

NBC-M12MSD/ 5,0-93E/M12MSD - Network cable



1407378

<https://www.phoenixcontact.com/us/products/1407378>

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Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug straight M12, coding: D / IP67, cable length: 5 m

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 1407378 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF04 |
| Product key | BF1CJI |
| Catalog page | Page 199 (C-6-2019) |
| GTIN | 4046356775069 |
| Weight per piece (including packing) | 249 g |
| Weight per piece (excluding packing) | 242.1 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

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Technical data

Notes

| | |
|---------|---|
| General | Further products with variable cable type and variable cable length can be found in the accessories section |
|---------|---|

Product properties

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

Insulation characteristics

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

Interfaces

| | |
|----------------------|-------------------------------------|
| Bus system | Ethernet |
| Signal type/category | Ethernet 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

| | |
|---------------------|--------------------------|
| Type | Plug straight M12 / IP67 |
| Number of positions | 4 |
| Coding type | D (Data) |
| Handle color | black |
| | CuZn (Contact) |

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| | |
|---------------------------------|--|
| Material | Ni/Au (Contact surface) |
| | PA (Contact carriers) |
| | TPU, hardly inflammable, self-extinguishing (Grip) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| | FKM (Seal) |
| Insertion/withdrawal cycles | ≥ 100 |
| Contact resistance | ≤ 5 mΩ |
| 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 | CuZn (Contact) |
| | Ni/Au (Contact surface) |
| | PA (Contact carriers) |
| | TPU, hardly inflammable, self-extinguishing (Grip) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| FKM (Seal) | |
| Insertion/withdrawal cycles | ≥ 100 |
| Contact resistance | ≤ 5 mΩ |
| Insulation resistance | ≥ 100 MΩ |
| Tightening torque | 0.4 Nm |
| Degree of protection | IP67 |
| Ambient temperature (operation) | -25 °C ... 90 °C |

Cable/line

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

Ethernet flexible CAT5, 2-pair [93E]

| | |
|------------------------------|--|
| Dimensional drawing |  |
| Cable weight | 42 kg/km |
| UL AWM Style | 20963 (80°C/30 V) |
| Wiring standards/regulations | Electrical requirements EN 50288-2-2 |

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| | |
|--|---|
| Number of positions | 4 |
| Shielded | yes |
| Cable type | Ethernet flexible CAT5, 2-pair [93E] |
| Conductor structure | 2x2xAWG26/7, SF/UTP |
| Signal runtime | 5.3 ns/m |
| Conductor structure signal line | 7x 0.16 mm |
| AWG signal line | 26 |
| Conductor cross section | 2x 2x 0.14 mm ² |
| Wire diameter incl. insulation | 0.98 mm |
| External cable diameter | 6.4 mm ±0.2 mm |
| Outer sheath, material | PUR |
| External sheath, color | water blue RAL 5021 |
| Conductor material | Bare Cu litz wires |
| Material wire insulation | Foamed PE |
| Single wire, color | white/orange-orange, white/green-green |
| Thickness, outer sheath | 1.2 mm |
| Twisted pairs | 2 cores to the pair |
| Overall twist | Two pairs with two fillers to the core |
| Optical shield covering | 70 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Coupling resistance | ≤ 100.00 mΩ/m (at 10 MHz) |
| Loop resistance | ≤ 290.00 Ω/km |
| Wave impedance | 100 Ω ±5 Ω (at 100 MHz) |
| Cable capacity | approx. 45 nF/km (at 1 kHz) |
| 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) |
| Minimum bending radius, fixed installation | 4 x D |
| Minimum bending radius, flexible installation | 8 x D |
| Smallest bending radius, fixed installation | 26 mm |
| Smallest bending radius, movable installation | 52 mm |
| Tensile strength | ≤ 80 N |
| Near end crosstalk attenuation (NEXT) | 65.3 dB (with 1 MHz) |
| | 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) |

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| | |
|------------------------------------|---|
| | 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) |
| Return attenuation (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) |
| Shield 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) |
| Halogen-free | according to IEC 60754-1 |
| Flame resistance | according to IEC 60332-1-2 |
| | in acc. to UL VW1 |
| | in accordance with UN ECE-R 118.03 |
| Resistance to oil | in accordance with 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 |

