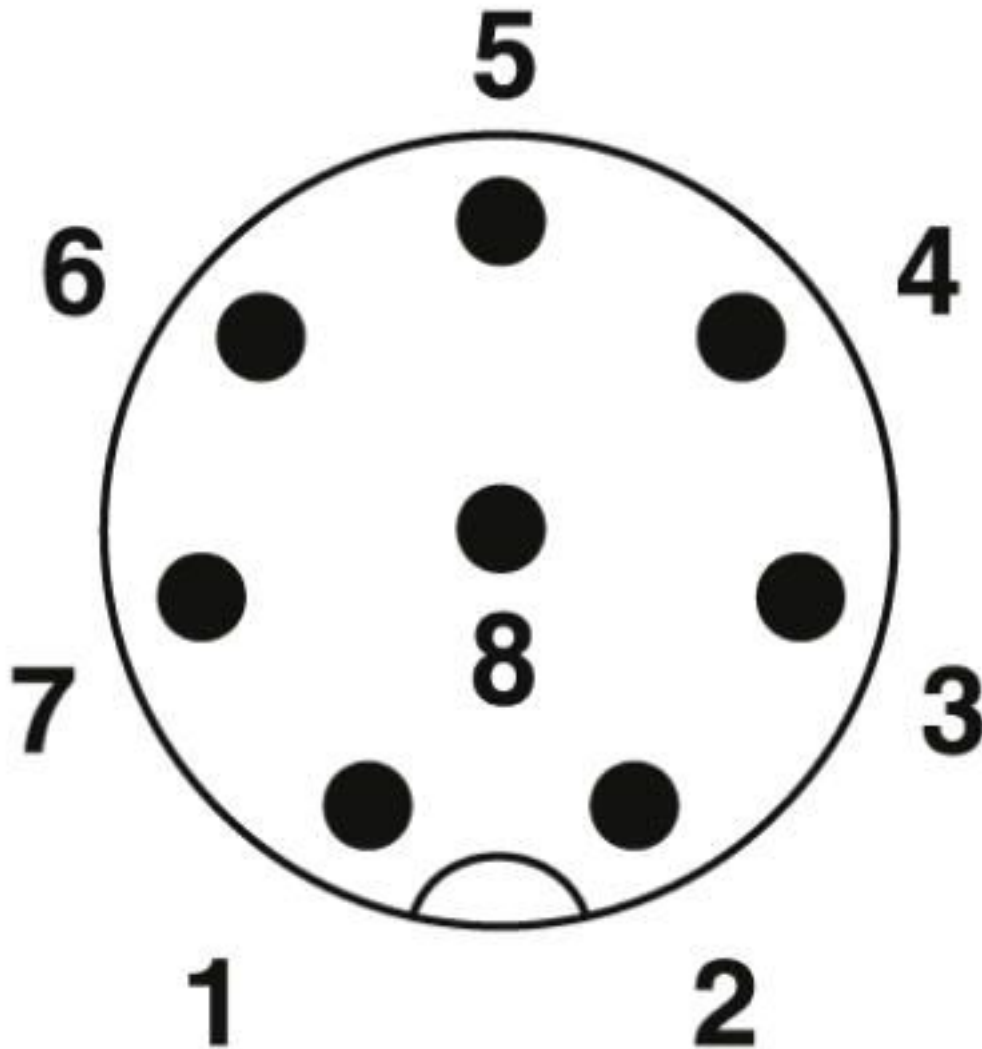
#### Environmental Product Compliance

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

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

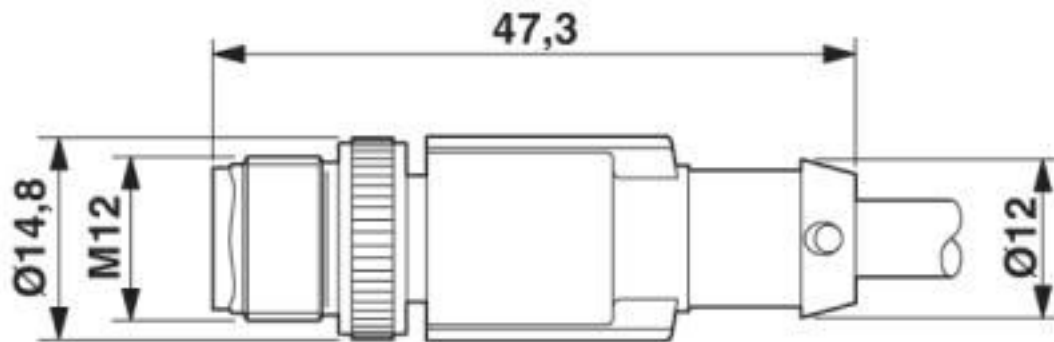
Schematic diagram



Pin assignment M12 plug, 8-pos., A-coded, view plug side

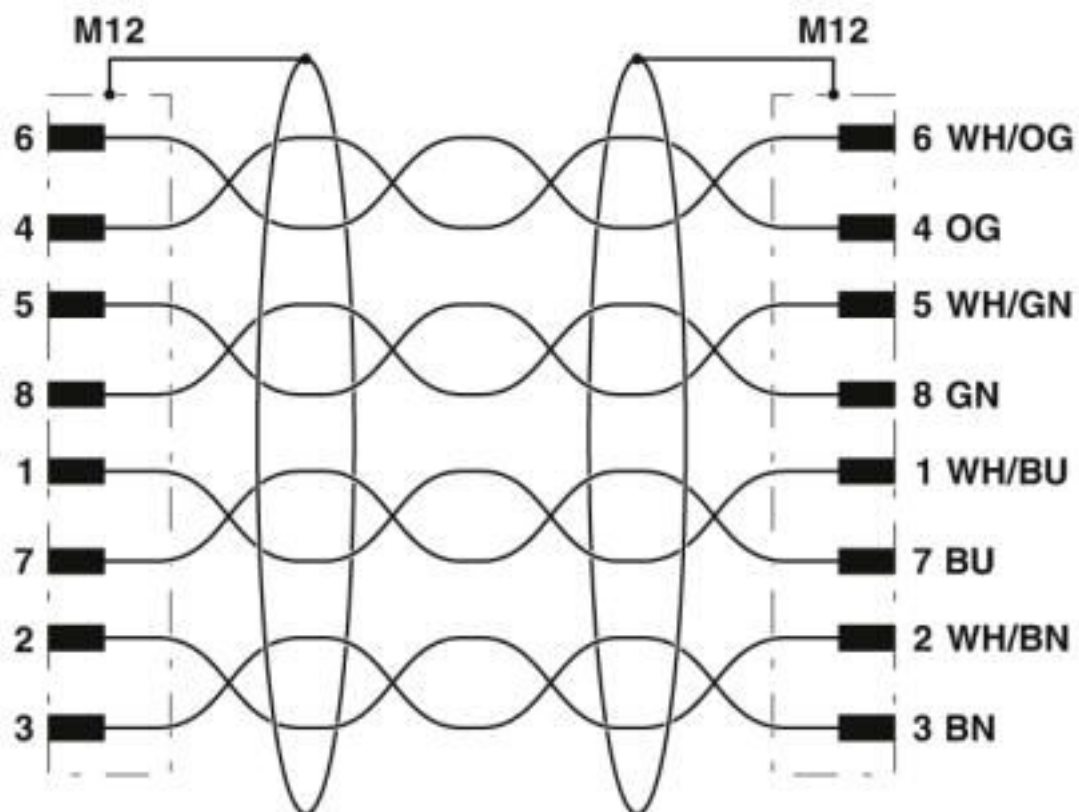
## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

Dimensional drawing



Plug, M12 x 1, straight, shielded

Circuit diagram



Contact assignment of the M12 plugs

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

Cable cross section



Ethernet flexible CAT5, 4-pair [94B]

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

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

### Classifications

#### ETIM

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

#### Approvals

UL Listed / cUL Listed / EAC-RoHS / 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 335024 |
| Nominal voltage UN | 30 V                                                                                |                                                                                                                                                       |               |
| Nominal current IN | 1.5 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 335024 |
| Nominal voltage UN | 30 V                                                                                |                                                                                                                                                       |               |



## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

### Approvals

|                                |       |
|--------------------------------|-------|
| Nominal current I <sub>N</sub> | 1.5 A |
|--------------------------------|-------|

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

|              |                                   |
|--------------|-----------------------------------|
| cULus Listed | <b>cUL<sub>us</sub></b><br>LISTED |
|--------------|-----------------------------------|

### Accessories

#### Accessories

#### Data cable preassembled

#### Network cable - NBC-MS-MS SCO-IE/.../... - 1408676



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Plug straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

#### Network cable - NBC-MS-MR SCO-IE/.../... - 1408667



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Plug angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

#### Network cable - NBC-MS-FS SCO-IE/.../... - 1408659



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Socket straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

#### Network cable - NBC-MS-FR SCO-IE/.../... - 1408650



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Socket angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

### Accessories

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#### Network cable - NBC-MR-MR SCO-IE/.../... - 1408666



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Plug angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

#### Network cable - NBC-MR-FS SCO-IE/.../... - 1408658



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Socket straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

#### Network cable - NBC-MR-FR SCO-IE/.../... - 1408649



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Socket angled M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

### 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

## Network cable - NBC-MS/ 5,0-94B/MS SCO - 1407436

### 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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### 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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