

NBC-MSD-MSD SCO-EC/.../... - Network cable



1408597

<https://www.phoenixcontact.com/us/products/1408597>

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 M12 SPEEDCON, coding: D / IP67, on Plug straight M12 SPEEDCON, coding: D / IP67, cable length: Free input (0.2 ... 40.0 m)

Commercial data

| | |
|-----------------------|--------------------------------|
| Item number | 1408597 |
| Packing unit | 1 pc |
| Note | Made to order (non-returnable) |
| Sales key | BF04 |
| Product key | AF1CJP |
| Customs tariff number | 85444290 |
| Country of origin | PL |

1408597

<https://www.phoenixcontact.com/us/products/1408597>

Technical data

Product properties

| | |
|----------------------|-------------------------|
| Product type | Data cable preassembled |
| Application | Standard |
| Sensor type | EtherCAT® |
| Number of positions | 4 |
| No. of cable outlets | 1 |
| 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 | 4 A |
| Transmission medium | Copper |
| Transmission speed | 100 Mbps |
| Transmission characteristics (category) | CAT5 (IEC 11801:2002) |

Connector

Connection 1

| | |
|-----------------------------|---|
| Type | Plug straight M12 SPEEDCON / IP67 |
| Number of positions | 4 |
| Locking type | SPEEDCON |
| Coding type | D (Data) |
| Handle color | black |
| Material | CuSn (Contact) |
| | Ni/Au (Contact surface) |
| | PA (Contact carrier) |
| | TPU, hardly inflammable, self-extinguishing (Grip body) |
| | Zinc die-cast, nickel-plated (Screw connection) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |
| Tightening torque | 0.4 Nm |
| Degree of protection | IP67 |

NBC-MSD-MSD SCO-EC/.../... - Network cable



1408597

<https://www.phoenixcontact.com/us/products/1408597>

| | |
|---------------------------------|------------------|
| Ambient temperature (operation) | -25 °C ... 90 °C |
|---------------------------------|------------------|

Connection 2

| | |
|---------------------------------|---|
| Type | Plug straight M12 SPEEDCON / IP67 |
| Number of positions | 4 |
| Locking type | SPEEDCON |
| Coding type | D (Data) |
| Handle color | black |
| Material | CuSn (Contact) Ni/Au (Contact surface) PA (Contact carrier) TPU, hardly inflammable, self-extinguishing (Grip body) 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] 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 ² |
| 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 |

NBC-MSD-MSD SCO-EC/.../... - Network cable



1408597

<https://www.phoenixcontact.com/us/products/1408597>

| | |
|---|---|
| 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 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) -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] 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 ² |
| 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) |

NBC-MSD-MSD SCO-EC/.../... - Network cable



1408597

<https://www.phoenixcontact.com/us/products/1408597>

| | |
|---|---|
| Wave impedance | 100 Ω \pm 15 Ω (at 1 ... 100 MHz) |
| Nominal voltage, cable | 600 V (UL rating) |
| 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 | 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 ² |
| Dynamic load capacity (torsion) | Torsion: \pm 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) -40 °C ... 70 °C (Cable, flexible installation) |

Standards and regulations

M12

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

Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram

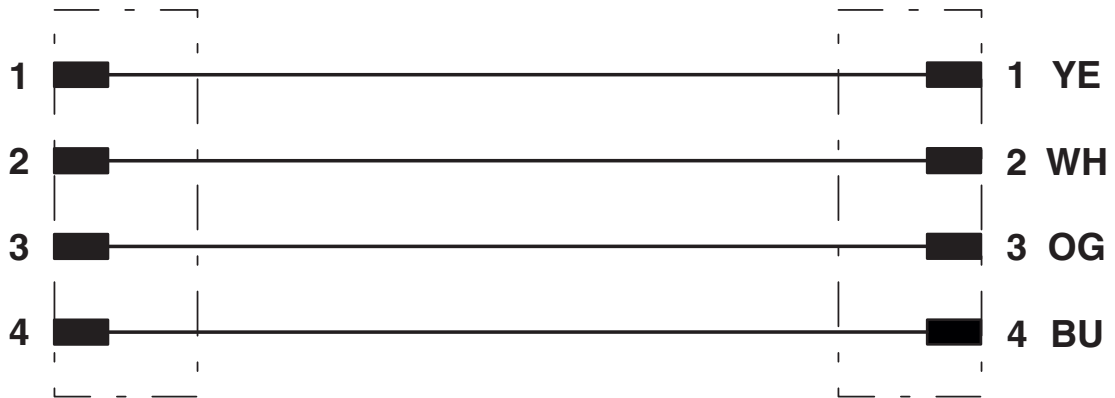


Pin assignment M12 male connector, 4-pos., D-coded, male side

1408597

<https://www.phoenixcontact.com/us/products/1408597>

Circuit diagram



Contact assignment of the M12 plugs

NBC-MSD-MSD SCO-EC/.../... - Network cable



1408597

<https://www.phoenixcontact.com/us/products/1408597>

Classifications

ECLASS

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

NBC-MSD-MSD SCO-EC/.../... - Network cable



1408597

<https://www.phoenixcontact.com/us/products/1408597>

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