

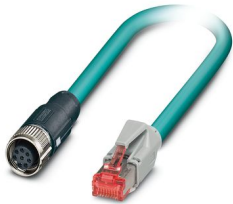
# NBC-FS/ 1,0-94B/R4AC SCO - Network cable



1407443

<https://www.phoenixcontact.com/us/products/1407443>

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Network cable, Ethernet CAT5 (1 Gbps), 8-position, shielded, Plug straight RJ45 / IP20, on Socket straight M12 SPEEDCON, coding: A / IP67, cable length: 1 m

## Commercial data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 1407443             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales key                            | BF04                |
| Product key                          | BF1CMI              |
| Catalog page                         | Page 401 (C-2-2019) |
| GTIN                                 | 4046356775649       |
| Weight per piece (including packing) | 78.2 g              |
| Weight per piece (excluding packing) | 76.5 g              |
| Customs tariff number                | 85444210            |
| Country of origin                    | PL                  |

## 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 |
| Sensor type         | Ethernet                |
| Number of positions | 8                       |
| Application         | Standard                |
| Shielded            | yes                     |
| Coding              | A                       |

### Interfaces

|                      |  |
|----------------------|--|
| Bus system           | Ethernet                                   |
| Signal type/category | Ethernet CAT5 (based on IEC 11801), 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 characteristics (category) | CAT5 (IEC 11801:2002) |

### Material specifications

|               |     |
|---------------|-----|
| Seal material | NBR |
|---------------|-----|

### Connector

#### Connection 1

|                                 |                           |
|---------------------------------|---------------------------|
| Type                            | Plug straight RJ45 / IP20 |
| Number of positions             | 8 (8)                     |
| Handle color                    | gray                      |
| Material                        | CuSn (Contact)            |
|                                 | Ni/Au (Contact surface)   |
|                                 | PC (Contact carriers)     |
|                                 | PA (Housing)              |
| Insertion/withdrawal cycles     | ≥ 750                     |
| Degree of protection            | IP20                      |
| Ambient temperature (operation) | -25 °C ... 60 °C          |

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## Connection 2

|                                 |   |
|---------------------------------|---|
| Type                            | Socket straight M12 SPEEDCON / IP67   |
| Number of positions             | 8   |
| Locking type                    | SPEEDCON  |
| Coding type                     | A (Standard)  |
| Handle color                    | black   |
| Material                        | CuZn (Contact)<br>Ni/Au (Contact surface)<br>TPU GF (Contact carriers)<br>TPU, hardly inflammable, self-extinguishing (Grip)<br>Zinc die-cast, nickel-plated (Screw connection) |
| Insertion/withdrawal cycles     | ≥ 100   |
| Contact resistance              | ≤ 5 mΩ  |
| Insulation resistance           | ≥ 100 MΩ  |
| Tightening torque               | 0.4 Nm  |
| Degree of protection            | IP67  |
| Ambient temperature (operation) | -25 °C ... 90 °C  |

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 1 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         | 6.4 mm ±0.2 mm   |
| Outer sheath, material          | PUR  |
| External sheath, color          | water blue RAL 5021  |

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|  |  |
|--|--|
| 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                                  | $\geq 5 \text{ G}\Omega \cdot \text{km}$                                   |
| Coupling resistance                                    | $\leq 100.00 \text{ m}\Omega/\text{m}$ (at 10 MHz)                         |
| Loop resistance  | $\leq 290.00 \text{ }\Omega/\text{km}$                                     |
| Wave impedance   | $100 \text{ }\Omega \pm 5 \text{ }\Omega$ (at 100 MHz)                     |
| Cable capacity   | 48 nF/km (at 1 kHz)  |
| Nominal voltage, cable                                 | $\leq 100 \text{ V}$   |
| Test voltage Core/Core                                 | 700 V (50 Hz, 1 min.)  |
| Test voltage Core/Shield                               | 700 V (50 Hz, 1 min.)  |
| Minimum bending radius, fixed installation             | 4 x D  |
| Minimum bending radius, flexible installation          | 8 x D  |
| Smallest bending radius, fixed installation            | 26 mm  |
| Smallest bending radius, movable installation          | 52 mm  |
| Tensile strength                                       | $\leq 100 \text{ N}$   |
| 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)  |

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|                                    |   |
|------------------------------------|---|
| Shield attenuation                 | 20.1 dB (at 100 MHz)                            |
|                                    | 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                                |

