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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

1407386

https://www.phoenixcontact.com/gb/products/1407386

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Network cable, Ethernet CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight RJ45 / IP20, on Socket straight M12 / IP67, coding: D, cable length: 5 m

## Commercial Data

| | |
|---|---|
| Item number | 1407386 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales Key | BF1CJI |
| Product Key | BF1CJI |
| Catalog Page | Page 399 (C-2-2019) |
| GTIN | 4046356775144 |
| Weight per Piece (including packing) | 237 g |
| Weight per Piece (excluding packing) | 233 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 |
| Number of positions | 4 |
| Application | Standard |
| Shielded | yes |
| Coding | D - data |

Insulation characteristics

| | |
|---|---|
| Overvoltage category | I |
| Degree of pollution | 2 |

### Interfaces

| | |
|---|---|
| Bus system | Ethernet |
| Signal type/category | Ethernet CAT5 (IEC 11801), 100 Mbps |

### LED 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 |

### Material specifications

| | |
|---|---|
| Color Handle area | gray / black |
| Flammability rating according to UL 94 | V2 |

### Connector

Header 1

| | |
|---|---|
| Type | Socket straight M12 / IP67 |
| Number of positions | 4 |
| Coding type | D (Data) |
| Handle color | gray |
| Material | CuZn (Contact) |
| | Ni/Au (Contact surface) |
| | PA (Contact carriers) |

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| | |
|---|---|
| | TPU, hardly inflammable, self-extinguishing (Grip) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| | FKM (Seal) |
| 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 ... 60 °C |

Head 2

| | |
|---|---|
| Type | Socket straight M12 / IP67 |
| Number of positions | 4 |
| Coding type | D (Data) |
| Handle color | gray |
| Material | CuZn (Contact) |
| | Ni/Au (Contact surface) |
| | PA (Contact carriers) |
| | TPU, hardly inflammable, self-extinguishing (Grip) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| | FKM (Seal) |
| Insertion/withdrawal cycles | ≥ 100 |
| Contact resistance | ≤ 5 mΩ |
| Insulation resistance | ≥ 100 MΩ |
| Tightening torque | 0.4 Nm |
| Ambient temperature (operation) | -25 °C ... 90 °C |

## Cable / line

| | |
|---|---|
| Cable length | 5 m |
| Cable weight | 42 kg/km |
| UL AWM Style | 20963 (80°C/30 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | Ethernet flexible CAT5, 2-pair [93E] |
| Signal runtime | 5.3 ns/m |
| Conductor structure signal line | 7x 0.16 mm |
| AWG signal line | 26 |
| Conductor cross section | 2x 2x 0.14 mm² |
| Wire diameter incl. insulation | 0.98 mm |
| External cable diameter | 6.4 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 |

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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| | |
|---|---|
| Single wire, color | white/orange-orange, white/green-green |
| Thickness, outer sheath | 1.2 mm |
| Twisted pairs | 2 cores to the pair |
| Overall twist | Two pairs with two fillers to the core |
| Optical shield covering | 70 % |
| Insulation resistance | ≥ 500 MΩ*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 | approx. 45 nF/km (at 1 kHz) |
| Nominal voltage, cable | ≤ 100 V (Peak value, not for high-power applications) |
| Test voltage Core/Core | 700 V (50 Hz, 1 min.) |
| Test voltage Core/Shield | 700 V (50 Hz, 1 min.) |
| Current carrying capacity of cable | 2 A (according to DIN VDE 0891-1) |
| Minimum bending radius, fixed installation | 4 x D |
| Minimum bending radius, flexible installation | 8 x D |
| Tensile strength | ≤ 80 N |
| Near end crosstalk attenuation (NEXT) | 65.3 dB (with 1 MHz) |
| | 56.3 dB (at 4 MHz) |
| | 50.3 dB (at 10 MHz) |
| | 47.2 dB (at 16 MHz) |
| | 45.8 dB (at 20 MHz) |
| | 42.9 dB (at 31.25 MHz) |
| | 38.4 dB (at 62.5 MHz) |
| | 35.3 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 loss (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) |

