

# NBC-M12MS/10,0-94B/R4AC - Network cable



1407417

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Network cable, Ethernet CAT5 (1 Gbps), 8-position, PUR halogen-free, water blue RAL 5021, shielded (Advanced Shielding Technology), Plug straight M12, coding: A / IP67, on Plug straight RJ45 / IP20, cable length: 10 m

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1407417       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF04          |
| Product key                          | AF1CMI        |
| GTIN                                 | 4046356775397 |
| Weight per piece (including packing) | 500 g         |
| Weight per piece (excluding packing) | 481 g         |
| Customs tariff number                | 85444210      |
| 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 |
| Application         | Standard                |
| Number of positions | 8                       |
| Shielded            | yes                     |

### Interfaces

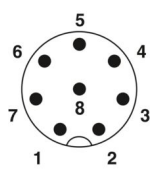
|                      |                                   |
|----------------------|-----------------------------------|
| Signal type/category | Ethernet CAT5 (IEC 11801), 1 Gbps |
|----------------------|-----------------------------------|

### Electrical properties

|                       |         |
|-----------------------|---------|
| Nominal voltage $U_N$ | 30 V AC |
|                       | 30 V DC |
| Nominal current $I_N$ | 1 A     |
| Transmission medium   | Copper  |
| Transmission speed    | 1 Gbps  |

### Connector

#### Connection 1

|                             |                                                                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimensional drawing         | <br>Pin assignment M12 plug, 8-pos., A-coded, view plug side |
| Type                        | M12 Plug, angled, 8-position, shielded (Advanced Shielding Technology), Keying: A, Ethernet                                                      |
| Number of positions         | 8                                                                                                                                                |
| Shielded                    | yes                                                                                                                                              |
| Shielding                   | Advanced Shielding Technology                                                                                                                    |
| Signal type/category        | Ethernet CAT5, 1 bps                                                                                                                             |
| Insertion/withdrawal cycles | $\geq 100$                                                                                                                                       |
| Insulation resistance       | $\geq 100 \Omega$                                                                                                                                |
| Overvoltage category        | II                                                                                                                                               |
| Degree of pollution         | 3                                                                                                                                                |
| Tightening torque           | 0.4 Nm (M12 connector)                                                                                                                           |
| Material Contact            | CuZn                                                                                                                                             |
| Material Contact surface    | Ni/Au                                                                                                                                            |

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|                                        |                                             |
|----------------------------------------|---------------------------------------------|
| Material Contact carrier               | PA 6.6                                      |
| Material Screw connection              | Die-cast zinc, nickel-plated                |
| Material Grip body                     | TPU, hardly inflammable, self-extinguishing |
| Material Seal                          | FKM                                         |
| Flammability rating according to UL 94 | V0                                          |
| Ambient temperature (operation)        | -25 °C ... 85 °C                            |
| Standard designation                   | M12 connector                               |
| Standards/regulations                  | IEC 61076-2-101                             |

## Connection 2

|      |      |
|------|------|
| Type | RJ45 |
|------|------|

## Cable/line

|              |      |
|--------------|------|
| Cable length | 10 m |
|--------------|------|

## Ethernet flexible CAT5, 4-pair [94B]

|                                |                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------|
| Dimensional drawing            |  |
| UL AWM Style                   | 21238 (80 °C / 600 V)                                                                |
| Number of positions            | 8                                                                                    |
| Shielded                       | yes                                                                                  |
| Cable type                     | Ethernet flexible CAT5, 4-pair [94B]                                                 |
| Conductor structure            | 4x2xAWG26/7, SF/UTP                                                                  |
| AWG signal line                | 26                                                                                   |
| Conductor cross-section        | 4x 2x 0.14 mm <sup>2</sup>                                                           |
| Wire diameter incl. insulation | 0.96 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, white/brown-brown           |
| Twisted pairs                  | 2 cores to the pair                                                                  |
| 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)                                                              |

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|                                               |                                                                                                 |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------|
| Nominal voltage, cable                        | ≤ 100 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<br>according to CSA C 22.2 No. 210-FT1                               |
| Resistance to oil                             | in accordance with EN 60811-2-1                                                                 |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)<br>-20 °C ... 80 °C (Cable, flexible installation) |

