

NBC-M12MSD/10,0-93B/R4ACR - Network cable



1407511

<https://www.phoenixcontact.com/in/products/1407511>

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PVC/PVC, green RAL 6018, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug angled RJ45 / IP20, cable length: 10 m

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 1407511 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | BF1 |
| Product key | AF1CJN |
| Catalog page | Page 397 (C-2-2019) |
| GTIN | 4046356778169 |
| Weight per piece (including packing) | 712.69 g |
| Weight per piece (excluding packing) | 712.69 g |
| Customs tariff number | 85444290 |
| Country of origin | PL |

Technical data

Notes

| | |
|---------|--|
| General | This product corresponds to the PROFINET Cabling and Interconnection Technology Guideline for PROFINET regulations, version 2.00, order no: 2.252, Chapter 10.1 Cord Sets for Balanced Cabling |
| 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 |
| Application | Standard |
| Sensor type | PROFINET |
| Number of positions | 4 |
| Shielded | yes |

Interfaces

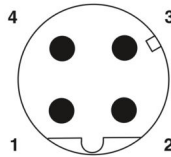
| | |
|----------------------|--------------------------------------|
| Signal type/category | PROFINET CAT5 (IEC 11801), 100 Mbps |
| | EtherCAT® CAT5 (IEC 11801), 100 Mbps |

Electrical properties

| | |
|-----------------------|---------|
| Nominal voltage U_N | 48 V AC |
| | 60 V DC |
| Nominal current I_N | 1 A |
| Transmission medium | Copper |

Connector

Connection 1

| | |
|-----------------------------|---|
| Dimensional drawing |  Pin assignment M12 male connector, 4-pos., D-coded, male side |
| Type | M12 Plug, straight, 4-position, shielded (Advanced Shielding Technology), Keying: D |
| Number of positions | 4 |
| Shielded | yes |
| Shielding | Advanced Shielding Technology |
| Signal type/category | EtherCAT® CAT5 (IEC 11801), 100 Mbps PROFINET CAT5 (IEC 11801) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |

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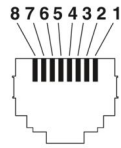


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| | |
|--|---|
| Overvoltage category | II |
| Degree of pollution | 3 |
| Tightening torque | 0.4 Nm |
| Material Contact | CuSn |
| Material Contact surface | Ni/Au |
| Material Contact carrier | PA 6.6 |
| Material Screw connection | Die-cast zinc, nickel-plated |
| Material Grip body | TPU, hardly inflammable, self-extinguishing |
| Material Seal | FKM |
| Flammability rating according to UL 94 | V0 |
| Degree of protection | IP65 |
| | IP67 |
| Ambient temperature (operation) | -25 °C ... 85 °C |
| Standard designation | M12 connector |
| Standards/regulations | IEC 61076-2-101 |

Connection 2

| | |
|--|---|
| Dimensional drawing |  <p>Connector pin assignment plug RJ45</p> |
| Type | RJ45 Plug, angled |
| Signal type/category | PROFINET CAT5 (IEC 11801), 100 Mbps EtherCAT® CAT5 (IEC 11801) |
| Insertion/withdrawal cycles | ≥ 750 |
| Insulation resistance | ≥ 100 MΩ |
| Overvoltage category | I |
| Degree of pollution | 2 |
| Material Contact | CuSn |
| Material Contact surface | Ni/Au |
| Material Contact carrier | PA |
| Material Housing | PA |
| Flammability rating according to UL 94 | V2 |
| Degree of protection | IP20 |
| Ambient temperature (operation) | -25 °C ... 80 °C |

Cable/line

| | |
|--------------|------|
| Cable length | 10 m |
|--------------|------|

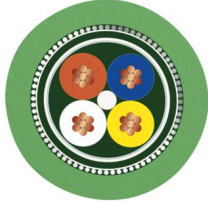
PROFINET PVC stranded CAT5 [93B]

