

# NBC-M12MSX/20,0-94F/M12MSX - Network cable



1421858

<https://www.phoenixcontact.com/us/products/1421858>

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Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps) CAT6<sub>A</sub> (10 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12 SPEEDCON, coding: X / IP67, on Plug straight M12 SPEEDCON, coding: X / IP67, cable length: 20 m

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1421858                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF04                           |
| Product key                          | AF1CMJ                         |
| GTIN                                 | 4055626285702                  |
| Weight per piece (including packing) | 969.6 g                        |
| Weight per piece (excluding packing) | 919.8 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                       |
| No. of cable outlets | 1                       |
| Shielded             | yes                     |
| Coding               | X                       |

### Interfaces

|                      |                                      |
|----------------------|--------------------------------------|
| Bus system           | Ethernet                             |
| Signal type/category | Ethernet CAT6 <sub>A</sub> , 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 speed                      | 10 Gbps           |
| Transmission characteristics (category) | CAT6 <sub>A</sub> |

### Connector

#### Connection 1

|                             |                                                         |
|-----------------------------|---------------------------------------------------------|
| Type                        | Plug straight M12 SPEEDCON / IP67                       |
| Number of positions         | 8                                                       |
| Locking type                | SPEEDCON                                                |
| Coding type                 | X (Data)                                                |
| Handle color                | black                                                   |
| Material                    | CuZn (Contact)                                          |
|                             | Ni/Au (Contact surface)                                 |
|                             | PP (Contact carrier)                                    |
|                             | 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                                                    |

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|                                 |                  |
|---------------------------------|------------------|
| Ambient temperature (operation) | -25 °C ... 90 °C |
|---------------------------------|------------------|

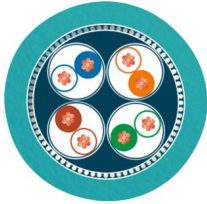
## Connection 2

|                                 |                                                                                                                                                                                 |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                            | Plug straight M12 SPEEDCON / IP67                                                                                                                                               |
| Number of positions             | 8                                                                                                                                                                               |
| Locking type                    | SPEEDCON                                                                                                                                                                        |
| Coding type                     | X (Data)                                                                                                                                                                        |
| Handle color                    | black                                                                                                                                                                           |
| Material                        | CuZn (Contact)<br>Ni/Au (Contact surface)<br>PP (Contact carrier)<br>TPU, hardly inflammable, self-extinguishing (Grip body)<br>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                                                                                                                                                                |

## Cable/line

|              |      |
|--------------|------|
| Cable length | 20 m |
|--------------|------|

## Ethernet 10 Gbit [94F]

|                                |                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing            |  |
| UL AWM Style                   | 21238 (80 °C / 600 V)                                                                |
| Number of positions            | 8                                                                                    |
| Shielded                       | yes                                                                                  |
| Cable type                     | Ethernet 10 Gbit [94F]                                                               |
| Conductor structure            | 4x2xAWG26/7; S/FTP                                                                   |
| AWG signal line                | 26                                                                                   |
| Conductor cross section        | 4x 2x 0.14 mm <sup>2</sup>                                                           |
| Wire diameter incl. insulation | 1 mm ±0.05 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,                             |

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|                                               |                                                        |
|-----------------------------------------------|--------------------------------------------------------|
|                                               | white/brown-brown                                      |
| Twisted pairs                                 | 2 cores to the pair                                    |
| Overall twist                                 | 4 pairs for core                                       |
| Optical shield covering                       | 70 %                                                   |
| Insulation resistance                         | $\geq 500 \text{ M}\Omega \cdot \text{km}$             |
| Loop resistance                               | $\leq 290.00 \text{ }\Omega/\text{km}$                 |
| Wave impedance                                | $100 \text{ }\Omega \pm 5 \text{ }\Omega$ (at 100 MHz) |
| Nominal voltage, cable                        | $\leq 100 \text{ V}$                                   |
| 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    | 4 x D                                                  |
| Minimum bending radius, flexible installation | 8 x D                                                  |
| Smallest bending radius, fixed installation   | 26 mm                                                  |
| Smallest bending radius, movable installation | 51 mm                                                  |
| Halogen-free                                  | according to IEC 60754-1                               |
| Flame resistance                              | according to IEC 60332-1-2                             |
|                                               | in accordance with UN ECE-R 118.03                     |
|                                               | according to CSA C 22.2 No. 210-FT1                    |
| Resistance to oil                             | in accordance with DIN EN 60811-404                    |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)           |
|                                               | -20 °C ... 80 °C (Cable, flexible installation)        |

## Environmental and real-life conditions

### Ambient conditions

|                                                                   |                                  |
|-------------------------------------------------------------------|----------------------------------|
| Degree of protection                                              | IP65/IP67                        |
| Ambient temperature (operation) (male connector/female connector) | -25 °C ... 90 °C (M12 connector) |