## Environmental and real-life conditions

### Ambient conditions

|                                  |                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------|
| Degree of protection             | IP65 (M12 connector)<br>IP67 (M12 connector)<br>IP20 (RJ45 connector)                            |
| Specification                    | IEC 60512-6-4:2002-02<br>IEC 60512-1-1:2002-02<br>IEC 60512-2-1:2002-02<br>IEC 60512-2-5:2003-05 |
| Contact disturbance requirement  | Duration of the disturbance: max. 1 µs                                                           |
| Requirements, Contact resistance | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                      |
| Requirements, visual check       | No defects that impair normal functionality.                                                     |
| Lowest frequency                 | 10 Hz                                                                                            |
| Highest frequency                | 500 Hz                                                                                           |
| Amplitude                        | 0.35 mm                                                                                          |
| Acceleration                     | 5g                                                                                               |
| Sweep speed                      | 1 octave/min                                                                                     |
| No. of cycles                    | 10                                                                                               |
| Test directions                  | X-, Y- and Z-axis                                                                                |

### Shock

|                                  |                                                                                                  |
|----------------------------------|--------------------------------------------------------------------------------------------------|
| Specification                    | IEC 60512-6-3:2002-02<br>IEC 60512-1-1:2002-02<br>IEC 60512-2-1:2002-02<br>IEC 60512-2-5:2003-05 |
| Contact disturbance requirement  | Duration of the disturbance: max. 1 µs                                                           |
| Requirements, Contact resistance | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                      |
| Requirements, visual check       | No defects that impair normal functionality.                                                     |
| Acceleration                     | 50g                                                                                              |
| Test directions                  | X-, Y- and Z-axis                                                                                |

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|                                     |                                                                                                                                                             |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pulse shape                         | Half-sine                                                                                                                                                   |
| Number of shocks per direction      | 3                                                                                                                                                           |
| Duration of the nominal shock       | 11 ms                                                                                                                                                       |
| Specification                       | IEC 60512-11-4:2002-02                                                                                                                                      |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-2-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-3-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-4-1:2003-05                                                                                                                                       |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                 |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                              |
| Requirements, dielectric strength   | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded. |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                |
| No. of cycles                       | 5                                                                                                                                                           |
| Dwell time                          | 30 min                                                                                                                                                      |
| Transition duration                 | $\leq 10 \text{ s}$                                                                                                                                         |
| Minimum temperature                 | -25 °C                                                                                                                                                      |
| Maximum temperature                 | +85 °C                                                                                                                                                      |
| Specification                       | IEC 60512-11-9:2002-02                                                                                                                                      |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-3-1:2002-02                                                                                                                                       |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                              |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                |
| Test duration                       | 16 h                                                                                                                                                        |
| Temperature for testing             | 85 °C                                                                                                                                                       |
| Specification                       | IEC 60512-11-12:2002-02                                                                                                                                     |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                       |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                |
| Test duration                       | 24 h                                                                                                                                                        |
| Temperature for testing             | 40 °C                                                                                                                                                       |
| Specification                       | IEC 60512-11-10:2002-02                                                                                                                                     |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                       |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                |
| Test duration                       | 2 h                                                                                                                                                         |
| Temperature for testing             | -25 °C                                                                                                                                                      |
| Specification                       | IEC 60512-11-12:2002-02                                                                                                                                     |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-2-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-3-1:2002-02                                                                                                                                       |
|                                     | IEC 60512-4-1:2003-05                                                                                                                                       |
|                                     | IEC 60512-13-2:2006-02                                                                                                                                      |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                 |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                              |

