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# NBC-M12MSD/ 5,0-93B/M12MSD - Network cable

1407526

https://www.phoenixcontact.com/pc/products/1407526

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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 / IP67, cable length: 5 m

## Commercial data

| | |
|---|---|
| Item number | 1407526 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Product key | BF1CJN |
| Catalog page | Page 198 (C-6-2019) |
| GTIN | 4046356778312 |
| Weight per piece (including packing) | 350 g |
| Weight per piece (excluding packing) | 355.3 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

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## Technical data

### Notes

| | |
|---|---|
| General | This product corresponds to the PROFINET Cabling and Interconnection Technology Guideline for PROFINET regulations, version 2.00, order no: 2.252, Chapter 10.1 Cord Sets for Balanced Cabling |

### Product properties

| | |
|---|---|
| Product type | Data cable preassembled |
| Application | Standard |
| Sensor type | PROFINET |
| Number of positions | 4 |
| Shielded | yes |

### Interfaces

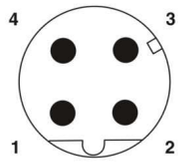
| | |
|---|---|
| Signal type/category | PROFINET CAT5 (IEC 11801), 100 Mbps |
| | EtherCAT® CAT5 (IEC 11801), 100 Mbps |

### Electrical properties

| | |
|---|---|
| Nominal voltage $U_N$ | 48 V AC |
| | 60 V DC |
| Nominal current $I_N$ | 4 A |
| Transmission medium | Copper |

### Connector

Connection 1

| | |
|---|---|
| Dimensional drawing |  Pin assignment M12 male connector, 4-pos., D-coded, male side |
| Type | M12 Plug, straight, 4-position, shielded (Advanced Shielding Technology), Keying: D |
| Number of positions | 4 |
| Shielded | yes |
| Shielding | Advanced Shielding Technology |
| Signal type/category | EtherCAT® CAT5 (IEC 11801), 100 Mbps |
| | PROFINET CAT5 (IEC 11801) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |
| Overvoltage category | II |

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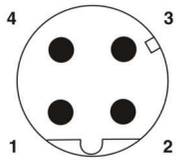
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| | |
|---|---|
| Degree of pollution | 3 |
| Tightening torque | 0.4 Nm |
| Material Contact | CuSn |
| Material Contact surface | Ni/Au |
| Material Contact carrier | PA 6.6 |
| Material Screw connection | Die-cast zinc, nickel-plated |
| Material Grip body | TPU, hardly inflammable, self-extinguishing |
| Material Seal | FKM |
| Flammability rating according to UL 94 | V0 |
| Degree of protection | IP65 |
| | IP67 |
| Ambient temperature (operation) | -25 °C ... 85 °C |
| Standard designation | M12 connector |
| Standards/regulations | IEC 61076-2-101 |

Connection 2

| | |
|---|---|
| Dimensional drawing |  Pin assignment M12 male connector, 4-pos., D-coded, male side |
| Type | M12 Plug, straight, 4-position, shielded (Advanced Shielding Technology), Keying: D |
| Number of positions | 4 |
| Shielded | yes |
| Shielding | Advanced Shielding Technology |
| Signal type/category | EtherCAT® CAT5 (IEC 11801), 100 Mbps |
| | PROFINET CAT5 (IEC 11801) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |
| Overvoltage category | II |
| Degree of pollution | 3 |
| Tightening torque | 0.4 Nm |
| Material Contact | CuSn |
| Material Contact surface | Ni/Au |
| Material Contact carrier | PA 6.6 |
| Material Screw connection | Die-cast zinc, nickel-plated |
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| | |
|---|---|
| Standard designation | M12 connector |
| Standards/regulations | IEC 61076-2-101 |

## Cable/line

| | |
|---|---|
| Cable length | 5 m |

PROFINET PVC stranded CAT5 [93B]

| | |
|---|---|
| Dimensional drawing |  |
| Cable weight | 67 kg/km |
| UL AWM Style | 21694 |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET PVC stranded CAT5 [93B] |
| Conductor structure | 1x4xAWG22/7, SF/TQ |
| Signal runtime | 5.3 ns/m |
| Signal speed | 0.66 c |
| Conductor structure signal line | 7x 0.25 mm |
| AWG signal line | 22 |
| Conductor cross section | 4x 0.34 mm² |
| Wire diameter incl. insulation | 1.55 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 |
| Thickness, outer sheath | approx. 0.90 mm |
| Overall twist | Star quad |
| Optical shield covering | 85 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Coupling resistance | ≤ 20.00 mΩ/m (at 10 MHz) |
| Loop resistance | ≤ 120.00 Ω/km |
| Wave impedance | 100 Ω ±15 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 | 3 x D |

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| | |
|---|---|
| Minimum bending radius, flexible installation | 7 x D |
| Smallest bending radius, fixed installation | 20 mm |
| Smallest bending radius, movable installation | 46 mm |
| Near end crosstalk attenuation (NEXT) | 80 dB (with 1 MHz) |
| | 76 dB (at 4 MHz) |
| | 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) |
| Shield 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) |
| Flame resistance | according to UL 1685 (CSA FT 4) |
| Resistance to oil | Resistant to oil to a limited extent |
| Other resistance | UV resistant (according to UL 1581, Section 1200) |
| Ambient temperature (operation) | -40 °C ... 70 °C (cable, fixed installation) |
| | -40 °C ... 70 °C (Cable, flexible installation) |
| Ambient temperature (installation) | -20 °C ... 60 °C |

