

# NBC-P12MSD/ 1,0-93E/P12FSD - Network cable



1476045

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Network cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12 Push Pull, coding: D / IP67, on Socket straight M12 Push Pull, coding: D / IP67, cable length: 1 m

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1476045       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF04          |
| Product key                          | BF1CJJ        |
| GTIN                                 | 4063151889166 |
| Weight per piece (including packing) | 79.6 g        |
| Weight per piece (excluding packing) | 22.22 g       |
| Customs tariff number                | 85444290      |
| Country of origin                    | PL            |

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Technical data

Product properties

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

Data management status

|                  |    |
|------------------|----|
| Article revision | 01 |
|------------------|----|

Interfaces

|                      |                                     |
|----------------------|-------------------------------------|
| Bus system           | Ethernet                            |
| Signal type/category | Ethernet CAT5 (IEC 11801), 100 Mbps |

Signaling

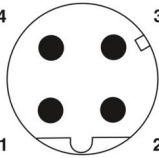
|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | No |

Electrical properties

|                                         |                       |
|-----------------------------------------|-----------------------|
| Nominal voltage $U_N$                   | 48 V AC               |
|                                         | 60 V DC               |
| Nominal current $I_N$                   | 1.5 A                 |
| Transmission medium                     | Copper                |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002) |

Connector

Connection 1

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

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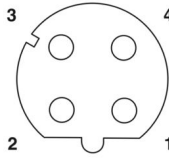


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|                                        |                                             |
|----------------------------------------|---------------------------------------------|
| Overvoltage category                   | II                                          |
| Degree of pollution                    | 3                                           |
| Material Contact                       | CuSn                                        |
| Material Contact surface               | Ni/Au                                       |
| Material Contact carrier               | PK                                          |
| 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 61076-2-010                             |

## Connection 2

|                                        |                                                                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensional drawing                    |  <p>Pin assignment M12 socket, 4-pos., D-coded, female side</p> |
| Type                                   | M12 Socket, straight, 4-position, shielded (Advanced Shielding Technology), Push Pull, Keying: D                                                   |
| Number of positions                    | 4                                                                                                                                                  |
| Shielded                               | yes                                                                                                                                                |
| Shielding                              | Advanced Shielding Technology                                                                                                                      |
| Signal type/category                   | Ethernet CAT5 (IEC 11801), 100 Mbps                                                                                                                |
| Insertion/withdrawal cycles            | ≥ 100                                                                                                                                              |
| Insulation resistance                  | ≥ 100 MΩ                                                                                                                                           |
| Overvoltage category                   | II                                                                                                                                                 |
| Degree of pollution                    | 3                                                                                                                                                  |
| Material Contact                       | CuSn                                                                                                                                               |
| Material Contact surface               | Ni/Au                                                                                                                                              |
| Material Contact carrier               | PA 6.6                                                                                                                                             |
| 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 61076-2-010                                                                                                                                    |

## Cable/line

# NBC-P12MSD/ 1,0-93E/P12FSD - Network cable



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|                                               |                                                                                    |
|-----------------------------------------------|------------------------------------------------------------------------------------|
| Cable length                                  | 1 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                                               |
| 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 <sup>2</sup>                                                         |
| Wire diameter incl. insulation                | 0.98 mm                                                                            |
| External cable diameter                       | 6.40 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                       | 1.20 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                      | 700.00 V (50 Hz, 1 min.)                                                           |
| Current carrying capacity of cable            | 2.00 A (according to DIN VDE 0891-1)                                               |
| Minimum bending radius, fixed installation    | 4 x D                                                                              |
| Minimum bending radius, flexible installation | 8 x D                                                                              |

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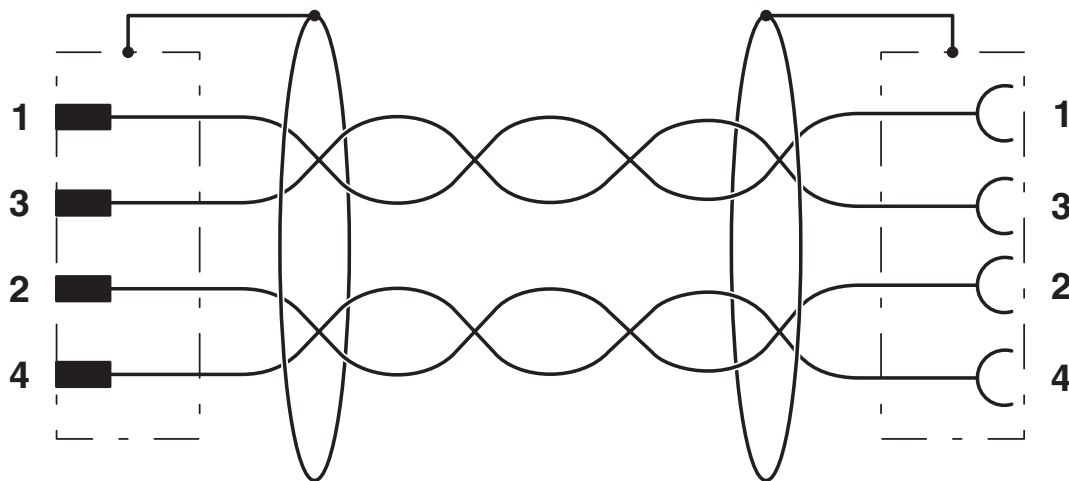
|                                                        |                                                 |
|--------------------------------------------------------|-------------------------------------------------|
| Smallest bending radius, fixed installation            | 26 mm                                           |
| 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)                             |
|                                                        | 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                                |

