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Network cable - NBC-M12MSD/ 2,0-93C/R4AQ

1416188

https://www.phoenixcontact.com/gb/products/1416188

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, shielded (Advanced Shielding Technology), Plug straight M12 / IP67, coding: D, on Plug straight RJ45 / IP20, cable length: 2 m

Commercial Data

Item number	1416188
Packing unit	1 pc
Minimum order quantity	1 pc
Sales Key	BF1CJI
Product Key	BF1CJI
Catalog Page	Page 309 (PC-2011)
GTIN	4046356474672
Weight per Piece (including packing)	154 g
Weight per Piece (excluding packing)	153.2 g
Customs tariff number	85444210
Country of origin	PL

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Technical Data

Notes

General	This product corresponds to the PROFINET Cabling and Interconnection Technology Guideline for PROFINET regulations, version 2.00, order no: 2.252, Chapter 10.1 Cord Sets for Balanced Cabling

Product properties

Product type	Data cable preassembled
Number of positions	4
Application	Standard
Shielded	yes

Insulation characteristics

Overvoltage category	I
Degree of pollution	2

Interfaces

Bus system	PROFINET
Signal type/category	PROFINET CAT5 (IEC 11801), 100 Mbps
	EtherCAT® CAT5 (IEC 11801), 100 Mbps
	PROFINET CAT5 (IEC 11801), 100 Mbps
	EtherCAT® CAT5 (IEC 11801), 100 Mbps

LED signaling

Status display	No
Status display present	No

Electrical properties

Nominal voltage U_N	48 V AC
	60 V DC
Nominal current I_N	1 A
Transmission medium	Copper

Material specifications

Flammability rating according to UL 94	V2

Connector

Connection 1

Type	Plug straight M12 / IP67
Number of positions	4
Coding type	D (Data)
Handle color	black
	CuSn (Contact)

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Material	Ni/Au (Contact surface)
	PA (Contact carriers)
	TPU, hardly inflammable, self-extinguishing (Grip)
	Zinc die-cast, nickel-plated (Screw connection)
	FKM (Seal)
Insertion/withdrawal cycles	≥ 100
Contact resistance	≤ 5 mΩ
Insulation resistance	≥ 100 MΩ
Tightening torque	0.4 Nm
Degree of protection	IP67
Ambient temperature (operation)	-25 °C ... 90 °C

Connection 2

Type	Plug straight RJ45 / IP20
Handle color	gray

Cable / line

Cable length	2 m
Cable weight	61 kg/km
Number of positions	4
Shielded	yes
Cable type	PROFINET drag chain CAT5 [93C]
Signal runtime	5.3 ns/m
Signal speed	0.66 c
Conductor structure signal line	7x 0.25 mm
AWG signal line	22
Conductor cross section	4x 0.34 mm²
Wire diameter incl. insulation	1.5 mm
External cable diameter	6.5 mm ±0.2 mm
Outer sheath, material	PUR
External sheath, color	green RAL 6018
Conductor material	Tin-plated Cu litz wires
Material wire insulation	PE
Single wire, color	White, yellow, blue, orange
Thickness, outer sheath	approx. 0.9 mm
Overall twist	Star quad
Optical shield covering	85 %
Insulation resistance	≥ 500 MΩ*km
Coupling resistance	≤ 20.00 mΩ/m (at 10 MHz)
Loop resistance	≤ 120.00 Ω/km
Wave impedance	100 Ω ±15 Ω (at 1 ... 100 MHz)
Nominal voltage, cable	600 V (UL rating)
Test voltage Core/Core	2000 V (50 Hz, 1 min.)
Test voltage Core/Shield	2000 V (50 Hz, 1 min.)

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Minimum bending radius, fixed installation	5 x D
Minimum bending radius, flexible installation	7.5 x D
Max. bending cycles	3000000
Tensile strength	≤ 150 N
Torsion force	± 30 °/m
Near end crosstalk attenuation (NEXT)	80 dB (with 1 MHz)
	76 dB (at 4 MHz)
	70 dB (at 10 MHz)
	65 dB (at 16 MHz)
	63 dB (at 20 MHz)
	60 dB (at 31.25 MHz)
	55 dB (at 62.5 MHz)
	50 dB (at 100 MHz)
Shield attenuation	2.1 dB (with 1 MHz)
	4 dB (at 4 MHz)
	6.3 dB (at 10 MHz)
	8 dB (at 16 MHz)
	9 dB (at 20 MHz)
	11.4 dB (at 31.25 MHz)
	16.5 dB (at 62.5 MHz)
	21.3 dB (at 100 MHz)
Halogen-free	yes
Flame resistance	according to IEC 60332-1-2
Resistance to oil	in accordance with DIN EN 60811-2-1
Other resistance	UV resistant
Special properties	Electrical properties according to EN 50288-2-2
Ambient temperature (operation)	-40 °C ... 70 °C (cable, fixed installation)
	-40 °C ... 70 °C (Cable, flexible installation)
Ambient temperature (installation)	-20 °C ... 60 °C
Signal type/category	PROFINET CAT5 (IEC 11801), 100 Mbps
	EtherCAT® CAT5 (IEC 11801), 100 Mbps

