Data sheet

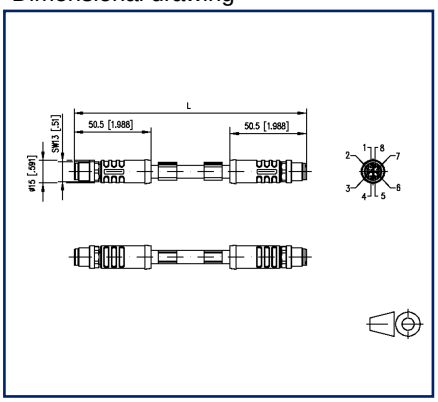
M12 Bus-/Railcat connection line, X-coded, 2.0 m, M12 plug - M12 plug, 8-pole, RADOX®

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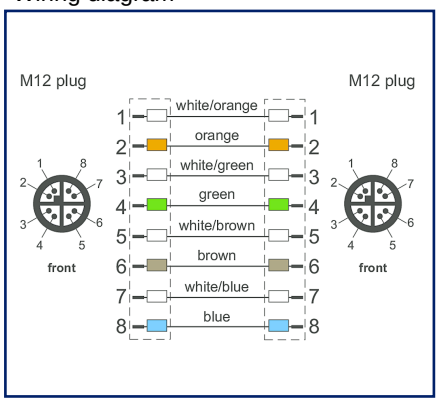
Illustrations



Dimensional drawing



Wiring diagram



See enlarged drawings at the end of document

Product specification

Halogen-free, electron beam crosslinked Cat.7 data wire with improved fire resistance. Very good properties in terms of NEXT, attenuation and shield design. This wire is used in fixed and protected installation in railway vehicles and buses and meets the fire protection requirement according to EN 45545-2 (HL1 - HL3). It is optimally suited for Ethernet applications of classes D to F (ECN and ETB) according to IEEE 802.3. For installation, the notes according to EN 50355 and EN 50343 must be observed. RADOX® is a registered trademark of HUBER+SUHNER AG, Switzerland. Special properties: flame retardant, RoHs compliant, halogen free, increased thermal load capacity, low smoke emission, oil and fuel resistant. Fire protection: DIN EN 45545-2 HL1-3, DIN 5510 fire protection levels 1-4, NF F16-101 category A1, A2, B, UNI CEI 11170, danger level LR1-LR4

- Standard variants: 1.0 m, 2.0 m, 5.0 m, 10.0 m.
- Other cable lengths on request.

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Technical Data

General Data

Fields of application	Railway vehicle Buses
Applications	Train Communication Network: ETB– Ethernet Train Backbone
Design	Ethernet-Connection line
Cable length (m)	2 m
Cable length (ft)	6.56 ft
Cable	
Cable Type	S/FTP
Wiring	Profinet
Wire color	white/orange, orange, white/green, green, white/brown, brown, white/blue, blue
Color - cable jacket	blue
Transmission properties	Cat.7
Connection 1	
Shielding	shielded
Dimension (L x W x H)	50.5 mm x 15 mm x 15 mm
Dimension (L x W x H)	1.988 in. x 0.591 in. x 0.591 in.
Connection 2	
Shielding	shielded
Dimension (L x W x H)	50.5 mm x 15 mm x 15 mm
Dimension (L x W x H)	1.988 in. x 0.591 in. x 0.591 in.

Connections/interfaces

Cable	
Conductor cross section AWG	AWG 24
Conductor diameter (mm)	0.75 m
Conductor diameter (inch)	0.03 in.
Cable construction	4x2
Stranded wire structure	7x0.25mm
Outer diameter cable jacket (mm)	8.1 mm
Outer diameter cable jacket (inch)	0.319 in.

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Connections/interfaces	
Connection 1	
Connector type	M12-plug
Coding	X-coded
Type of plug contact, field side	Male (plug)
Cable feed arrangement, field side	straight
Number of poles	8
Pin Assignment	1 WH/OG, 2 OG, 3 WH/GN, 4 GN, 5 WH/BN, 6 BN, 7 WH/BU, 8 BU
Latching lever protection	no
Color of the cable boot	black
Connection 2	
Connector type	M12-plug
Coding	X-coded
Type of plug contact, field side	Male (plug)
Cable feed arrangement, field side	straight
Number of poles	8
Pin Assignment	1 WH/OG, 2 OG, 3 WH/GN, 4 GN, 5 WH/BN, 6 BN, 7 WH/BU, 8 BU
Latching lever protection	no
Color of the cable boot	black
Electrical characteristics	
Connection 1	
Current carrying capacity per pin (at 40 °C)	0.5 A
Connection 2	
Current carrying capacity per pin (at 40 °C)	0.5 A
Mechanical data	
Cable	
Bending radius (fixed)	4 x Ø cable
Connection 1	
Mechanical life	min. 100 mating cycles

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Mechanical data

Connection 2	
Mechanical life	min. 100 mating cycles

Materials and material properties

Cable	
Material - Cable jacket	RADOX® EM 104 according to EN 50264-1
Material - Wire insulation	RADOX Foam
Flame retardancy	yes, according to IEC 60332-1-2
Connection 1	
Material - Contact	CuZnPb (brass)
Material - Contact surface	Au (gold)
Material - Contact carrier	Plastics, PA, BK
Material - Body	Plastics, TPU, BK
Material - Cap nut	Metal, CuZn, nickel-plated
Connection 2	
Material - Contact	CuZnPb (brass)
Material - Contact surface	Au (gold)
Material - Contact carrier	Plastics, PA, BK
Material - Body	Plastics, TPU, BK
Material - Cap nut	Metal, CuZn, nickel-plated
RoHS	compliant

