

# NBC-M12FSY/25,0-94H/M12FSY - Hybrid cable



1146454

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Hybrid cable, Ethernet hybrid CAT5 (100 Mbps), 8-position, PUR halogen-free, black RAL 9005, shielded (Advanced Shielding Technology), Socket straight M12, coding: Y / IP65/IP67, on Socket straight M12, coding: Y / IP65/IP67, cable length: 25 m, Power with Ethernet (PWE)

## Commercial data

|                                      |               |
|--------------------------------------|---------------|
| Item number                          | 1146454       |
| Packing unit                         | 1 pc          |
| Minimum order quantity               | 1 pc          |
| Sales key                            | BF04          |
| Product key                          | AF1CML        |
| GTIN                                 | 4063151137632 |
| Weight per piece (including packing) | 2,803.5 g     |
| Weight per piece (excluding packing) | 2,803.5 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          | Ethernet hybrid         |
| Number of positions  | 8                       |
| No. of cable outlets | 1                       |
| Shielded             | yes                     |
| Coding               | Y                       |

### Interfaces

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

### Signaling

|                        |    |
|------------------------|----|
| Status display         | no |
| Status display present | no |

### Electrical properties

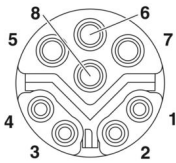
|                       |                          |
|-----------------------|--------------------------|
| Nominal voltage $U_N$ | 48 V AC (Power and data) |
|                       | 50 V DC (Power and data) |
| Nominal current $I_N$ | 6 A (Power)              |
|                       | 0.5 A (Data)             |
| Transmission medium   | Copper                   |
| Transmission speed    | 100 Mbps                 |

### Material specifications

|  |    |
|--|----|
| Flammability rating according to UL 94 | V0 |
|--|----|

### Connector

#### Connection 1

|                     |   |
|---------------------|---|
| Dimensional drawing |  <p>M12 hybrid plug pin assignment, 8-pos., Y-coded, socket side view</p> |
| Type                | M12 Socket, straight, 8-position, shielded (Advanced Shielding Technology), Keying: Y   |
| Number of positions | 8   |
| Shielded            | yes   |
| Shielding           | Advanced Shielding Technology   |

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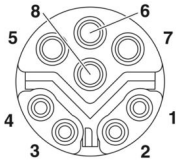


1146454

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|  |   |
|--|---|
| Signal type/category                   | EtherCAT® CAT5 (IEC 11801), 100 Mbps<br>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                       | CuZn  |
| 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<br>IP67  |
| Ambient temperature (operation)        | -25 °C ... 85 °C  |
| Standard designation                   | M12 connector   |
| Standards/regulations                  | IEC 61076-2-113   |

## Connection 2

|                             |   |
|-----------------------------|---|
| Dimensional drawing         |  <p>M12 hybrid plug pin assignment, 8-pos., Y-coded, socket side view</p> |
| Type                        | M12 Socket, straight, 8-position, shielded (Advanced Shielding Technology), Keying: Y   |
| Number of positions         | 8   |
| Shielded                    | yes   |
| Shielding                   | Advanced Shielding Technology   |
| Signal type/category        | EtherCAT® CAT5 (IEC 11801), 100 Mbps<br>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            | CuZn  |
| 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   |

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|  |                  |
|--|------------------|
| 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 61076-2-113  |

## Cable/line

|              |      |
|--------------|------|
| Cable length | 25 m |
|--------------|------|

