

Network cable - NBC-FSD/10,0-93B/R4QC SCO - 1407552


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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PVC/PVC, green RAL 6018, shielded, Plug straight RJ45 Push Pull / IP67, on Socket straight M12 SPEEDCON / IP67, coding: D, cable length: 10 m



Key Commercial Data

| | |
|--------------|---|
| Packing unit | 1 pc |
| GTIN |  4 046356 778565 |
| GTIN | 4046356778565 |

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 ... 85 °C (M12 connector) |
| | -25 °C ... 60 °C (RJ45 connector) |

General data

| | |
|-----------------------|--|
| Note | This product corresponds to the PROFINET Cabling and Interconnection Technology Guideline for PROFINET regulations, version 2.00, order no: 2.252, Chapter 8.2 Connectors for Outside Environment (Balanced cabling) |
| | 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 | 48 V AC |
| | 60 V DC |
| Number of positions | 4 |

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Technical data

General data

| | |
|---|--------------------------------------|
| Signal type/category | PROFINET CAT5 (IEC 11801), 100 Mbps |
| | EtherCAT® CAT5 (IEC 11801), 100 Mbps |
| Standards/regulations | M12 connector IEC 61076-2-101 |
| Contact material | CuSn |
| 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 RJ45 Push Pull / IP67 |
| No. of positions (pin connector pattern) | 4 (8) |
| Color | black |
| Material (component) | CuSn (Contact) |
| | Ni/Au (Contact surface) |
| | PC (Contact carriers) |
| | PA GF (Housing) |
| Insertion/withdrawal cycles | ≥ 750 |
| Ambient temperature (operation) | -40 °C ... 70 °C |
| Shielded | yes |
| Outer sheath, material | PVC |
| External sheath, color | green RAL 6018 |
| Type type, plug side | Plug straight |
| Type type, socket side | Socket, straight |

Characteristics head 2

| | |
|--|--|
| Head type | Socket straight M12 SPEEDCON / IP67 |
| No. of positions (pin connector pattern) | 4 |
| Coding | D (Data) |
| Color | black |
| | black |
| Material (component) | CuSn (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 |

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Technical data

Standards and Regulations

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

Cable

| | |
|---|--|
| Cable type | PROFINET PVC stranded CAT5 |
| Cable type (abbreviation) | 93B |
| UL AWM style | 21694 |
| Signal type/category | PROFINET CAT5 (IEC 11801), 100 Mbps EtherCAT® CAT5 (IEC 11801), 100 Mbps |
| Cable structure | 1x4xAWG22/7; SF/TQ |
| Conductor cross section | 4x 0.34 mm ² |
| AWG signal line | 22 |
| Conductor structure signal line | 7x 0.25 mm |
| Core diameter including insulation | 1.55 mm |
| Wire colors | White, yellow, blue, orange |
| Overall twist | Star quad |
| Shielding | Aluminum-coated foil, tinned copper braided shield |
| Optical shield covering | 85 % |
| External sheath, color | green RAL 6018 |
| Outer sheath thickness | approx. 0.9 mm |
| External cable diameter D | 6.5 mm ±0.2 mm |
| Minimum bending radius, fixed installation | 3 x D |
| Minimum bending radius, flexible installation | 7 x D |
| Cable weight | 67 kg/km |
| Outer sheath, material | PVC |
| Material, inner sheath | PVC |
| Material conductor insulation | PE |
| Conductor material | Tin-plated Cu litz wires |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 120.00 Ω/km |
| Wave impedance | 100 Ω ±15 Ω (at 100 MHz) |
| Near end crosstalk attenuation (NEXT) | 80 dB (with 1 MHz) 76 dB (at 4 MHz) 70 dB (at 10 MHz) 65 dB (at 16 MHz) 63 dB (at 20 MHz) 60 dB (at 31.25 MHz) 55 dB (at 62.5 MHz) 50 dB (at 100 MHz) |
| Attenuation | 2.1 dB (with 1 MHz) 4 dB (at 4 MHz) 6.3 dB (at 10 MHz) |

