

NBC-M12MSD/15,0-93B/M12MSD CMC - Network cable



1524404

<https://www.phoenixcontact.com/us/products/1524404>

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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: 15 m

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 1524404 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF04 |
| Product key | BF1CJN |
| Catalog page | Page 198 (C-6-2019) |
| GTIN | 4046356021487 |
| Weight per piece (including packing) | 981 g |
| Weight per piece (excluding packing) | 980.6 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

NBC-M12MSD/15,0-93B/M12MSD CMC - Network cable



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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 |
| General | Further products with variable cable type and variable cable length can be found in the accessories section |
| General | CMC - Conductor marker carrier - PATG |

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 |
| | 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 characteristics (category) | CAT5 (IEC 11801:2002) |

Material specifications

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

Connector

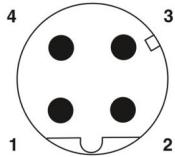
| |
|--------------|
| Connection 1 |
|--------------|

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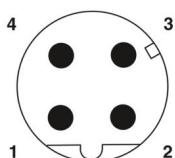


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| | |
|--|---|
| Dimensional drawing |  |
| | Pin assignment M12 male connector, 4-pos., D-coded, male side |
| Type | M12 Plug, straight, 4-position, shielded (Advanced Shielding Technology), Keying: D |
| Number of positions | 4 |
| Shielded | yes |
| 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 |
| Overshoot category | II |
| Degree of pollution | 3 |
| Tightening torque | 0.4 Nm |
| Contact material | CuSn |
| Contact surface material | Ni/Au |
| Contact carrier material | PA 6.6 |
| Material for screw connection | Zinc die-cast, nickel-plated |
| Seal material | 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 |

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| | |
|--|------------------------------|
| | PROFINET CAT5 (IEC 11801) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |
| Overtoltage category | II |
| Degree of pollution | 3 |
| Tightening torque | 0.4 Nm |
| Contact material | CuSn |
| Contact surface material | Ni/Au |
| Contact carrier material | PA 6.6 |
| Material for screw connection | Zinc die-cast, nickel-plated |
| Seal material | 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 |

Cable/line

| | |
|--------------|------|
| Cable length | 15 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 mm ² |
| Wire diameter incl. insulation | 1.55 mm |
| External cable diameter | 6.50 mm ±0.2 mm |
| Outer sheath, material | PVC |

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| | |
|---|---|
| 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 | $\geq 500 \text{ M}\Omega\text{-km}$ |
| Coupling resistance | $\leq 20.00 \text{ m}\Omega/\text{m}$ (at 10 MHz) |
| Loop resistance | $\leq 120.00 \Omega/\text{km}$ |
| Wave impedance | $100 \Omega \pm 15 \Omega$ (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 |
| 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 |

Environmental and real-life conditions

Ambient conditions

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

Standards and regulations

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

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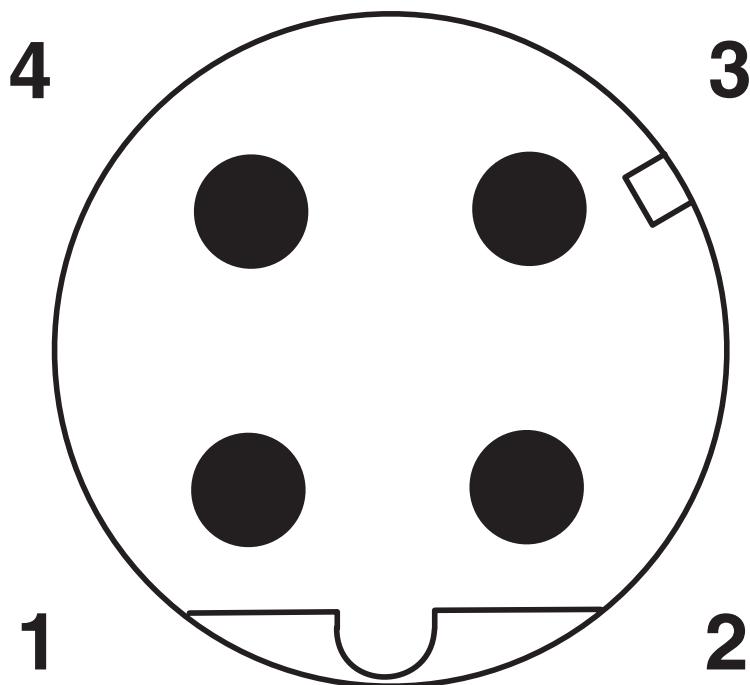