|                                               |                                                                                                                                                             |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Requirements, dielectric strength             | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded. |
| Requirements, insertion and withdrawal forces | Maximum allowable insertion force $F_{\text{insertion}} < 23 \text{ N}$<br>Maximum allowable withdrawal force $F_{\text{withdrawal}} < 30 \text{ N}$        |
| Requirements, visual check                    | No defects that impair normal functionality.                                                                                                                |
| Test duration                                 | 24 h                                                                                                                                                        |
| Temperature for testing                       | 40 °C                                                                                                                                                       |
| Specification                                 | IEC 60512-1-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-3-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-4-1:2003-05                                                                                                                                       |
| Requirements                                  | Water that is sprayed against the housing as a jet from any direction must not have any harmful effect.                                                     |
| Requirements, insulation resistance           | $R_i \geq 100 \text{ M}\Omega$                                                                                                                              |
| Requirements, dielectric strength             | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded. |
| Requirements, visual check                    | No defects that impair normal functionality.                                                                                                                |
| Test duration                                 | 1 min/m <sup>2</sup><br>at least 3 min                                                                                                                      |
| Additional text                               | The values specified apply to all repetitions of the same test within the normative test sequence.                                                          |
| Specification                                 | IEC 60512-1-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-3-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-4-1:2003-05                                                                                                                                       |
| Requirements                                  | Water must not penetrate in a harmful quantity when the housing is temporarily submerged in water under standard pressure and time conditions.              |
| Requirements, insulation resistance           | $R_i \geq 100 \text{ M}\Omega$                                                                                                                              |
| Requirements, dielectric strength             | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded. |
| Requirements, visual check                    | No defects that impair normal functionality.                                                                                                                |
| Test duration                                 | 30 min                                                                                                                                                      |
| Additional text                               | The values specified apply to all repetitions of the same test within the normative test sequence.                                                          |
| Specification                                 | IEC 60512-1-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-2-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-3-1:2002-02                                                                                                                                       |
|                                               | IEC 60512-13-2:2006-02                                                                                                                                      |
| Requirements                                  | Dust must not enter the housing.                                                                                                                            |
| Requirements, Contact resistance              | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                 |
| Requirements, insertion and withdrawal forces | Maximum allowable insertion force $F_{\text{insertion}} < 23 \text{ N}$<br>Maximum allowable withdrawal force $F_{\text{withdrawal}} < 30 \text{ N}$        |
| Requirements, visual check                    | No defects that impair normal functionality.                                                                                                                |
| Test duration                                 | 8 h                                                                                                                                                         |

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|                                     |                                                                                                                                                                                                                                                  |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Additional text                     | The values specified apply to all repetitions of the same test within the normative test sequence.                                                                                                                                               |
| Specification                       | IEC 60512-13-5:2006-02                                                                                                                                                                                                                           |
| Requirements                        | No damage that can impair normal functionality.<br>Connectors must only be able to be plugged in when they are in the correct position and combination. The design must prevent mismatching. Polarization prevents incorrect electrical contact. |
| Insertion force                     | 1,5 x mating force; at least 35 N                                                                                                                                                                                                                |
| Specification                       | IEC 60512-9-1:2010-03                                                                                                                                                                                                                            |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                                                                                                            |
|                                     | IEC 60512-2-1:2002-02                                                                                                                                                                                                                            |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                                                                                                      |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                                                                                                     |
| No. of cycles                       | 50                                                                                                                                                                                                                                               |
| Specification                       | IEC 60512-11-7:2003-05                                                                                                                                                                                                                           |
| Requirements                        | No damage (corrosion) to the metal body that impairs normal functionality.                                                                                                                                                                       |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                                                                                                      |
| Test duration                       | 4 days                                                                                                                                                                                                                                           |
| Test procedure                      | Method 4                                                                                                                                                                                                                                         |
| Specification                       | IEC 60512-9-1:2010-03                                                                                                                                                                                                                            |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                                                                                                      |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                                                                                                                   |
| Requirements, dielectric strength   | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded.                                                                                      |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                                                                                                     |
| No. of cycles                       | 50                                                                                                                                                                                                                                               |
| Specification                       | IEC 60512-11-4:2002-02                                                                                                                                                                                                                           |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                                                                                                            |
|                                     | IEC 60512-2-1:2002-02                                                                                                                                                                                                                            |
|                                     | IEC 60512-3-1:2002-02                                                                                                                                                                                                                            |
|                                     | IEC 60512-4-1:2003-05                                                                                                                                                                                                                            |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                                                                                                      |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                                                                                                                   |
| Requirements, dielectric strength   | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded.                                                                                      |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                                                                                                     |
| No. of cycles                       | 5                                                                                                                                                                                                                                                |
| Dwell time                          | 30 min                                                                                                                                                                                                                                           |
| Transition duration                 | $\leq 10 \text{ s}$                                                                                                                                                                                                                              |
| Minimum temperature                 | -25 °C                                                                                                                                                                                                                                           |
| Maximum temperature                 | +85 °C                                                                                                                                                                                                                                           |
|                                     | IEC 60512-9-1:2010-03                                                                                                                                                                                                                            |

