

# NBC-MSD/ 1,0-93K/MSD SCO - Network cable



1411529

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Network cable, Sercos CAT5 (100 Mbps), 4-position, PVC/PVC, signal red RAL 3020, shielded, Plug straight M12 SPEEDCON, coding: D / IP67, on Plug straight M12 SPEEDCON, coding: D / IP67, cable length: 1 m

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1411529                        |
| Packing unit                         | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF04                           |
| Product key                          | AF1CJO                         |
| GTIN                                 | 4046356933766                  |
| Weight per piece (including packing) | 103.8 g                        |
| Weight per piece (excluding packing) | 100.5 g                        |
| Customs tariff number                | 85444290                       |
| Country of origin                    | PL                             |

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## Technical data

### Product properties

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

### Interfaces

|                      |                                   |
|----------------------|-----------------------------------|
| Bus system           | Sercos III                        |
| Signal type/category | Sercos 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  |
| Ambient temperature (operation) | -25 °C ... 90 °C  |

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## 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)<br>Ni/Au (Contact surface)<br>Zinc die-cast, nickel-plated (Screw connection)<br>Zinc die-cast, nickel-plated (Screw connection)<br>TPU, hardly inflammable, self-extinguishing (Grip body)<br>PA (Contact carrier)<br>TPU, hardly inflammable, self-extinguishing (Grip body) |
| 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 | 1 m |
|--------------|-----|

## Sercos III [93K]

|                                 |  |
|---------------------------------|--|
| Dimensional drawing             |  |
| Cable weight                    | 68 kg/km   |
| UL AWM Style                    | 21694 (60 °C / 600 V)  |
| Number of positions             | 4  |
| Shielded                        | yes  |
| Cable type                      | Sercos III [93K]   |
| Conductor structure             | 1x4xAWG22/7, SF/TQ   |
| Signal runtime                  | 5.3 ns/m   |
| 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  | approx. 1.55 mm  |
| External cable diameter         | 6.50 mm ±0.2 mm  |
| Outer sheath, material          | PVC  |

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|   |   |
|---|---|
| External sheath, color                        | signal red RAL 3020   |
| 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   |
| Type of pair shielding                        | Aluminum-lined polyester foil   |
| Overall twist                                 | Star quad   |
| Max. conductor resistance                     | ≤ 120 Ω/km  |
| Insulation resistance                         | ≥ 0.5 GΩ*km   |
| Coupling resistance                           | ≤ 20.00 mΩ/m (at 10 Hz)   |
| 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) |
| Ambient temperature (installation)            | -20 °C ... 60 °C  |

## 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

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Circuit diagram



Contact assignment of the M12 plugs

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## Classifications

### ECLASS

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

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 26121604 |
|-------------|----------|

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