

## Network cable - NBC-MSD/ 1,0-93G/MSD SCO - 1407569

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Network cable, EtherCAT® CAT5 (100 Mbps), EtherCAT® CAT5e (100 Mbps), 4-position, PVC, Green RAL 6018, shielded, Plug Straight M12 SPEEDCON / IP67, Coding: D, on Plug Straight M12 SPEEDCON / IP67, Coding: D, Cable length: 1 m



### Key commercial data

|                      |          |
|----------------------|----------|
| Packing unit         | 1 pc     |
| Custom tariff number | 85444210 |
| Country of origin    | Poland   |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 1 m |
|-----------------|-----|

#### Ambient conditions

|                      |      |
|----------------------|------|
| Degree of protection | IP65 |
|                      | IP67 |

#### General data

|                       |   |
|-----------------------|---|
| Rated current at 40°C | 4 A                                       |
| Rated voltage         | 250 V                                     |
| Number of positions   | 4   |
| Signal type/category  | EtherCAT® CAT5 (IEC 11801:2002), 100 Mbps |
|                       | EtherCAT® CAT5e (TIA 568B:2001), 100 Mbps |
| Standards/regulations | M12 connector IEC 61076-2-101             |

#### Characteristics head 1

|  |                                   |
|--|-----------------------------------|
| Head type                                | Plug Straight M12 SPEEDCON / IP67 |
| No. of positions (pin connector pattern) | 4                                 |
| Coding                                   | D (Data)                          |

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### Technical data

#### Characteristics head 1

|                                 |  |
|---------------------------------|--|
| 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)    |
| Contact resistance              | ≤ 5 mΩ   |
| 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)    |
| Contact resistance                       | ≤ 5 mΩ   |
| Insulation resistance                    | ≥ 100 MΩ   |
| Insertion/withdrawal cycles              | ≥ 100  |
| Torque                                   | 0.4 Nm   |
| Ambient temperature (operation)          | -25 °C ... 90 °C                                   |

#### Cable

|                                 |                                 |
|---------------------------------|---------------------------------|
| Cable type                      | EtherCAT®                       |
| Cable type (abbreviation)       | 93G                             |
| UL AWM style                    | 21694                           |
| Signal type/category            | EtherCAT® CAT5 (IEC 11801:2002) |
|                                 | EtherCAT® CAT5e (TIA 568B:2001) |
| Cable structure                 | 1x4xAWG22/7; SF/TQ              |
| Conductor cross section         | 4x 0.34 mm <sup>2</sup>         |
| AWG signal line                 | 22                              |
| Conductor structure signal line | 7x 0.25 mm                      |

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### Technical data

#### Cable

|   |  |
|---|--|
| Core diameter including insulation            | approx. 1.5 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  |
| Conductor resistance                          | ≤ 120000000 Ω/km                                   |
| Working capacitance                           | 52 pF  |
| Wave impedance                                | 100 Ω ±15 Ω (at 100 MHz)                           |
| Signal runtime                                | 5.3 ns/m   |
| Coupling resistance                           | ≤ 20.00 mΩ/m                                       |
| 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)                    |
| 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                                   |

### Classifications

#### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 4.0 | 27060307 |
| eCl@ss 4.1 | 27060307 |
| eCl@ss 5.0 | 27061801 |
| eCl@ss 5.1 | 27060307 |

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## Classifications

### eCl@ss

|            |          |
|------------|----------|
| eCl@ss 6.0 | 27279218 |
| eCl@ss 7.0 | 27279218 |
| eCl@ss 8.0 | 27279218 |

### ETIM

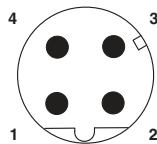
|          |          |
|----------|----------|
| ETIM 3.0 | EC000830 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |

### UNSPSC

|               |          |
|---------------|----------|
| UNSPSC 6.01   | 26121616 |
| UNSPSC 7.0901 | 26121616 |
| UNSPSC 11     | 26121604 |
| UNSPSC 12.01  | 26121616 |
| UNSPSC 13.2   | 26121616 |

## Drawings

Schematic diagram



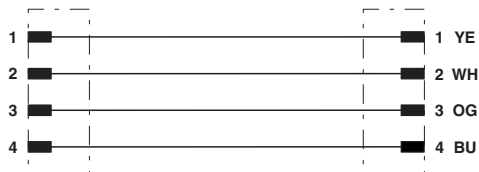
Pin assignment M12 male connector, 4-pos., D-coded, male side

Cable cross section



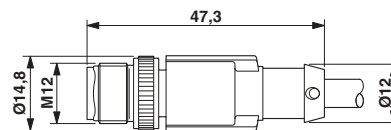
EtherCAT® [93G]

Circuit diagram



Contact assignment of the M12 plugs

Dimensioned drawing



Plug, M12 x 1, straight, shielded