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|                                  |                                                                             |
|----------------------------------|-----------------------------------------------------------------------------|
| Specification                    | IEC 60512-1-1:2002-02                                                       |
|                                  | IEC 60512-2-1:2002-02                                                       |
| Requirements, Contact resistance | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel) |
| Requirements, visual check       | No defects that impair normal functionality.                                |
| No. of cycles                    | 100                                                                         |
| Requirements                     | No change in the material properties that would limit the intended use.     |
| Test duration                    | 24 h                                                                        |
| Temperature for testing          | +85 °C $\pm 2$ °C                                                           |
| Test liquid                      | IRM 902                                                                     |
| Specification                    | IEC 61373:2010-05                                                           |
|                                  | IEC 60512-1-1:2002-02                                                       |
|                                  | IEC 60512-2-1:2002-02                                                       |
| Contact disturbance requirement  | Duration of the disturbance: max. 1 $\mu\text{s}$                           |
| Requirements, Contact resistance | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel) |
| Requirements, visual check       | No defects that impair normal functionality.                                |
| Acceleration                     | 5g                                                                          |
| Test directions                  | X-, Y- and Z-axis                                                           |
| Category                         | 1                                                                           |
| Pulse shape                      | Half-sine                                                                   |
| Number of shocks per direction   | 3                                                                           |
| Shock duration                   | 30 ms                                                                       |
| Specification                    | IEC 61373:2010-05                                                           |
|                                  | IEC 60512-1-1:2002-02                                                       |
|                                  | IEC 60512-2-1:2002-02                                                       |
| Contact disturbance requirement  | Duration of the disturbance: max. 1 $\mu\text{s}$                           |
| Requirements, Contact resistance | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel) |
| Requirements, visual check       | No defects that impair normal functionality.                                |
| Acceleration                     | 30g                                                                         |
| Test directions                  | X-, Y- and Z-axis                                                           |
| Category                         | 2                                                                           |
| Pulse shape                      | Half-sine                                                                   |
| Number of shocks per direction   | 3                                                                           |
| Shock duration                   | 18 ms                                                                       |
| Specification                    | IEC 61373:2010-05                                                           |
|                                  | IEC 60512-1-1:2002-02                                                       |
|                                  | IEC 60512-2-1:2002-02                                                       |
| Contact disturbance requirement  | Duration of the disturbance: max. 1 $\mu\text{s}$                           |
| Requirements, Contact resistance | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel) |
| Requirements, visual check       | No defects that impair normal functionality.                                |
| Lowest frequency                 | 2 Hz                                                                        |
| Highest frequency                | 250 Hz                                                                      |
| Test directions                  | X-, Y- and Z-axis                                                           |
| Category                         | 2                                                                           |