Ambient conditions

Degree of protection	IP65 (M12 connector)
	IP20 (RJ45 connector)

Standards and regulations

M12

Standards/specifications	IEC 61076-2-101

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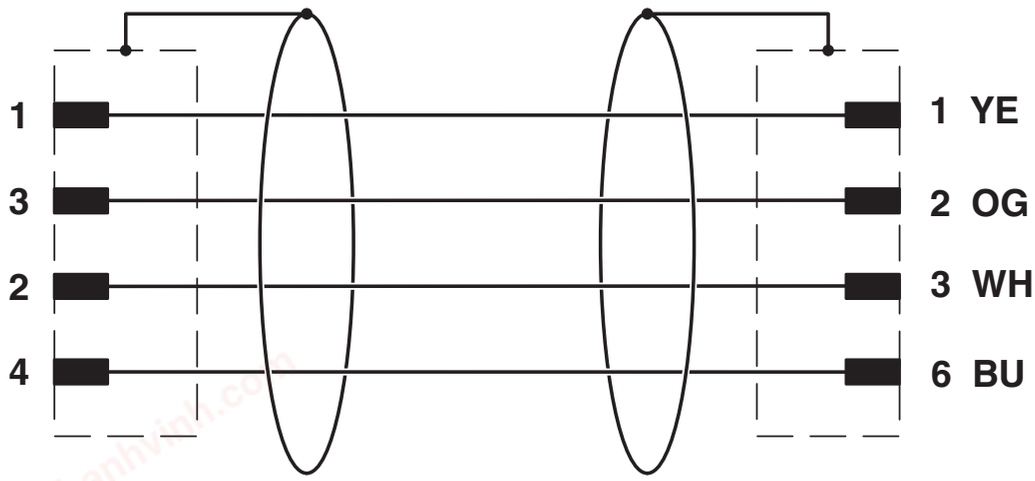
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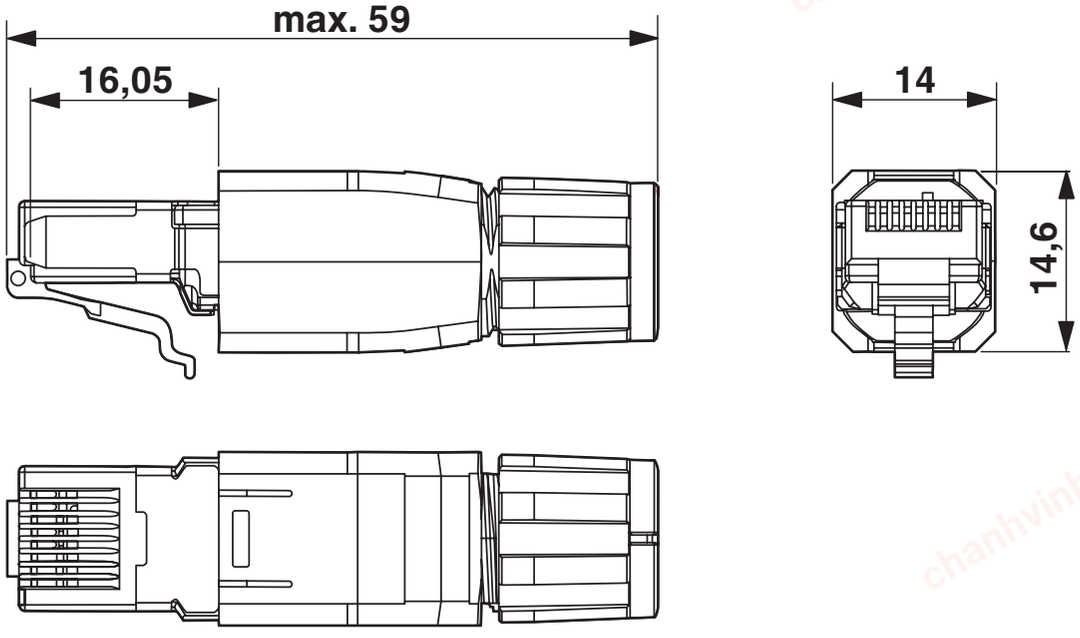
Drawings

