

NBC-M12FSD/ 2,0-93B/R4RC - Network cable



1407545

<https://www.phoenixcontact.com/us/products/1407545>

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Network cable, PROFINET CAT5 (100 Mbps), EtherCAT® CAT5 (100 Mbps), 4-position, PVC/PVC, green RAL 6018, shielded (Advanced Shielding Technology), Socket straight M12, coding: D / IP67, on Plug straight RJ45 Push Pull / IP67, cable length: 2 m

Commercial data

Item number	1407545
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	BF04
Product key	AF1CJN
GTIN	4046356778503
Weight per piece (including packing)	225.178 g
Weight per piece (excluding packing)	161.778 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
General	Further products with variable cable type and variable cable length can be found in the accessories section

Product properties

Product type	Data cable preassembled
Application	Standard
Sensor type	PROFINET
Number of positions	4
No. of cable outlets	1
Shielded	yes
Coding	D

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

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
Transmission speed	100 Mbps
Transmission characteristics (category)	CAT5 (IEC 11801:2002)

Material specifications

Flammability rating according to UL 94	V2
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Connector

Connection 1

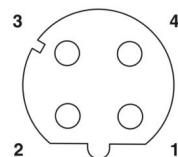
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Dimensional drawing



Pin assignment M12 socket, 4-pos., D-coded, female side

Type

M12 Socket, straight, 4-position, shielded (Advanced Shielding Technology), Keying: D

Number of positions

4

Shielded

yes

Shielding

Advanced Shielding Technology

Signal type/category

EtherCAT® CAT5 (IEC 11801), 100 Mbps

PROFINET CAT5 (IEC 11801)

Insertion/withdrawal cycles

≥ 100

Insulation resistance

≥ 100 MΩ

Oversupply voltage category

II

Degree of pollution

3

Tightening torque

0.4 Nm

Material Contact

CuSn

Material Contact surface

Ni/Au

Material Contact carrier

PA 6.6

Material Screw connection

Die-cast zinc, nickel-plated

Material Grip body

TPU, hardly inflammable, self-extinguishing

Material Seal

FKM

Flammability rating according to UL 94

V0

Degree of protection

IP65

IP67

Ambient temperature (operation)

-25 °C ... 85 °C

Standard designation

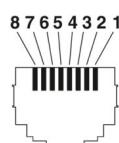
M12 connector

Standards/regulations

IEC 61076-2-101

Connection 2

Dimensional drawing



Connector pin assignment plug RJ45

Type

RJ45 Plug, straight

Signal type/category

PROFINET CAT5 (IEC 11801), 100 Mbps

EtherCAT® CAT5 (IEC 11801)

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Insertion/withdrawal cycles	≥ 750
Insulation resistance	≥ 100 MΩ
Overvoltage category	I
Degree of pollution	2
Material Contact	CuSn
Material Contact surface	Ni/Au
Material Contact carrier	PC
Material Housing	PA-GF
Color (Housing)	gray
Flammability rating according to UL 94	V2
Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C

Cable/line

Cable length	2 m
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PROFINET PVC stranded CAT5 [93B]

Dimensional drawing



Cable weight	67 kg/km
UL AWM Style	21694
Number of positions	4
Shielded	yes
Cable type	PROFINET PVC stranded CAT5 [93B]
Conductor structure	1x4xAWG22/7, SF/TQ
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 mm ²
Wire diameter incl. insulation	1.55 mm
External cable diameter	6.50 mm ±0.2 mm
Outer sheath, material	PVC
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. 0.90 mm

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Overall twist	Star quad
Optical shield covering	85 %
Insulation resistance	$\geq 500 \text{ M}\Omega \cdot \text{km}$
Coupling resistance	$\leq 20.00 \text{ m}\Omega/\text{m}$ (at 10 MHz)
Loop resistance	$\leq 120.00 \text{ }\Omega/\text{km}$
Wave impedance	$100 \text{ }\Omega \pm 15 \text{ }\Omega$ (at 100 MHz)
Nominal voltage, cable	600 V
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	3 x D
Minimum bending radius, flexible installation	7 x D
Smallest bending radius, fixed installation	20 mm
Smallest bending radius, movable installation	46 mm
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)
Flame resistance	according to UL 1685 (CSA FT 4)
Resistance to oil	Resistant to oil to a limited extent
Other resistance	UV resistant (according to UL 1581, Section 1200)
Ambient temperature (operation)	-40 °C ... 70 °C (cable, fixed installation)
Ambient temperature (installation)	-40 °C ... 70 °C (Cable, flexible installation) -20 °C ... 60 °C