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| | |
|---|---|
| | 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 |
| | in acc. to UL VW1 |
| Resistance to oil | according to 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 |

Cable structure

| | |
|---|---|
| Signal type/category | Ethernet CAT5 (IEC 11801), 100 Mbps |

## Ambient conditions

| | |
|---|---|
| Degree of protection | IP65 (M12 connector) |
| | IP67 (M12 connector) |
| | IP20 (RJ45 connector) |

## Standards and regulations

M12

| | |
|---|---|
| Standards/specifications | IEC 61076-2-101 |

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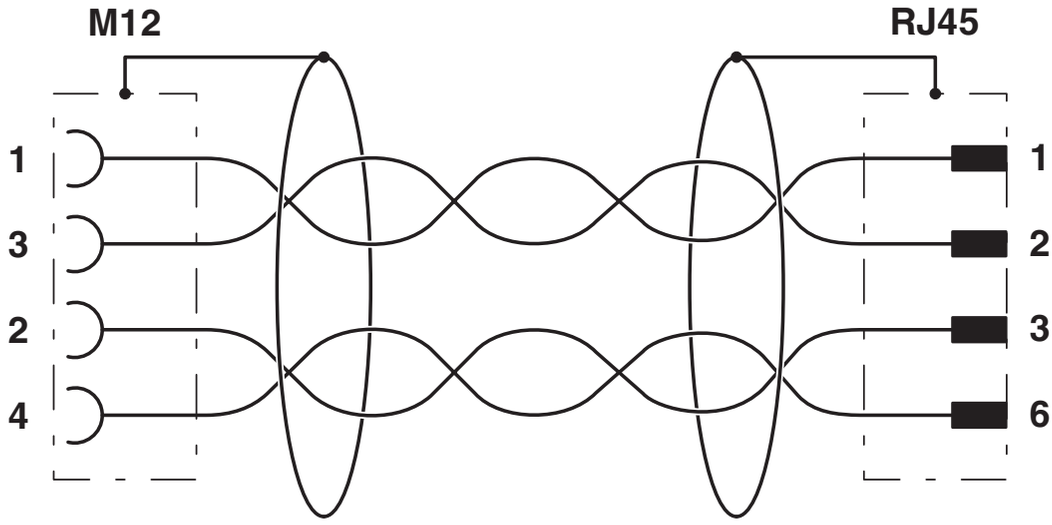
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## Drawings

Circuit diagram




Contact assignment of the M12 socket and the RJ45 plug

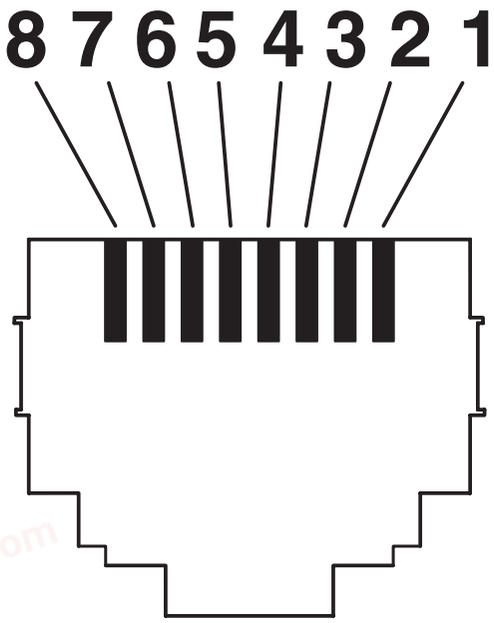
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Schematic diagram