### Ethernet hybrid [94H]

|                                |   |
|--------------------------------|---|
| Dimensional drawing            |  |
| UL AWM Style                   | 20233 (80°C/300 V)  |
| Number of positions            | 8   |
| Shielded                       | yes   |
| Cable type                     | Ethernet hybrid [94H]   |
| Conductor structure            | 1x4x AWG 26+1x4x AWG 18   |
| AWG signal line                | 26  |
| AWG power supply               | 18  |
| Conductor cross-section        | 4x 0.15 mm <sup>2</sup> (Data)  |
|                                | 4x 0.85 mm <sup>2</sup> (Power)   |
| Wire diameter incl. insulation | 1.03 mm ±0.02 mm (Data)   |
|                                | 1.6 mm ±0.1 mm (Power)  |
| External cable diameter        | 8.80 mm ±0.2 mm   |
| Outer sheath, material         | PUR   |
| External sheath, color         | black RAL 9005  |
| Conductor material             | Bare Cu litz wires  |
| Material wire insulation       | PP (Data)   |
|                                | PP (Power)  |
| Single wire, color             | white/orange, orange, white/green, green, white, blue, brown, black                 |
| Overall twist                  | 1 star quad and 4 wires with 2 fillers  |
| Optical shield covering        | 85 %  |
| Insulation resistance          | ≥ 5 GΩ*km   |
| Loop resistance                | ≤ 280.00 Ω/km (Data)  |
|                                | ≤ 45.00 Ω/km (Power)  |

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|   |   |
|---|---|
| Wave impedance                                | 100 Ω ±5 Ω (at 100 MHz)   |
| Differential impedance                        | 100 Ω ±5 % (at 100 MHz)   |
| Nominal voltage, cable                        | ≤ 125 V (Peak value, not for high-power applications)   |
| 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   |
| Dynamic load capacity (bending)               | Max. bending cycles: 2000000, Bending radius: 15 x D, Traversing path: 4.5 m, Traversing rate: 3 m/s, Acceleration: 3 m/s <sup>2</sup> , Ambient temperature: -20 °C ... 60 °C              |
| Shield attenuation                            | ≥ 80.00 dB (30 MHz ... 100 MHz)   |
| Halogen-free                                  | according to IEC 60754-1  |
| Flame resistance                              | UL 1581, Section 1060 and UL 2556, Section 9.3 (FT1)<br>IEC 60332-1-2   |
| Resistance to oil                             | in accordance with IEC 60811-404<br>According to DIN EN 50363-10-2  |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)<br>-30 °C ... 70 °C (Cable, flexible installation)<br>-20 °C ... 60 °C (for installation)<br>-20 °C ... 60 °C (cable, drag chain applications) |

## Standards and regulations

|                          |                 |
|--------------------------|-----------------|
| Standard designation     | M12 connector   |
| Standards/specifications | IEC 61076-2-113 |

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## Drawings

Dimensional drawing



M12 x 1 socket, straight, shielded

Schematic diagram



M12 hybrid plug pin assignment, 8-pos., Y-coded, socket side view

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Circuit diagram



Contact assignment of the M12 sockets

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## Approvals

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|  <b>UL Listed</b><br>Approval ID: FILE E 335024 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
|  | 56.5 V                | 0.175 A               | -                 | -                           |

|  <b>cUL Listed</b><br>Approval ID: FILE E 335024 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine   |                       |                       |                   |                             |
|   | 56.5 V                | 0.175 A               | -                 | -                           |

|  <b>cUL Listed</b><br>Approval ID: E221474 |                       |                       |                   |                             |
|---|-----------------------|-----------------------|-------------------|-----------------------------|
|   | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine   |                       |                       |                   |                             |
| Power   | 48 V                  | 6 A                   | -                 | -                           |
| Data  | 50 V                  | 0.5 A                 | -                 | -                           |

|  <b>UL Listed</b><br>Approval ID: E221474 |                       |                       |                   |                             |
|--|-----------------------|-----------------------|-------------------|-----------------------------|
|  | Nominal voltage $U_N$ | Nominal current $I_N$ | Cross section AWG | Cross section $\text{mm}^2$ |
| keine  |                       |                       |                   |                             |
| Power  | 48 V                  | 6 A                   | -                 | -                           |
| Data   | 50 V                  | 0.5 A                 | -                 | -                           |

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## Classifications

### ECLASS

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

### ETIM

|           |          |
|-----------|----------|
| ETIM 10.0 | 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% |
|-------------------------------------|----------------------------|

### EF3.1 Climate Change

|         |                |
|---------|----------------|
| CO2e kg | 48.161 kg CO2e |
|---------|----------------|

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