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Technical data

Cable

| | |
|---|---|
| | 8 dB (at 16 MHz) |
| | 9 dB (at 20 MHz) |
| | 11.4 dB (at 31.25 MHz) |
| | 16.5 dB (at 62.5 MHz) |
| | 21.3 dB (at 100 MHz) |
| Signal speed | 0.66 c |
| Signal runtime | 5.3 ns/m |
| Coupling resistance | ≤ 20.00 mΩ/m (at 10 MHz) |
| Nominal voltage, cable | 600 V |
| Test voltage Core/Core | 2000 V (50 Hz, 1 min.) |
| Test voltage Core/Shield | 2000 V (50 Hz, 1 min.) |
| Flame resistance | according to UL 1685 (CSA FT 4) |
| Resistance to oil | Resistant to oil to a limited extent |
| Other resistance | UV resistant According to UL 1581, Section 1200 |
| Ambient temperature (operation) | -40 °C ... 70 °C (cable, fixed installation) |
| | -40 °C ... 70 °C (cable, flexible installation) |
| Ambient temperature (installation) | -20 °C ... 60 °C |
| Ambient temperature (storage/transport) | -50 °C ... 70 °C |

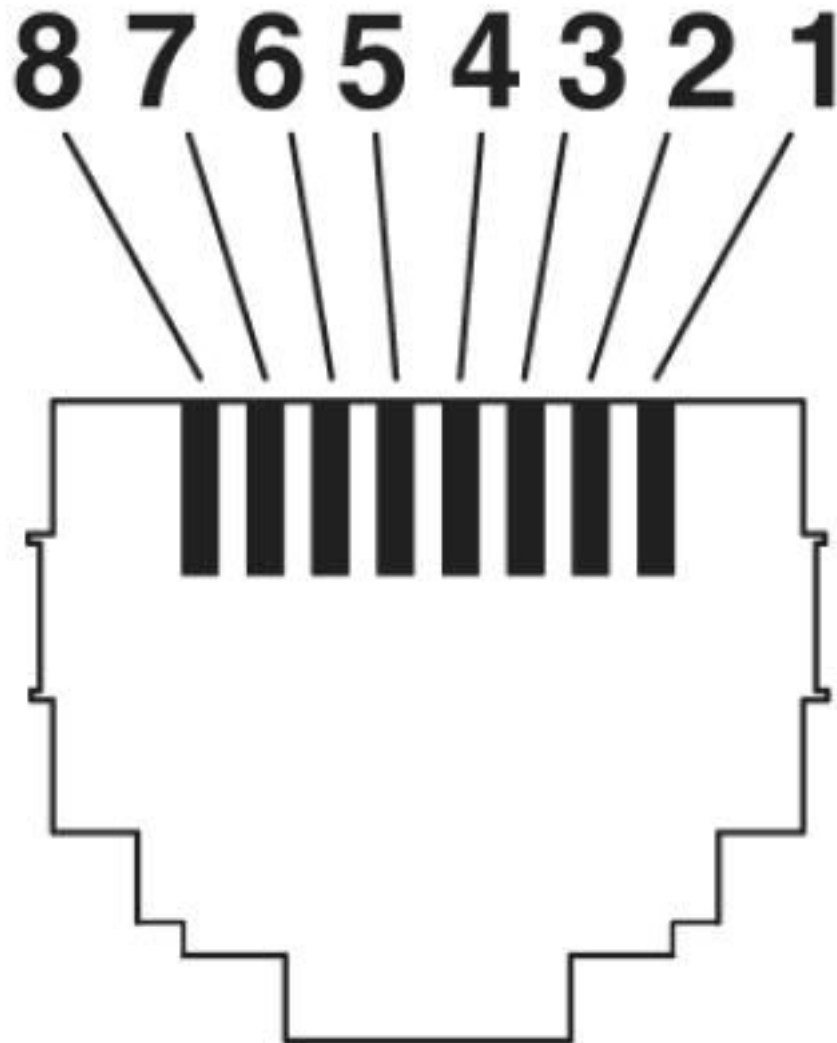
Environmental Product Compliance

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

Drawings

Network cable - NBC-FSD/10,0-93B/R4QC SCO - 1407552

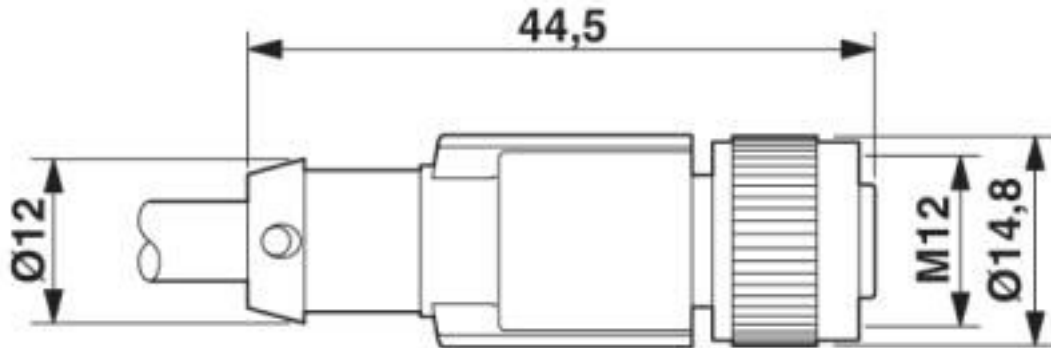
Schematic diagram



Connector pin assignment plug RJ45

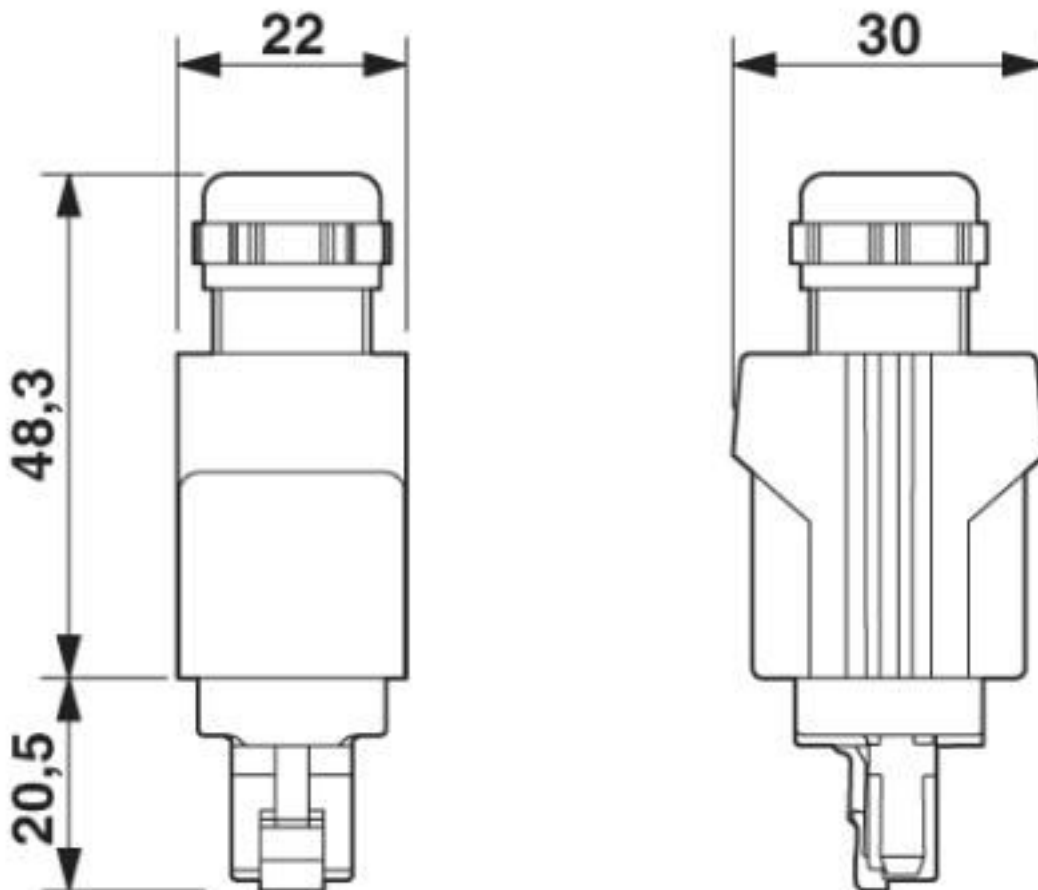
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Dimensional drawing



