

## Network cable - NBC-MSD/ 5,0-93E/R4AC SCO US - 1409860


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Network cable, Ethernet CAT5 (100 Mbps), 4-position, PUR halogen-free, water blue RAL 5021, shielded, Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 5 m



### Key Commercial Data

Packing unit	1 pc
Minimum order quantity	50 pc
GTIN	 4 046356 993005
GTIN	4046356993005

### Technical data

#### Dimensions

Length of cable	5 m
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#### Ambient conditions

Degree of protection	IP65 (M12 connector)
	IP67 (M12 connector)
	IP20 (RJ45 connector)
Ambient temperature (operation)	-25 °C ... 85 °C (M12 connector)
	-25 °C ... 60 °C (RJ45 connector)

#### General data

Rated current at 40°C	1 A
Rated voltage	48 V AC
	60 V DC
Number of positions	4
Signal type/category	Ethernet CAT5, 100 Mbps
Standards/regulations	M12 connector IEC 61076-2-101
Contact material	CuSn
Contact carrier material	TPU GF

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## Technical data

### General data

Contact surface material	Ni/Au
Housing material	Plastic
Degree of protection	IP67/IP20
Transmission characteristics (category)	CAT5

### Characteristics head 1

Head type	Plug straight M12 / IP67
Coding	D (Data)
Shielded	yes
Outer sheath, material	PUR
External sheath, color	water blue RAL 5021
Type type, plug side	Plug straight
Type type, socket side	Plug, straight

### Characteristics head 2

Head type	Plug straight RJ45 / IP20
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### Standards and Regulations

Standards/specifications	M12 connector IEC 61076-2-101
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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
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

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### Technical data

#### Cable

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)
	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

