

# Network cable - NBC-M12MSD/20,0-93X OD - 1416035


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Network cable, PROFINET CAT5 (100 Mbps), Ethernet CAT5 (100 Mbps), 4-position, PE-X halogen-free, black-gray RAL 7021, shielded, Plug straight M12 / IP65, coding: D, on free cable end, cable length: 20 m, for outdoor applications, with high-grade steel knurl



## Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 056609
GTIN	4055626056609

## Technical data

### Dimensions

Length of cable	20 m
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### Ambient conditions

Ambient temperature (operation)	-40 °C ... 85 °C (On sudden changes in temperature (according to IEC 60512-11-4))
	-40 °C ... 105 °C
	-40 °C ... 90 °C (cable, fixed installation)
	-25 °C ... 90 °C (cable, flexible installation)
	-40 °C ... 85 °C (On sudden changes in temperature (according to IEC 60512-11-4))

### General data

Rated current at 40°C	4 A
Rated voltage	48 V AC
	60 V DC
Number of positions	4
Signal type/category	PROFINET CAT5 (IEC 11801), 100 Mbps
	Ethernet CAT5 (IEC 11801), 100 Mbps
Standards/regulations	M12 connector IEC 61076-2-101

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## Technical data

### General data

Degree of pollution	3
Contact material	CuSn
Contact carrier material	PP
Contact surface material	Ni/Au

### Characteristics head 1

Head type	Plug straight M12 / IP65
No. of positions (pin connector pattern)	4 (4)
Coding	D (Data)
Color	black
Shielded	yes

### Characteristics head 2

Head type	free cable end
No. of positions (pin connector pattern)	4
Color	black

### Standards and Regulations

Standard designation	M12 connector
Standards/regulations	IEC 61076-2-101
Flammability rating according to UL 94	V0

### Cable

Cable type	PROFINET outdoors
Cable type (abbreviation)	93X
Signal type/category	PROFINET CAT5 (IEC 11801:2002), 100 Mbps
Cable structure	1x4xAWG22/7; SF/TQ
Conductor cross section	4x 0.34 mm <sup>2</sup>
AWG signal line	22
Conductor structure signal line	7x 0.25 mm
Core diameter including insulation	1.95 mm
Wire colors	white-blue, orange-yellow
Overall twist	Star quad
Shielding	Plastic-coated aluminum foil, tinned copper braided shield
Optical shield covering	100 %
External sheath, color	black RAL 9005
Outer sheath thickness	≥ 0.8 mm
External cable diameter D	7.25 mm ±0,3 mm
Minimum bending radius, fixed installation	6 x D
Minimum bending radius, flexible installation	10 x D
Cable weight	81 g/m
Outer sheath, material	PE-X
Material conductor insulation	PE-X

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### Technical data

#### Cable

Conductor material	silver-plated Cu litz wires
Conductor resistance	≤ 54.4 Ω/km
Working capacitance	≤ 65 pF (core-core)
	≤ 100 pF (core-shield)
Wave impedance	100 Ω ±5 Ω (f = 100 MHz)
Signal speed	66 c
Shield attenuation	40 dB (30 MHz ≤ f ≤ 100 MHz)
Coupling resistance	200.00 mΩ/m (f ≤ 30 MHz)
Nominal voltage, cable	300 V AC
Test voltage, cable	2000 V AC (50 Hz, 5 minutes)
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)
	EN 60332-1-2
	EN 50266
Flame resistance	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)
	According to EN 50267-2-1
	according to IRM 902, 72 h at 100 °C
	Resistance to fuels according to IRM 903, 168 h at 70 °C
Concentration of fumes	BS 6853 D.8.7
	EN 61034-2
	UL 1685, 12 (FT4)
Fume corrosiveness	EN 50267-2-2
Fume toxicity	BS 6853 B.1
	EN 50305, 9.2
Ambient temperature (operation)	-50 °C ... 90 °C (cable, fixed installation)
	-40 °C ... 90 °C (cable, flexible installation)

#### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50

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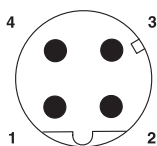
## Technical data

### Environmental Product Compliance

	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"
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## Drawings

Schematic diagram



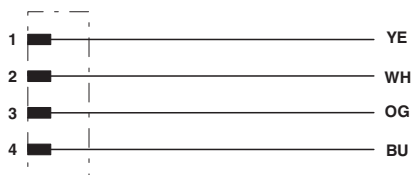
Pin assignment M12 male connector, 4-pos., D-coded, male side

Cable cross section



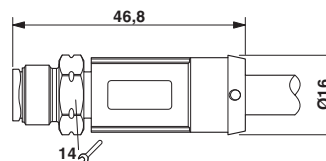
PROFINET outdoors [93X]

Circuit diagram



Contact assignment of the M12 plug

Dimensional drawing



Plug, M12 x 1, straight, shielded

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