

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



1408634

<https://www.phoenixcontact.com/us/products/1408634>

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, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, Variable cable type, shielded (Advanced Shielding Technology), Plug straight M12, coding: D / IP67, on Plug straight M12, coding: D / IP67, cable length: Free input (0.2 m ... 100.0 m)

Commercial data

| | |
|------------------------|--------------------------------|
| Item number | 1408634 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Note | Made to order (non-returnable) |
| Sales key | BF17 |
| Product key | AF1CJN |
| Customs tariff number | 85444290 |
| Country of origin | PL |

1408634

<https://www.phoenixcontact.com/us/products/1408634>

Technical data

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 | 4 A |
| Transmission medium | Copper |
| Transmission speed | 100 Mbps |

Connector

Connection 1

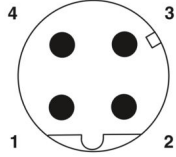
| | |
|-----------------------------|---|
| Dimensional drawing |  <p>Pin assignment M12 male connector, 4-pos., D-coded, male side</p> |
| Type | M12 Plug, straight, 4-position, shielded (Advanced Shielding Technology), Keying: D |
| Number of positions | 4 |
| Shielded | yes |
| Shielding | Advanced Shielding Technology |
| Signal type/category | EtherCAT® CAT5 (IEC 11801), 100 Mbps PROFINET CAT5 (IEC 11801) |
| Insertion/withdrawal cycles | ≥ 100 |
| Insulation resistance | ≥ 100 MΩ |
| Overvoltage category | II |
| Degree of pollution | 3 |
| Tightening torque | 0.4 Nm |
| Material Contact | CuSn |
| Material Contact surface | Ni/Au |

1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|--|---|
| 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>Pin assignment M12 male connector, 4-pos., D-coded, male side</p> |
| 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 |
| 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 |

Cable/line

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



1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|--------------|--------------------------------|
| Cable length | Free input (0.2 m ... 100.0 m) |
|--------------|--------------------------------|

PROFINET PVC stranded CAT5 [93B]

| | |
|---|--|
| UL AWM Style | 21695 (80 °C / 600 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET PVC stranded CAT5 [93B] PROFINET PVC stranded CAT5 93B |
| Conductor structure | 1x4xAWG22/7, SF/TQ |
| AWG signal line | 22 |
| Conductor cross-section | 4x 0.34 mm ² |
| Wire diameter incl. insulation | 1.5 mm ±0.1 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 |
| Overall twist | Star quad |
| Shielding | Aluminum-coated foil, tinned copper braided shield |
| Optical shield covering | 85 % |
| Insulation resistance | ≥ 5 GΩ*km |
| Loop resistance | ≤ 120.00 Ω/km |
| Wave impedance | 100 Ω ±5 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 | 4 x D |
| Minimum bending radius, flexible installation | 8 x D |
| Flame resistance | UL 1581, Section 1060 and UL 2556, Section 9.3 (FT1) UL 1685 (CSA FT 4) UL 1581, Section 1100 and UL 2556, Section 9.1 (HFT/FT2) |
| Resistance to oil | OIL RES I according to UL 2256 |
| Other resistance | UV resistant (according to UL 1581, Section 1200) |
| Ambient temperature (operation) | -40 °C ... 80 °C (cable, fixed installation) -10 °C ... 70 °C (Cable, flexible installation) |

PROFINET drag chain CAT5 [93C]

| | |
|---------------------|--|
| UL AWM Style | 20233 (80°C/300 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET drag chain CAT5 [93C] PROFINET drag chain CAT5 93C |
| Conductor structure | 1x4xAWG22/7, SF/TQ |
| AWG signal line | 22 |

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



1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|---|---|
| Conductor cross-section | 4x 0.34 mm ² |
| Wire diameter incl. insulation | 1.5 mm ±0.05 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 |
| Overall twist | Star quad |
| Shielding | Aluminum-coated foil, tinned copper braided shield |
| Optical shield covering | 85 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 120.00 Ω/km |
| Wave impedance | 100 Ω ±15 Ω (at 1 ... 100 MHz) |
| Nominal voltage, cable | ≤ 300 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 | 5 x D |
| Minimum bending radius, flexible installation | 7.5 x D |
| Dynamic load capacity (bending) | Max. bending cycles: 3000000, Bending radius: 200 mm, Traversing path: 10 m, Traversing rate: 4 m/s, Acceleration: 4 m/s ² |
| Dynamic load capacity (torsion) | Torsion: ±30 °/m |
| Halogen-free | according to IEC 60754-1 |
| Flame resistance | according to IEC 60332-1-2 in accordance with UN ECE-R 118.03 according to CSA C 22.2 No. 210-FT1 |
| Resistance to oil | in accordance with DIN EN 60811-404 |
| Other resistance | UV resistant |
| Special properties | Flexible cable conduit capable |
| Ambient temperature (operation) | -40 °C ... 70 °C (cable, fixed installation) -40 °C ... 70 °C (Cable, flexible installation) |

