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## Network cable - NBC-MRD/ 5,0-93E SCO US - 1408734


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Network cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug angled M12 SPEEDCON / IP67, coding: D, on free cable end, cable length: 5 m



### Key Commercial Data

|                        |   |
|------------------------|---|
| Packing unit           | 1 STK   |
| Minimum order quantity | 50 STK  |
| GTIN                   | <br>4 046356 828703 |
| GTIN                   | 4046356828703   |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 5 m |
|-----------------|-----|

#### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Degree of protection            | IP65                             |
|                                 | IP67                             |
| Ambient temperature (operation) | -25 °C ... 85 °C (M12 connector) |

#### General data

|                          |                                     |
|--------------------------|-------------------------------------|
| Rated current at 40°C    | 4 A                                 |
| Rated voltage            | 48 V AC                             |
|                          | 60 V DC                             |
| Number of positions      | 4                                   |
| Signal type/category     | Ethernet 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                               |

#### Characteristics head 1

# Network cable - NBC-MRD/ 5,0-93E SCO US - 1408734

## Technical data

### Characteristics head 1

|           |                                 |
|-----------|---------------------------------|
| Head type | Plug angled M12 SPEEDCON / IP67 |
| Coding    | D (Data)                        |

### Characteristics head 2

|           |                |
|-----------|----------------|
| Head type | free cable end |
| Color     | black          |

### Standards and Regulations

|                       |                 |
|-----------------------|-----------------|
| Standard designation  | M12 connector   |
| Standards/regulations | IEC 61076-2-101 |

### Cable

|   |  |
|---|--|
| Cable type                                    | PUR ETHERNET 2x2 FLEX                              |
| Cable type (abbreviation)                     | 93E  |
| UL AWM style                                  | 20963 (80°C/30 V)                                  |
| Signal type/category                          | Ethernet CAT5 (IEC 11801), 100 Mbps                |
| Cable structure                               | 2x2xAWG26/7; SF/UTP                                |
| Conductor cross section                       | 2x 2x 0.14 mm <sup>2</sup>                         |
| AWG signal line                               | 26   |
| Conductor structure signal line               | 7x 0.16 mm   |
| Core diameter including insulation            | 0.98 mm  |
| Wire colors                                   | white/orange-orange, white/green-green             |
| Twisted pairs                                 | 2 cores to the pair                                |
| Overall twist                                 | Two pairs with two fillers to the core             |
| Shielding                                     | Aluminum-coated foil, tinned copper braided shield |
| Optical shield covering                       | 70 %   |
| External sheath, color                        | water blue RAL 5021                                |
| Outer sheath thickness                        | 1.2 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                          | ≤ 80 N   |
| Cable weight                                  | 42 kg/km   |
| Outer sheath, material                        | PUR  |
| Material conductor insulation                 | Foamed PE  |
| Conductor material                            | Bare Cu litz wires                                 |
| Standards/specifications                      | Electrical requirements EN 50288-2-2               |
| Insulation resistance                         | ≥ 500 MΩ*km  |
| Loop resistance                               | ≤ 290.00 Ω/km                                      |
| Cable capacity                                | approx. 45 nF/km (at 1 kHz)                        |
| Wave impedance                                | 100 Ω ±5 Ω (at 100 MHz)                            |
| Near end crosstalk attenuation (NEXT)         | 65.3 dB (with 1 MHz)                               |

## Network cable - NBC-MRD/ 5,0-93E SCO US - 1408734

### Technical data

#### Cable

|  |   |
|--|---|
|  | 56.3 dB (at 4 MHz)                                    |
|  | 50.3 dB (at 10 MHz)                                   |
|  | 47.2 dB (at 16 MHz)                                   |
|  | 45.8 dB (at 20 MHz)                                   |
|  | 42.9 dB (at 31.25 MHz)                                |
|  | 38.4 dB (at 62.5 MHz)                                 |
|  | 35.3 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)                                   |
|  | 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 (Peak value, not for high-power applications) |
| Test voltage Core/Core                                 | 700 V (50 Hz, 1 min.)                                 |
| Test voltage Core/Shield                               | 700 V (50 Hz, 1 min.)                                 |
| Current carrying capacity of cable                     | 2 A (according to DIN VDE 0891-1)                     |
| Flame resistance                                       | according to IEC 60332-1-2                            |
|  | in acc. to UL VW1                                     |
| Halogen-free   | according to IEC 60754-1                              |

# Network cable - NBC-MRD/ 5,0-93E SCO US - 1408734

## Technical data

### Cable

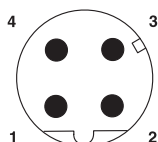
|   |   |
|---|---|
| Resistance to oil                       | according to EN 60811-2-1                       |
| Ambient temperature (operation)         | -40 °C ... 80 °C (cable, fixed installation)    |
|   | -20 °C ... 80 °C (cable, flexible installation) |
| Ambient temperature (installation)      | -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 = 50  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

## Drawings

Schematic diagram



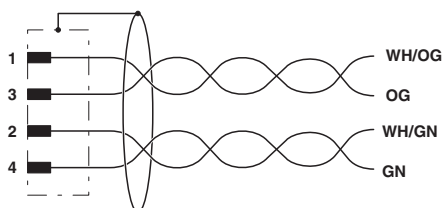
Pin assignment M12 male connector, 4-pos., D-coded, male side

Cable cross section



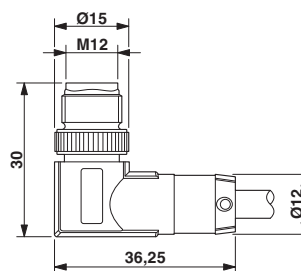
PUR ETHERNET 2x2 FLEX [93E]

Circuit diagram



Contact assignment of the M12 plug

Dimensional drawing



M12 x 1 male plug, angled, shielded

## Approvals

### Approvals

Approvals

UL Recognized


## Network cable - NBC-MRD/ 5,0-93E SCO US - 1408734

### Approvals

Ex Approvals

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#### Approval details

|                    |   |   |               |
|--------------------|---|---|---------------|
| UL Recognized      |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 335024 |
| Nominal voltage UN |   | 30 V  |               |
| Nominal current IN |   | 4 A   |               |

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