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP65 (M12 connector) IP67 (M12 connector) IP67 (RJ45 connector)
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Standards and regulations

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M12

Standard designation	M12 connector
Standards/specifications	IEC 61076-2-101

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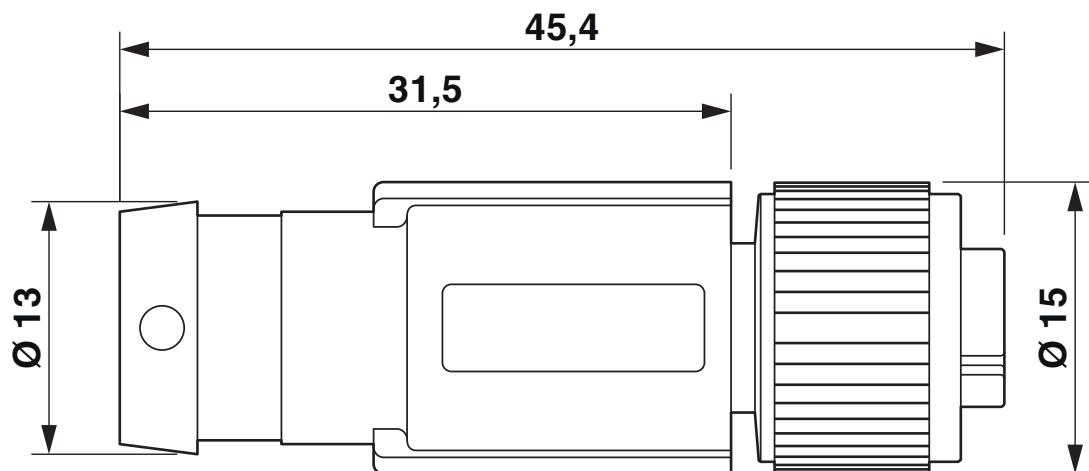


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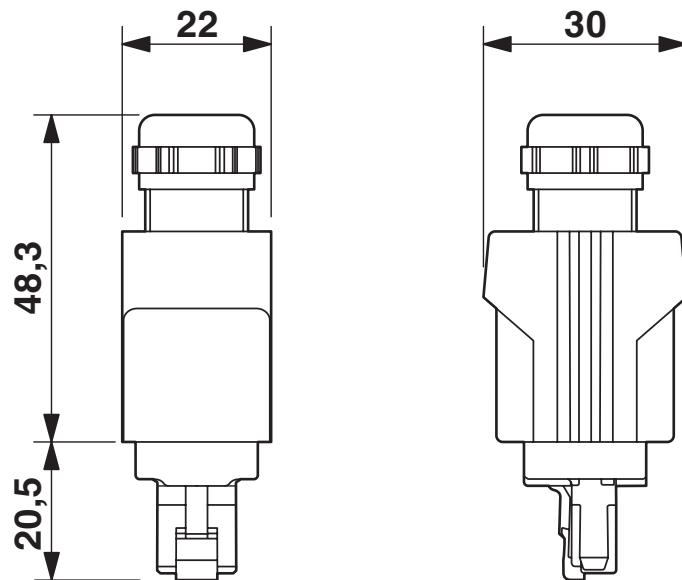
Drawings

