

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



1409864

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

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1409864                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF15                           |
| Product key                          | AF1IHB                         |
| GTIN                                 | 4046356993043                  |
| Weight per piece (including packing) | 496 g                          |
| Weight per piece (excluding packing) | 22.22 g                        |
| Customs tariff number                | 85444290                       |
| Country of origin                    | US                             |

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## Technical data

### Product properties

|                     |                         |
|---------------------|-------------------------|
| Product type        | Data cable preassembled |
| Application         | Standard, U.S. cables   |
| Sensor type         | Ethernet                |
| Number of positions | 8                       |
| Shielded            | yes                     |
| Coding              | A                       |

### Interfaces

|                      |                       |
|----------------------|-----------------------|
| Bus system           | Ethernet              |
| Signal type/category | Ethernet CAT5, 1 Gbps |

### Signaling

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

### Electrical properties

|   |                       |
|---|-----------------------|
| Nominal voltage $U_N$                   | 48 V AC               |
|   | 60 V DC               |
| Nominal current $I_N$                   | 1 A                   |
| Transmission medium                     | Copper                |
| Transmission speed                      | 1 Gbps                |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002) |

### Connector

#### Connection 1

|                      |   |
|----------------------|---|
| Type                 | Plug straight M12 / IP67                                |
| Coding type          | A (Standard)  |
| 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, 4-pair [94B]          |  |
| Dimensional drawing                           |  |
| Cable weight                                  | 47 kg/km   |
| UL AWM Style                                  | 20963 (80°C/30 V)  |
| Number of positions                           | 8  |
| Shielded                                      | yes  |
| Cable type                                    | Ethernet flexible CAT5, 4-pair [94B]   |
| Conductor structure                           | 4x2xAWG26/7, SF/UTP  |
| Signal runtime                                | 5.3 ns/m   |
| Conductor structure signal line               | 7x 0.16 mm   |
| AWG signal line                               | 26   |
| Conductor cross-section                       | 4x 2x 0.14 mm <sup>2</sup>   |
| Wire diameter incl. insulation                | 0.96 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         |
| Thickness, outer sheath                       | 1.05 mm  |
| Twisted pairs                                 | 2 cores to the pair  |
| Overall twist                                 | 4 pairs for core   |
| Optical shield covering                       | 70 %   |
| Insulation resistance                         | ≥ 5 GΩ*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                                | 48 nF/km (at 1 kHz)  |
| 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  |

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|  |   |
|--|---|
| Smallest bending radius, fixed installation            | 26 mm   |
| Smallest bending radius, movable installation          | 52 mm   |
| Tensile strength                                       | ≤ 100 N   |
| Near end crosstalk attenuation (NEXT)                  | 71.3 dB (with 1 MHz)                            |
|  | 62.3 dB (at 4 MHz)                              |
|  | 56.3 dB (at 10 MHz)                             |
|  | 53.2 dB (at 16 MHz)                             |
|  | 51.8 dB (at 20 MHz)                             |
|  | 48.9 dB (at 31.25 MHz)                          |
|  | 44.4 dB (at 62.5 MHz)                           |
|  | 41.3 dB (at 100 MHz)                            |
| Power-summated near end crosstalk attenuation (PSNEXT) | 62.3 dB (with 1 MHz)                            |
|  | 53.3 dB (at 4 MHz)                              |
|  | 47.3 dB (at 10 MHz)                             |
|  | 44.2 dB (at 16 MHz)                             |
|  | 42.8 dB (at 20 MHz)                             |
|  | 39.9 dB (at 31.25 MHz)                          |
|  | 35.4 dB (at 62.5 MHz)                           |
|  | 32.3 dB (at 100 MHz)                            |
| Return attenuation (RL)                                | 23 dB (at 4 MHz)                                |
|  | 24.1 dB (at 8 MHz)                              |
|  | 25 dB (at 10 MHz)                               |
|  | 25 dB (at 16 MHz)                               |
|  | 25 dB (at 20 MHz)                               |
|  | 23.6 dB (at 31.25 MHz)                          |
|  | 21.5 dB (at 62.5 MHz)                           |
|  | 20.1 dB (at 100 MHz)                            |
| Shield attenuation                                     | 3.2 dB (with 1 MHz)                             |
|  | 6 dB (at 4 MHz)                                 |
|  | 9.5 dB (at 10 MHz)                              |
|  | 12.1 dB (at 16 MHz)                             |
|  | 13.6 dB (at 20 MHz)                             |
|  | 17.1 dB (at 31.25 MHz)                          |
|  | 24.8 dB (at 62.5 MHz)                           |
|  | 32 dB (at 100 MHz)                              |
| Halogen-free   | according to IEC 60754-1                        |
| Flame resistance                                       | according to IEC 60332-1-2                      |
| Resistance to oil                                      | in accordance with EN 60811-2-1                 |
| Ambient temperature (operation)                        | -40 °C ... 80 °C (cable, fixed installation)    |
|  | -20 °C ... 80 °C (Cable, flexible installation) |
| Ambient temperature (installation)                     | -20 °C ... 80 °C                                |

## Standards and regulations

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## M12

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

Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



RJ45 connector, IP20

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Schematic diagram



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

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/1409864>

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

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## Classifications

### ECLASS

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

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |               |
|---------|---------------|
| CO2e kg | 7.588 kg CO2e |
|---------|---------------|

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