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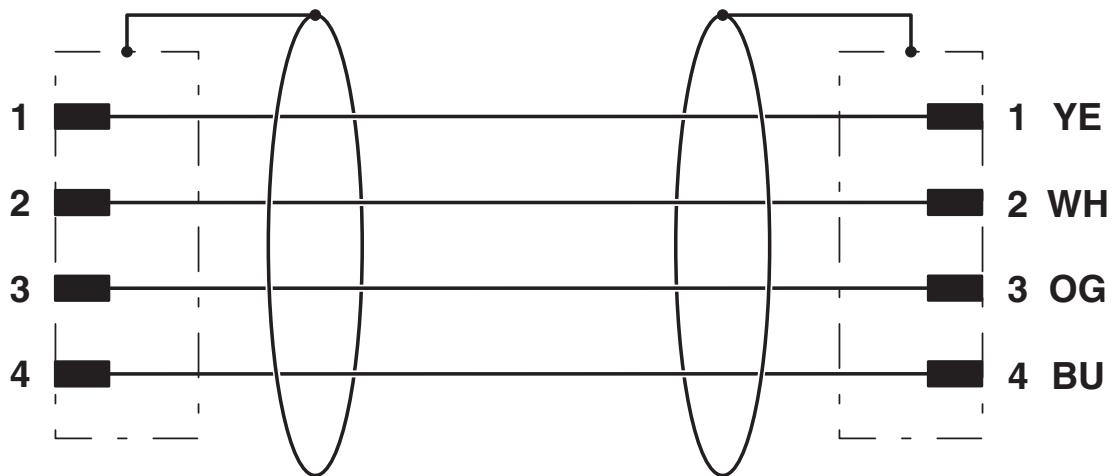
Drawings

Schematic diagram



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

Circuit diagram



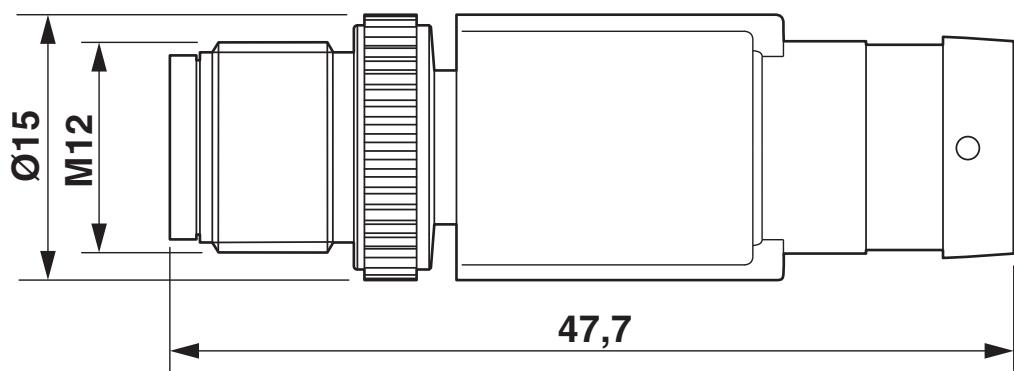
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Dimensional drawing



Plug, M12 x 1, straight, shielded

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Approvals

ⓘ To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1524404>



EAC-RoHS

Approval ID: RU D-DE.HB35.B.00387



cULus Listed

Approval ID: NBC-M12MSD Series

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

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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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Accessories

NBC-M12MSD-M12MSD-PN/.../... - Network cable

1408634

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug straight M12, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)



NBC-M12MSD-M12MRD-PN/.../... - Network cable

1408625

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug angled M12, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)



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NBC-M12MRD-M12MRD-PN/.../... - Network cable

1408624

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug angled M12, coding: D / IP67, on Plug angled M12, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)

NBC-M12MSD-M12FSD-PN/.../... - Network cable

1408617

<https://www.phoenixcontact.com/us/products/1408617>



Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Socket straight M12, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)

NBC-M12MSD/15,0-93B/M12MSD CMC - Network cable



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NBC-M12MSD-M12FRD-PN/.../... - Network cable

1408608

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Socket angled M12, coding: D / IP67, cable length: Free input (0.2 .. . 40.0 m)



NBC-M12MRD-M12FSD-PN/.../... - Network cable

1408616

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug angled M12, coding: D / IP67, on Socket straight M12, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)



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NBC-M12MRD-M12FRD-PN/.../... - Network cable

1408607

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded, Plug angled M12 SPEEDCON, coding: D / IP67, on Socket angled M12 SPEEDCON, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)

PROT-M12 FS-PA-CHAIN - Sealing cap

1430873

<https://www.phoenixcontact.com/us/products/1430873>

M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs



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SAC-M12-EXCLIP-M - Locking clip

1558988

<https://www.phoenixcontact.com/us/products/1558988>

Locking clip for the pin side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools



TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/us/products/1208429>

Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors



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TSD-M 1,2NM - Torque screwdriver

1212224

<https://www.phoenixcontact.com/us/products/1212224>

Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm



TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

<https://www.phoenixcontact.com/us/products/1212600>

Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits



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SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/us/products/1208432>



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

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