

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

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 documentation. Our general terms of use for downloads are valid.



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

## Commercial data

|                       |                                |
|-----------------------|--------------------------------|
| Item number           | 1408589                        |
| Packing unit          | 1 pc                           |
| Note                  | Made to order (non-returnable) |
| Sales key             | BF04                           |
| Product key           | AF1CJP                         |
| Customs tariff number | 85444290                       |
| Country of origin     | PL                             |

1408589

<https://www.phoenixcontact.com/us/products/1408589>

## Technical data

### Product properties

|                     |                         |
|---------------------|-------------------------|
| Product type        | Data cable preassembled |
| Application         | Standard                |
| Sensor type         | EtherCAT®               |
| Number of positions | 4                       |
| Shielded            | yes                     |
| Coding              | D                       |

### Interfaces

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

### 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                      | 100 Mbps              |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002) |

### Material specifications

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

### Connector

#### Connection 1

|                                 |                           |
|---------------------------------|---------------------------|
| Type                            | Plug straight RJ45 / IP20 |
| Number of positions             | 4 (8)                     |
| Handle color                    | black                     |
| Material                        | CuSn (Contact)            |
|                                 | Ni/Au (Contact surface)   |
|                                 | PA (Contact carrier)      |
|                                 | PA (Housing)              |
| Insertion/withdrawal cycles     | ≥ 750                     |
| Degree of protection            | IP20                      |
| Ambient temperature (operation) | -25 °C ... 80 °C          |

#### Connection 2

|      |                                     |
|------|-------------------------------------|
| Type | Socket straight M12 SPEEDCON / IP67 |
|------|-------------------------------------|

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

|                                 |   |
|---------------------------------|---|
| Number of positions             | 4   |
| Locking type                    | SPEEDCON  |
| Coding type                     | D (Data)  |
| Handle color                    | black   |
| Material                        | CuSn (Contact)<br>Ni/Au (Contact surface)<br>TPU GF (Contact carrier)<br>TPU, hardly inflammable, self-extinguishing (Grip body)<br>Zinc die-cast, nickel-plated (Screw connection) |
| Insertion/withdrawal cycles     | ≥ 100   |
| Insulation resistance           | ≥ 100 MΩ  |
| Tightening torque               | 0.4 Nm  |
| Degree of protection            | IP67  |
| Ambient temperature (operation) | -25 °C ... 90 °C  |

## Cable/line

|              |                             |
|--------------|-----------------------------|
| Cable length | Free input (0.2 ... 40.0 m) |
|--------------|-----------------------------|

### EtherCAT® [93G]

|                                 |  |
|---------------------------------|--|
| Cable weight                    | 67 kg/km   |
| UL AWM Style                    | 21694  |
| Number of positions             | 4  |
| Shielded                        | yes  |
| Cable type                      | EtherCAT® [93G]<br>EtherCAT® 93G                   |
| Conductor structure             | 1x4xAWG22/7, SF/TQ                                 |
| Signal runtime                  | 5.3 ns/m   |
| Signal speed                    | 0.66 c   |
| Conductor structure signal line | 7x 0.25 mm   |
| AWG signal line                 | 22   |
| Conductor cross-section         | 4x 0.34 mm <sup>2</sup>                            |
| Wire diameter incl. insulation  | 1.55 mm  |
| External cable diameter         | 6.50 mm ±0.2 mm                                    |
| Outer sheath, material          | PVC  |
| External sheath, color          | green RAL 6018                                     |
| Conductor material              | Tin-plated Cu litz wires                           |
| Material wire insulation        | PE   |
| Single wire, color              | white, yellow, blue, orange                        |
| Thickness, outer sheath         | approx. 0.90 mm                                    |
| Overall twist                   | Star quad  |
| Shielding                       | Aluminum-coated foil, tinned copper braided shield |
| Optical shield covering         | 85 %   |
| Insulation resistance           | ≥ 500 MΩ*km  |
| Coupling resistance             | ≤ 20.00 mΩ/m (at 10 MHz)                           |

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

|   |   |
|---|---|
| Loop resistance                               | ≤ (per km)  |
| Wave impedance                                | 100 Ω ±15 Ω (at 100 MHz)  |
| Nominal voltage, cable                        | 600 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    | 3 x D   |
| Minimum bending radius, flexible installation | 7 x D   |
| Smallest bending radius, fixed installation   | 20 mm   |
| Smallest bending radius, movable installation | 46 mm   |
| Flame resistance                              | according to UL 1685 (CSA FT 4)   |
| Resistance to oil                             | Resistant to oil to a limited extent  |
| Other resistance                              | UV resistant (according to UL 1581, Section 1200)   |
| Ambient temperature (operation)               | -40 °C ... 70 °C (cable, fixed installation)<br>-40 °C ... 70 °C (Cable, flexible installation) |