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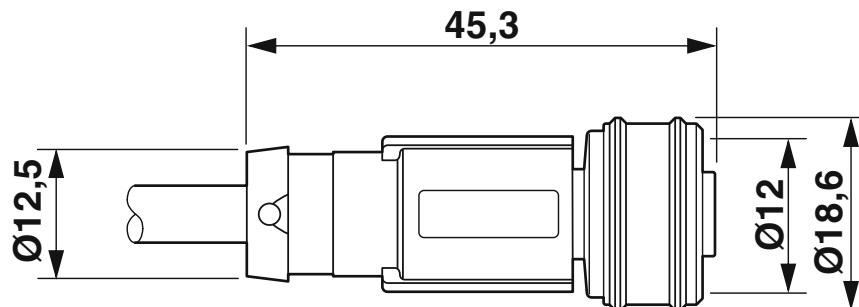
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## Drawings

Circuit diagram



Dimensional drawing

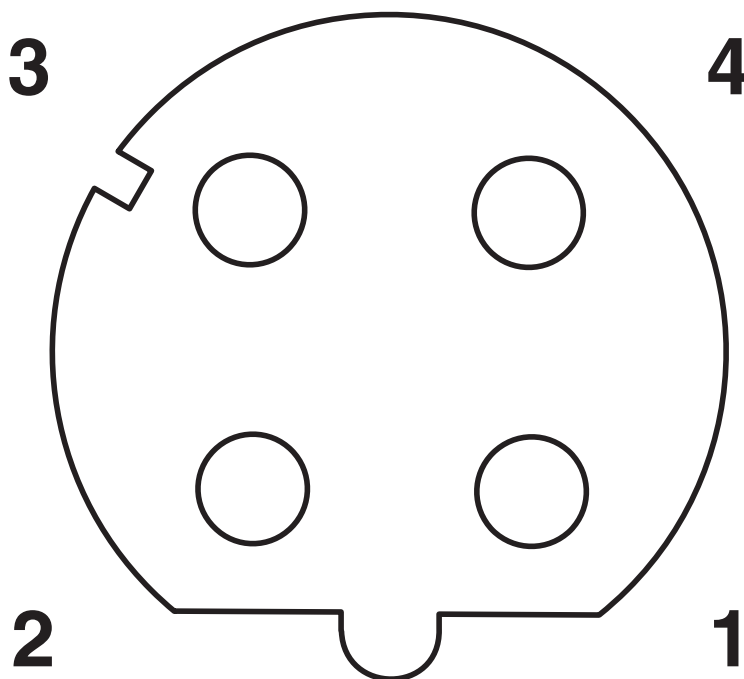


M12 push-pull female connector, straight

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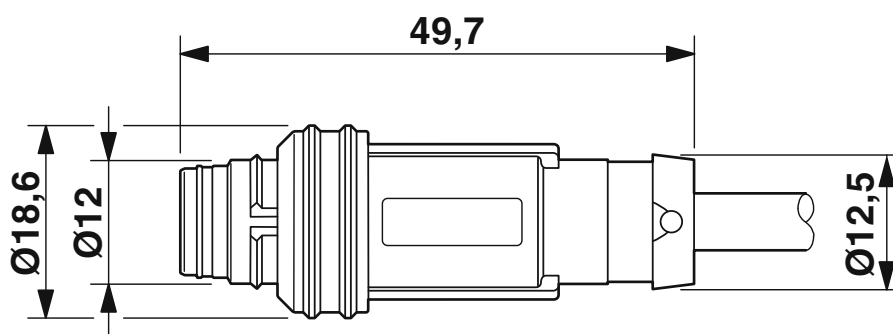
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Schematic diagram



Pin assignment M12 socket, 4-pos., D-coded, female side

Dimensional drawing

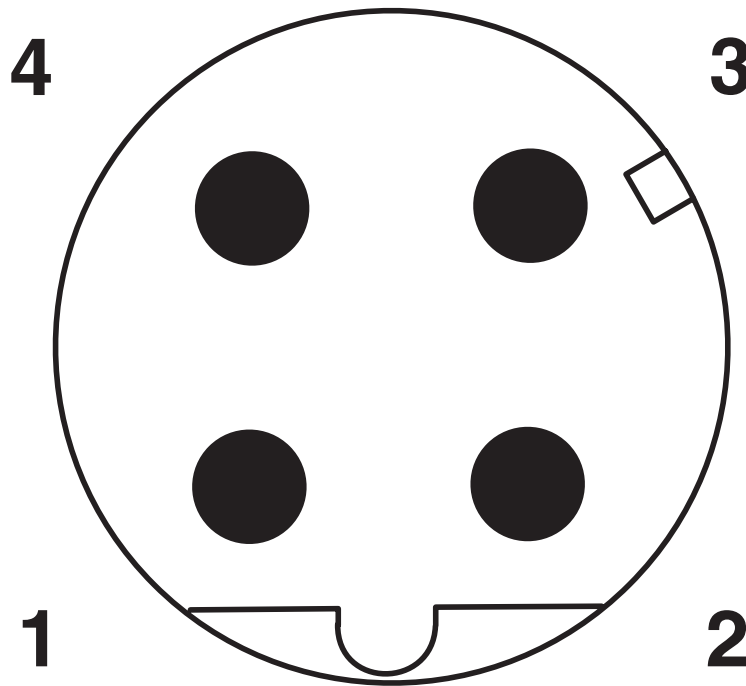


M12 push-pull male connector, straight

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Schematic diagram



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

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## Classifications

### ECLASS

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

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001855 |
|----------|----------|



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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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