Dimensional drawing



M12 x 1 socket, straight, shielded

Dimensional drawing



RJ45 Push-Pull connector, IP67

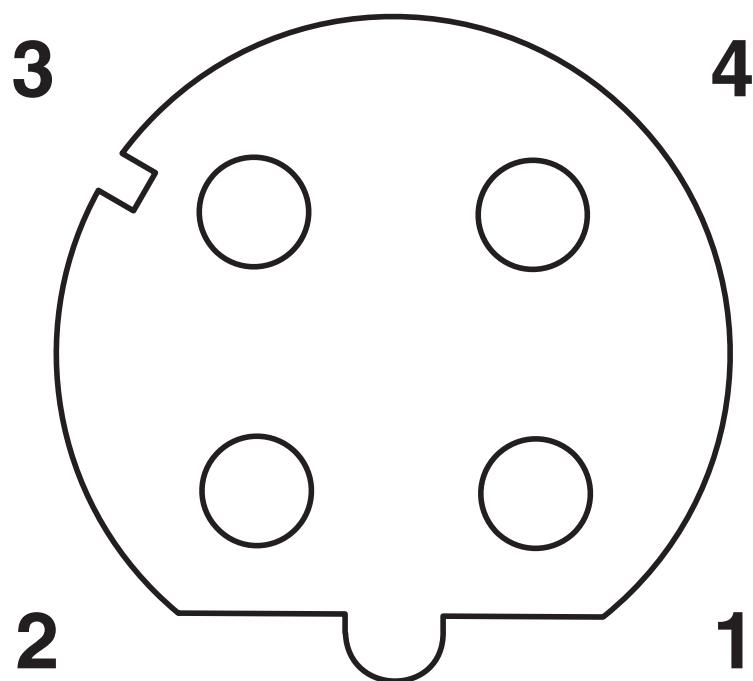
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Schematic diagram



Pin assignment M12 socket, 4-pos., D-coded, female side

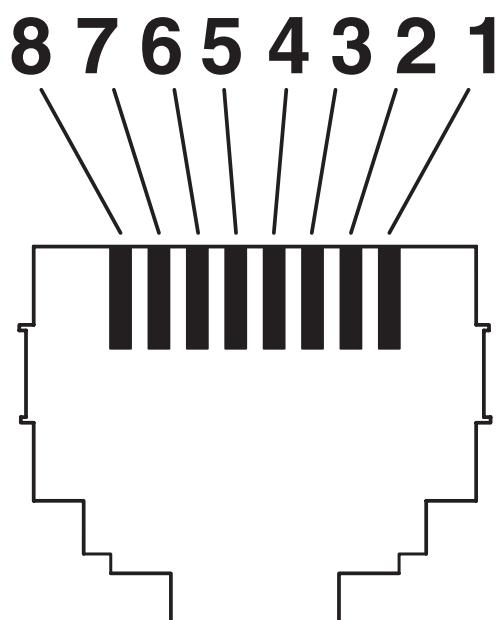
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Schematic diagram



Connector pin assignment plug RJ45

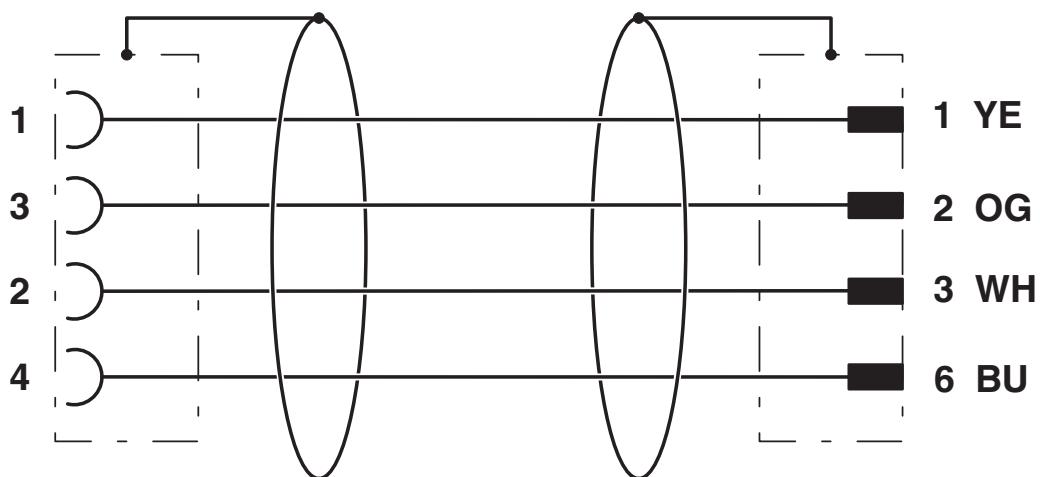
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Circuit diagram



Contact assignment of the M12 socket and the RJ45 plug

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Classifications

ECLASS

ECLASS-13.0	27060307
ECLASS-15.0	27060307

ETIM

ETIM 9.0	EC001855
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UNSPSC

UNSPSC 21.0	26121600
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Environmental product compliance

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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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com