

# NBC-M12MRY/2,0-94H/M12FSY - Hybrid cable



1340769

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Hybrid cable, Ethernet hybrid CAT5 (100 Mbps), 8-position, PUR halogen-free, black RAL 9005, shielded (Advanced Shielding Technology), Plug angled M12, coding: Y / IP65/IP67, on Socket straight M12, coding: Y / IP65/IP67, cable length: 2 m, Power with Ethernet (PWE)

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1340769                        |
| Packing unit                         | 1 pc                           |
| Minimum order quantity               | 15 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | BF04                           |
| Product key                          | AF1CML                         |
| GTIN                                 | 4063151649753                  |
| Weight per piece (including packing) | 277 g                          |
| Weight per piece (excluding packing) | 265.3 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

|                     |                                                         |
|---------------------|---------------------------------------------------------|
| Type                | Plug angled M12 / IP65/IP67                             |
| Number of positions | 8 (4+4)                                                 |
| Coding type         | Y (Hybrid)                                              |
| Shielded            | yes                                                     |
| Handle color        | black                                                   |
| Material            | CuZn (Contact)                                          |
|                     | Ni/Au (Contact surface)                                 |
|                     | PA (Contact carrier, data)                              |
|                     | PA (Contact carrier, power)                             |
|                     | TPU, hardly inflammable, self-extinguishing (Grip body) |
|                     | Zinc die-cast, nickel-plated (Screw connection)         |

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|                                 |                  |
|---------------------------------|------------------|
| Insertion/withdrawal cycles     | ≥ 100            |
| Insulation resistance           | ≥ 100 MΩ         |
| Tightening torque               | 0.4 Nm           |
| Degree of protection            | IP65/IP67        |
| Ambient temperature (operation) | -25 °C ... 90 °C |

## Connection 2

|                                 |                                                                                                                                                                                                                      |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                            | Socket straight M12 / IP65/IP67                                                                                                                                                                                      |
| Number of positions             | 8 (4+4)                                                                                                                                                                                                              |
| Coding type                     | Y (Hybrid)                                                                                                                                                                                                           |
| Shielded                        | yes                                                                                                                                                                                                                  |
| Handle color                    | black                                                                                                                                                                                                                |
| Material                        | CuZn (Contact)<br>Ni/Au (Contact surface)<br>PA (Contact carrier, data)<br>PA (Contact carrier, power)<br>TPU, hardly inflammable, self-extinguishing (Grip body)<br>Zinc die-cast, nickel-plated (Screw connection) |
| Insertion/withdrawal cycles     | ≥ 100                                                                                                                                                                                                                |
| Tightening torque               | 0.4 Nm                                                                                                                                                                                                               |
| Degree of protection            | IP65/IP67                                                                                                                                                                                                            |
| Ambient temperature (operation) | -25 °C ... 90 °C                                                                                                                                                                                                     |

## Cable/line

|              |     |
|--------------|-----|
| Cable length | 2 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 mm² (Data)<br>4x 0.85 mm² (Power)                                            |
| Wire diameter incl. insulation | 1.03 mm ±0.02 mm (Data)                                                              |

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|                                               |                                                                                                                                                                   |
|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               | 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)                                                                                                                                              |
| 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/s², 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)                                                                                                              |
|                                               | IEC 60332-1-2                                                                                                                                                     |
| Resistance to oil                             | in accordance with IEC 60811-404                                                                                                                                  |
|                                               | According to DIN EN 50363-10-2                                                                                                                                    |
| Ambient temperature (operation)               | -40 °C ... 80 °C (cable, fixed installation)                                                                                                                      |
|                                               | -30 °C ... 70 °C (Cable, flexible installation)                                                                                                                   |
|                                               | -20 °C ... 60 °C (for installation)                                                                                                                               |
|                                               | -20 °C ... 60 °C (cable, drag chain applications)                                                                                                                 |

## Environmental and real-life conditions

### Ambient conditions

|                      |           |
|----------------------|-----------|
| Degree of protection | IP65      |
|                      | IP67      |
|                      | IP65/IP67 |