PROFINET robot CAT5 [93R]

| | |
|---------------------------------|--|
| Cable weight | 55 kg/km |
| UL AWM Style | 20233 (80°C/300 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET robot CAT5 [93R] PROFINET robot CAT5 93R |
| Conductor structure | 1x4xAWG22/19, S/TQ |
| Signal runtime | 4.8 ns/m |
| Conductor structure signal line | 19x 0.15 mm |
| AWG signal line | 22 |
| Conductor cross-section | 4x 0.34 mm ² |

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



1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|---|---|
| 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 | Foamed PE |
| Single wire, color | white, yellow, blue, orange |
| Thickness, outer sheath | approx. 1.00 mm |
| Overall twist | Star quad |
| Shielding | Tinned copper braided shield |
| Optical shield covering | 85 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 120.00 Ω/km |
| Wave impedance | 100 Ω ±5 Ω (at 100 MHz) |
| Nominal voltage, cable | 300 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 | 5 x D |
| Smallest bending radius, fixed installation | 33 mm |
| Dynamic load capacity (torsion) | Torsion: ±180 °/m, Torsion cycles: 1000000 |
| Wave attenuation | 2.9 dB (with 1 MHz) 5 dB (at 4 MHz) 8.1 dB (at 10 MHz) 10.4 dB (at 16 MHz) 11.9 dB (at 20 MHz) 15.5 dB (at 31.25 MHz) 26.5 dB (at 62.5 MHz) 41 dB (at 100 MHz) |
| Halogen-free | according to IEC 60754-1 |
| Flame resistance | according to IEC 60332-1-2 |
| Resistance to oil | in accordance with DIN EN 60811-2-1 |
| Other resistance | UV resistant (according to UL 1581, Section 1200) |
| Ambient temperature (operation) | -40 °C ... 80 °C -40 °C ... 80 °C |

PROFINET RADOX® railway application CAT5 [937]

| | |
|---------------------------------|--|
| Cable weight | 70 kg/km |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET RADOX® railway application CAT5 [937] PROFINET RADOX® railway application CAT5 937 |
| Conductor structure | 1x4xAWG22/7, SF/TQ |
| Signal speed | 75 c |
| Conductor structure signal line | 7x 0.25 mm |

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



1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|---|--|
| AWG signal line | 22 |
| Conductor cross-section | 4x 0.34 mm ² |
| Wire diameter incl. insulation | approx. 1.5 mm |
| External cable diameter | 6.60 mm ±0.4 mm |
| Outer sheath, material | PE-X |
| External sheath, color | black RAL 9005 |
| Conductor material | silver-plated Cu litz wires |
| Material wire insulation | Foamed PE |
| Single wire, color | white-blue, orange-yellow |
| Thickness, outer sheath | approx. 1.00 mm |
| Overall twist | Star quad |
| Shielding | Plastic-coated aluminum foil, tinned copper braided shield |
| Max. conductor resistance | ≤ 54.4 Ω/km |
| Coupling resistance | 200.00 mΩ/m (f ≤ 30 MHz) |
| Wave impedance | 100 Ω ±5 Ω (f = 100 MHz) |
| Working capacitance | ≤ 65 pF (Line-line) ≤ 100 pF (Line-shield) |
| Nominal voltage, cable | 300 V AC |
| Test voltage | 2000 V AC (50 Hz, 5 minutes) |
| Minimum bending radius, fixed installation | 6 x D |
| Smallest bending radius, fixed installation | 40 mm |
| Near end crosstalk attenuation (NEXT) | 73 dB (with 1 MHz) 70 dB (at 4 MHz) 65 dB (at 10 MHz) 57 dB (at 31.5 MHz) 52 dB (at 62.5 MHz) 48 dB (at 100 MHz) |
| Return attenuation (RL) | 25 dB (at 4 MHz) 30 dB (at 10 MHz) 30 dB (at 31.5 MHz) 30 dB (at 62.5 MHz) 28 dB (at 100 MHz) |
| Remote crosstalk attenuation (FEXT) | 25 dB (at 4 MHz) 30 dB (at 10 MHz) 30 dB (at 31.5 MHz) 30 dB (at 62.5 MHz) 28 dB (at 100 MHz) |
| Wave attenuation | 2 dB (with 1 MHz) 4.4 dB (at 4 MHz) 7.4 dB (at 10 MHz) 14 dB (at 31.5 MHz) 20 dB (at 62.5 MHz) 26 dB (at 100 MHz) |
| Halogen-free | in accordance with EN 50267-2-1 |

