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# NBC-M12MSX/15,0-94F/R4AC - Network cable

1421855

https://www.phoenixcontact.com/gb/products/1421855

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Network cable, Ethernet CAT6$_A$ (10 Gbps), CC-Link IE CAT6$_A$ (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12, coding: X / IP67, on Plug straight RJ45, coding: X / IP20, cable length: 15 m

## Commercial data

| | |
|---|---|
| Item number | 1421855 |
| Packing unit | 1 pc |
| Minimum order quantity | 25 pc |
| Note | Made to order (non-returnable) |
| Sales key | AF1CMJ |
| Product key | AF1CMJ |
| GTIN | 4055626285177 |
| Weight per piece (including packing) | 749.5 g |
| Weight per piece (excluding packing) | 658.1 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 | 8 |
| Shielded | yes |
| Coding | X |

### Interfaces

| | |
|---|---|
| Bus system | Ethernet |
| Signal type/category | Ethernet $CAT6_A$, 10 Gbps |
| | CC-Link IE $CAT6_A$, 10 Gbps |

### Signaling

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

### Electrical properties

| | |
|---|---|
| Nominal voltage $U_N$ | 48 V AC |
| | 60 V DC |
| Nominal current $I_N$ | 0.5 A |
| Transmission medium | Copper |
| Transmission characteristics (category) | $CAT6_A$ |

### Connector

Connection 1

| | |
|---|---|
| Type | Plug straight M12 / IP67 |
| Number of positions | 8 |
| Coding type | X (Data) |
| Handle color | black |
| Material | CuZn (Contact) |
| | Ni/Au (Contact surface) |
| | PA (Contact carriers) |
| | TPU, hardly inflammable, self-extinguishing (Grip body) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |
| Tightening torque | 0.4 Nm |
| Degree of protection | IP67 |
| Ambient temperature (operation) | -25 °C ... 90 °C |

Connection 2

# NBC-M12MSX/15,0-94F/R4AC - Network cable

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| | |
|---|---|
| Type | Plug straight RJ45 / IP20 |
| Number of positions | 8 (8) |
| Coding type | X (Data) |
| Handle color | gray |
| Material | CuSn (Contact) |
| | Ni/Au (Contact surface) |
| | PC (Contact carriers) |
| | PA (Housing) |
| Insertion/withdrawal cycles | ≥ 750 |
| Insulation resistance | ≥ 100 MΩ |
| Tightening torque | 0.4 Nm |
| Degree of protection | IP20 |
| Ambient temperature (operation) | -25 °C ... 60 °C |

## Cable/line

| | |
|---|---|
| Cable length | 15 m |

Ethernet 10 Gbit [94F]

| | |
|---|---|
| Dimensional drawing |  |
| Cable weight | 42 kg/km |
| UL AWM Style | 20963 (80°C/30 V) |
| Number of positions | 8 |
| Shielded | yes |
| Cable type | Ethernet 10 Gbit [94F] |
| Conductor structure | 4x2xAWG26/7; S/FTP |
| Signal runtime | 5.13 ns/m |
| Conductor structure signal line | 7x 0.16 mm |
| AWG signal line | 26 |
| Conductor cross section | 4x 2x 0.14 mm² |
| Wire diameter incl. insulation | 1.04 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/blue-blue, white/orange-orange, white/green-green, white/brown-brown |

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| | |
|---|---|
| Thickness, outer sheath | 0.65 mm |
| Twisted pairs | 2 cores to the pair |
| Type of pair shielding | Aluminum-lined foil |
| Overall twist | 4 pairs for core |
| Optical shield covering | 70 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 290.00 Ω/km |
| Wave impedance | 100 Ω ±5 Ω (at 100 MHz) |
| Cable capacity | 47 nF/km |
| Nominal voltage, cable | ≤ 100 V |
| Test voltage Core/Core | 700 V (50 Hz, 1 min.) |
| Test voltage Core/Shield | 700.00 V (50 Hz, 1 min.) |
| 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 | ≤ 100 N |
| Near end crosstalk attenuation (NEXT) | 75.3 dB (with 1 MHz) |
| | 66.3 dB (at 4 MHz) |
| | 61.8 dB (at 8 MHz) |
| | 60.3 dB (at 10 MHz) |
| | 57.2 dB (at 16 MHz) |
| | 55.8 dB (at 20 MHz) |
| | 54.3 dB (at 25 MHz) |
| | 52.8 dB (at 31.25 MHz) |
| | 48.4 dB (at 62.5 MHz) |
| | 45.3 dB (at 100 MHz) |
| | 40.8 dB (at 200 MHz) |
| | 39.3 dB (at 250 MHz) |
| | 38.1 dB (at 300 MHz) |
| | 38.1 dB (at 400 MHz) |
| | 38.1 dB (at 500 MHz) |
| Power-summated near end crosstalk attenuation (PSNEXT) | 72.3 dB (with 1 MHz) |
| | 63.3 dB (at 4 MHz) |
| | 58.8 dB (at 8 MHz) |
| | 57.3 dB (at 10 MHz) |
| | 54.2 dB (at 16 MHz) |
| | 52.8 dB (at 20 MHz) |
| | 51.3 dB (at 25 MHz) |
| | 49.9 dB (at 31.25 MHz) |
| | 45.4 dB (at 62.5 MHz) |
| | 42.3 dB (at 100 MHz) |
| | 37.8 dB (at 200 MHz) |
| | 36.3 dB (at 250 MHz) |

