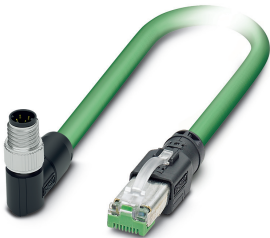


## Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544


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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PUR/FRNC halogen-free, green RAL 6018, shielded (Advanced Shielding Technology), Plug angled M8 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 2 m



### Key Commercial Data

|                                      |   |
|--------------------------------------|---|
| Packing unit                         | 1 pc  |
| GTIN                                 | <br>4 055626 804873 |
| GTIN                                 | 4055626804873   |
| Weight per Piece (excluding packing) | 160.000 g   |
| Custom tariff number                 | 85444290  |
| Country of origin                    | Poland  |

### Technical data

#### Dimensions

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

#### Ambient conditions

|                                 |                                  |
|---------------------------------|----------------------------------|
| Degree of protection            | IP65                             |
|                                 | IP67                             |
| 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 | 1 A  |

# Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

## Technical data

### General data

|   |                                      |
|---|--------------------------------------|
| Rated voltage                           | 48 V AC                              |
|   | 60 V DC                              |
| Number of positions                     | 4                                    |
| Signal type/category                    | PROFINET CAT5 (IEC 11801), 100 Mbps  |
|   | EtherCAT® CAT5 (IEC 11801), 100 Mbps |
| Standards/regulations                   | M8 connector IEC 61076-2-114         |
| Transmission characteristics (category) | CAT5                                 |
| Transmission speed                      | 100 Mbps                             |

### Characteristics head 1

|  |  |
|--|--|
| Head type                                | Plug angled M8 / IP67                              |
| No. of positions (pin connector pattern) | 4  |
| Coding                                   | D (Data)   |
| Color                                    | black  |
| Material (component)                     | CuSn (Contact)                                     |
|  | Ni/Au (Contact surface)                            |
|  | PA 6.6 (Contact carriers)                          |
|  | TPU, hardly inflammable, self-extinguishing (Grip) |
|  | Brass, nickel-plated (Screw connection)            |
| Shielded                                 | yes  |
| Insulation resistance                    | ≥ 100 MΩ   |
| Insertion/withdrawal cycles              | ≥ 100  |
| Torque                                   | 0.2 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              | ≥ 750                     |
| Ambient temperature (operation)          | -25 °C ... 80 °C          |

### Standards and Regulations

|                          |                              |
|--------------------------|------------------------------|
| Standards/specifications | M8 connector IEC 61076-2-114 |
|--------------------------|------------------------------|

## Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

### Technical data

#### Cable

|   |  |
|---|--|
| Product labeling                              | "sequential length in metres" PN-CABLE-934-C / PUR-4X22AWG/7 Trailing * 22AWG (SHIELDED) (UL) E119100 CMX 75°C VERIFIED (UL) CAT 5E PATCH CABLE FRNC * (Cable printing cable supplier) |
| Cable type                                    | PROFINET drag chain CAT5   |
| Cable type (abbreviation)                     | 93C  |
| 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 <sup>2</sup>  |
| AWG signal line                               | 22   |
| Conductor structure signal line               | 7x 0.25 mm   |
| Core diameter including insulation            | 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    | 5 x D  |
| Minimum bending radius, flexible installation | 7.5 x D  |
| Number of bending cycles                      | 3000000  |
| Bending radius                                | 100 mm   |
| Traversing path                               | 10 m   |
| Traversing rate                               | 4 m/s  |
| Acceleration                                  | 4 m/s <sup>2</sup>   |
| Torsion force                                 | ± 30 °/m   |
| Tensile strength GRP                          | ≤ 150 N  |
| Cable weight                                  | 61 kg/km   |
| Outer sheath, material                        | PUR  |
| Material, inner sheath                        | FRNC   |
| 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 1 ... 100 MHz)   |
| Near end crosstalk attenuation (NEXT)         | 80 dB (with 1 MHz)   |
|   | 76 dB (at 4 MHz)   |

## Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

### Technical data

#### Cable

|   |   |
|---|---|
|   | 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 (UL rating)                               |
| Test voltage Core/Core                  | 2000 V (50 Hz, 1 min.)                          |
| Test voltage Core/Shield                | 2000 V (50 Hz, 1 min.)                          |
| Special properties                      | Electrical properties according to EN 50288-2-2 |
| Flame resistance                        | according to IEC 60332-1-2                      |
| Halogen-free                            | yes   |
| Resistance to oil                       | in accordance with DIN EN 60811-2-1             |
| Other resistance                        | UV resistant                                    |
| 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                                |
| Shielded                                | yes   |

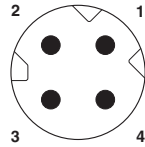
#### Environmental Product Compliance

|            |   |
|------------|---|
| China RoHS | Environmentally Friendly Use Period = 50 years  |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