## Environmental and real-life conditions

### 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) |

## Standards and regulations

### M12

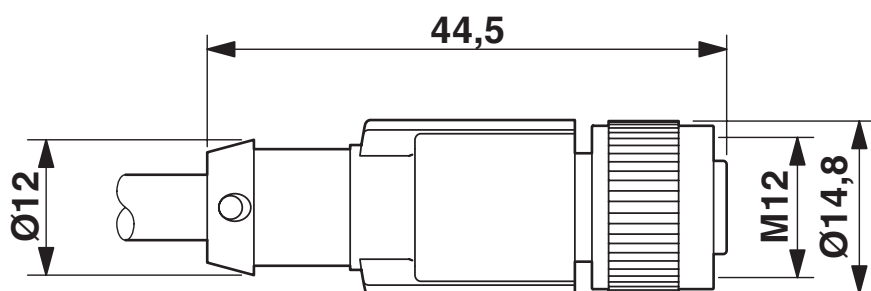
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|--------------------------|-----------------|
| Standard designation     | M12 connector   |
| Standards/specifications | IEC 61076-2-101 |

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## Drawings

Dimensional drawing



M12 x 1 socket, straight, shielded

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Schematic diagram

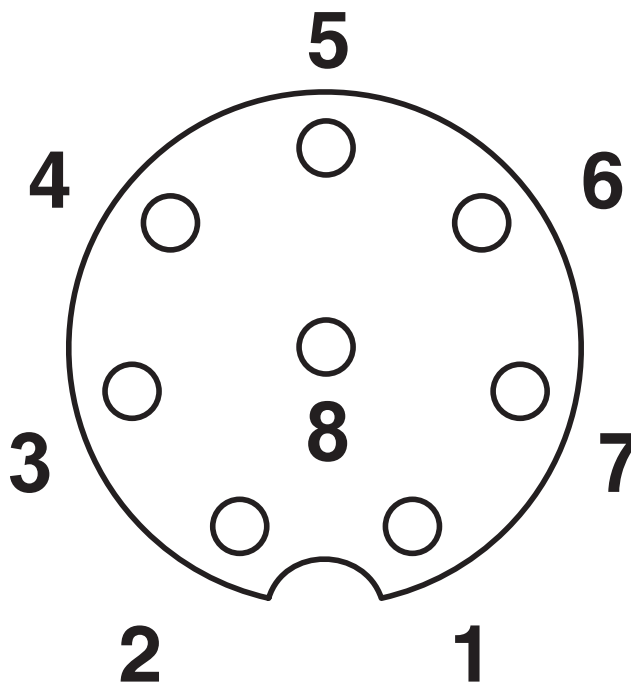


Connector pin assignment plug RJ45

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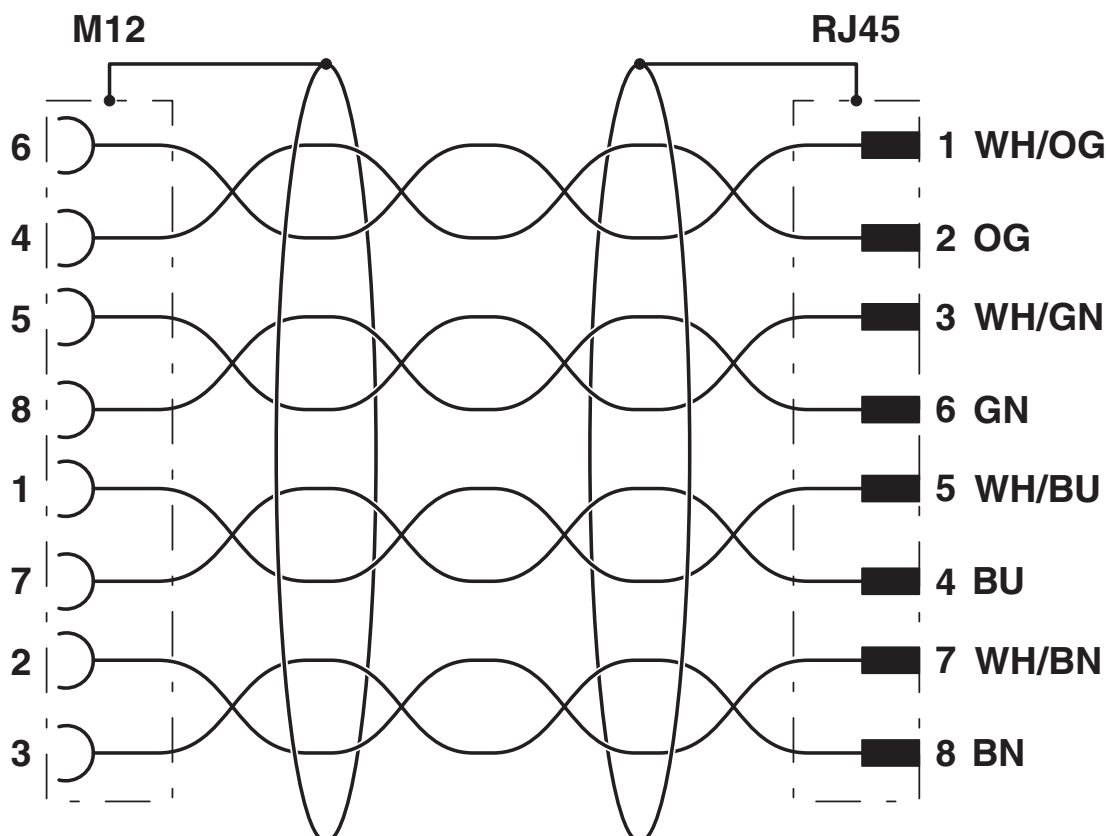
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Schematic diagram