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| | |
|---|---|
| | 35.1 dB (at 300 MHz) |
| | 33.3 dB (at 400 MHz) |
| | 31.8 dB (at 500 MHz) |
| Return attenuation (RL) | 20 dB (with 1 MHz) |
| | 23 dB (at 4 MHz) |
| | 24.5 dB (at 8 MHz) |
| | 25 dB (at 10 MHz) |
| | 25 dB (at 16 MHz) |
| | 25 dB (at 20 MHz) |
| | 24.2 dB (at 25 MHz) |
| | 23.3 dB (at 31.25 MHz) |
| | 20.7 dB (at 62.5 MHz) |
| | 19 dB (at 100 MHz) |
| | 16.4 dB (at 200 MHz) |
| | 15.6 dB (at 250 MHz) |
| | 15.6 dB (at 300 MHz) |
| | 15.6 dB (at 400 MHz) |
| | 15.6 dB (at 500 MHz) |
| Shield attenuation | 3.1 dB (with 1 MHz) |
| | 5.7 dB (at 4 MHz) |
| | 8 dB (at 8 MHz) |
| | 8.9 dB (at 10 MHz) |
| | 11.2 dB (at 16 MHz) |
| | 12.6 dB (at 20 MHz) |
| | 14.1 dB (at 25 MHz) |
| | 15.8 dB (at 31.25 MHz) |
| | 22.5 dB (at 62.5 MHz) |
| | 28.7 dB (at 100 MHz) |
| | 41.4 dB (at 200 MHz) |
| | 46.6 dB (at 250 MHz) |
| | 51.4 dB (at 300 MHz) |
| | 60.1 dB (at 400 MHz) |
| | 67.9 dB (at 500 MHz) |
| | ≥ 80.00 dB (at 30 ... 100 MHz) |
| Halogen-free | according to IEC 60754-1 |
| Flame resistance | according to IEC 60332-1-2 |
| | in accordance with UN ECE-R 118.03 |
| Resistance to oil | in accordance with DIN 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

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Ambient conditions

| | |
|---|---|
| Degree of protection | IP67/IP20 |
| Ambient temperature (operation) | -25 °C ... 90 °C (M12 connector) |
| | -20 °C ... 70 °C (RJ45 connector) |

## Standards and regulations

M12

| | |
|---|---|
| Standard designation | M12 connector |
| Standards/specifications | IEC 61076-2-109 |

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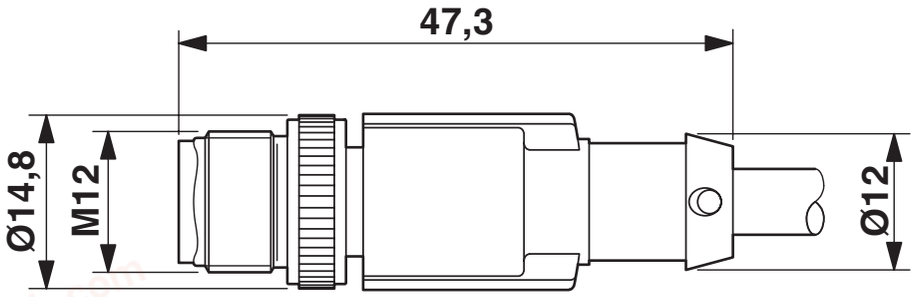
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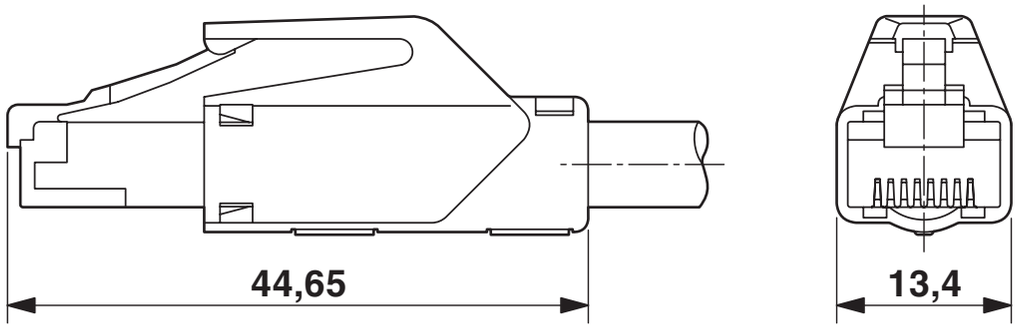
## Drawings

