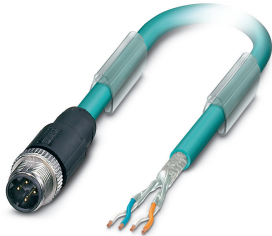


## Bus system cable - NBC-M12MSD/1,5-93E SEP - 1073849


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Bus system cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12 / IP67, coding: D, on free cable end, cable length: 1.5 m



### Key Commercial Data

Packing unit	1
GTIN	 4 055626 770802
GTIN	4055626770802
Custom tariff number	85444290

### Technical data

#### Dimensions

Length of cable	1.5 m
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#### Ambient conditions

Ambient temperature (operation)	-25 °C ... 90 °C (Plug / socket)
	-25 °C ... 60 °C (cable, fixed installation)
	-5 °C ... 60 °C (cable, flexible installation)

#### General data

Rated current at 40°C	4 A (Plug/socket in accordance with IEC 61076-2-101, cable technical data is to be observed)
Rated voltage	48 V AC
	60 V DC
Number of positions	4
Signal type/category	Ethernet CAT5 (IEC 11801), 100 Mbps

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## Technical data

### General data

Overvoltage category	II
Degree of pollution	3
Contact material	CuSn
Contact carrier material	PA 6.6
Contact surface material	Ni/Au
Transmission characteristics (category)	CAT5

### Characteristics head 1

Head type	Plug straight M12 / IP67
No. of positions (pin connector pattern)	4
Coding	D (Data)
Color	black
Material (component)	CuZn (Contact)
	Ni/Au (Contact surface)
	PA (Contact carriers)
	TPU, hardly inflammable, self-extinguishing (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
Insulation resistance	≥ 100 MΩ
Insertion/withdrawal cycles	≥ 100
Torque	0.4 Nm
Ambient temperature (operation)	-25 °C ... 90 °C

### Characteristics head 2

Head type	free cable end
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### Standards and Regulations

Flammability rating according to UL 94	V0
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### Cable

Cable type	Ethernet flexible CAT5, 2-pair
Cable type (abbreviation)	93E
UL AWM style	20963 (80°C/30 V)
Signal type/category	Ethernet CAT5 (IEC 11801), 100 Mbps
Cable structure	2x2xAWG26/7; SF/UTP
Conductor cross section	2x 2x 0.14 mm <sup>2</sup>
AWG signal line	26
Conductor structure signal line	7x 0.16 mm
Core diameter including insulation	0.98 mm
Wire colors	white/orange-orange, white/green-green

## Bus system cable - NBC-M12MSD/1,5-93E SEP - 1073849

### Technical data

#### Cable

Twisted pairs	2 cores to the pair
Overall twist	Two pairs with two fillers to the core
Shielding	Aluminum-coated foil, tinned copper braided shield
Optical shield covering	70 %
External sheath, color	water blue RAL 5021
Outer sheath thickness	1.2 mm
External cable diameter D	6.4 mm ±0.2 mm
Minimum bending radius, fixed installation	4 x D
Minimum bending radius, flexible installation	8 x D
Tensile strength GRP	≤ 80 N
Cable weight	42 kg/km
Outer sheath, material	PUR
Material conductor insulation	Foamed PE
Conductor material	Bare Cu litz wires
Standards/specifications	Electrical requirements EN 50288-2-2
Insulation resistance	≥ 500 MΩ*km
Loop resistance	≤ 290.00 Ω/km
Cable capacity	approx. 45 nF/km (at 1 kHz)
Wave impedance	100 Ω ±5 Ω (at 100 MHz)
Near end crosstalk attenuation (NEXT)	65.3 dB (with 1 MHz)
	56.3 dB (at 4 MHz)
	50.3 dB (at 10 MHz)
	47.2 dB (at 16 MHz)
	45.8 dB (at 20 MHz)
	42.9 dB (at 31.25 MHz)
	38.4 dB (at 62.5 MHz)
	35.3 dB (at 100 MHz)
Power-summated near end crosstalk attenuation (PSNEXT)	62.3 dB (with 1 MHz)
	53.3 dB (at 4 MHz)
	47.3 dB (at 10 MHz)
	44.2 dB (at 16 MHz)
	42.8 dB (at 20 MHz)
	39.9 dB (at 31.25 MHz)
	35.4 dB (at 62.5 MHz)
	32.3 dB (at 100 MHz)
Attenuation	3.2 dB (with 1 MHz)
	6 dB (at 4 MHz)