## Electrical tests

|                                     |                                                                                                                                                                                                                                       |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specification                       | IEC 60512-2-1:2002-02                                                                                                                                                                                                                 |
| Requirements                        | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)<br>$R_{\text{max}} - R_{\text{wire}} \leq 10 \text{ m}\Omega$ (for each channel)<br>$R_{\text{shield}} - R_{\text{cablesheild}} \leq 100 \text{ m}\Omega$ |
| Additional text                     | The values specified apply to all repetitions of the same test within the normative test sequence.                                                                                                                                    |
| Specification                       | IEC 60512-3-1:2002-02                                                                                                                                                                                                                 |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                                                                                                        |
| Additional text                     | The values specified apply to all repetitions of the same test within the normative test sequence.                                                                                                                                    |
| Specification                       | IEC 60512-4-1:2003-05                                                                                                                                                                                                                 |
| Requirements, dielectric strength   | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded.                                                                           |
| Test voltage                        | 0.65 kV AC                                                                                                                                                                                                                            |
| Test duration                       | 60 s                                                                                                                                                                                                                                  |
| Additional text                     | The values specified apply to all repetitions of the same test within the normative test sequence.                                                                                                                                    |
| Specification                       | IEC 60512-9-2:2011-11                                                                                                                                                                                                                 |
|                                     | IEC 60512-1-1:2002-02                                                                                                                                                                                                                 |
|                                     | IEC 60512-2-1:2002-02                                                                                                                                                                                                                 |
|                                     | IEC 60512-3-1:2002-02                                                                                                                                                                                                                 |
|                                     | IEC 60512-4-1:2003-05                                                                                                                                                                                                                 |
| Requirements                        | The sum of the ambient temperature and temperature rise of a connector must not exceed the upper limiting temperature.                                                                                                                |
| Requirements, Contact resistance    | Resistance difference $\Delta R \leq 15 \text{ m}\Omega$ (for each channel)                                                                                                                                                           |
| Requirements, insulation resistance | $R_i \geq 100 \text{ M}\Omega$                                                                                                                                                                                                        |
| Requirements, dielectric strength   | There must be no electrical flashovers or disruptive charges for the duration of the test.<br>The maximum permissible leakage current must not be exceeded.                                                                           |
| Requirements, visual check          | No defects that impair normal functionality.                                                                                                                                                                                          |
| Test current                        | 2 A                                                                                                                                                                                                                                   |
| Test duration                       | 1000 h                                                                                                                                                                                                                                |
| Temperature for testing             | 40 °C                                                                                                                                                                                                                                 |
| Upper limiting temperature          | 85 °C                                                                                                                                                                                                                                 |
| Specification                       | IEC 60352-2:2006-02                                                                                                                                                                                                                   |
| Connection method                   | Crimp connections                                                                                                                                                                                                                     |

## Mechanical tests

|                            |                                                                                                    |
|----------------------------|----------------------------------------------------------------------------------------------------|
| Specification              | IEC 60512-1-1:2002-02                                                                              |
| Requirements, visual check | No defects that impair normal functionality.                                                       |
| Additional text            | The values specified apply to all repetitions of the same test within the normative test sequence. |

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## Dimensional examination

|                                               |                                                                                                                                                      |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Specification                                 | IEC 60512-1-2:2002-02                                                                                                                                |
| Requirements                                  | All individual parts have been approved for the current revision status.                                                                             |
| Specification                                 | IEC 60512-13-2:2006-02                                                                                                                               |
| Requirements, insertion and withdrawal forces | Maximum allowable insertion force $F_{\text{insertion}} < 23 \text{ N}$<br>Maximum allowable withdrawal force $F_{\text{withdrawal}} < 30 \text{ N}$ |
| Additional text                               | The values specified apply to all repetitions of the same test within the normative test sequence.                                                   |
| Specification                                 | IEC 60512-7-1:2010-03<br>IEC 60512-1-1:2002-02                                                                                                       |
| Requirements, visual check                    | Loose parts or damage that would impair functionality are not permitted.                                                                             |

