

## Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425


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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 RJ45 Clip locking / IP67, cable length: 10 m



### Key Commercial Data

|              |   |
|--------------|---|
| Packing unit | 1 pc  |
| GTIN         | <br>4 046356 775472 |
| GTIN         | 4046356775472   |

### Technical data

#### Dimensions

|                 |      |
|-----------------|------|
| Length of cable | 10 m |
|-----------------|------|

#### Ambient conditions

|                                 |                                   |
|---------------------------------|-----------------------------------|
| Degree of protection            | IP65 (M12 connector)              |
|                                 | IP67 (M12 connector)              |
|                                 | IP67 (RJ45 connector)             |
| Ambient temperature (operation) | -25 °C ... 90 °C (M12 connector)  |
|                                 | -20 °C ... 70 °C (RJ45 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 | 1 A   |
| Rated voltage         | 30 V AC   |
|                       | 30 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  |

# Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

## Technical data

### General data

|   |           |
|---|-----------|
| Contact carrier material                | TPU GF    |
| Contact surface material                | Ni/Au     |
| Housing material                        | Plastic   |
| 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                    | ≥ 100 MΩ   |
| Insertion/withdrawal cycles              | ≥ 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 RJ45 Clip locking / IP67 |
| No. of positions (pin connector pattern) | 8 (8)                                  |
| Color                                    | gray                                   |
|  | gray / black                           |
| Material (component)                     | CuSn (Contact)                         |
|  | Ni/Au (Contact surface)                |
|  | PC (Contact carriers)                  |
|  | PA (Housing)                           |
| Insertion/withdrawal cycles              | ≥ 750                                  |
| Ambient temperature (operation)          | -20 °C ... 70 °C                       |

### Standards and Regulations

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

### Cable

|            |                                |
|------------|--------------------------------|
| Cable type | Ethernet flexible CAT5, 4-pair |
|------------|--------------------------------|

# Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

## Technical data

### Cable

|  |  |
|--|--|
| 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-summated 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)  |
|  | 42.8 dB (at 20 MHz)  |

## Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

### Technical data

#### Cable

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

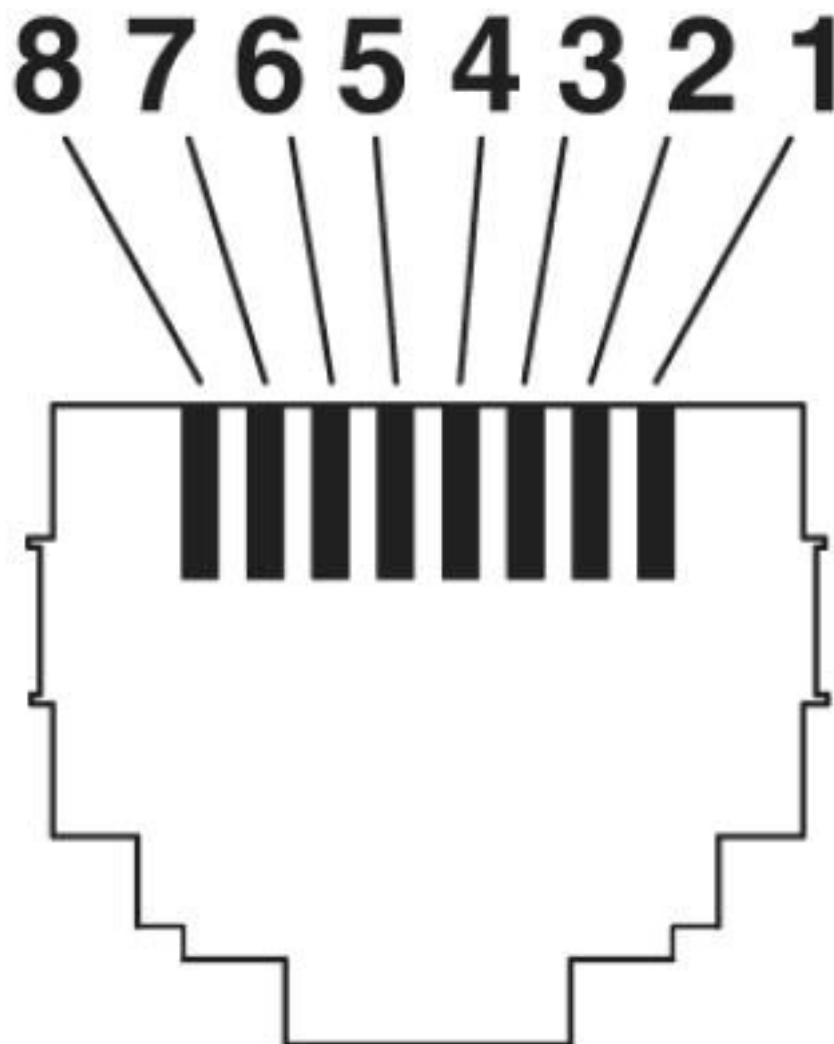
#### Environmental Product Compliance

|            |   |
|------------|---|
| REACH SVHC | Lead 7439-92-1  |
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