NBC-M12MSD/10,0-93B/R4ACR - Network cable



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| | |
|---|--|
| Dimensional drawing |  |
| Cable weight | 67 kg/km |
| UL AWM Style | 21694 |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET PVC stranded CAT5 [93B] |
| 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 |
| Optical shield covering | 85 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Coupling resistance | ≤ 20.00 mΩ/m (at 10 MHz) |
| Loop resistance | ≤ 120.00 Ω/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 |
| Near end crosstalk attenuation (NEXT) | 80 dB (with 1 MHz) |
| | 76 dB (at 4 MHz) |
| | 70 dB (at 10 MHz) |
| | 65 dB (at 16 MHz) |

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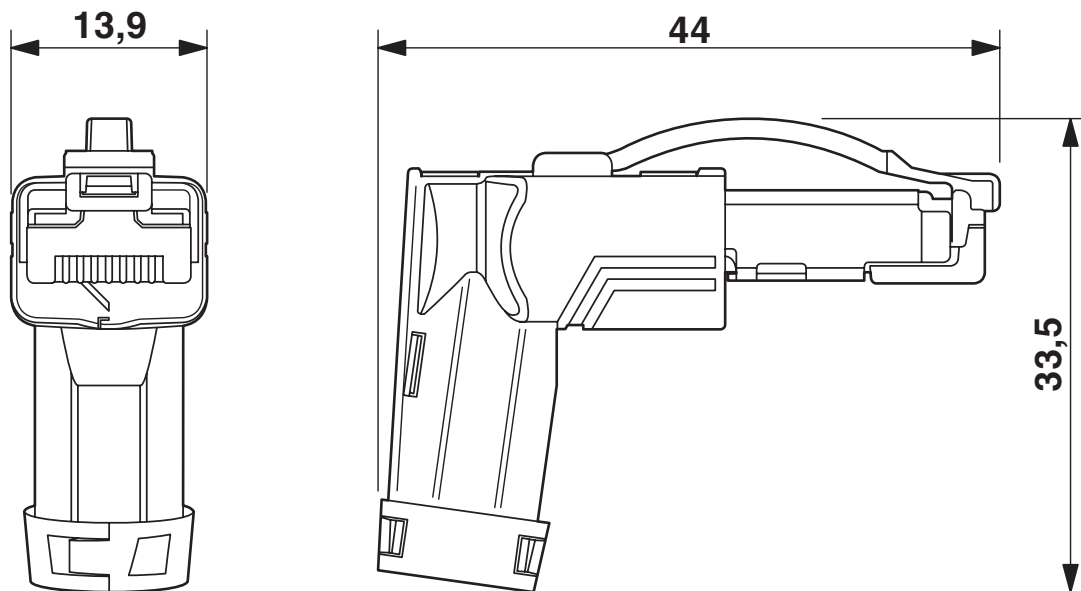
| | |
|------------------------------------|---|
| | 63 dB (at 20 MHz) |
| | 60 dB (at 31.25 MHz) |
| | 55 dB (at 62.5 MHz) |
| | 50 dB (at 100 MHz) |
| Shield attenuation | 2.1 dB (with 1 MHz) |
| | 4 dB (at 4 MHz) |
| | 6.3 dB (at 10 MHz) |
| | 8 dB (at 16 MHz) |
| | 9 dB (at 20 MHz) |
| | 11.4 dB (at 31.25 MHz) |
| | 16.5 dB (at 62.5 MHz) |
| | 21.3 dB (at 100 MHz) |
| 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) |
| Ambient temperature (installation) | -20 °C ... 60 °C |