# NBC-M12MS/10,0-94B/R4AC - Network cable

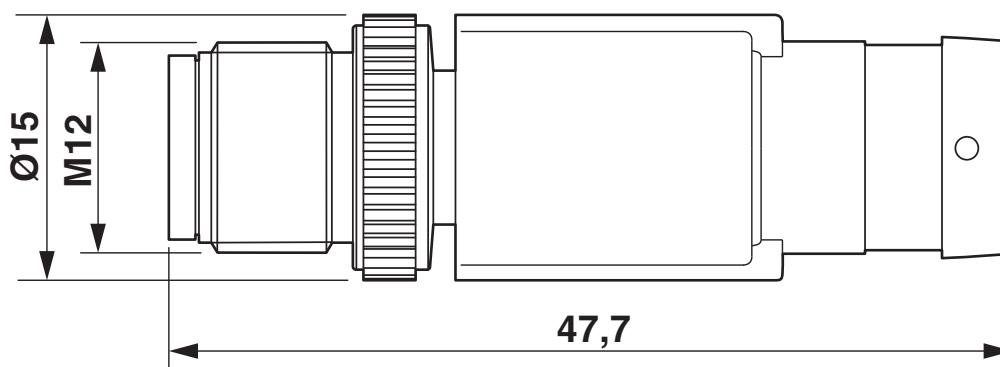


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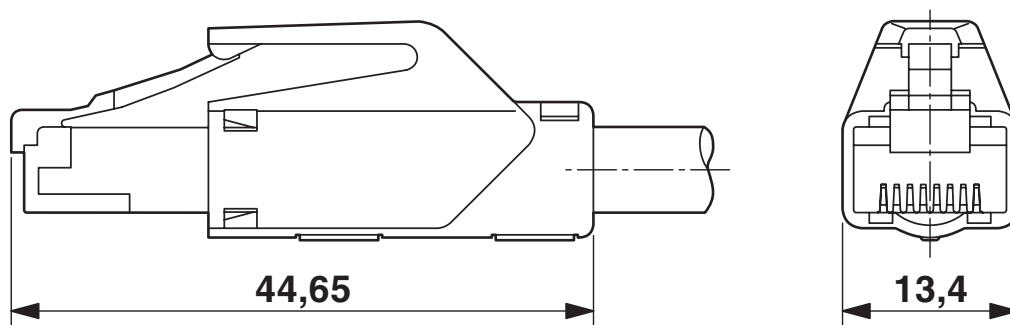
## Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing

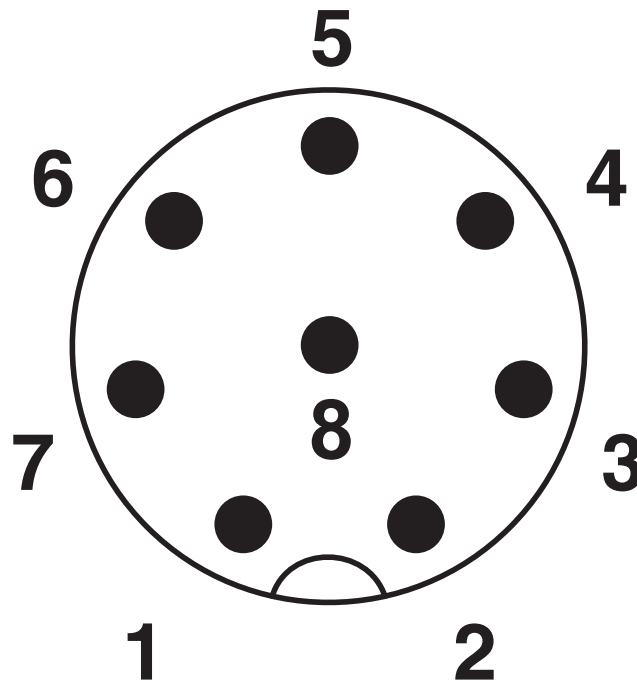


RJ45 connector, IP20

1407417

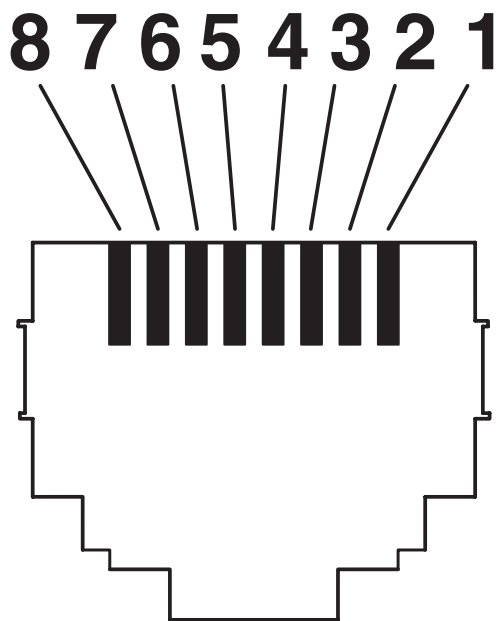
<https://www.phoenixcontact.com/us/products/1407417>