#### Drawings

# Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

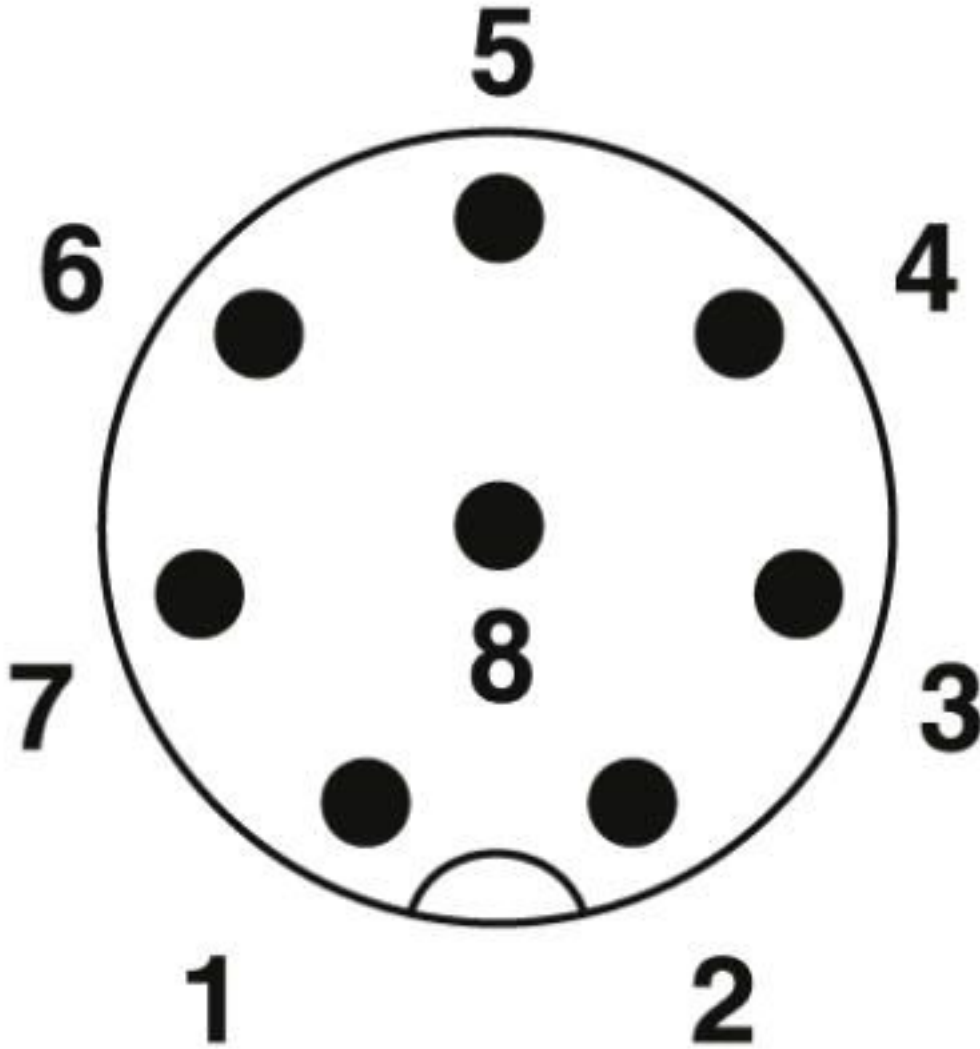
Schematic diagram



Connector pin assignment plug RJ45

# Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

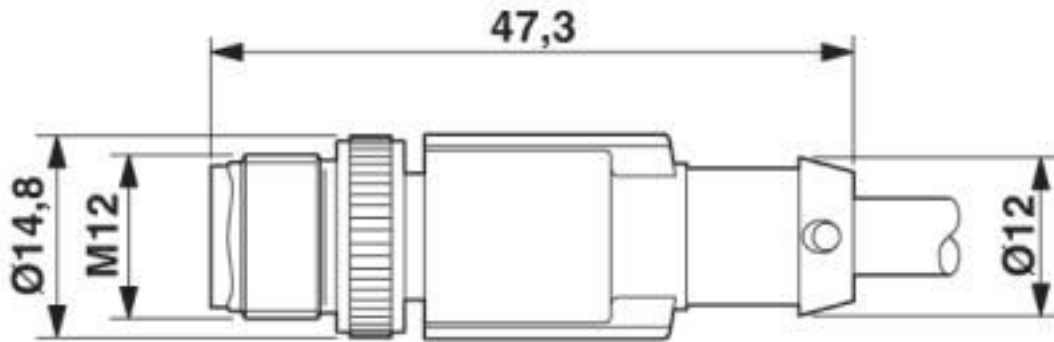
Schematic diagram



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

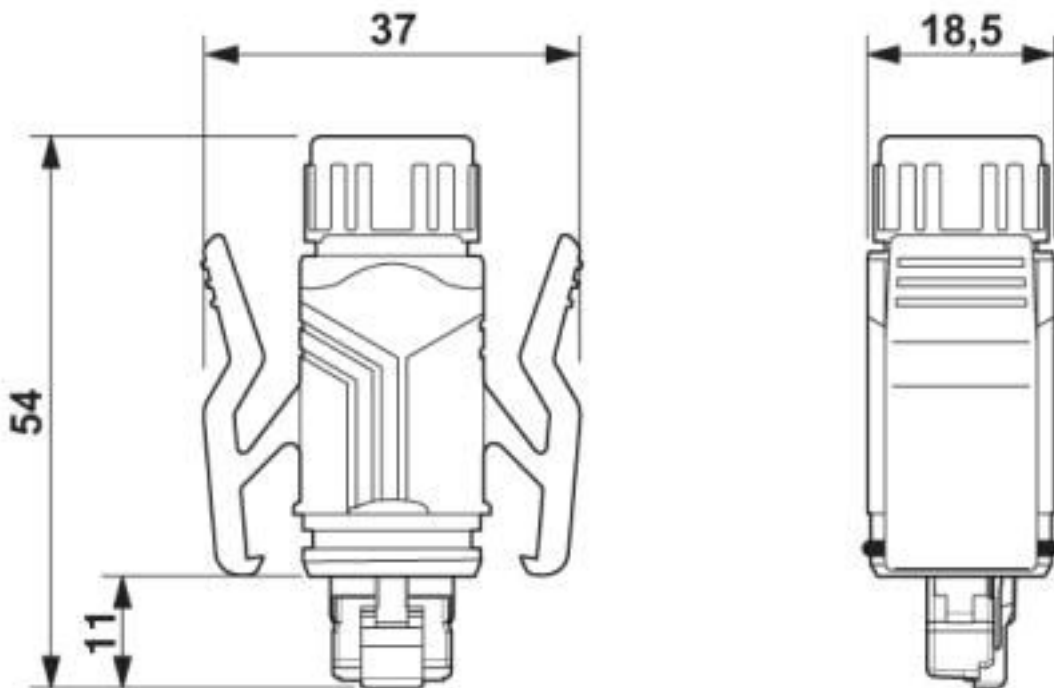
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Dimensional drawing



