

# NBC-MSD/0,475-937/MRD SCO RAIL - Network cable



1025432

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Network cable, PROFINET CAT5, PROFINET CAT5, Ethernet CAT5, 4-position, PE-X halogen-free, black RAL 9005, shielded, Plug straight M12 SPEEDCON, coding: D / IP65, on Plug angled M12 SPEEDCON, coding: D / IP67, cable length: 0.475 m, For railway applications

## Commercial data

Item number	1025432
Packing unit	1 pc
Minimum order quantity	10 pc
Product key	AF1CJI
GTIN	4055626517339
Weight per piece (including packing)	58.6 g
Weight per piece (excluding packing)	58.6 g
Country of origin	PL

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## Technical data

### Product properties

Product type	Data cable preassembled
Application	Railway applications
Number of positions	4
No. of cable outlets	1
Shielded	yes
Coding	D

### Insulation characteristics

Overvoltage category	II
Degree of pollution	3

### Interfaces

Bus system	PROFINET
Signal type/category	PROFINET CAT5 (IEC 11801:2002)
	PROFINET CAT5 (TIA 568B:2001)
	Ethernet CAT5
	Ethernet CAT5

### Signaling

Status display	no
Status display present	no

### Electrical properties

Nominal voltage $U_N$	48 V AC
	60 V DC
Nominal current $I_N$	4 A
Transmission medium	Copper
Transmission characteristics (category)	CAT5 (IEC 11801:2002)

### Material specifications

Flammability rating according to UL 94	V0
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### Connector

#### Connection 1

Type	Plug straight M12 SPEEDCON / IP65
Number of positions	4
Locking type	SPEEDCON
Coding type	D (Data)
Shielded	yes
Handle color	black
	CuZn (Contact)

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Material	Ni/Au (Contact surface)
	PA (Contact carrier)
	TPU, hardly inflammable, self-extinguishing (Grip body)
	Zinc die-cast, nickel-plated (Screw connection)
Insertion/withdrawal cycles	≥ 100
Insulation resistance	≥ 100 MΩ
Degree of protection	IP65


## Connection 2

Type	Plug angled M12 SPEEDCON / IP67
Number of positions	4
Locking type	SPEEDCON
Coding type	D (Data)
Shielded	yes
Handle color	black
Material	CuSn (Contact)
	Ni/Au (Contact surface)
	PA (Contact carrier)
	TPU, hardly inflammable, self-extinguishing (Grip body)
	Zinc die-cast, nickel-plated (Screw connection)
Degree of protection	IP67

## Cable/line

Cable length	0.475 m
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## PROFINET RADOX® railway application CAT5 [937]

Dimensional drawing	
Cable weight	70 kg/km
Number of positions	4
Shielded	yes
Cable type	PROFINET RADOX® railway application CAT5 [937]
Conductor structure	1x4xAWG22/7, SF/TQ
Signal speed	75 c
Conductor structure signal line	7x 0.25 mm
AWG signal line	22
Conductor cross-section	4x 0.34 mm <sup>2</sup>
Wire diameter incl. insulation	approx. 1.5 mm
External cable diameter	6.60 mm ±0.4 mm

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Outer sheath, material	PE-X
External sheath, color	black RAL 9005
Conductor material	silver-plated Cu litz wires
Material wire insulation	Foamed PE
Single wire, color	white-blue, orange-yellow
Thickness, outer sheath	approx. 1.00 mm
Overall twist	Star quad
Max. conductor resistance	≤ 54.4 Ω/km
Coupling resistance	200.00 mΩ/m (f ≤ 30 MHz)
Wave impedance	100 Ω ±5 Ω (f = 100 MHz)
Working capacitance	≤ 65 pF (Line-line)
	≤ 100 pF (Line-shield)
Nominal voltage, cable	300 V AC
Test voltage	2000 V AC (50 Hz, 5 minutes)
Minimum bending radius, fixed installation	6 x D
Smallest bending radius, fixed installation	40 mm
Near end crosstalk attenuation (NEXT)	73 dB (with 1 MHz)
	70 dB (at 4 MHz)
	65 dB (at 10 MHz)
	57 dB (at 31.5 MHz)
	52 dB (at 62.5 MHz)
	48 dB (at 100 MHz)
Return attenuation (RL)	25 dB (at 4 MHz)
	30 dB (at 10 MHz)
	30 dB (at 31.5 MHz)
	30 dB (at 62.5 MHz)
	28 dB (at 100 MHz)
Remote crosstalk attenuation (FEXT)	78 dB (with 1 MHz)
	77 dB (at 4 MHz)
	70 dB (at 10 MHz)
	65 dB (at 31.5 MHz)
	56 dB (at 62.5 MHz)
	48 dB (at 100 MHz)
Shield attenuation	2 dB (with 1 MHz)
	4.4 dB (at 4 MHz)
	7.4 dB (at 10 MHz)
	14 dB (at 31.5 MHz)
	20 dB (at 62.5 MHz)
	26 dB (at 100 MHz)
	40.00 dB (30 MHz ≤ f ≤ 100 MHz)
Halogen-free	in accordance with EN 50267-2-1
Flame resistance	IEC 60332-1-2
	EN 50266
	EN 60332-3-25