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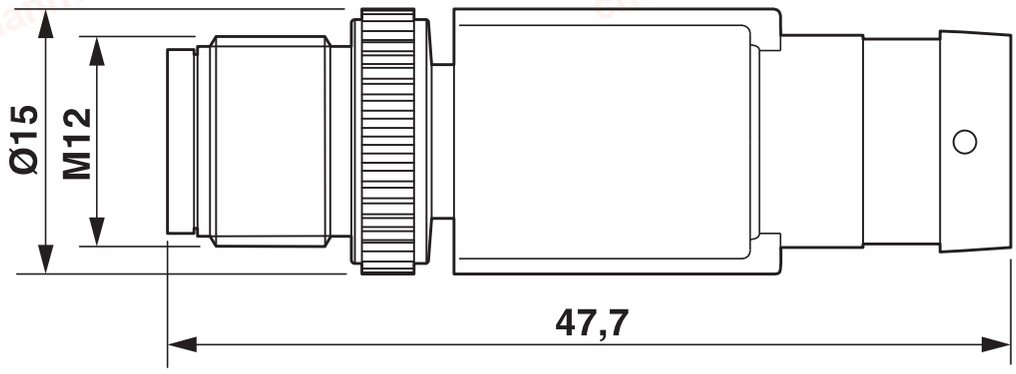
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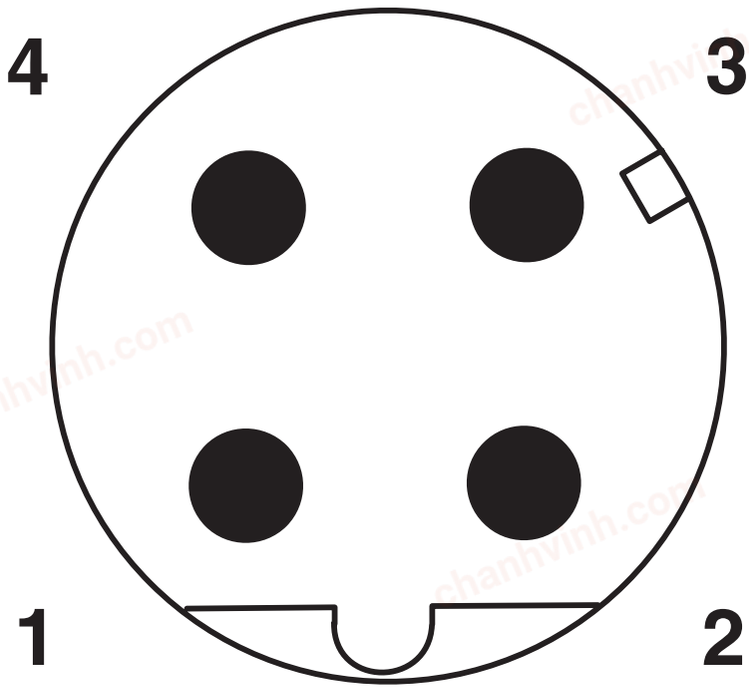
## Drawings

Dimensional drawing




Plug, M12 x 1, straight, shielded

Schematic diagram




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

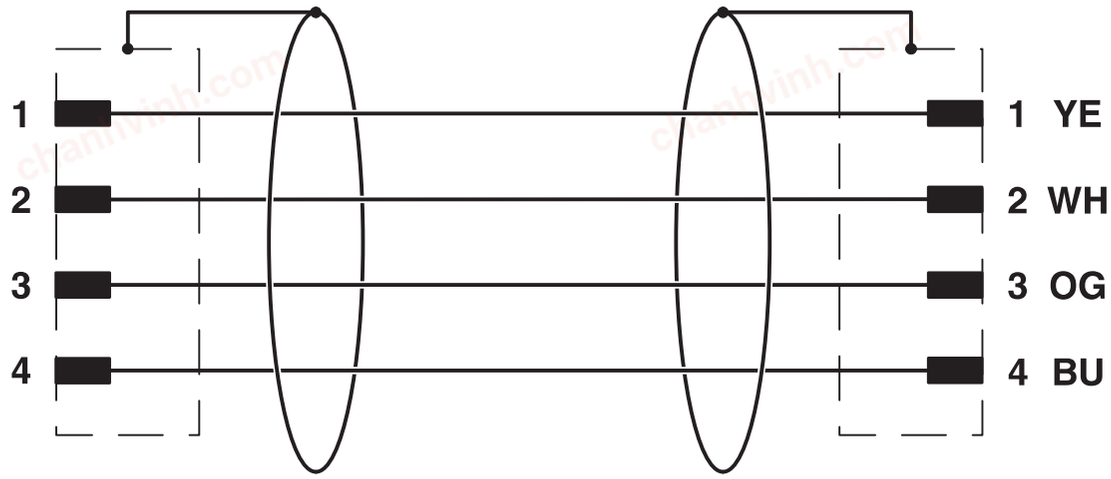
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# NBC-M12MSD/ 5,0-93B/M12MSD - Network cable

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Circuit diagram




Contact assignment of the M12 plugs

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## Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/pc/products/1407526

**UL Listed**
Approval ID: FILE E 335024

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| | 250 V | 4 A | - | - |

**cUL Listed**
Approval ID: FILE E 335024

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| | 250 V | 4 A | - | - |

**EAC-RoHS**
Approval ID: RU D-DE.HB35.B.00387

**cULus Listed**

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## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-11.0 | 27060307 |
| ECLASS-12.0 | 27060307 |
| ECLASS-13.0 | 27060307 |

### ETIM

| | |
|---|---|
| ETIM 9.0 | 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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PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstraße 8
D-32825 Blomberg
+49 (0) 5235-3 00
info@phoenixcontact.com