NBC-MSX/ 2,0-94S SCO RAIL - Network cable

1415599

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Network cable, Ethernet CAT6$_A$ (10 Gbps), 8-position, PE-X halogen-free, black, shielded, Plug straight M12 SPEEDCON, coding: X / IP65, on free cable end, cable length: 2 m

Your advantages

- Easy and safe: 100 % electrically tested plug-in components
- Securely locked by special vibration brake
- Resistant to temperature influences – tested for an extended temperature range and for resistance to temperature shocks
- Reliable signal transmission – 360° shielding in environments with electromagnetic interference

Commercial data

Item number	1415599
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	BF04
Product key	AF1CMJ
GTIN	4055626047669
Weight per piece (including packing)	142.16 g
Weight per piece (excluding packing)	134.76 g
Customs tariff number	85444210
Country of origin	PL

Technical data

Product properties

Product type	Data cable preassembled
Application	Railway applications
Sensor type	Ethernet
Number of positions	8
No. of cable outlets	1
Shielded	yes
Coding	X

Interfaces

Bus system	Ethernet
Signal type/category	Ethernet $CAT6_A$, 10 Gbps

Signaling

Status display	no
Status display present	no

Electrical properties

Nominal voltage U_N	48 V AC
	60 V DC
Nominal current I_N	0.5 A
Transmission medium	Copper
Transmission speed	10 Gbps

Connector

Connection 1

Type	Plug straight M12 SPEEDCON / IP65
Number of positions	8
Locking type	SPEEDCON
Coding type	X (Data)
Handle color	black
Material	CuZn (Contact)
	Ni/Au (Contact surface)
	TPU (Contact carrier)
	PA 6.6 (Grip body)
	Zinc die-cast, nickel-plated (Screw connection)
Standards/regulations	PA 6.6: Fire protection in rail vehicles - requirement sets R22, R23, and R24 acc. to DIN EN 45545-2 (Risk level HL1 - HL3)
Insertion/withdrawal cycles	≥ 100
Insulation resistance	≥ 100 MΩ
Tightening torque	0.4 Nm

Degree of protection	IP65
	IP67
Ambient temperature (operation)	-25 °C ... 90 °C

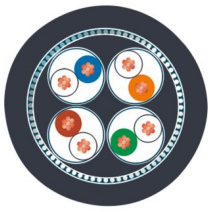
Connection 2

Type	free cable end

Cable/line

Cable length	2 m

Ethernet BETAtrans® railway application CAT7 [94S]

Dimensional drawing	
Cable weight	59 kg/km
Copper weight	28 kg/km
Number of positions	8
Shielded	yes
Cable type	Ethernet BETAtrans® railway application CAT7 [94S]
Conductor structure	4x2xAWG26/7; S/FTP
Signal runtime	4.4 ns/m
Signal speed	0.78 c
Conductor structure signal line	7x 0.16 mm
AWG signal line	26
Conductor cross section	4x 2x 0.14 mm²
Wire diameter incl. insulation	1.05 mm ±0.1 mm
External cable diameter	6.60 mm ±0.2 mm
Outer sheath, material	PE-X
External sheath, color	black
Conductor material	Tin-plated Cu litz wires
Material wire insulation	Cell PE
Single wire, color	white-blue, white-orange, white-green, white-brown
Twisted pairs	2 cores to the pair
Type of pair shielding	Aluminum-lined polyester foil
Overall twist	4 pairs, twisted
Max. conductor resistance	≤ 145 Ω/km
Insulation resistance	≥ 5 GΩ*km
Coupling resistance	5.00 mΩ/m (at 10 MHz)
Wave impedance	100 Ω ±5 Ω (at 100 MHz)
Working capacitance	44 nF (per kilometer)

Nominal voltage, cable	125 V AC (Uo)
Test voltage Core/Core	1000 V AC (50 Hz, 1 min.)
Test voltage Core/Shield	1000.00 V AC (50 Hz, 1 min.)
Minimum bending radius, fixed installation	6 x D
Smallest bending radius, fixed installation	40 mm
Tensile strength	≤ 60 N (temporary)
	≤ 15 N (Permanent)
Near end crosstalk attenuation (NEXT)	100 dB (with 1 MHz)
	99 dB (at 10 MHz)
	95 dB (at 100 MHz)
	92 dB (at 200 MHz)
	90 dB (at 250 MHz)
	83 dB (at 500 MHz)
	81 dB (at 600 MHz)
	80 dB (at 700 MHz)
	77 dB (at 800 MHz)
	75 dB (at 900 MHz)
	74 dB (at 1000 MHz)
	72 dB (at 1100 MHz)
	70 dB (at 1200 MHz)
Power-summated near end crosstalk attenuation (PSNEXT)	97 dB (with 1 MHz)
	96 dB (at 10 MHz)
	92 dB (at 100 MHz)
	89 dB (at 200 MHz)
	87 dB (at 250 MHz)
	80 dB (at 500 MHz)
	78 dB (at 600 MHz)
	77 dB (at 700 MHz)
	74 dB (at 800 MHz)
	72 dB (at 900 MHz)
	71 dB (at 1000 MHz)
	69 dB (at 1100 MHz)
	67 dB (at 1200 MHz)
Return attenuation (RL)	24 dB (with 1 MHz)
	33.9 dB (at 10 MHz)
	38.3 dB (at 100 MHz)
	35.3 dB (at 200 MHz)
	32.9 dB (at 250 MHz)
	29.7 dB (at 500 MHz)
	30.6 dB (at 600 MHz)
	31 dB (at 700 MHz)
	26.7 dB (at 800 MHz)
	28.6 dB (at 900 MHz)
	27.5 dB (at 1000 MHz)