1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|--------------------------------------|--|
| Flame resistance | IEC 60332-1-2 |
| | EN 50266 |
| | EN 60332-3-25 |
| | NF C32-070, 2.1 |
| | NF C32-070, 2.2 |
| | UL 1685, 12 (FT4) |
| | in accordance with ISO 6722-1 5.22 (UN ECE-R 118.01) |
| Fume corrosiveness | EN 50267-2-2 |
| Fume toxicity | BS 6853 B.1 |
| | EN 50305, 9.2 |
| Concentration of fumes | BS 6853 D.8.7 |
| | EN 61034-2 |
| | UL 1685, 12 (FT4) |
| Resistance to oil | according to IRM 902, 72 h at 100 °C |
| Fire protection in rail vehicles | BS 6853 (Category Ia, Ib, II) |
| | GM/RT 2130 (Category Ia, Ib, II) |
| | EN 45545 (Risk level HL1 - HL3) |
| | DIN 5510 (Fire protection level 1, 2, 3, 4) |
| | NF F16-101 (Category A1, A2, B) |
| | NF F16-101 (Class C/F0) |
| | NFPA 130 |
| UNI CEI 11170 (Risk level LR1 - LR4) | |
| Other resistance | Resistance to fuels (according to IRM 903, 168 h at 70 °C) |
| Ambient temperature (operation) | -50 °C ... 90 °C (cable, fixed installation) |
| | -40 °C ... 90 °C (Cable, flexible installation) |

PROFINET stranded CAT5 [93M]

| | |
|--------------------------------|--|
| UL AWM Style | 21238 (80 °C / 600 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | PROFINET stranded CAT5 [93M] |
| | PROFINET stranded CAT5 93M |
| Conductor structure | 1x4xAWG22/7, SF/TQ |
| AWG signal line | 22 |
| Conductor cross-section | 4x 0.34 mm ² |
| Wire diameter incl. insulation | 1.56 mm ±0.05 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 |
| Overall twist | Star quad |
| Shielding | Aluminum-coated foil, tinned copper braided shield |

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



1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|---|---|
| Optical shield covering | 85 % |
| Insulation resistance | ≥ 500 MΩ*km |
| Loop resistance | ≤ 120.00 Ω/km |
| Wave impedance | 100 Ω ±15 Ω (at 100 MHz) |
| Nominal voltage, cable | ≤ 100 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 | 5 x D |
| Minimum bending radius, flexible installation | 10 x D |
| Halogen-free | according to IEC 60754-1 |
| Flame resistance | according to CSA C 22.2 No. 210-FT1 |
| Ambient temperature (operation) | -40 °C ... 80 °C -40 °C ... 80 °C (Cable, flexible installation) |

Sercos III [93K]

| | |
|---------------------------------|------------------------------------|
| Cable weight | 68 kg/km |
| UL AWM Style | 21694 (60 °C / 600 V) |
| Number of positions | 4 |
| Shielded | yes |
| Cable type | Sercos III [93K] 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 ² |
| Wire diameter incl. insulation | approx. 1.55 mm |
| External cable diameter | 6.50 mm ±0.2 mm |
| Outer sheath, material | PVC |
| 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 |
| Shielding | Tinned copper braided shield |
| 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.) |