Dimensional drawing




Plug, M12 x 1, straight, shielded

Dimensional drawing




RJ45 connector, IP20

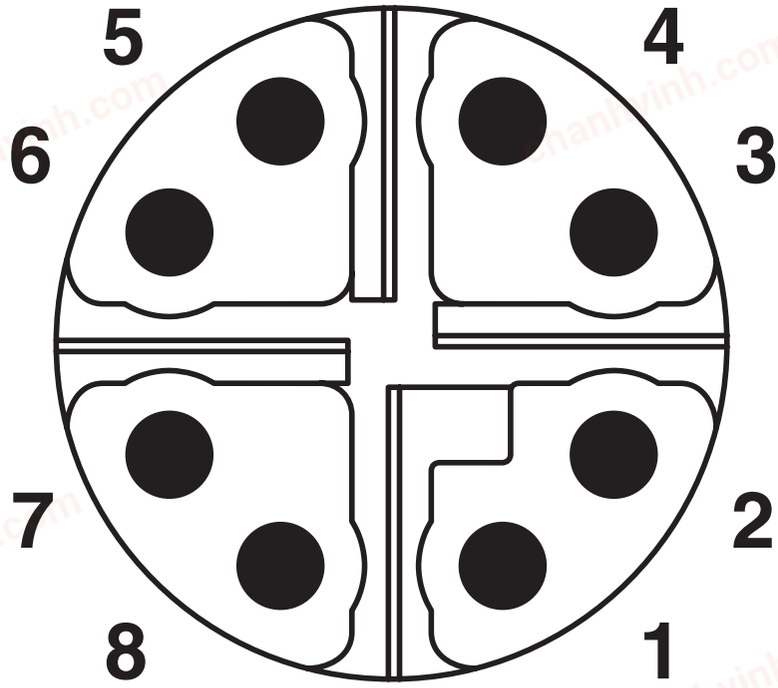
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# NBC-M12MSX/15,0-94F/R4AC - Network cable

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Schematic diagram




Pin assignment of M12 plug, 8-pos., X-coded, pin side view

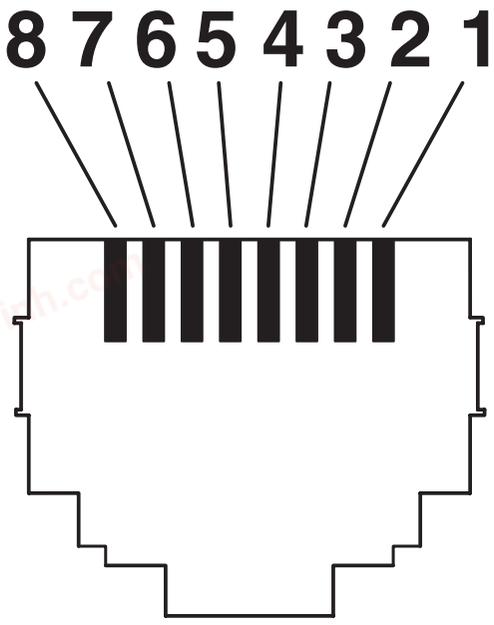
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Schematic diagram




Connector pin assignment plug RJ45

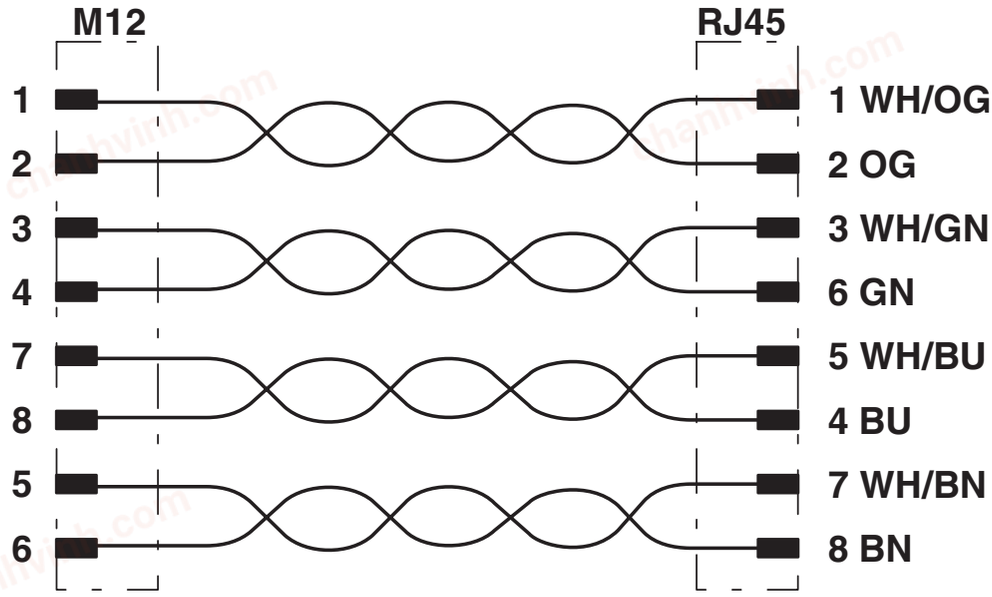
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Circuit diagram




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/gb/products/1421855

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

| | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $mm^2$ |
|---|---|---|---|---|
| | 30 V | 0.5 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 | 0.5 A | - | - |

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

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## Classifications

### ECLASS

| | |
|---|---|
| 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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