## Standards and regulations

### M12

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

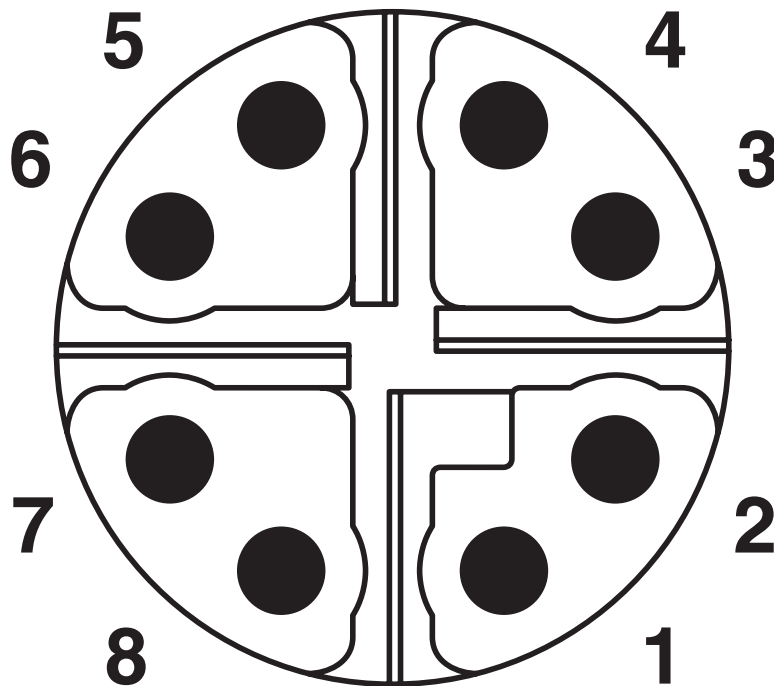
## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram

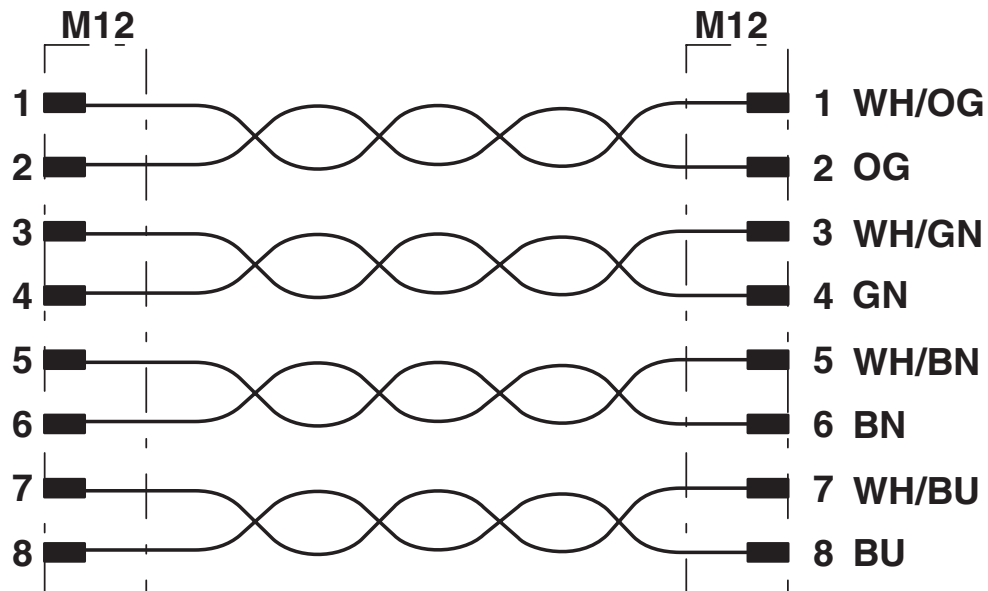


Pin assignment of M12 plug, 8-pos., X-coded, pin side view

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Circuit diagram



Contact assignment of the M12 plugs

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1421858>

|                                                                                                                                  |                                |                                |                   |                               |
|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  <b>UL Listed</b><br>Approval ID: FILE E 335024 |                                |                                |                   |                               |
|                                                                                                                                  | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine                                                                                                                            |                                |                                |                   |                               |
|                                                                                                                                  | 30 V                           | 0.5 A                          | -                 | -                             |

|                                                                                                                                   |                                |                                |                   |                               |
|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
|  <b>cUL Listed</b><br>Approval ID: FILE E 335024 |                                |                                |                   |                               |
|                                                                                                                                   | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| keine                                                                                                                             |                                |                                |                   |                               |
|                                                                                                                                   | 30 V                           | 0.5 A                          | -                 | -                             |

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## Classifications

### ECLASS

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