M12 x 1 socket, straight, shielded

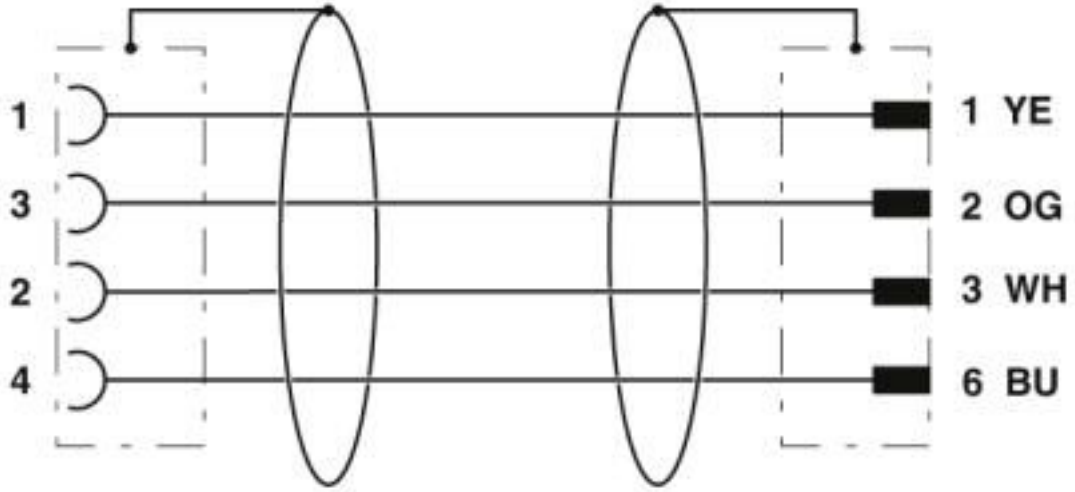
Dimensional drawing



RJ45 Push-Pull connector, IP67

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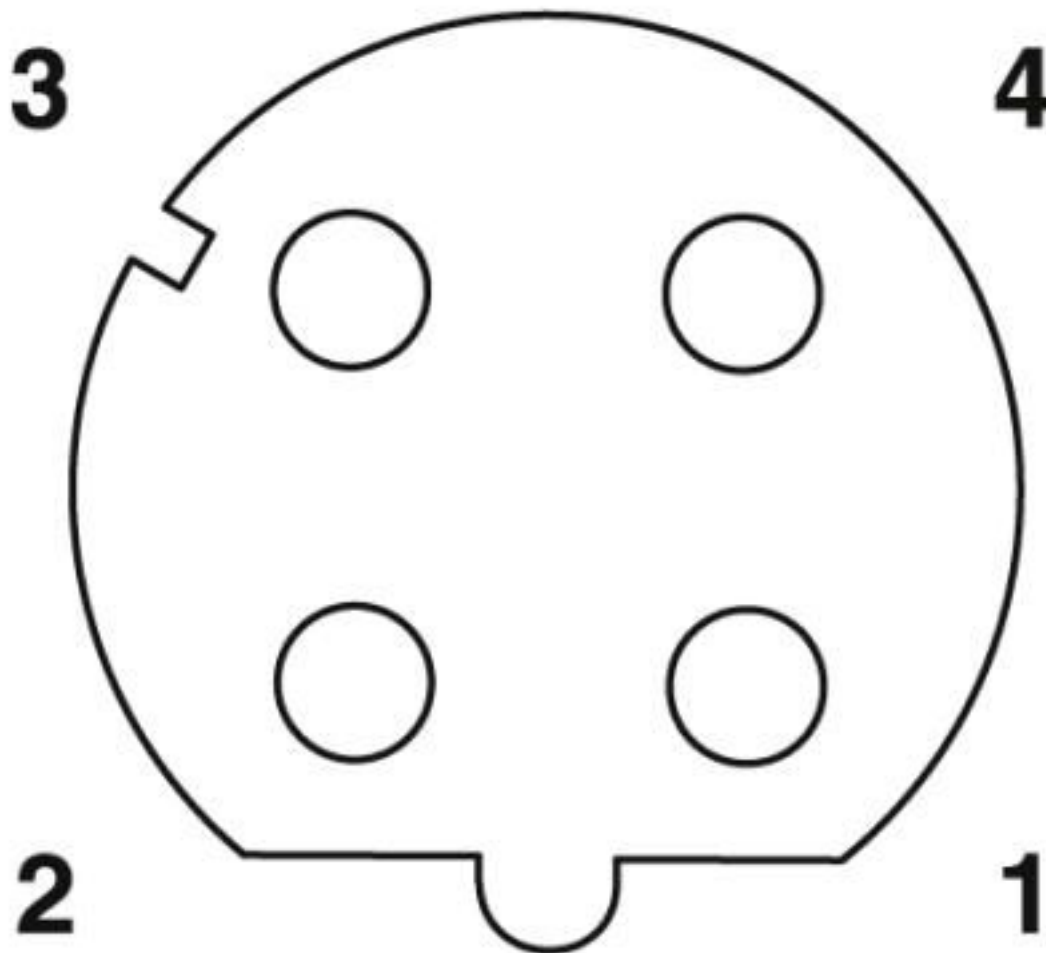
Circuit diagram