## EtherCAT® drag chain CAT5 [93H]

|                                 |  |
|---------------------------------|--|
| Cable weight                    | 61 kg/km   |
| Number of positions             | 4  |
| Shielded                        | yes  |
| Cable type                      | EtherCAT® drag chain CAT5 [93H]<br>EtherCAT® drag chain CAT5 93H |
| Conductor structure             | 1x4xAWG22/7, SF/TQ   |
| Signal runtime                  | 5.3 ns/m   |
| Signal speed                    | 0.66 c   |
| Conductor structure signal line | 7x 0.25 mm   |
| AWG signal line                 | 22   |
| Conductor cross-section         | 4x 0.34 mm <sup>2</sup>  |
| Wire diameter incl. insulation  | 1.5 mm   |
| External cable diameter         | 6.50 mm ±0.2 mm  |
| Outer sheath, material          | PUR  |
| External sheath, color          | green RAL 6018   |
| Conductor material              | Tin-plated Cu litz wires   |
| Material wire insulation        | PE   |
| Single wire, color              | white, yellow, blue, orange                                      |
| Thickness, outer sheath         | approx. 0.90 mm  |
| Overall twist                   | Star quad  |
| Shielding                       | Aluminum-coated foil, tinned copper braided shield               |
| Optical shield covering         | 85 %   |
| Insulation resistance           | ≥ 500 MΩ*km  |
| Coupling resistance             | ≤ 20.00 mΩ/m (at 10 MHz)   |
| Loop resistance                 | ≤ (per km)   |
| Wave impedance                  | 100 Ω ±15 Ω (at 1 ... 100 MHz)                                   |
| Nominal voltage, cable          | 600 V (UL rating)  |
| Test voltage Core/Core          | 2000 V (50 Hz, 1 min.)   |

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

|   |   |
|---|---|
| Test voltage Core/Shield                      | 2000.00 V (50 Hz, 1 min.)   |
| Minimum bending radius, fixed installation    | 5 x D   |
| Minimum bending radius, flexible installation | 7.5 x D   |
| Smallest bending radius, fixed installation   | 33 mm   |
| Smallest bending radius, movable installation | 49 mm   |
| Dynamic load capacity (bending)               | Max. bending cycles: 3000000, Bending radius: 100 mm, Traversing path: 10 m, Traversing rate: 4 m/s, Acceleration: 4 m/s <sup>2</sup> |
| Dynamic load capacity (torsion)               | Torsion: ±30 °/m  |
| Flame resistance                              | according to IEC 60332-1-2  |
| Resistance to oil                             | in accordance with DIN EN 60811-2-1   |
| Other resistance                              | UV resistant  |
| Special properties                            | Electrical properties in accordance with EN 50288-2-2   |
| Ambient temperature (operation)               | -40 °C ... 70 °C (cable, fixed installation)<br>-40 °C ... 70 °C (Cable, flexible installation)                                       |

## Standards and regulations

### M12

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

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

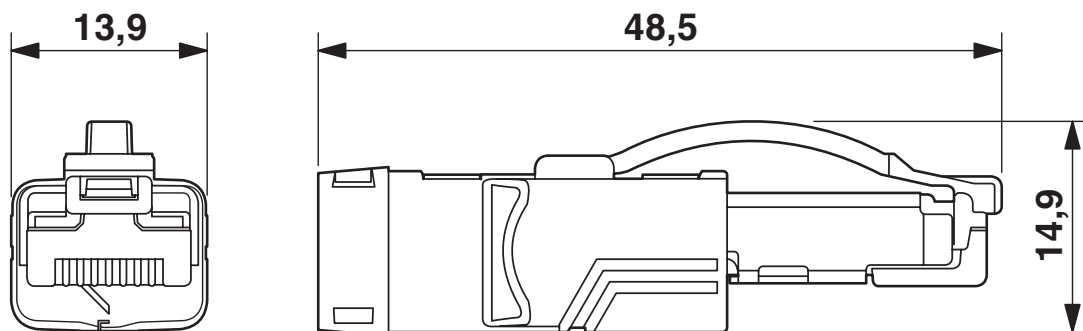
## Drawings

Dimensional drawing



M12 x 1 socket, straight, shielded

Dimensional drawing



RJ45 connector, IP20

1408589

<https://www.phoenixcontact.com/us/products/1408589>

Schematic diagram



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

1408589

<https://www.phoenixcontact.com/us/products/1408589>

Schematic diagram



Connector pin assignment plug RJ45

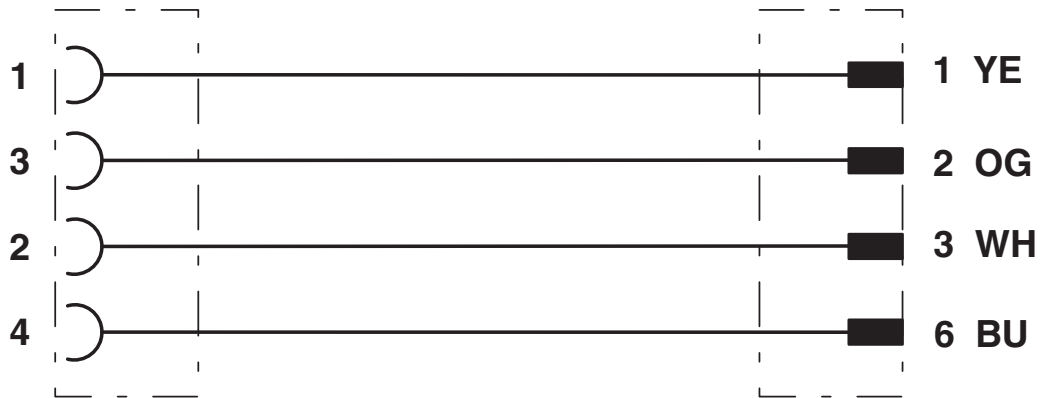
# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

Circuit diagram



Contact assignment of the M12 socket and the RJ45 plug

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

## Classifications

### ECLASS

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

# NBC-FSD-R4AC SCO-EC/.../... - Network cable



1408589

<https://www.phoenixcontact.com/us/products/1408589>

## 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% |
|-------------------------------------|----------------------------|

Phoenix Contact 2026 © - all rights reserved  
<https://www.phoenixcontact.com>

Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)