Schematic diagram



Pin assignment M12 plug, 8-pos., A-coded, view plug side

## Schematic diagram

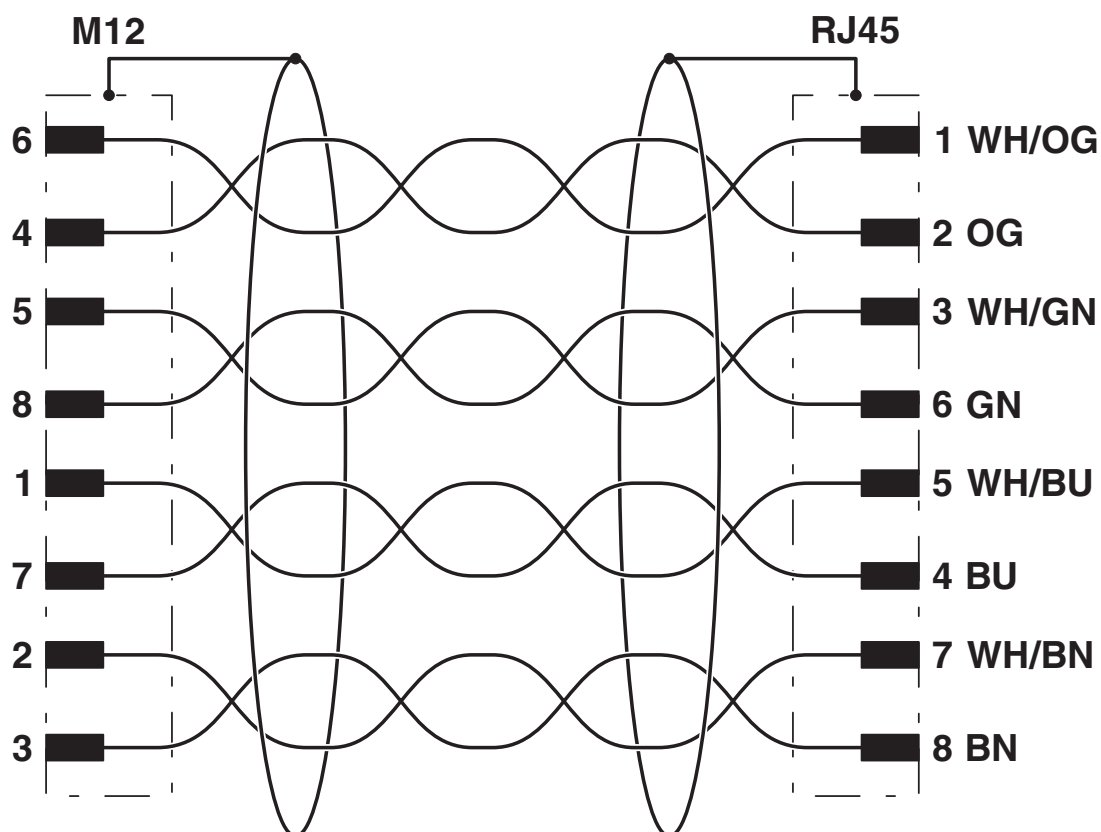


Connector pin assignment plug RJ45

1407417

<https://www.phoenixcontact.com/us/products/1407417>

Circuit diagram



Contact assignment of the M12 and RJ45 plug

# NBC-M12MS/10,0-94B/R4AC - Network cable



1407417

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1407417>

|  <b>UL Listed</b><br>Approval ID: FILE E 335024 |                       |                       |                   |                             |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine                                                                                                                            |                       |                       |                   |                             |
|                                                                                                                                  | 30 V                  | 0.5 A                 | -                 | -                           |

|  <b>cUL Listed</b><br>Approval ID: FILE E 335024 |                       |                       |                   |                             |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|-------------------|-----------------------------|
|                                                                                                                                   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine                                                                                                                             |                       |                       |                   |                             |
|                                                                                                                                   | 30 V                  | 0.5 A                 | -                 | -                           |

|  <b>EAC-RoHS</b><br>Approval ID: RU D-DE.HB35.B.00387 |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|
|------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|

# NBC-M12MS/10,0-94B/R4AC - Network cable



1407417

<https://www.phoenixcontact.com/us/products/1407417>

## Classifications

### ECLASS

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

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | EC002599 |
|-----------|----------|

### 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-E                                   |
|                                         | No hazardous substances above the limits |
| EU REACH SVHC                           |                                          |
| REACH candidate substance (CAS No.)     | No substance above 0.1 wt%               |
| EF3.1 Climate Change                    |                                          |
| CO2e kg                                 | 24.57 kg CO2e                            |