Environmental and real-life conditions

Ambient conditions

| | |
|----------------------|------|
| Degree of protection | IP65 |
| | IP67 |

Standards and regulations

M12

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

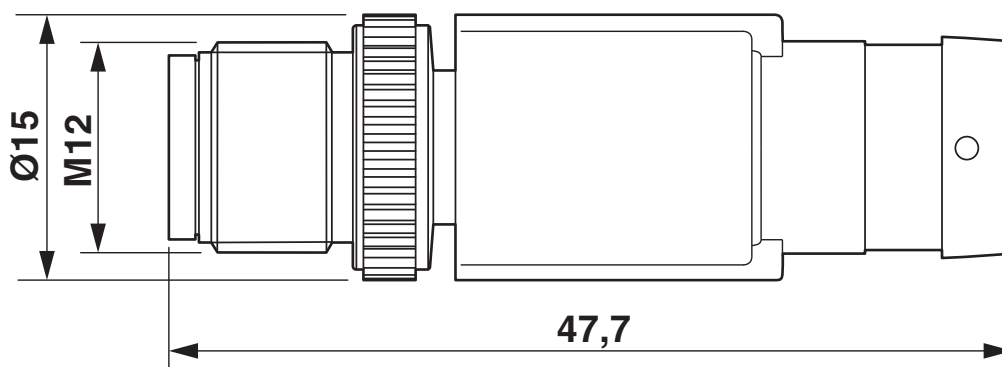
Drawings

Schematic diagram



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

Dimensional drawing

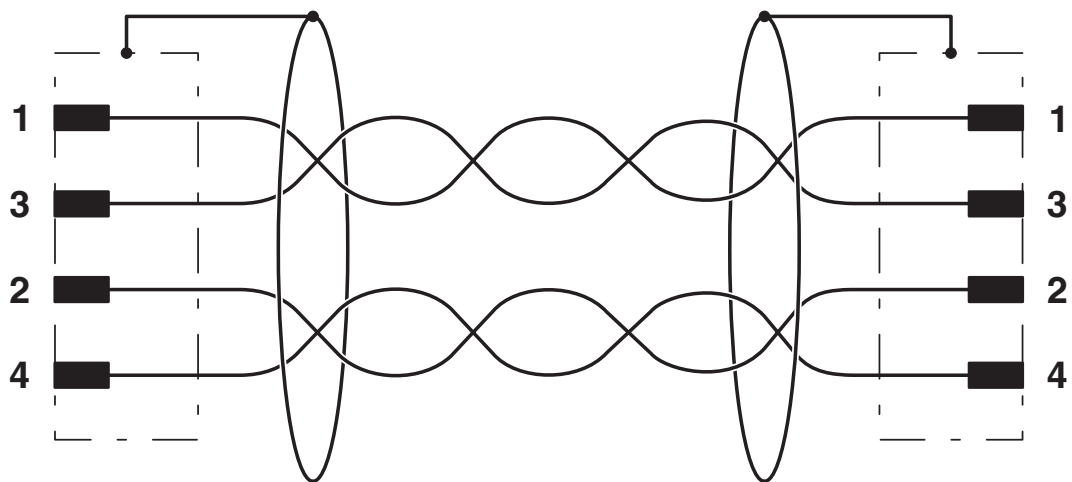


Plug, M12 x 1, straight, shielded

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Circuit diagram





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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1407378>

|  UL Listed Approval ID: FILE E 335024 | | | | |
|--|-----------------------|-----------------------|-------------------|----------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| | 30 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 |
| | 30 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

| | |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
| | No hazardous substances above threshold values |

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Accessories

NBC-MSD-MSD SCO/.../... - Network cable

1408706

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

NBC-MSD-MRD SCO/.../... - Network cable

1408700

<https://www.phoenixcontact.com/us/products/1408700>



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

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NBC-MSD-FSD SCO/.../... - Network cable

1408692

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

NBC-MSD-FRD SCO/.../... - Network cable

1408684

<https://www.phoenixcontact.com/us/products/1408684>



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

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NBC-MRD-MRD SCO/.../... - Network cable

1408699

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

NBC-MRD-FSD SCO/.../... - Network cable

1408691

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

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NBC-MRD-FRD SCO/.../... - Network cable

1408683

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Network cable, Ethernet 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

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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

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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

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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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