

NBC-M12MSD/10,0-93E/R4AC US - Network cable



1409861

<https://www.phoenixcontact.com/us/products/1409861>

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Network cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12, coding: D / IP67, on Plug straight RJ45 / IP20, cable length: 10 m

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 1409861 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF15 |
| Product key | AF1IHA |
| GTIN | 4046356993012 |
| Weight per piece (including packing) | 446 g |
| Weight per piece (excluding packing) | 428 g |
| Customs tariff number | 85444290 |
| Country of origin | US |

Technical data

Product properties

| | |
|---------------------|-------------------------|
| Product type | Data cable preassembled |
| Application | Standard, U.S. cables |
| Sensor type | Ethernet |
| Number of positions | 4 |
| Shielded | yes |
| Coding | D |

Interfaces

| | |
|----------------------|-------------------------|
| Bus system | Ethernet |
| Signal type/category | Ethernet CAT5, 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 A |
| Transmission medium | Copper |
| Transmission speed | 100 Mbps |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002) |

Connector

Connection 1

| | |
|----------------------|---|
| Type | Plug straight M12 / IP67 |
| Coding type | D (Data) |
| Material | CuSn (Contact) Ni/Au (Contact surface) PA (Contact carrier) TPU, hardly inflammable, self-extinguishing (Grip body) Zinc die-cast, nickel-plated (Screw connection) |
| Degree of protection | IP67 |

Connection 2

| | |
|----------------------|---|
| Type | Plug straight RJ45 / IP20 |
| Material | CuSn (Contact) Ni/Au (Contact surface) PA (Contact carrier) PA (Housing) |
| Degree of protection | IP20 |

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Cable/line

| | |
|--------------------------------------|---|
| Cable length | 10 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 ² |
| 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) |

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| | |
|--|--|
| 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-summed 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) |

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| | |
|------------------------------------|------------------|
| Ambient temperature (installation) | -20 °C ... 80 °C |
|------------------------------------|------------------|

Environmental and real-life conditions

Ambient conditions

| | |
|---|--|
| Degree of protection | IP65 (M12 connector) IP67 (M12 connector) IP20 (RJ45 connector) IP67/IP20 |
| Ambient temperature (operation) (male connector/female connector) | -25 °C ... 85 °C (M12 connector) -25 °C ... 60 °C (RJ45 connector) |

Standards and regulations

M12

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

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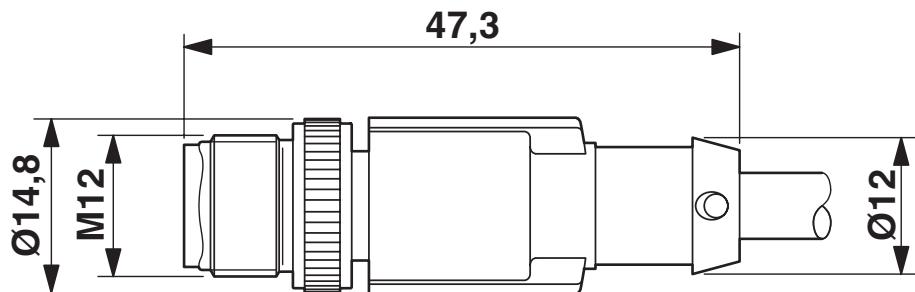
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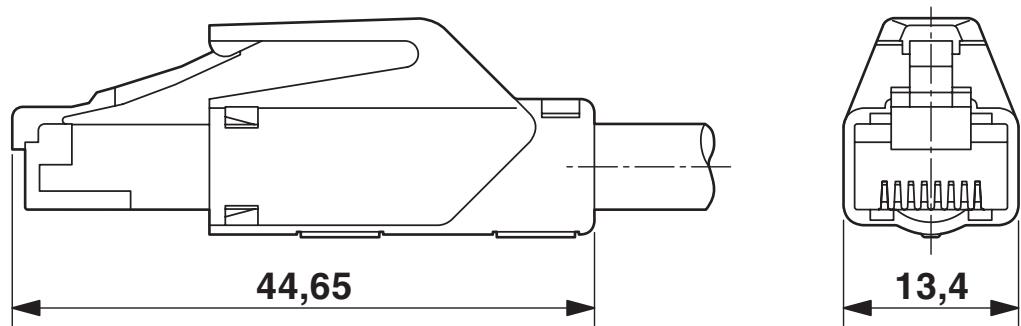
Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



