

# NBC-M12MSD/50,0-93B/M12MSD - Network cable



1015059

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PVC/PVC, green RAL 6018, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug straight M12, coding: D / IP67, cable length: 50 m

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1015059                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 10 pc                          |
| Note                                 | Made to order (non-returnable) |
| Product key                          | AF1CJN                         |
| GTIN                                 | 4055626496160                  |
| Weight per piece (including packing) | 3,174 g                        |
| Weight per piece (excluding packing) | 3,174 g                        |
| Country of origin                    | PL                             |

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## Technical data

### Product properties

|                      |                         |
|----------------------|-------------------------|
| Product type         | Data cable preassembled |
| Application          | Standard                |
| Sensor type          | PROFINET                |
| Number of positions  | 4                       |
| No. of cable outlets | 1                       |
| Shielded             | yes                     |
| Coding               | D                       |

### Insulation characteristics

|                      |    |
|----------------------|----|
| Overvoltage category | II |
| Degree of pollution  | 3  |

### Interfaces

|                      |   |
|----------------------|---|
| Bus system           | PROFINET  |
| Signal type/category | PROFINET CAT5 (IEC 11801), 100 Mbps<br>EtherCAT® CAT5 (IEC 11801), 100 Mbps |

### Signaling

|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | no |

### Electrical properties

|   |                       |
|---|-----------------------|
| Nominal voltage $U_N$                   | 48 V AC               |
|   | 60 V DC               |
| Nominal current $I_N$                   | 4 A                   |
| Transmission medium                     | Copper                |
| Transmission speed                      | 100 Mbps              |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002) |

### Material specifications

|  |    |
|--|----|
| Flammability rating according to UL 94 | V0 |
|--|----|

### Connector

#### Connection 1

|                     |                          |
|---------------------|--------------------------|
| Type                | Plug straight M12 / IP67 |
| Number of positions | 4                        |
| Coding type         | D (Data)                 |
| Handle color        | black                    |
| Material            | CuSn (Contact)           |
|                     | Ni/Au (Contact surface)  |
|                     | PA (Contact carrier)     |

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|                                 |   |
|---------------------------------|---|
|                                 | TPU, hardly inflammable, self-extinguishing (Grip body) |
|                                 | Zinc die-cast, nickel-plated (Screw connection)         |
|                                 | FKM (Seal)  |
| Insertion/withdrawal cycles     | ≥ 100   |
| Insulation resistance           | ≥ 100 MΩ  |
| Tightening torque               | 0.4 Nm  |
| Degree of protection            | IP67  |
| Ambient temperature (operation) | -25 °C ... 90 °C  |

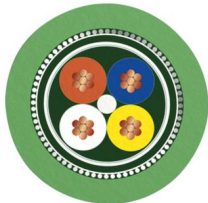
## Connection 2

|                                 |   |
|---------------------------------|---|
| Type                            | Plug straight M12 / IP67  |
| Number of positions             | 4   |
| Coding type                     | D (Data)  |
| Handle color                    | black   |
| Material                        | CuSn (Contact)<br>Ni/Au (Contact surface)<br>PA (Contact carrier)<br>TPU, hardly inflammable, self-extinguishing (Grip body)<br>Zinc die-cast, nickel-plated (Screw connection)<br>FKM (Seal) |
| Insertion/withdrawal cycles     | ≥ 100   |
| Insulation resistance           | ≥ 100 MΩ  |
| Tightening torque               | 0.4 Nm  |
| Degree of protection            | IP67  |
| Ambient temperature (operation) | -25 °C ... 90 °C  |

## Cable/line

|              |      |
|--------------|------|
| Cable length | 50 m |
|--------------|------|

## PROFINET PVC stranded CAT5 [93B]

|                         |  |
|-------------------------|--|
| Dimensional drawing     |  |
| UL AWM Style            | 21695 (80 °C / 600 V)  |
| Number of positions     | 4  |
| Shielded                | yes  |
| Cable type              | PROFINET PVC stranded CAT5 [93B]   |
| Conductor structure     | 1x4xAWG22/7, SF/TQ   |
| AWG signal line         | 22   |
| Conductor cross-section | 4x 0.34 mm <sup>2</sup>  |