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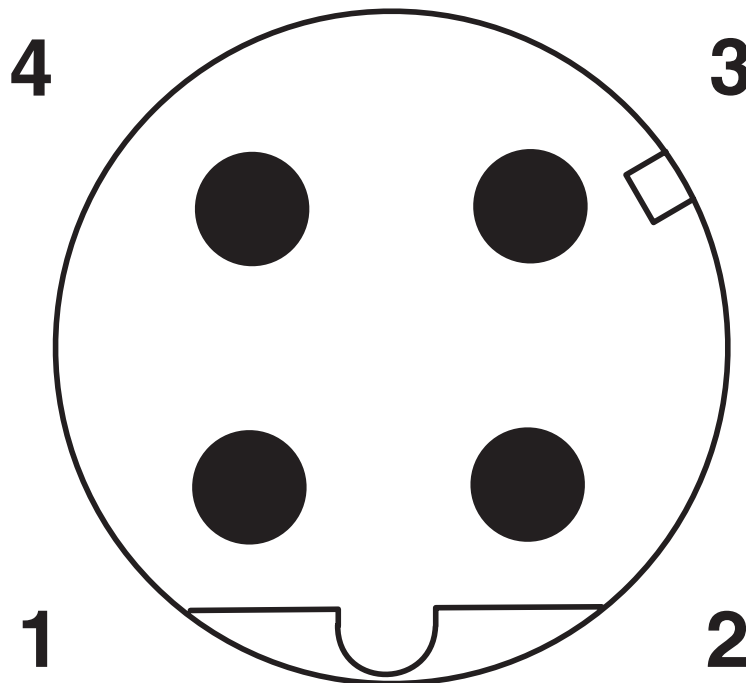
Drawings

Dimensional drawing



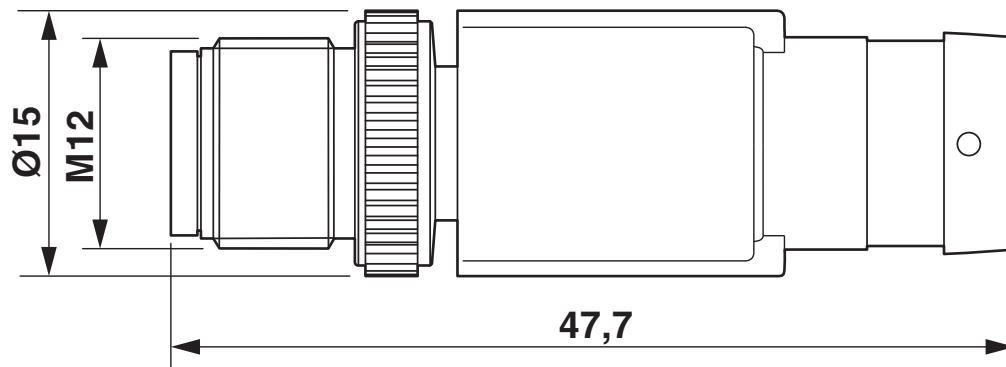
RJ45 connector, IP20, angled

Schematic diagram



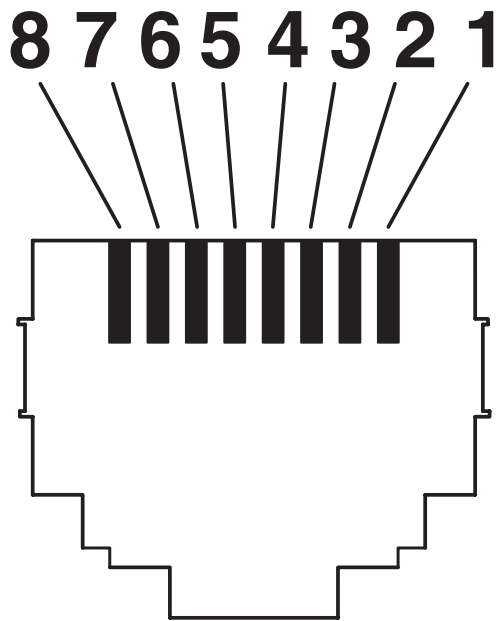
Pin assignment M12 male connector, 4-pos., D-coded, male side