	26.9 dB (at 1100 MHz)
	26.3 dB (at 1200 MHz)
Crosstalk attenuation (ACR)	100 dB (with 1 MHz)
	99 dB (at 10 MHz)
	93 dB (at 100 MHz)
	88 dB (at 200 MHz)
	86 dB (at 250 MHz)
	78 dB (at 500 MHz)
	74 dB (at 600 MHz)
	72 dB (at 700 MHz)
	69 dB (at 800 MHz)
	67 dB (at 900 MHz)
	65 dB (at 1000 MHz)
	63 dB (at 1100 MHz)
	61 dB (at 1200 MHz)
Power-summated crosstalk attenuation (PS-ACR)	97 dB (with 1 MHz)
	96 dB (at 10 MHz)
	90 dB (at 100 MHz)
	85 dB (at 200 MHz)
	83 dB (at 250 MHz)
	75 dB (at 500 MHz)
	71 dB (at 600 MHz)
	69 dB (at 700 MHz)
	66 dB (at 800 MHz)
	64 dB (at 900 MHz)
	62 dB (at 1000 MHz)
	60 dB (at 1100 MHz)
	58 dB (at 1200 MHz)
Shield attenuation	0.25 dB (with 1 MHz)
	0.76 dB (at 10 MHz)
	2.49 dB (at 100 MHz)
	3.69 dB (at 200 MHz)
	4.18 dB (at 100 MHz)
	5.6 dB (at 500 MHz)
	6.74 dB (at 600 MHz)
	7.32 dB (at 700 MHz)
	7.89 dB (at 800 MHz)
	8.5 dB (at 900 MHz)
	9.11 dB (at 1000 MHz)
	9.5 dB (at 1100 MHz)
	9.9 dB (at 1200 MHz)
	60.00 dB (up to 1000 MHz)
Halogen-free	in accordance with EN 50267-2-1
	in accordance with EN 60684-2

Flame resistance	in accordance with EN 60332-1-2
	EN 60332-3-25
	in accordance with ISO 14572 5.21 (UN ECE-R 118.01)
Concentration of fumes	EN 61034-2
Resistance to oil	in accordance with EN 50306-4, 72 hours at 100°C, IRM 902
Fire protection in rail vehicles	BS 6853 (Internal cable Ia, Ib, II/external cable Ia, Ib, II)
	DIN 5510-2 (Fire protection level 1, 2, 3, 4)
	EN 45545-2 (Risk level HL1 - HL3)
	EN 50306-4
	NF F16-101 (Classification C/F1)
	NF F16-101 (Internal cable A1, A2, B/external cable A1, A2, B)
	NFPA 130
	PN-K-02511 (Class A)
	UIC 564-2 (Class A)
Other resistance	Resistant to fuel (in accordance with EN 50306-4, 168 hours at 70°C, IRM 903)
	Resistant to ozone (in accordance with EN 50306-4, 72 hours at 40°C, method B, volumetric concentration of 200 x 10^{-6})
Ambient temperature (operation)	-40 °C ... 80 °C (cable, fixed installation)

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP65/IP67

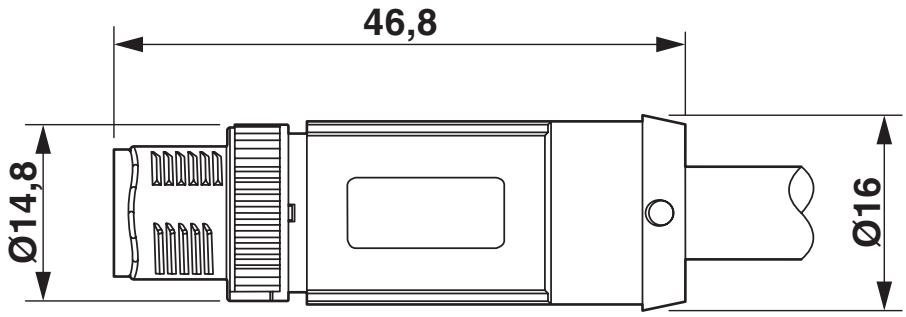
Standards and regulations

M12

Standard designation	M12 connector
Standards/specifications	IEC 61076-2-109
Standard designation	Shock, vibration
Standards/specifications	EN 50155

