

## Network cable - NBC-MSX/ 5,0-94F/R4AC SCO - 1407473

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid  
(<http://phoenixcontact.com/download>)



Network cable, Ethernet CAT6<sub>A</sub> (10 Gbps), CC-Link IE CAT6<sub>A</sub> (10 Gbps), 8-position, PUR, water blue RAL 5021, shielded, Plug straight M12 SPEEDCON / IP67, coding: X, on Plug straight RJ45 / IP20, cable length: 5 m



### Key Commercial Data

|              |                                                                                      |
|--------------|--------------------------------------------------------------------------------------|
| Packing unit | 1 STK                                                                                |
| GTIN         |  |
| GTIN         | 4046356776714                                                                        |

### Technical data

#### Dimensions

|                 |     |
|-----------------|-----|
| Length of cable | 5 m |
|-----------------|-----|

#### Ambient conditions

|                                 |                                   |
|---------------------------------|-----------------------------------|
| Degree of protection            | IP65 (M12 connector)              |
|                                 | IP67 (M12 connector)              |
|                                 | IP20 (RJ45 connector)             |
| Ambient temperature (operation) | -25 °C ... 90 °C (M12 connector)  |
|                                 | -20 °C ... 70 °C (RJ45 connector) |

#### General data

|                       |                                                                                                             |
|-----------------------|-------------------------------------------------------------------------------------------------------------|
| Note                  | Further products with variable cable type and variable cable length can be found in the accessories section |
| Rated current at 40°C | 0.5 A                                                                                                       |
| Rated voltage         | 48 V AC                                                                                                     |
|                       | 60 V DC                                                                                                     |
| Number of positions   | 8                                                                                                           |
| Signal type/category  | Ethernet CAT6 <sub>A</sub> , 10 Gbps                                                                        |
|                       | CC-Link IE CAT6 <sub>A</sub> , 10 Gbps                                                                      |

# Network cable - NBC-MSX/ 5,0-94F/R4AC SCO - 1407473

## Technical data

### General data

|                          |                               |
|--------------------------|-------------------------------|
| Standards/regulations    | M12 connector IEC 61076-2-109 |
| Contact material         | CuSn                          |
| Contact carrier material | PP                            |
| Contact surface material | Ni/Au                         |
| Housing material         | Plastic                       |

### Characteristics head 1

|                                          |                                                    |
|------------------------------------------|----------------------------------------------------|
| Head type                                | Plug straight M12 SPEEDCON / IP67                  |
| No. of positions (pin connector pattern) | 8                                                  |
| Coding                                   | X (Data)                                           |
| Color                                    | black                                              |
| Material (component)                     | CuZn (Contact)                                     |
|                                          | Ni/Au (Contact surface)                            |
|                                          | PP (Contact carriers)                              |
|                                          | TPU, hardly inflammable, self-extinguishing (Grip) |
|                                          | Zinc die-cast, nickel-plated (Screw connection)    |
| Insulation resistance                    | ≥ 100 MΩ                                           |
| Insertion/withdrawal cycles              | ≥ 100                                              |
| Torque                                   | 0.4 Nm                                             |
| Ambient temperature (operation)          | -25 °C ... 90 °C                                   |

### Characteristics head 2

|                                          |                           |
|------------------------------------------|---------------------------|
| Head type                                | Plug straight RJ45 / IP20 |
| No. of positions (pin connector pattern) | 8 (8)                     |
| Color                                    | gray                      |
| Material (component)                     | CuSn (Contact)            |
|                                          | Ni/Au (Contact surface)   |
|                                          | PC (Contact carriers)     |
|                                          | PA (Housing)              |
| Insertion/withdrawal cycles              | ≥ 750                     |
| Ambient temperature (operation)          | -25 °C ... 60 °C          |

### Standards and Regulations

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

### Cable

|                           |                                      |
|---------------------------|--------------------------------------|
| Cable type                | Ethernet 10 Gbit                     |
| Cable type (abbreviation) | 94F                                  |
| UL AWM style              | 20963 (80°C/30 V)                    |
| Signal type/category      | Ethernet CAT6 <sub>A</sub> , 10 Gbps |
| Cable structure           | 4x2xAWG26/7; S/FTP                   |
| Conductor cross section   | 4x 2x 0.14 mm²                       |