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### Technical data

#### Cable

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

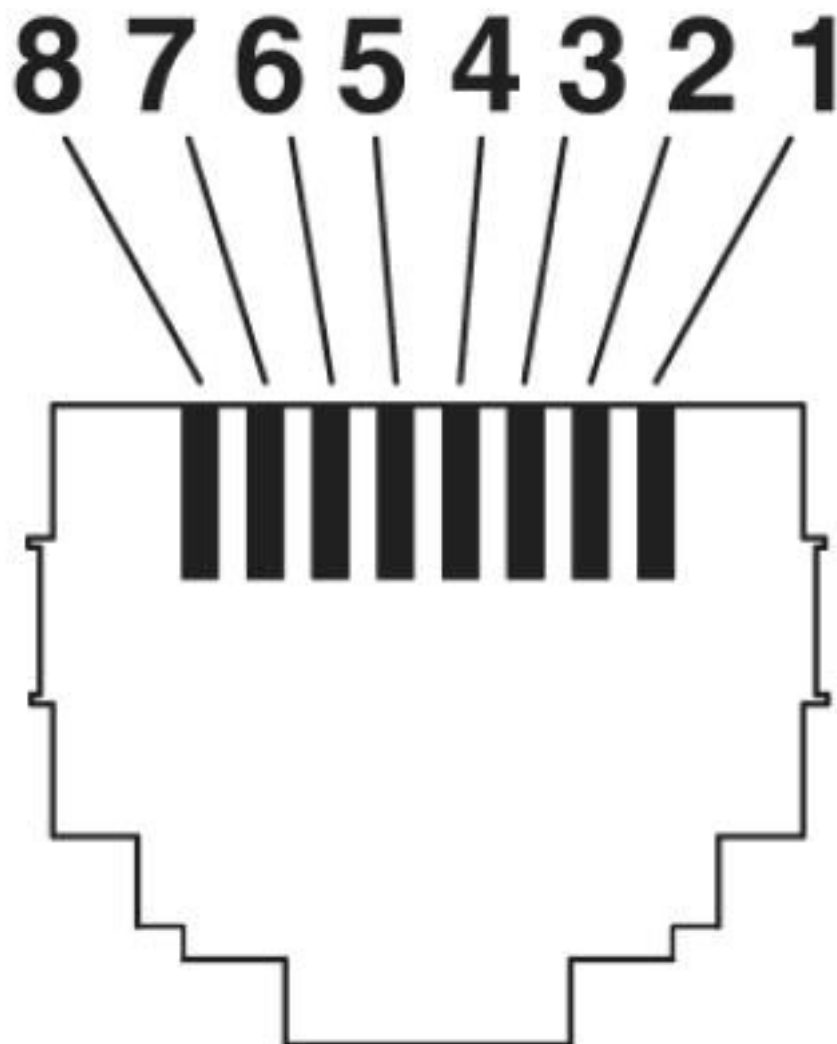
#### Environmental Product Compliance

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

# Network cable - NBC-MSD/ 5,0-93E/R4AC SCO US - 1409860

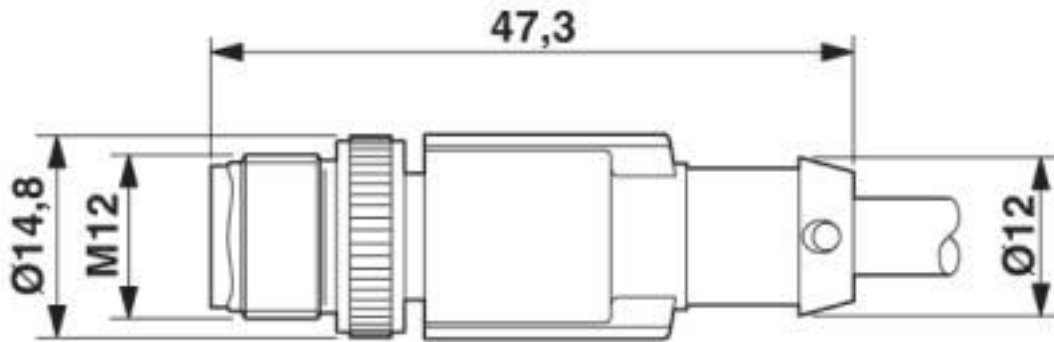
Schematic diagram



Connector pin assignment plug RJ45

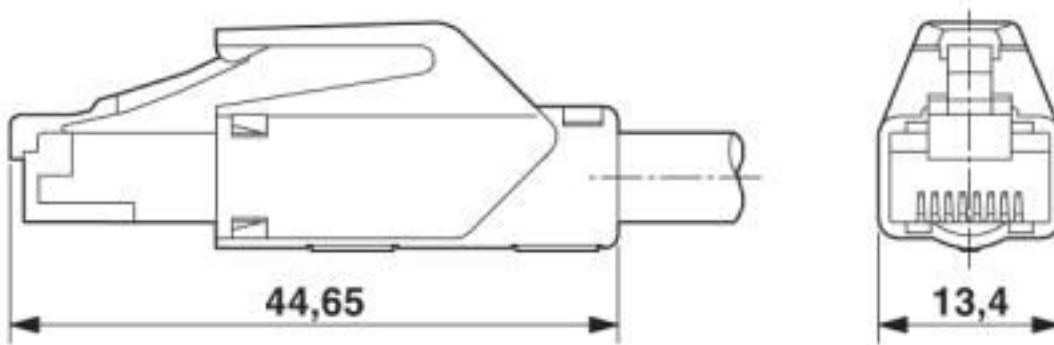
# Network cable - NBC-MSD/ 5,0-93E/R4AC SCO US - 1409860