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



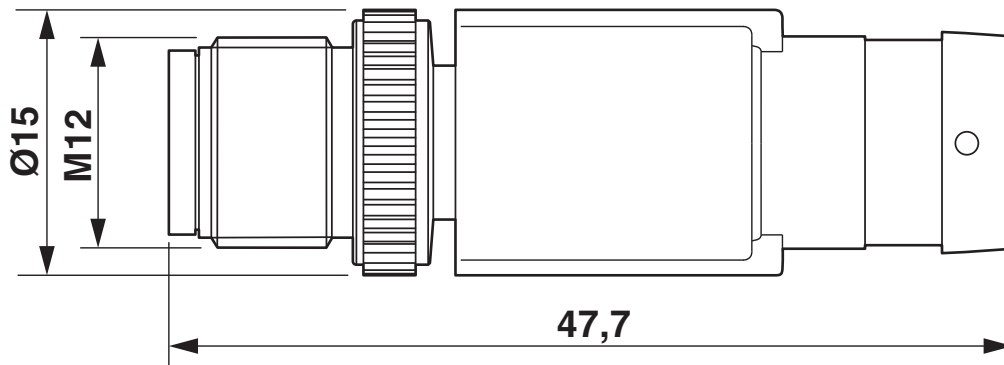
1408634

<https://www.phoenixcontact.com/us/products/1408634>

| | |
|---|---|
| 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) |

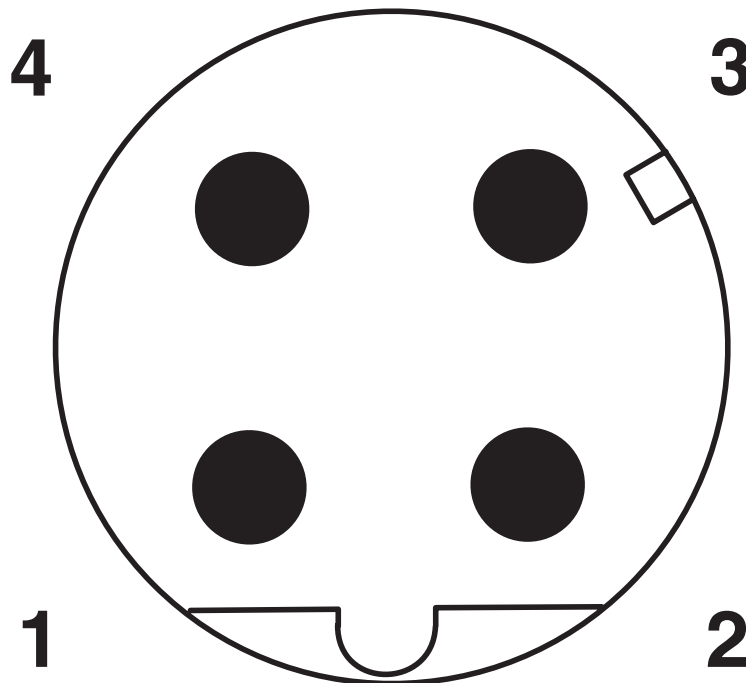
Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Schematic diagram

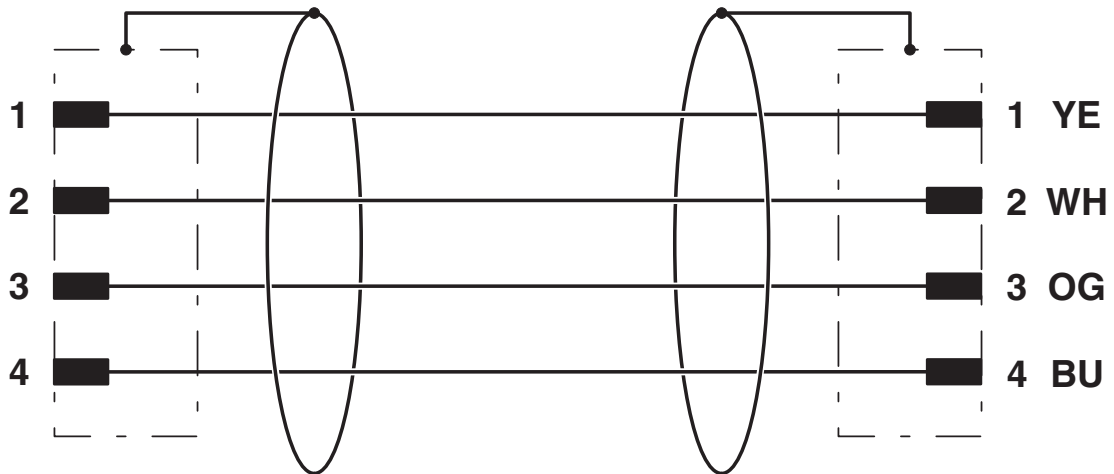


Pin assignment M12 male connector, 4-pos., D-coded, male side

1408634

<https://www.phoenixcontact.com/us/products/1408634>

Circuit diagram



Contact assignment of the M12 plugs

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





1408634

<https://www.phoenixcontact.com/us/products/1408634>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1408634>

|  UL Listed Approval ID: FILE E 335024 | | | | |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | | | | |
| | 30 V | 4 A | - | - |

|  cUL Listed Approval ID: FILE E 335024 | | | | |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
| | Nominal voltage U_N | Nominal current I_N | Cross section AWG | Cross section mm^2 |
| keine | | | | |
| | 30 V | 4 A | - | - |

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

1408634

<https://www.phoenixcontact.com/us/products/1408634>

Classifications

ECLASS

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

UNSPSC

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

1408634

<https://www.phoenixcontact.com/us/products/1408634>

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