# Network cable - NBC-MSX/ 5,0-94F/R4AC SCO - 1407473

## Technical data

### Cable

|                                                        |                                                                            |
|--------------------------------------------------------|----------------------------------------------------------------------------|
| AWG signal line                                        | 26                                                                         |
| Conductor structure signal line                        | 7x 0.16 mm                                                                 |
| Core diameter including insulation                     | 1.04 mm                                                                    |
| Wire colors                                            | white/blue-blue, white/orange-orange, white/green-green, white/brown-brown |
| Twisted pairs                                          | 2 cores to the pair                                                        |
| Type of pair shielding                                 | Aluminum-lined foil                                                        |
| Overall twist                                          | 4 pairs for core                                                           |
| Shielding                                              | Tinned copper braided shield                                               |
| Optical shield covering                                | 70 %                                                                       |
| External sheath, color                                 | water blue RAL 5021                                                        |
| Outer sheath thickness                                 | 0.65 mm                                                                    |
| External cable diameter D                              | 6.4 mm $\pm$ 0.2 mm                                                        |
| Minimum bending radius, fixed installation             | 4 x D                                                                      |
| Minimum bending radius, flexible installation          | 8 x D                                                                      |
| Tensile strength GRP                                   | $\leq$ 100 N                                                               |
| Cable weight                                           | 42 kg/km                                                                   |
| Outer sheath, material                                 | PUR                                                                        |
| Material conductor insulation                          | Foamed PE                                                                  |
| Conductor material                                     | Bare Cu litz wires                                                         |
| Insulation resistance                                  | $\geq$ 500 M $\Omega$ *km                                                  |
| Loop resistance                                        | $\leq$ 290.00 $\Omega$ /km                                                 |
| Wave impedance                                         | 100 $\Omega$ $\pm$ 5 $\Omega$ (at 100 MHz)                                 |
| 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)                                                       |
|                                                        | 36.3 dB (at 400 MHz)                                                       |
|                                                        | 34.8 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)                                                         |

## Network cable - NBC-MSX/ 5,0-94F/R4AC SCO - 1407473

### Technical data

#### Cable

|                  |                        |
|------------------|------------------------|
|                  | 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)   |
|                  | 35.1 dB (at 300 MHz)   |
|                  | 33.3 dB (at 400 MHz)   |
|                  | 31.8 dB (at 500 MHz)   |
| 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)   |
| Return loss (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)   |

Network cable - NBC-MSX/ 5,0-94F/R4AC SCO - 1407473

Technical data

Cable

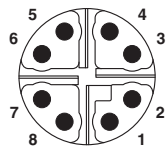
|                                         |                                                 |
|-----------------------------------------|-------------------------------------------------|
|                                         | 15.6 dB (at 400 MHz)                            |
|                                         | 15.6 dB (at 500 MHz)                            |
| Signal runtime                          | 5.13 ns/m                                       |
| Shield attenuation                      | ≥ 80 dB (at 30 ... 100 MHz)                     |
| Nominal voltage, cable                  | ≤ 100 V                                         |
| Test voltage Core/Core                  | 700 V (50 Hz, 1 min.)                           |
| Test voltage Core/Shield                | 700 V (50 Hz, 1 min.)                           |
| Flame resistance                        | according to IEC 60332-1-2                      |
| Halogen-free                            | According to IEC 60754-1                        |
| 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                                |
| Ambient temperature (storage/transport) | -20 °C ... 80 °C                                |

Environmental Product Compliance

|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| China RoHS | Environmentally Friendly Use Period = 50                                                            |
|            | For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration" |

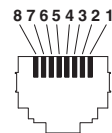
Drawings

Schematic diagram



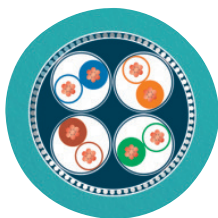
Pin assignment of M12 plug, 8-pos., X-coded, pin side view

Schematic diagram



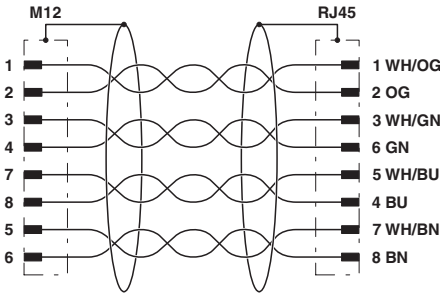
Connector pin assignment plug RJ45

Cable cross section



Ethernet 10 Gbit [94F]

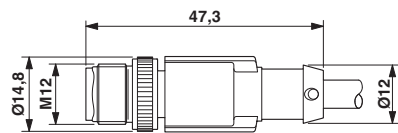
Circuit diagram



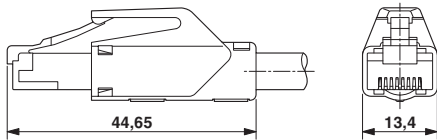
Contact assignment of the M12 and RJ45 plug

Network cable - NBC-MSX/ 5,0-94F/R4AC SCO - 1407473

Dimensional drawing



Dimensional drawing



Plug, M12 x 1, straight, shielded

RJ45 connector, IP20

Approvals

Approvals

Approvals

UL Listed

Ex Approvals

Approval details

|                    |                                                                                     |                                                                                                                                                       |               |
|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| UL Listed          |  | <a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a> | FILE E 335024 |
| Nominal current IN |                                                                                     | 0.5 A                                                                                                                                                 |               |
| Nominal voltage UN |                                                                                     | 30 V                                                                                                                                                  |               |

Phoenix Contact 2018 © - all rights reserved  
<http://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG  
Flachsmarktstr. 8  
32825 Blomberg  
Germany  
Tel. +49 5235 300  
Fax +49 5235 3 41200  
<http://www.phoenixcontact.com>