

## Network cable - NBC-MSD/90,0-93B/MSD SCO - 1418257


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Network cable, PROFINET CAT5 (100 Mbps), 4-position, PVC/PVC, green RAL 6018, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on Plug straight M12 SPEEDCON / IP67, coding: D, cable length: 90 m



### Key Commercial Data

|                        |   |
|------------------------|---|
| Packing unit           | 1 pc  |
| Minimum order quantity | 5 pc  |
| GTIN                   | <br>4 055626 135915 |
| GTIN                   | 4055626135915   |

### Technical data

#### Dimensions

|                 |      |
|-----------------|------|
| Length of cable | 90 m |
|-----------------|------|

#### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Ambient temperature (operation) | -25 °C ... 90 °C (M12 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) |
| Rated current at 40°C    | 4 A  |
| Rated voltage            | 48 V AC<br>60 V DC   |
| Number of positions      | 4  |
| Signal type/category     | PROFINET 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  |

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## Technical data

### Characteristics head 1

|  |  |
|--|--|
| Head type                                | Plug straight M12 SPEEDCON / IP67                  |
| No. of positions (pin connector pattern) | 4  |
| Coding                                   | D (Data)   |
| Color                                    | black  |
| Material (component)                     | CuSn (Contact)                                     |
|  | Ni/Au (Contact surface)                            |
|  | PA (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                                   |

### Characteristics head 2

|  |  |
|--|--|
| Head type                                | Plug straight M12 SPEEDCON / IP67                  |
| No. of positions (pin connector pattern) | 4  |
| Coding                                   | D (Data)   |
| Color                                    | black  |
| Material (component)                     | CuSn (Contact)                                     |
|  | Ni/Au (Contact surface)                            |
|  | PA (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                                   |

### Standards and Regulations

|                       |                 |
|-----------------------|-----------------|
| Standard designation  | M12 connector   |
| Standards/regulations | 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 mm²                          |
| AWG signal line           | 22                                   |

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## Technical data

### Cable

|   |  |
|---|--|
| 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)                                 |
|   | 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.)                             |

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## Technical data

### Cable

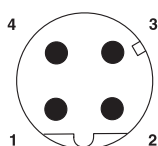
|   |   |
|---|---|
| Test voltage Core/Shield                | 2000 V (50 Hz, 1 min.)                          |
| Flame resistance                        | According to UL 1685 (CSA FT 4)                 |
| Resistance to oil                       | Resistant to oil to a limited extent            |
| 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

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

## Drawings

Schematic diagram



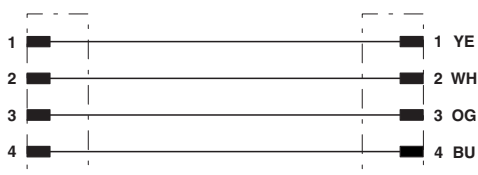
Pin assignment M12 male connector, 4-pos., D-coded, male side

Cable cross section



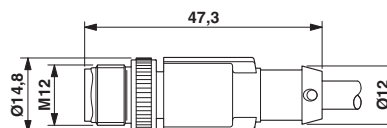
PROFINET PVC stranded CAT5 [93B]

Circuit diagram



Contact assignment of the M12 plugs

Dimensional drawing



Plug, M12 x 1, straight, shielded

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