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram

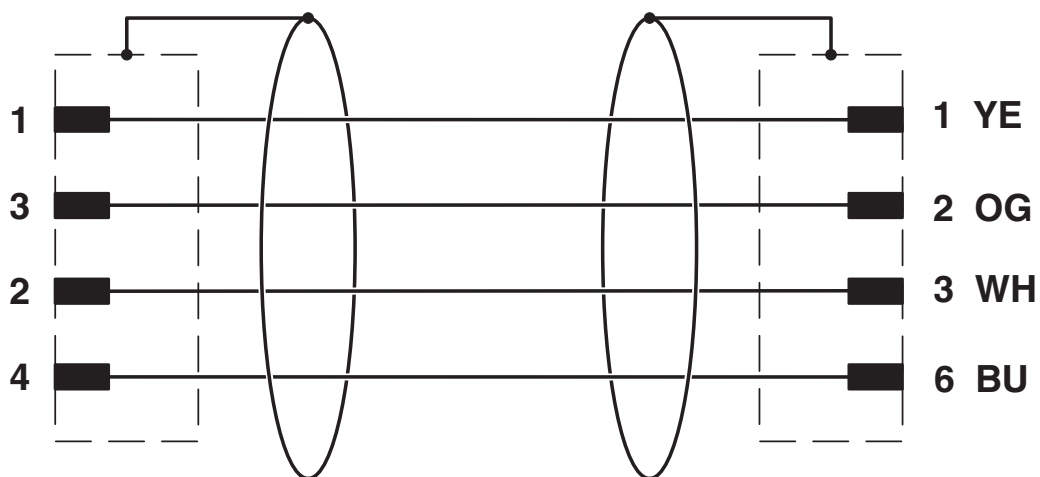


Connector pin assignment plug RJ45

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Circuit diagram



Contact assignment of the M12 and RJ45 plug

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Approvals

📄 To download certificates, visit the product detail page: <https://www.phoenixcontact.com/in/products/1407511>

**UL Listed**

Approval ID: FILE E 335024

| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | 60 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 |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | 60 V | 0.5 A | - | - |

**EAC-RoHS**

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

cULus Listed

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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

| | |
|---|--|
| 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% |

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Accessories

NBC-M12MSD-R4AC-PN/.../... - Network cable

1408639

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

NBC-M12MSD-R4ACR-PN/.../... - Network cable

1408638

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug angled RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

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NBC-M12MRD-R4AC-PN/.../... - Network cable

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug angled M12, coding: D / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

NBC-M12MRD-R4ACR-PN/.../... - Network cable

1408631

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug angled M12, coding: D / IP67, on Plug angled RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

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NBC-M12FSD-R4AC-PN/.../... - Network cable

1408622

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Socket straight M12, coding: D / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

NBC-M12FSD-R4ACR-PN/.../... - Network cable

1408621

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Socket straight M12, coding: D / IP67, on Plug angled RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Socket angled M12, coding: D / IP67, on Plug straight RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

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1408612

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Socket angled M12, coding: D / IP67, on Plug angled RJ45 / IP20, cable length: Free input (0.2 m ... 85.0 m)

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PROT-M12 FS-PA-CHAIN - Sealing cap

1430873

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M12 sealing cap made of plastic with fixing band, for sensor cables, for free M12 plugs



SAC-M12-EXCLIP-M - Locking clip

1558988

<https://www.phoenixcontact.com/in/products/1558988>

Locking clip for the pin 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/in/products/1208429>



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

TSD-M 1,2NM - Torque screwdriver

1212224

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



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

NBC-M12MSD/10,0-93B/R4ACR - Network cable



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TSD-M SAC-BIT ADAPTER - Adapter insert

1212600

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



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

SAC BIT M12-D15 - Tool

1208432

<https://www.phoenixcontact.com/in/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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