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

Circuit diagram



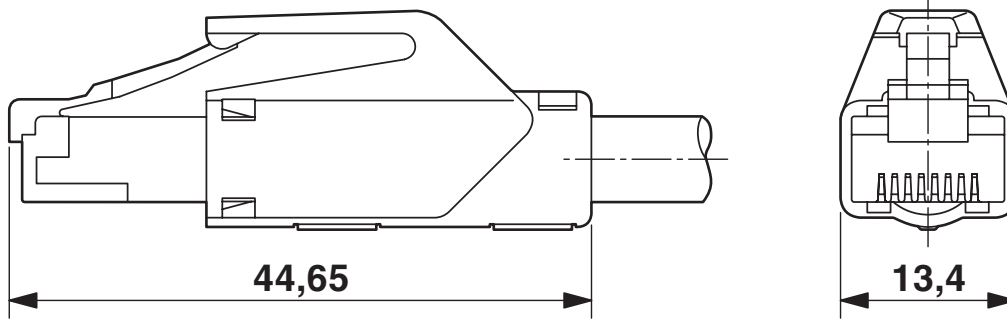
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Dimensional drawing



RJ45 connector, IP20

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1407443>

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

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

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

|                     |
|---------------------|
| <b>cULus Listed</b> |
|---------------------|

# NBC-FS/ 1,0-94B/R4AC SCO - Network cable



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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27060307 |
| ECLASS-12.0 | 27060307 |
| ECLASS-13.0 | 27060307 |

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC001855 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 26121600 |
|-------------|----------|

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## Environmental product compliance

|            |   |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

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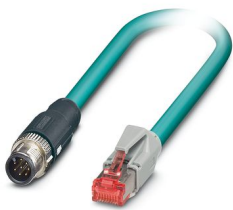
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## Accessories

### NBC-MS-R4AC SCO-IE/.../... - Network cable

1408681

<https://www.phoenixcontact.com/us/products/1408681>



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug straight M12 SPEEDCON, coding: A / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

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### NBC-MR-R4AC SCO-IE/.../... - Network cable

1408674

<https://www.phoenixcontact.com/us/products/1408674>



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Plug angled M12 SPEEDCON, coding: A / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

## NBC-FS/ 1,0-94B/R4AC SCO - Network cable

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### NBC-FS-R4AC SCO-IE/.../... - Network cable

1408664

<https://www.phoenixcontact.com/us/products/1408664>



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Socket straight M12 SPEEDCON, coding: A / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

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### NBC-FR-R4AC SCO-IE/.../... - Network cable

1408655

<https://www.phoenixcontact.com/us/products/1408655>



Network cable, Ethernet CAT5 (1 Gbps), 8-position, Variable cable type, shielded, Socket angled M12 SPEEDCON, coding: A / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

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## PROT-M12 MS-PA-CHAIN - Screw plug

1430899

<https://www.phoenixcontact.com/us/products/1430899>

M12 sealing cap with fixing band, for sensor cables, for free M12 sockets



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## SAC-M12-EXCLIP-F - Locking clip

1558991

<https://www.phoenixcontact.com/us/products/1558991>

Locking clip for the socket side of sensor/actuator cables with M12 connector and M12 connectors for assembly, for knurl diameter: 15 mm or for Allen key with a wrench size of 14 mm, prevents the disconnection of plug-in connections without tools



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## TSD 04 SAC - Torque screwdriver

1208429

<https://www.phoenixcontact.com/us/products/1208429>



Torque screwdriver, with preset torque of 0.4 Nm and 4 mm hexagonal drive for M12 connectors

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## TSD-M 1,2NM - Torque screwdriver

1212224

<https://www.phoenixcontact.com/us/products/1212224>



Torque screw driver, accuracy as per EN ISO 6789 standard, adjustable from 0.3 - 1.2 Nm

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## TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

<https://www.phoenixcontact.com/us/products/1212600>



Adapter bit for TSD-M...torque tools, E6.3-1/4" drive with 4 mm hexagon to accommodate SAC bits

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## SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/us/products/1208432>



Nut for assembling sensor/actuator cables with M12 connector and M12 connectors for assembly, with a knurl diameter of 15 mm, for 4 mm hexagonal drive

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