Plug, M12 x 1, straight, shielded

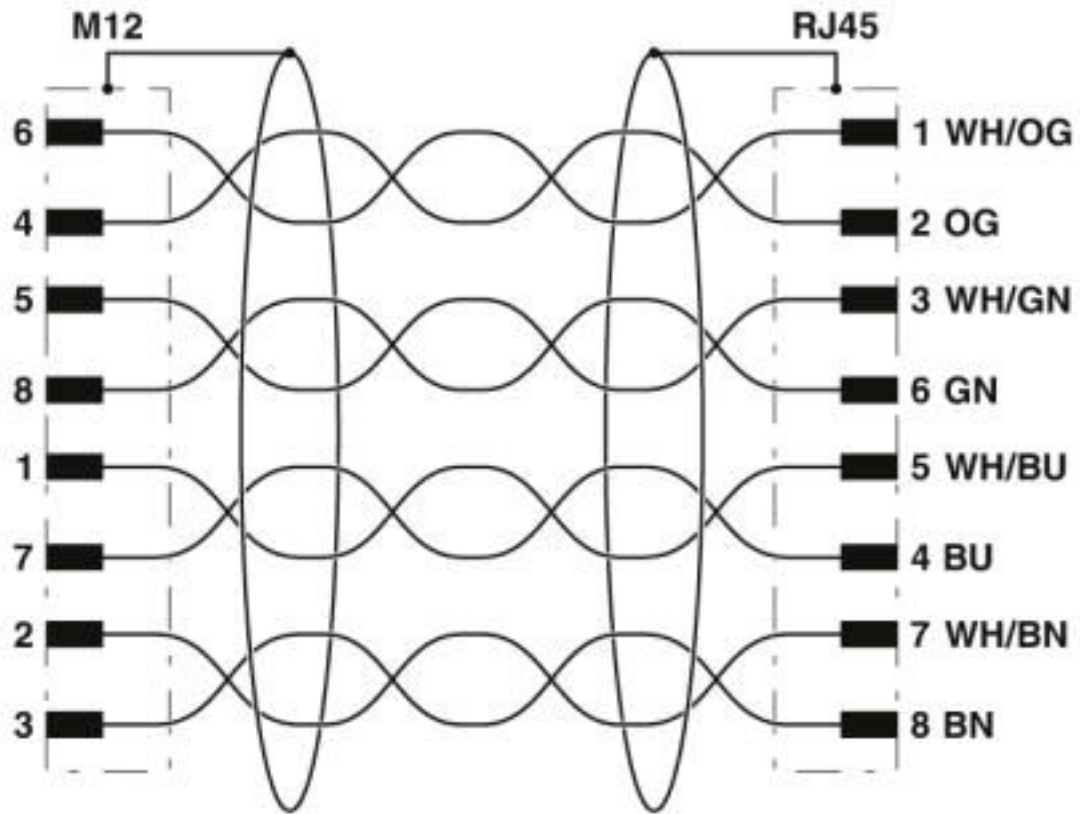
Dimensional drawing



RJ45-connector, IP67

# Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

Circuit diagram



Contact assignment of the M12 and RJ45 plug



# Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

Cable cross section



Ethernet flexible CAT5, 4-pair [94B]

## Classifications

eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27060308 |
| eCl@ss 4.0    | 24010400 |
| eCl@ss 4.1    | 24010400 |
| eCl@ss 5.0    | 19030300 |
| eCl@ss 5.1    | 19030300 |
| eCl@ss 6.0    | 27061800 |
| eCl@ss 7.0    | 27061801 |
| eCl@ss 8.0    | 27061801 |
| eCl@ss 9.0    | 27060308 |

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## 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   | 26121604 |
| UNSPSC 18.0   | 26121604 |
| UNSPSC 19.0   | 26121604 |
| UNSPSC 20.0   | 26121604 |
| UNSPSC 21.0   | 26121604 |

## Approvals

### Approvals

Approvals

EAC-RoHS

Ex Approvals

### Approval details

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

## Accessories

Accessories

Data cable preassembled

## Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

### Accessories

Network cable - NBC-MS-R4MC SCO-IE/.../... - 1408679



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: A, on Plug straight RJ45 Clip locking / IP67, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MR-R4MC SCO-IE/.../... - 1408671



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: A, on Plug straight RJ45 Clip locking / IP67, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-FS-R4MC SCO-IE/.../... - 1408662



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight RJ45 Clip locking / IP67, on Socket straight M12 SPEEDCON / IP67, coding: A, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-FR-R4MC SCO-IE/.../... - 1408653



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight RJ45 Clip locking / IP67, 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

## Network cable - NBC-MS/10,0-94B/R4MC SCO - 1407425

### Accessories

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

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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

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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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