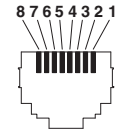
#### Drawings

# Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

Schematic diagram



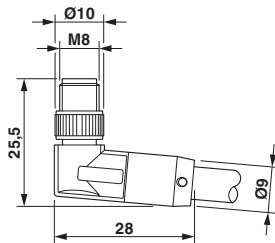
Schematic diagram



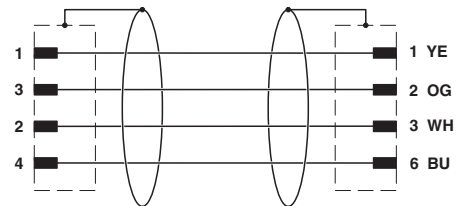
Pin assignment M8 male connector, 4-pos., D-coded, view of pin side

Connector pin assignment plug RJ45

Dimensional drawing



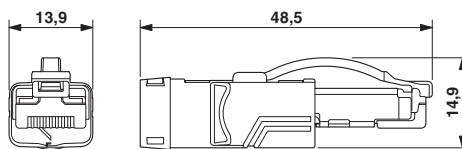
Circuit diagram



Plug M8 x 1, angled, shielded

Contact assignment of the M8 and RJ45 plug

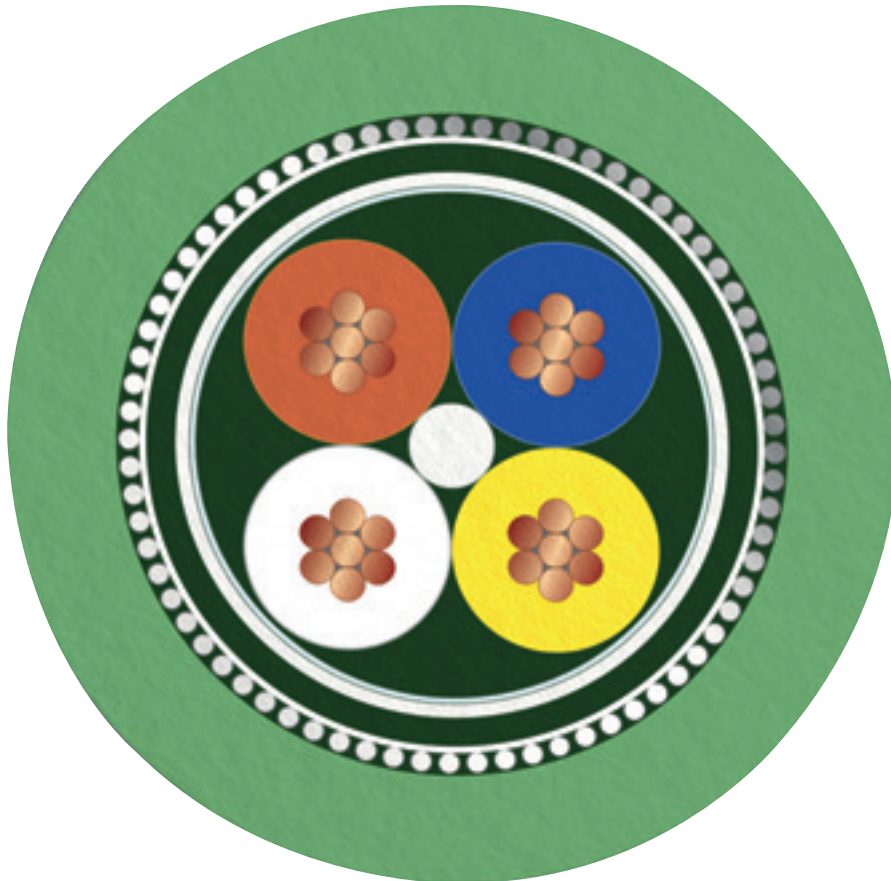
Dimensional drawing



RJ45 connector, IP20

# Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

Cable cross section



PROFINET drag chain CAT5 [93C]

## Classifications

### eCl@ss

|               |          |
|---------------|----------|
| eCl@ss 10.0.1 | 27060308 |
| eCl@ss 11.0   | 27060307 |
| eCl@ss 9.0    | 27060308 |

### ETIM

|          |          |
|----------|----------|
| ETIM 6.0 | EC001262 |
| ETIM 7.0 | EC001855 |

# Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

## Classifications

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 18.0 | 26121604 |
| UNSPSC 19.0 | 26121604 |
| UNSPSC 20.0 | 26121604 |
| UNSPSC 21.0 | 26121604 |

## Approvals


### Approvals


#### Approvals


EAC-RoHS / UL Listed / cUL Listed / cULus Listed

#### Ex Approvals

### Approval details

|          |   |  |                      |
|----------|---|--|----------------------|
| EAC-RoHS |  |  | RU D-DE.HB35.B.00385 |
|----------|---|--|----------------------|

|                    |   |   |         |
|--------------------|---|---|---------|
| UL Listed          |  | <a href="http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm</a> | E335024 |
| Nominal voltage UN |   | 30 V  |         |
| Nominal current IN |   | 0.5 A   |         |

|                    |   |   |         |
|--------------------|---|---|---------|
| cUL Listed         |  | <a href="http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYVV/template/LISEXT/1FRAME/index.htm</a> | E335024 |
| Nominal voltage UN |   | 30 V  |         |
| Nominal current IN |   | 0.5 A   |         |

## Network cable - NBC-M8MRD/2,0-93C/R4AC - 1080544

### Approvals

cULus Listed