Dimensional drawing



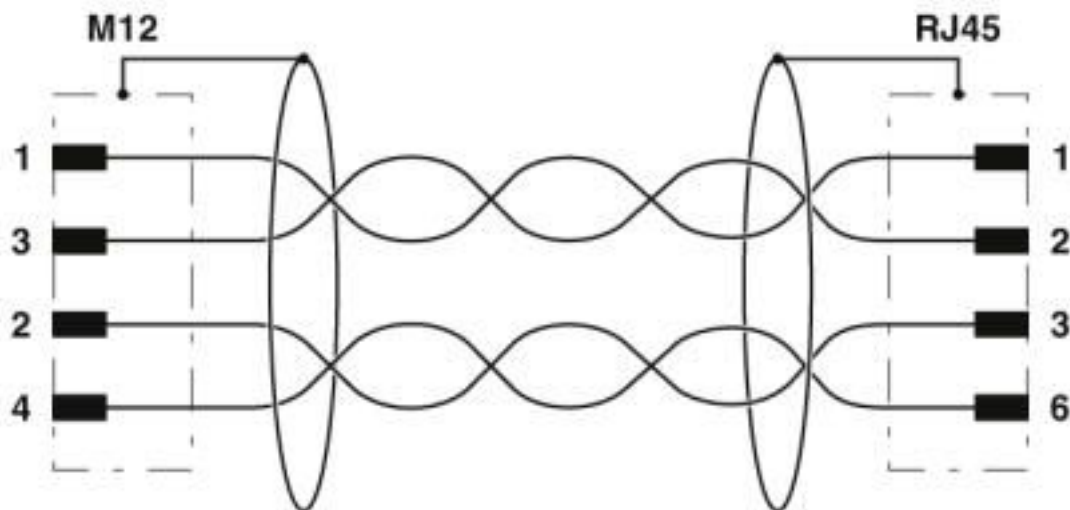
Plug, M12 x 1, straight, shielded

Dimensional drawing



RJ45 connector, IP20

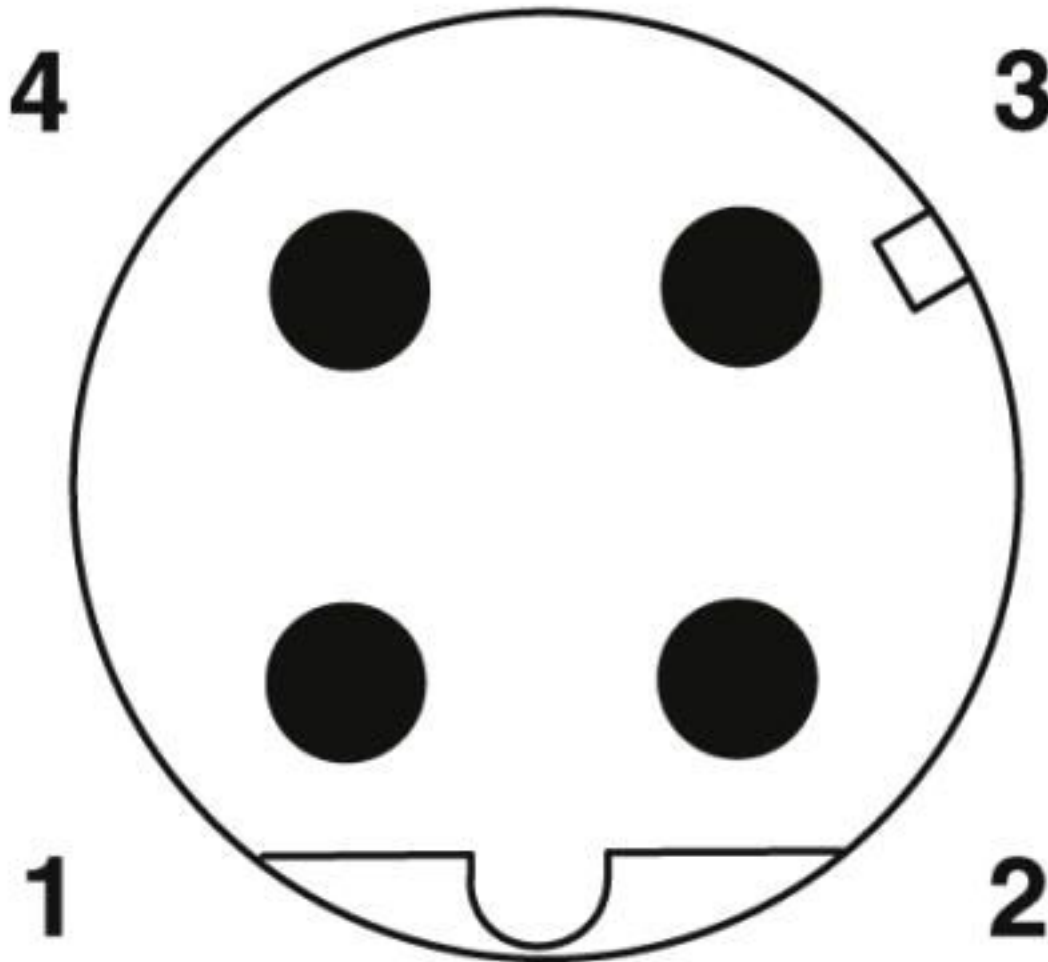
Circuit diagram



Contact assignment of the M12 and RJ45 plug

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Schematic diagram



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

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Cable cross section



Ethernet flexible CAT5, 2-pair [93E]

## Classifications

eCl@ss

eCl@ss 10.0.1	27060308
eCl@ss 4.0	24010400
eCl@ss 4.1	24010400
eCl@ss 5.0	19030300
eCl@ss 5.1	19030300
eCl@ss 6.0	27061800
eCl@ss 7.0	27061801
eCl@ss 8.0	27061801
eCl@ss 9.0	27060308



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## Classifications

### ETIM

ETIM 4.0	EC002586
ETIM 5.0	EC002599
ETIM 6.0	EC000830
ETIM 7.0	EC003249

### UNSPSC

UNSPSC 13.2	26121604
UNSPSC 18.0	26121604
UNSPSC 19.0	26121604
UNSPSC 20.0	26121604
UNSPSC 21.0	26121604

## Approvals


### Approvals

#### Approvals

UL Listed / EAC-RoHS

#### Ex Approvals

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 335024
Nominal voltage UN	30 V		
Nominal current IN	0.5 A		

EAC-RoHS		RU D- DE.HB35.B.00387
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