Contact assignment of the M12 socket and the RJ45 plug

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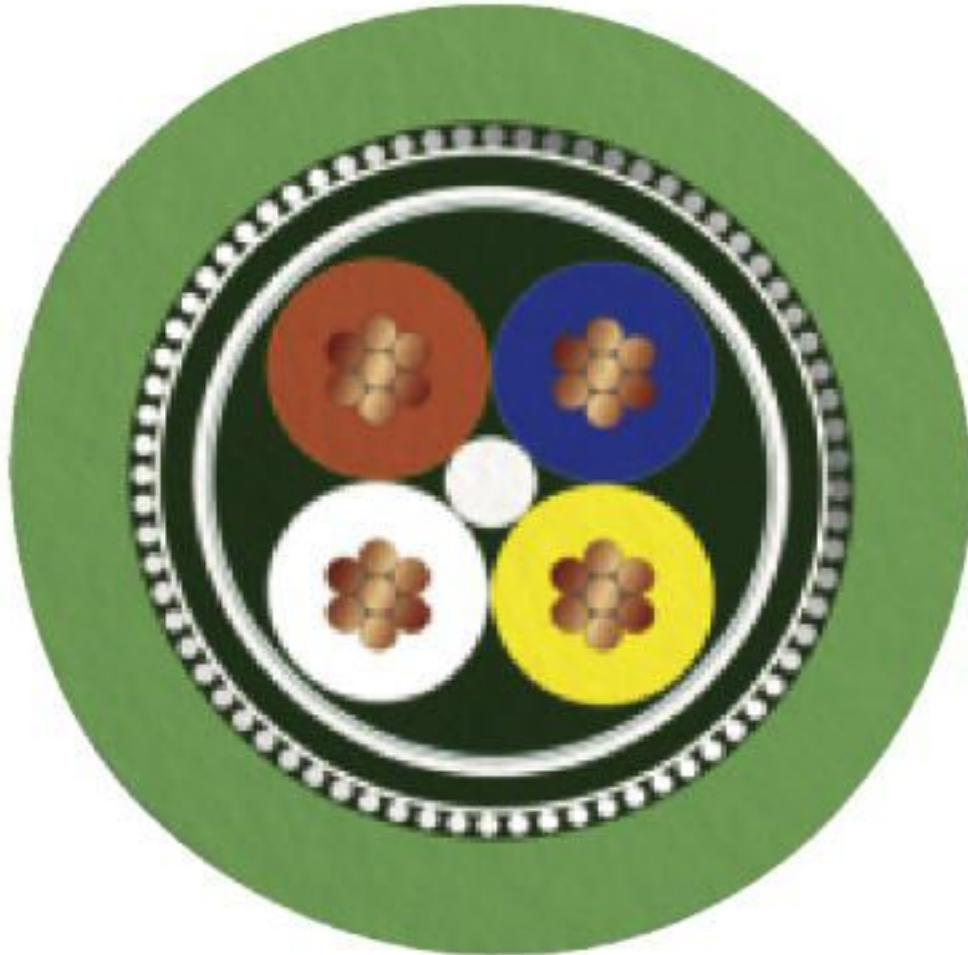
Schematic diagram



Pin assignment M12 socket, 4-pos., D-coded, female side

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Cable cross section



PROFINET PVC stranded CAT5 [93B]

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 | EC000830 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC002599 |
| ETIM 6.0 | EC001262 |
| ETIM 7.0 | EC001262 |

UNSPSC

| | |
|---------------|----------|
| UNSPSC 6.01 | 31261501 |
| UNSPSC 7.0901 | 31261501 |
| UNSPSC 11 | 31261501 |
| UNSPSC 12.01 | 31261501 |
| 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- DE.HB35.B.00387 |
|----------|---|--------------------------|

Accessories

Accessories

Data cable preassembled

Network cable - NBC-FSD/10,0-93B/R4QC SCO - 1407552

Accessories

Network cable - NBC-MSD-R4RC SCO-PN/.../... - 1408636



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 Push Pull / IP67, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MRD-R4RC SCO-PN/.../... - 1408628



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 Push Pull / IP67, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MSD-R4QC SCO-PN/.../... - 1408635



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 Push Pull / IP67, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-MRD-R4QC SCO-PN/.../... - 1408626



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 Push Pull / IP67, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-FSD-R4RC SCO-PN/.../... - 1408619



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight RJ45 Push Pull / IP67, on Socket straight M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

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Accessories

Network cable - NBC-FRD-R4RC SCO-PN/.../... - 1408610



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight RJ45 Push Pull / IP67, on Socket angled M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-FSD-R4QC SCO-PN/.../... - 1408618



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight RJ45 Push Pull / IP67, on Socket straight M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

Network cable - NBC-FRD-R4QC SCO-PN/.../... - 1408609



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight RJ45 Push Pull / IP67, on Socket angled M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

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



Safety locking

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



Screwdriver tools

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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

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

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

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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