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|   |  |
|---|--|
| Wire diameter incl. insulation                | 1.5 mm ±0.1 mm   |
| External cable diameter                       | 6.50 mm ±0.2 mm  |
| Outer sheath, material                        | PVC  |
| External sheath, color                        | green RAL 6018   |
| Conductor material                            | Tin-plated Cu litz wires   |
| Material wire insulation                      | PE   |
| Single wire, color                            | white, yellow, blue, orange  |
| Overall twist                                 | Star quad  |
| Optical shield covering                       | 85 %   |
| Insulation resistance                         | ≥ 5 GΩ*km  |
| Loop resistance                               | ≤ 120.00 Ω/km  |
| Wave impedance                                | 100 Ω ±5 Ω (at 100 MHz)  |
| Nominal voltage, cable                        | ≤ 600 V  |
| Test voltage Core/Core                        | 2000 V ((50 Hz/1 min))   |
| Test voltage Core/Shield                      | 2000.00 V ((50 Hz/1 min))  |
| Minimum bending radius, fixed installation    | 4 x D  |
| Minimum bending radius, flexible installation | 8 x D  |
| Flame resistance                              | UL 1581, Section 1060 and UL 2556, Section 9.3 (FT1)<br>UL 1685 (CSA FT 4)<br>UL 1581, Section 1100 and UL 2556, Section 9.1 (HFT/FT2) |
| Resistance to oil                             | OIL RES I according to UL 2256   |
| Other resistance                              | UV resistant (according to UL 1581, Section 1200)  |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)<br>-10 °C ... 70 °C (Cable, flexible installation)  |

## Standards and regulations

### M12

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

## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram

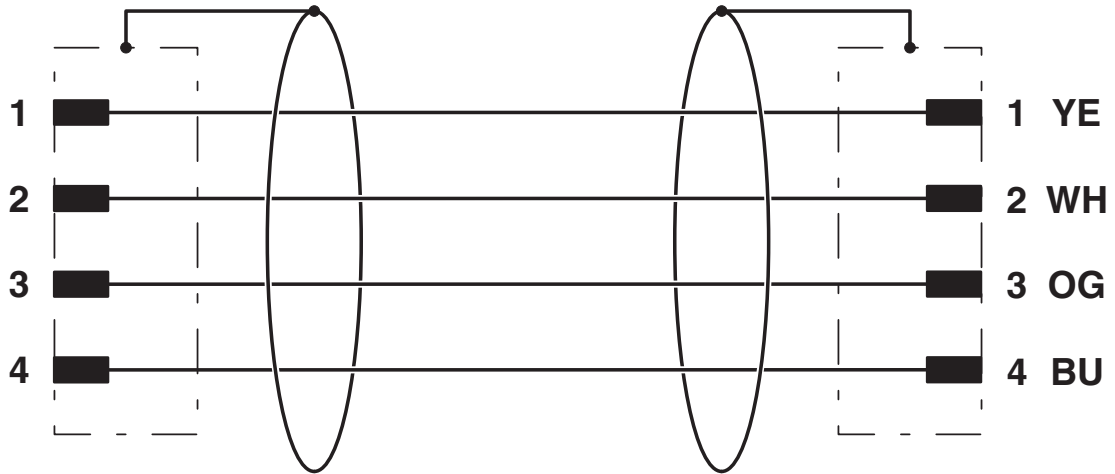


Pin assignment M12 male connector, 4-pos., D-coded, male side

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Circuit diagram



Contact assignment of the M12 plugs

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## Approvals

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|  <b>UL Listed</b><br>Approval ID: FILE E 335024 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 250 V                 | 4 A                   | -                 | -                           |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27060307 |
| ECLASS-15.0 | 27060307 |

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC001855 |
|-----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 26121600 |
|-------------|----------|

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## Environmental product compliance

### EU RoHS

|   |                    |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes, No exemptions |
|---|--------------------|

### China RoHS

|  |  |
|--|--|
| Environment friendly use period (EFUP) | EFUP-E                                   |
|  | No hazardous substances above the limits |

### EU REACH SVHC

|                                     |                            |
|-------------------------------------|----------------------------|
| REACH candidate substance (CAS No.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

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