Connector pin assignment plug RJ45

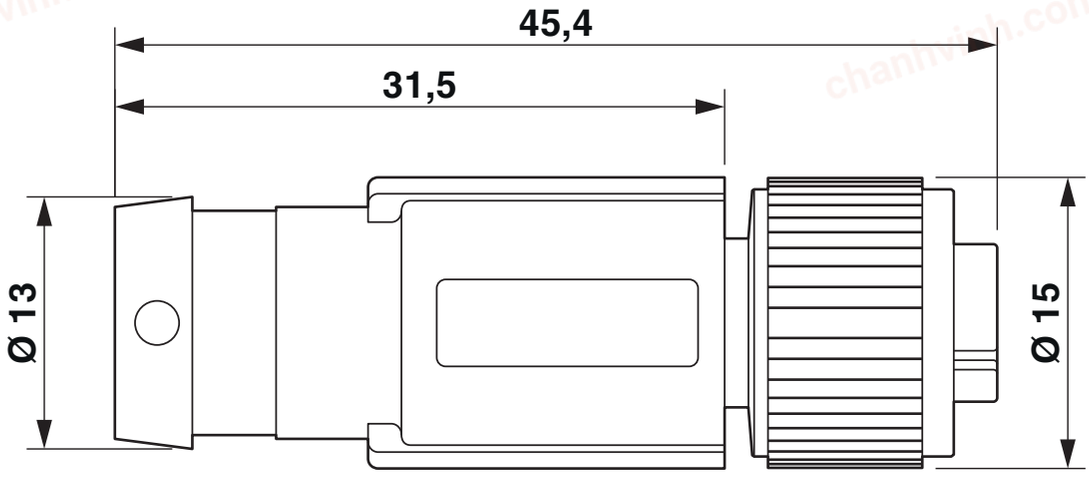
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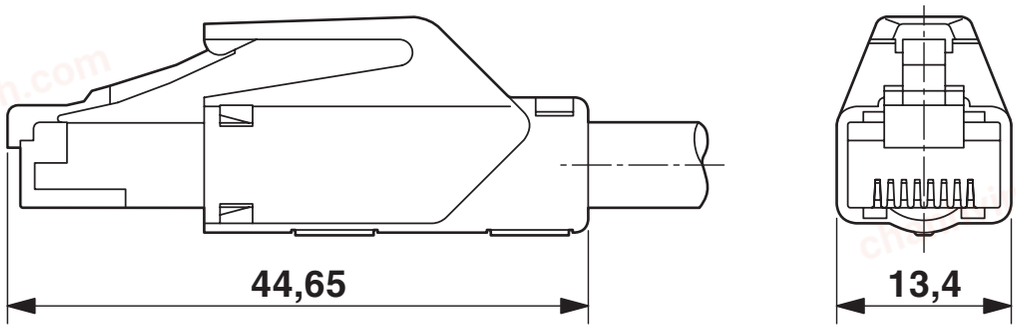
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Dimensional drawing




M12 x 1 socket, straight, shielded

Dimensional drawing




RJ45 connector, IP20

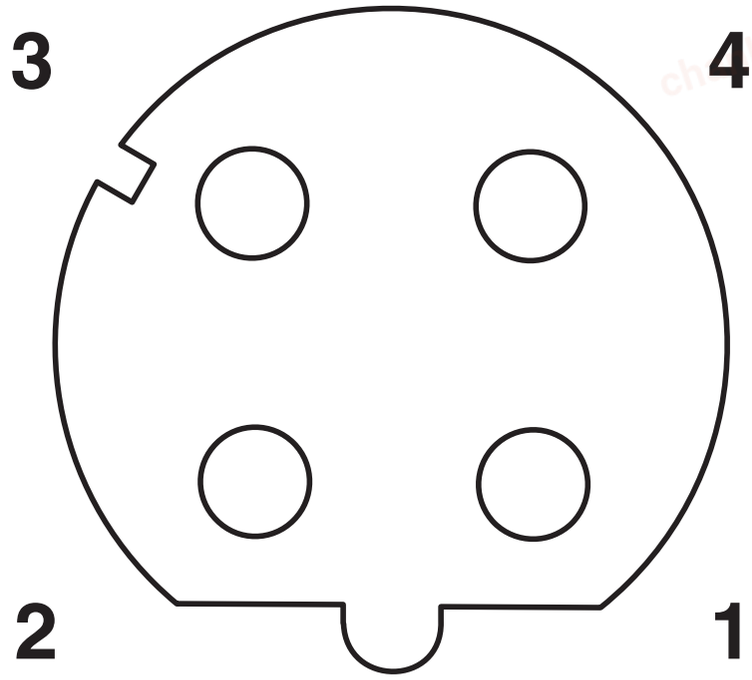
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https://www.phoenixcontact.com/gb/products/1407386