RJ45 connector, IP20

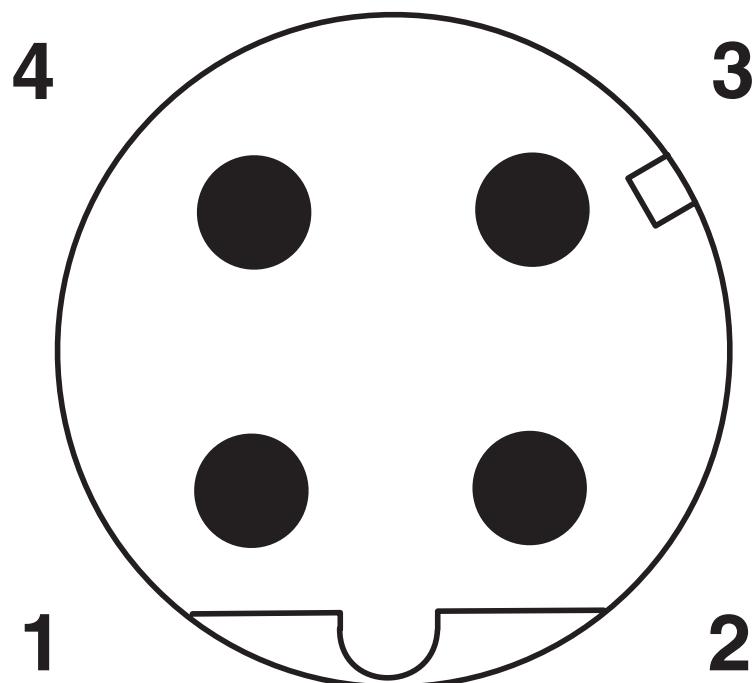
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Schematic diagram



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

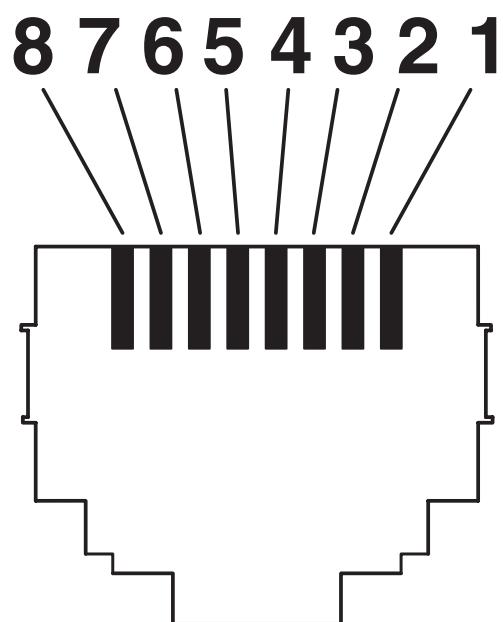
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Schematic diagram

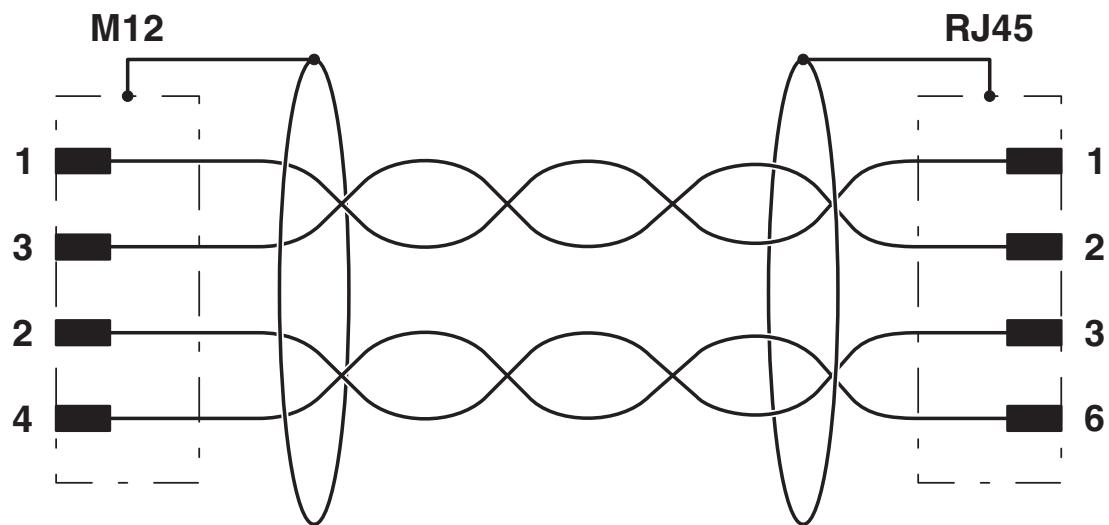


Connector pin assignment plug RJ45

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Circuit diagram



Contact assignment of the M12 and RJ45 plug

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Approvals

ⓘ To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1409861>

| | | UL Listed | | |
|-------|--|----------------------------|-----------------------|-------------------|
| | | Approval ID: FILE E 335024 | | |
| | | Nominal voltage U_N | Nominal current I_N | Cross section AWG |
| keine | | 30 V | 0.5 A | - |
| | | | | - |

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

| | | cUL Listed | | |
|-------|--|----------------------------|-----------------------|-------------------|
| | | Approval ID: FILE E 335024 | | |
| | | Nominal voltage U_N | Nominal current I_N | Cross section AWG |
| keine | | 30 V | 0.5 A | - |
| | | | | - |

Classifications

ECLASS

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

ETIM

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

UNSPSC

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

Environmental product compliance

EU RoHS

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

China RoHS

| | |
|--|--|
| Environment friendly use period (EFUP) | EFUP-50 An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |
|--|--|

EU REACH SVHC

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

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