Circuit diagram



Contact assignment of the M12 and RJ45 plug

Dimensional drawing



RJ45 connector, IP20

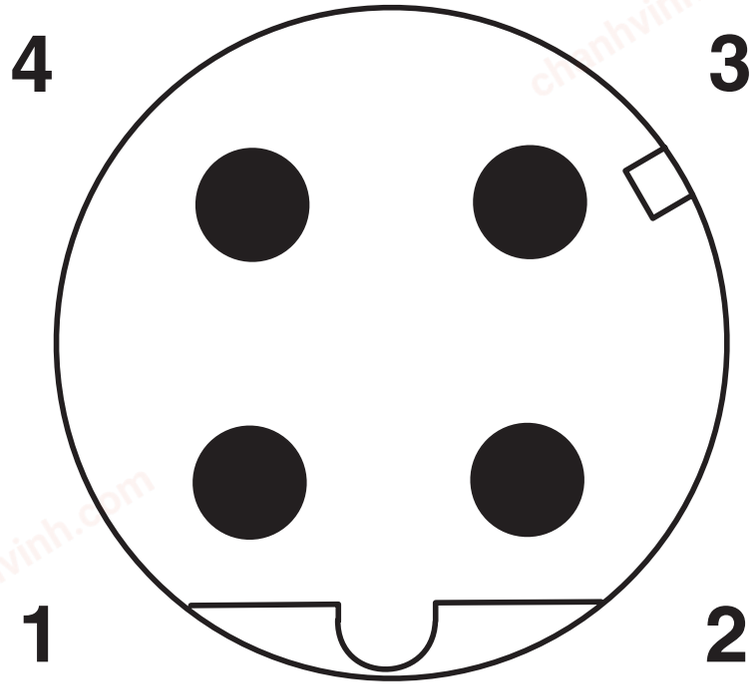
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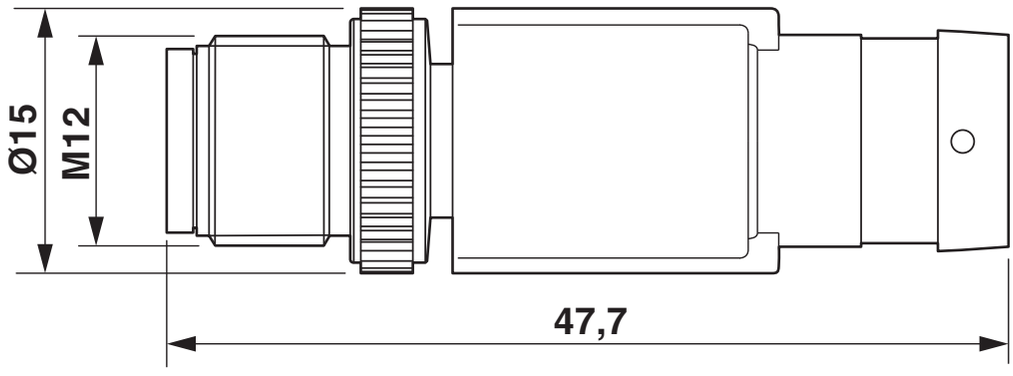
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Schematic diagram



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

Dimensional drawing



Plug, M12 x 1, straight, shielded

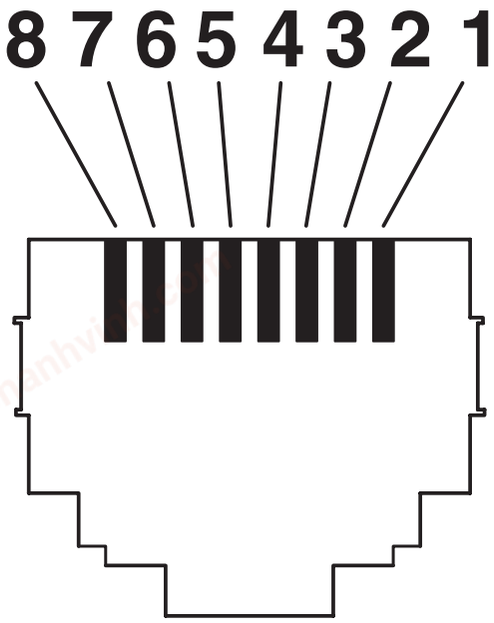
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Schematic diagram



Connector pin assignment plug RJ45

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Classifications

ECLASS

ECLASS-9.0	27060308
ECLASS-10.0.1	27060308
ECLASS-11.0	27060307

ETIM

ETIM 8.0	EC001855

UNSPSC

UNSPSC 21.0	26121600

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Environmental Product Compliance

China RoHS	Environmentally friendly use period: unlimited = EFUP-e
	No hazardous substances above threshold values

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