Schematic diagram




Pin assignment M12 socket, 4-pos., D-coded, female side

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Approvals

**UL Listed**
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 | - | - |

**cUL Listed**
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 | - | - |

**EAC**
Approval ID: RU D-DE.HB35.B.00387

**cULus Listed**

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Classifications

### ECLASS

| | |
|---|---|
| ECLASS-9.0 | 27060308 |
| ECLASS-10.0.1 | 27060308 |
| ECLASS-11.0 | 27060307 |

### ETIM

| | |
|---|---|
| ETIM 8.0 | EC001855 |

### UNSPSC

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

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Environmental Product Compliance

| | |
|---|---|
| REACh SVHC | Lead 7439-92-1 |

| | |
|---|---|
| China RoHS | Environmentally Friendly Use Period = 50 years |
| | For information on hazardous substances, refer to the manufacturer’s declaration available under “Downloads” |

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Accessories

### Network cable

Network cable - NBC-MSD-R4AC SCO/.../... - 1408712

https://www.phoenixcontact.com/gb/products/1408712



Network cable, Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

### Torque screwdriver

Torque screwdriver - TSD 04 SAC - 1208429

https://www.phoenixcontact.com/gb/products/1208429



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

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Network cable

Network cable - NBC-MRD-R4AC SCO/.../... - 1408704

https://www.phoenixcontact.com/gb/products/1408704



Network cable, Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug angled M12 SPEEDCON / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: Free input (0.2 ... 40.0 m)

## Torque screwdriver

Torque screwdriver - TSD-M 1,2NM - 1212224

https://www.phoenixcontact.com/gb/products/1212224



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

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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

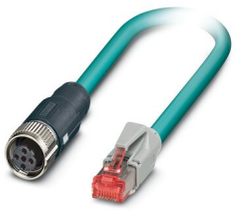
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## Network cable

Network cable - NBC-FSD-R4AC SCO/.../... - 1408696

https://www.phoenixcontact.com/gb/products/1408696



Network cable, Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight RJ45 / IP20, on Socket straight M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

## Adapter insert

Adapter insert - TSD-M SAC-BIT ADAPTER - 1212600

https://www.phoenixcontact.com/gb/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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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Network cable

Network cable - NBC-FRD-R4AC SCO/.../... - 1408689

https://www.phoenixcontact.com/gb/products/1408689



Network cable, Ethernet CAT5 (100 Mbps), 4-position, Variable cable type, shielded, Plug straight RJ45 / IP20, on Socket angled M12 SPEEDCON / IP67, coding: D, cable length: Free input (0.2 ... 40.0 m)

## Tool

Tool - SAC BIT M12-D15 - 1208432

https://www.phoenixcontact.com/gb/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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# Network cable - NBC-FSD/ 5,0-93E/R4AC SCO

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## Screw plug

Screw plug - PROT-M12 MS-PA-CHAIN - 1430899

https://www.phoenixcontact.com/gb/products/1430899

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



## Locking clip

Locking clip - SAC-M12-EXCLIP-F - 1558991

https://www.phoenixcontact.com/gb/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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