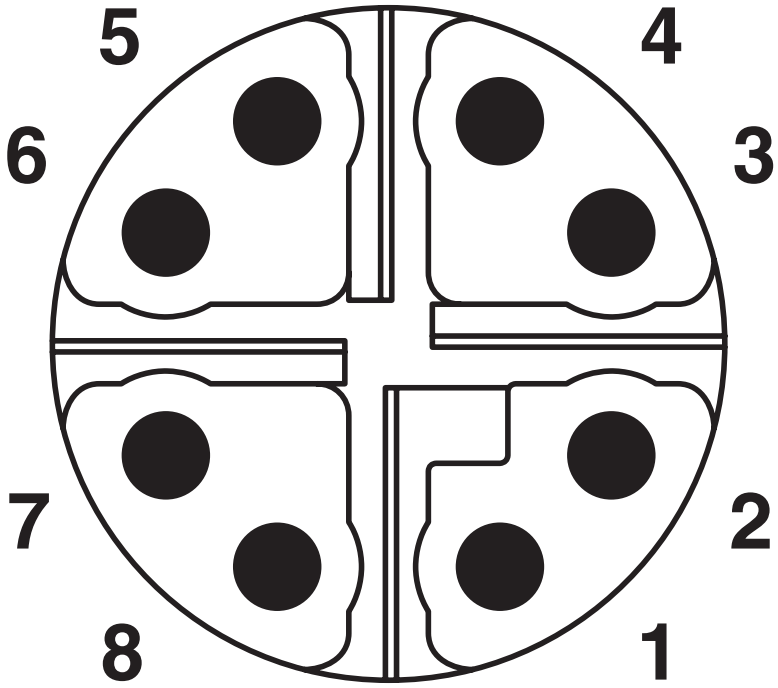
Drawings

Dimensional drawing



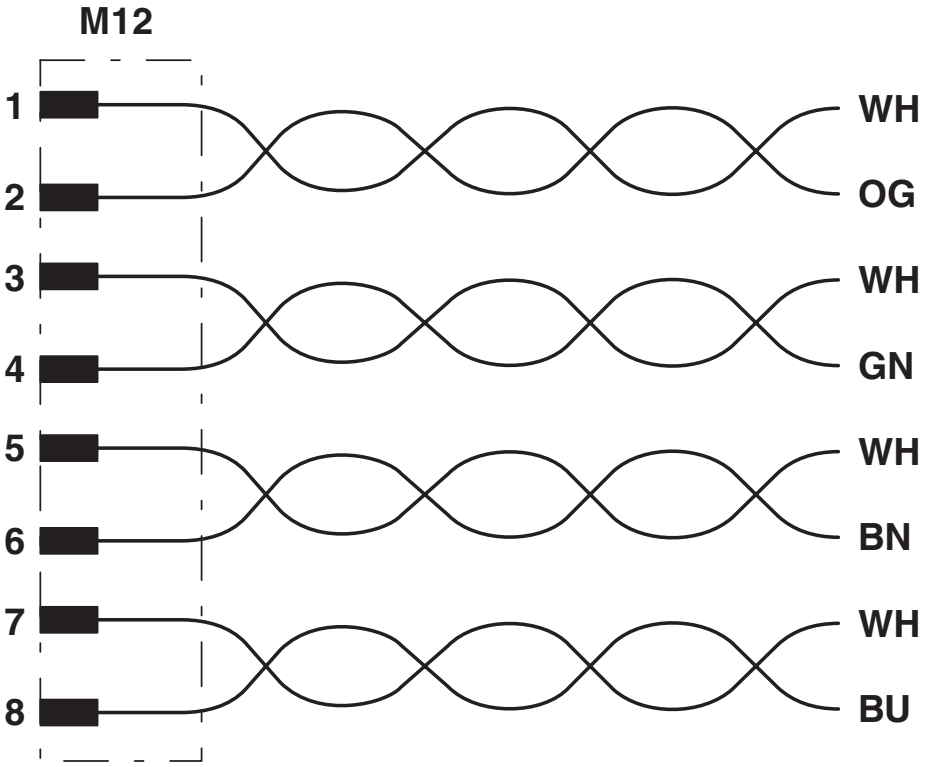
M12 SPEEDCON plug, straight, shielded

Schematic diagram



Pin assignment of M12 plug, 8-pos., X-coded, pin side view

Circuit diagram



Contact assignment of the M12 plug

Classifications

ECLASS

ECLASS-13.0	27060307
ECLASS-15.0	27060307

ETIM

ETIM 9.0	EC001855

UNSPSC

UNSPSC 21.0	26121600

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes, No exemptions

China RoHS

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

EU REACH SVHC

REACH candidate substance (CAS No.)	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1)
SCIP	6dc037b1-dc3b-4e23-b61c-e854c6291221

EF3.0 Climate Change

CO2e kg	4.434 kg CO2e

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