## Bus system cable - NBC-M12MSD/1,5-93E SEP - 1073849

### Technical data

#### Cable

	9.5 dB (at 10 MHz)
	12.1 dB (at 16 MHz)
	13.6 dB (at 20 MHz)
	17.1 dB (at 31.25 MHz)
	24.8 dB (at 62.5 MHz)
	32 dB (at 100 MHz)
Return loss (RL)	23 dB (at 4 MHz)
	24.1 dB (at 8 MHz)
	25 dB (at 10 MHz)
	25 dB (at 16 MHz)
	25 dB (at 20 MHz)
	23.6 dB (at 31.25 MHz)
	21.5 dB (at 62.5 MHz)
	20.1 dB (at 100 MHz)
Signal runtime	5.3 ns/m
Coupling resistance	≤ 100.00 mΩ/m (at 10 MHz)
Nominal voltage, cable	≤ 100 V (Peak value, not for high-power applications)
Test voltage Core/Core	700 V (50 Hz, 1 min.)
Test voltage Core/Shield	700 V (50 Hz, 1 min.)
Current carrying capacity of cable	2 A (according to DIN VDE 0891-1)
Flame resistance	according to IEC 60332-1-2
	in acc. to UL VW1
Halogen-free	according to IEC 60754-1
Resistance to oil	according to EN 60811-2-1
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)
	-20 °C ... 80 °C (cable, flexible installation)
Ambient temperature (installation)	-20 °C ... 80 °C
Ambient temperature (storage/transport)	-20 °C ... 80 °C
Shielded	yes

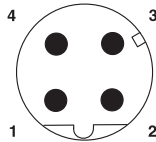
#### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

### Drawings

# Bus system cable - NBC-M12MSD/1,5-93E SEP - 1073849

Schematic diagram



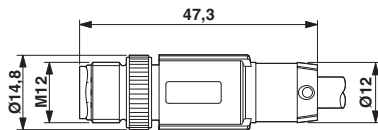
Pin assignment M12 male connector, 4-pos., D-coded, male side

Cable cross section



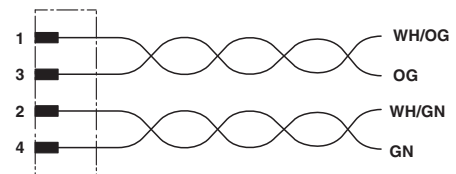
Ethernet flexible CAT5, 2-pair [93E]

Dimensional drawing



Plug, M12 x 1, straight, shielded

Circuit diagram



Contact assignment of the M12 plug

## Classifications

### eCl@ss

eCl@ss 10.0.1	27060308
eCl@ss 11.0	27060308
eCl@ss 4.0	27060307
eCl@ss 4.1	27060307
eCl@ss 5.0	27060307
eCl@ss 5.1	27060307
eCl@ss 6.0	27060307
eCl@ss 7.0	27060308
eCl@ss 9.0	27060308

### ETIM

ETIM 3.0	EC000830
ETIM 4.0	EC001855
ETIM 6.0	EC001262
ETIM 7.0	EC001262

## Bus system cable - NBC-M12MSD/1,5-93E SEP - 1073849

### Classifications

#### UNSPSC

UNSPSC 6.01	31261501
UNSPSC 7.0901	31261501
UNSPSC 11	31261501
UNSPSC 12.01	31261501
UNSPSC 13.2	31251501
UNSPSC 18.0	26121604
UNSPSC 19.0	26121604
UNSPSC 20.0	26121604
UNSPSC 21.0	26121604

### Approvals

#### Approvals

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Approvals


EAC-RoHS

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Ex Approvals

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#### Approval details

EAC-RoHS		RU D- DE.HB35.B.00385
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