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	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)
Fume corrosiveness	EN 50267-2-2
Fume toxicity	BS 6853 B.1
	EN 50305, 9.2
Concentration of fumes	BS 6853 D.8.7
	EN 61034-2
	UL 1685, 12 (FT4)
Resistance to oil	according to IRM 902, 72 h at 100 °C
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)
Other resistance	Resistance to fuels (according to IRM 903, 168 h at 70 °C)
Ambient temperature (operation)	-50 °C ... 90 °C (cable, fixed installation)
	-40 °C ... 90 °C (Cable, flexible installation)
Ambient temperature (installation)	-25 °C ... 90 °C

## Environmental and real-life conditions

### Ambient conditions

Ambient temperature (operation) (male connector/female connector)	-40 °C ... 85 °C (Plug / socket)
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## Standards and regulations

### M12

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

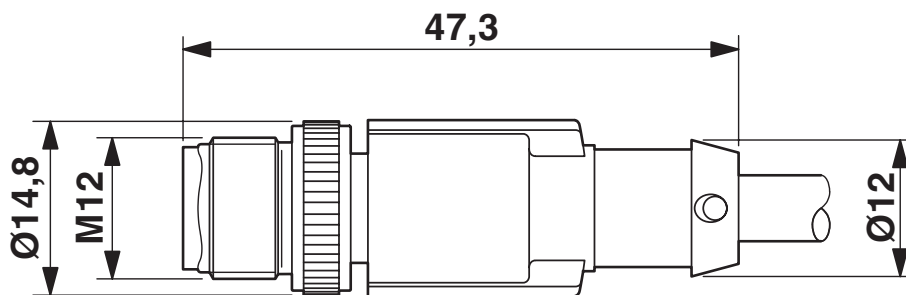
Drawings

Dimensional drawing



Plug, M12 x 1, straight, shielded

Dimensional drawing



Plug, M12 x 1, straight, shielded

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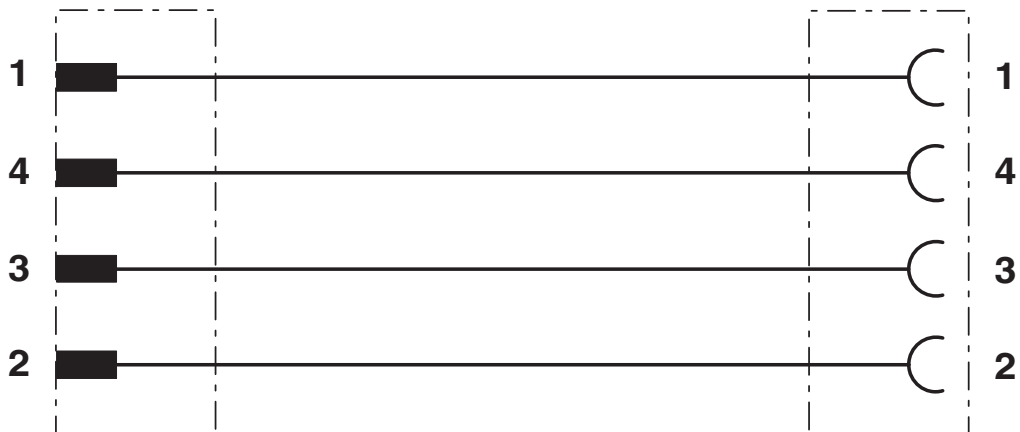
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Schematic diagram



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

Circuit diagram



Contact assignment of the M12 plug and the M12 socket

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## Classifications

### ECLASS

ECLASS-13.0	27060307
ECLASS-15.0	27060307

### UNSPSC

UNSPSC 21.0	26121600
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions
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### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene ("Dechlorane Plus" <sup>TM</sup> )(CAS: n/a)
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