

## Network cable - NBC-MSD/ 2,0-93G/R4AC SCO - 1407562

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid  
(<http://download.phoenixcontact.com>)



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 RJ45 / IP20, Cable length: 2 m



### Key commercial data

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

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 2 m |
|-----------------|-----|

#### Ambient conditions

|                      |                       |
|----------------------|-----------------------|
| Degree of protection | IP65 (M12 connector)  |
|                      | IP67 (M12 connector)  |
|                      | IP20 (RJ45 connector) |

#### General data

|                       |                                           |
|-----------------------|-------------------------------------------|
| Rated current at 40°C | 1 A                                       |
| Rated voltage         | 50 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                                 |

# Network cable - NBC-MSD/ 2,0-93G/R4AC SCO - 1407562

## Technical data

### Characteristics head 1

|                                 |                                                    |
|---------------------------------|----------------------------------------------------|
| 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              | $\leq 5 \text{ m}\Omega$                           |
| Insulation resistance           | $\geq 100 \text{ M}\Omega$                         |
| Insertion/withdrawal cycles     | $\geq 100$                                         |
| Torque                          | 0.4 Nm                                             |
| Ambient temperature (operation) | -25 °C ... 90 °C                                   |

### Characteristics head 2

|                                          |                           |
|------------------------------------------|---------------------------|
| Head type                                | Plug Straight RJ45 / IP20 |
| No. of positions (pin connector pattern) | 4 (8)                     |
| Color                                    | black                     |
| Material (component)                     | CuSn (Contact)            |
|                                          | Ni/Au (Contact surface)   |
|                                          | PA (Contact carriers)     |
|                                          | PA (Housing)              |
| Insertion/withdrawal cycles              | $\geq 750$                |
| Ambient temperature (operation)          | -25 °C ... 80 °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                                         |
| 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 |

## Network cable - NBC-MSD/ 2,0-93G/R4AC SCO - 1407562

### Technical data

#### Cable

|                                               |                                                 |
|-----------------------------------------------|-------------------------------------------------|
| Optical shield covering                       | 85 %                                            |
| External sheath, color                        | Green RAL 6018                                  |
| Outer sheath thickness                        | approx. 0.9 mm                                  |
| External cable diameter D                     | 6.5 mm $\pm$ 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                         | $\geq 500 \text{ M}\Omega \cdot \text{km}$      |
| Conductor resistance                          | $\leq 120000000 \text{ }\Omega/\text{km}$       |
| Working capacitance                           | 52 pF                                           |
| Wave impedance                                | 100 $\Omega \pm 15 \text{ }\Omega$ (at 100 MHz) |
| Signal runtime                                | 5.3 ns/m                                        |
| Coupling resistance                           | $\leq 20.00 \text{ m}\Omega/\text{m}$           |
| 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 |
| eCl@ss 6.0 | 27279218 |
| eCl@ss 7.0 | 27279218 |
| eCl@ss 8.0 | 27279218 |

Network cable - NBC-MSD/ 2,0-93G/R4AC SCO - 1407562

Classifications

ETIM

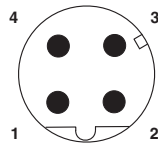
|          |          |
|----------|----------|
| ETIM 3.0 | EC000830 |
| ETIM 4.0 | EC001855 |
| ETIM 5.0 | EC001855 |

UNSPSC

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

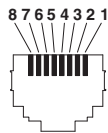
Drawings

Schematic diagram



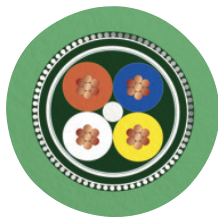
Pin assignment M12 male connector, 4-pos., D-coded, male side

Schematic diagram



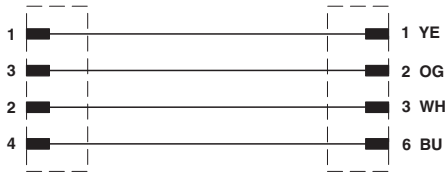
Connector pin assignment plug RJ45

Cable cross section



EtherCAT® [93G]

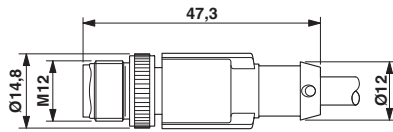
Circuit diagram



Contact assignment of the M12 and RJ45 plug

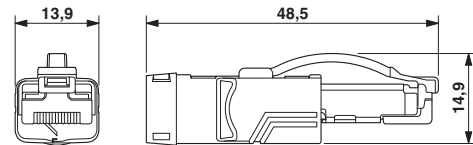
## Network cable - NBC-MSD/ 2,0-93G/R4AC SCO - 1407562

Dimensioned drawing



Plug, M12 x 1, straight, shielded

Dimensioned drawing



RJ45 connector, IP20