## Standards and regulations

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

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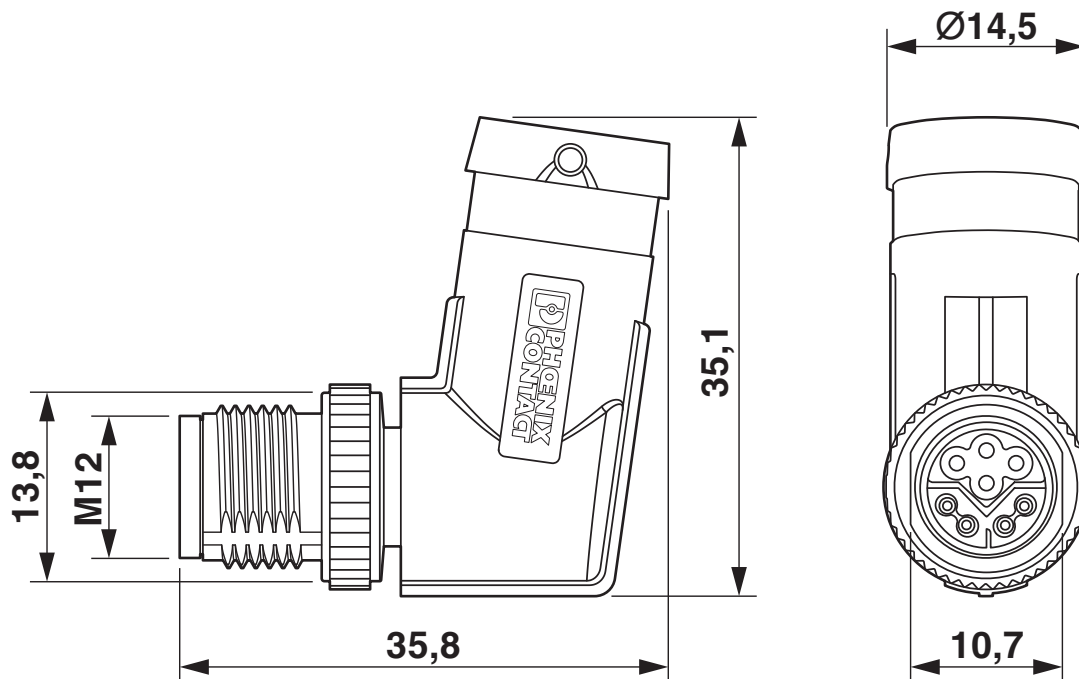


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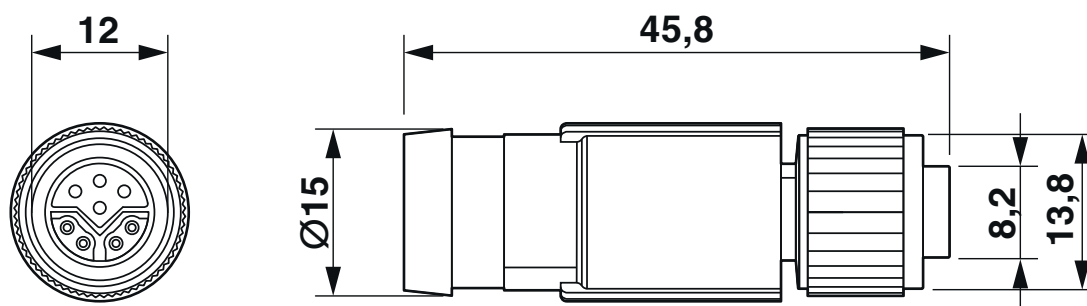
## Drawings

Dimensional drawing



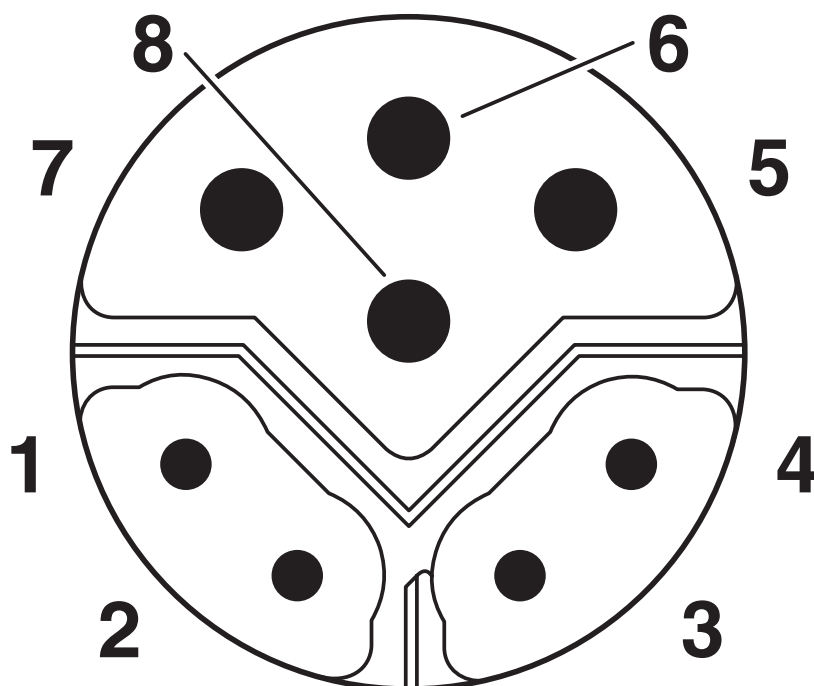
M12 x 1 male plug, angled, shielded

Dimensional drawing



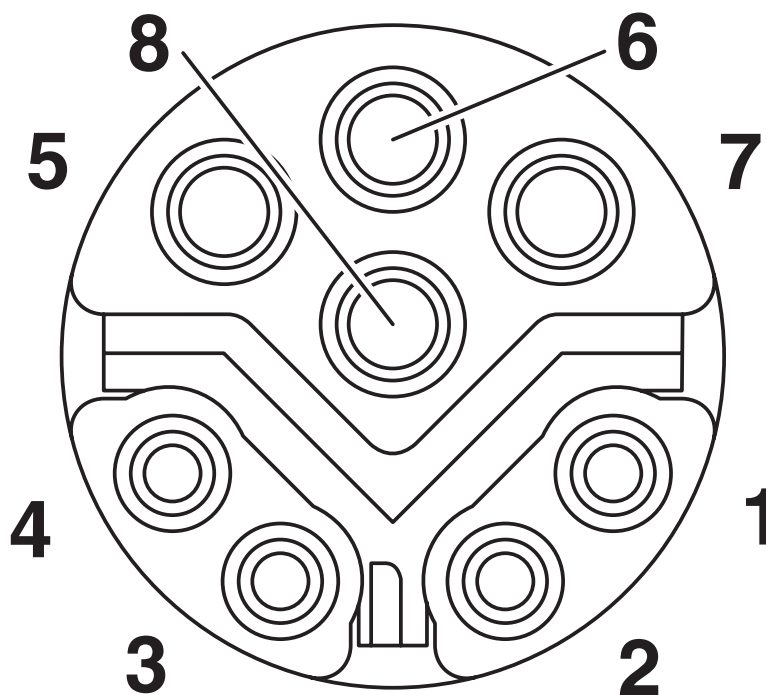
M12 x 1 socket, straight, shielded

Schematic diagram



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

Schematic diagram



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

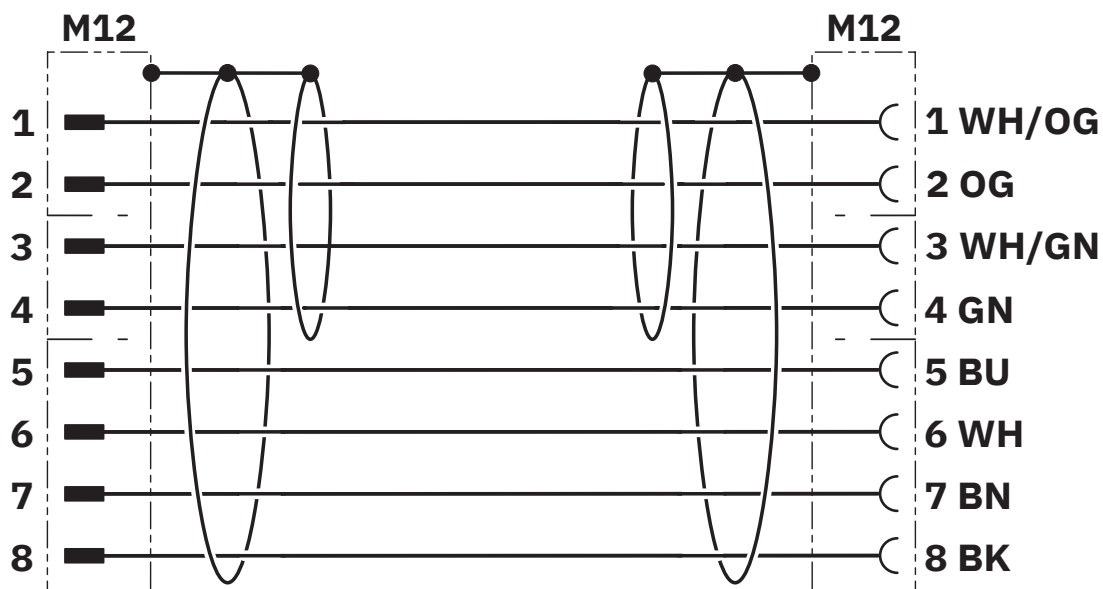
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Circuit diagram



Contact assignment of the M12 connector and the M12 socket

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## Approvals

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|  <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                   | - 18              | - 18                        |
| Data                                                                                                                       | 50 V                  | 0.5 A                 | - 26              | - 26                        |

|  <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                   | - 18              | -                           |
| Data                                                                                                                        | 50 V                  | 0.5 A                 | - 26              | -                           |

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## Classifications

### ECLASS

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