Environmental conditions

Cable	
Temperature range (fixed)	-50 °C - max. 70 °C
Temperature range (fixed)	-58 °F - 158 °F
Connection 1	
	-30 °C
	-22 °F
Protection category (mounted)	IP67 (-30 °C...+90 °C), IP65 (-40 °C...+90 °C)

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Environmental conditions	
Connection 2	
Protection category (mounted)	IP67 (-30 °C...+90 °C), IP65 (-40 °C...+90 °C)
Operating temperature classes	OT1 - OT4
Operating temperature range	-40 to 70
Standards/Regulations	
General requirements	ISO/IEC 11801-1 | DIN EN 50173-1
Cable	
Buses - Fire safety	UN ECE-R 118.01
Connection 1	
Circular connector	DIN EN 61076-2-101:2013
Shock and vibration	Class 1, category B (DIN EN 61373)
Degrees of Protection Provided by Enclosures	EN 60529:1991 + A1:2000 + A2:2013
Connection 2	
Circular connector	DIN EN 61076-2-101:2013
Shock and vibration	Class 1, category B (DIN EN 61373)
Degrees of Protection Provided by Enclosures	EN 60529:1991 + A1:2000 + A2:2013
Contact holder	Thermoplastic
Sealings	Elastomer
Shock and vibration	EN 50155:2021, EN 61373:2010 Class 1 Category B
Salt spray	EN 50155:2021, (DIN EN 60068-2-11:2000-02/ 48-hour KA test)
Classifications	
ETIM 8.0	EC002599
ETIM 9.0	EC002599
ETIM 10.0	EC002599

Packing details	
Type of packaging	1 pc(s) / plastic bag

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Application note

This product is a standard product of METZ CONNECT. METZ CONNECT is not aware of the specific intended use of the goods by the Customer or any customers of the Customer. The Customer guarantees that it has fully and sufficiently tested the use of the goods and any product modifications, product changes or product enhancements with regard to the specific intended use in accordance with the state of the art or in any other way.

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Accessories

P/N	Designation
MMF881A115	M12 jack, D-coded, IP67, Cat.5, Ø 6-9.7 mm, field assembly, straight
MNF881A115	M12 plug, D-coded, IP67, Cat.5, Ø 6-9.7 mm, field assembly, straight
MWN811A115	M12 Panel feed through adapters, D-coded, to RJ45 - straight

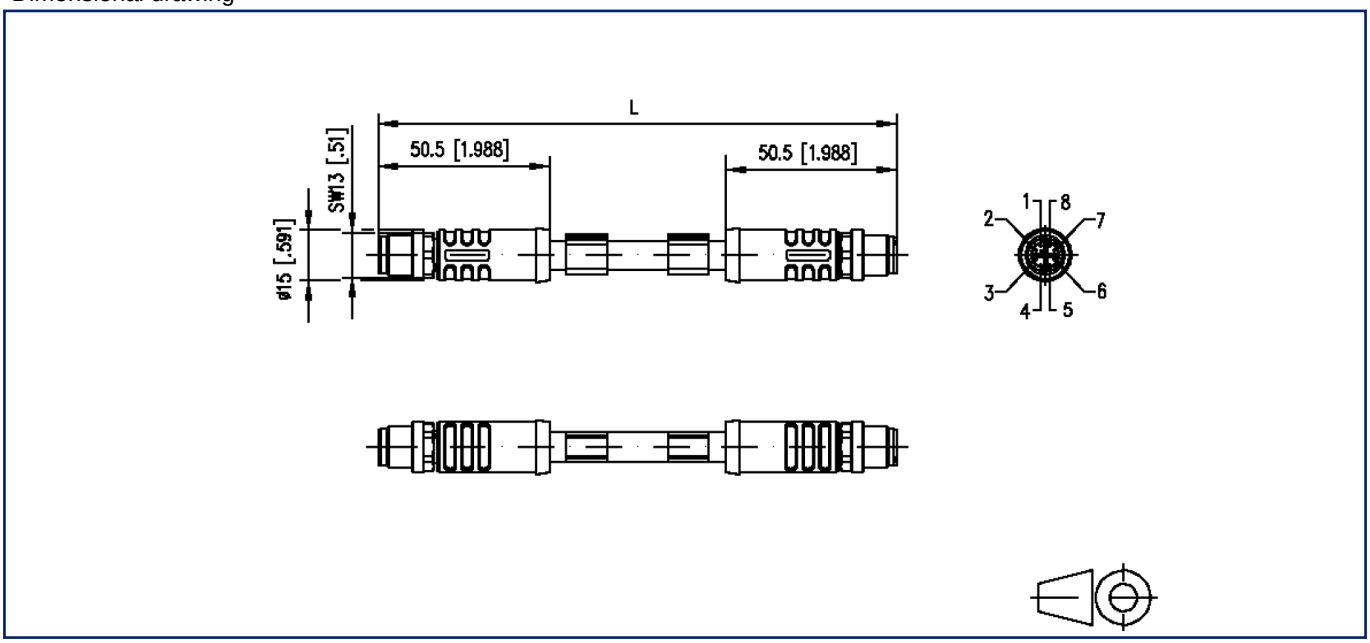
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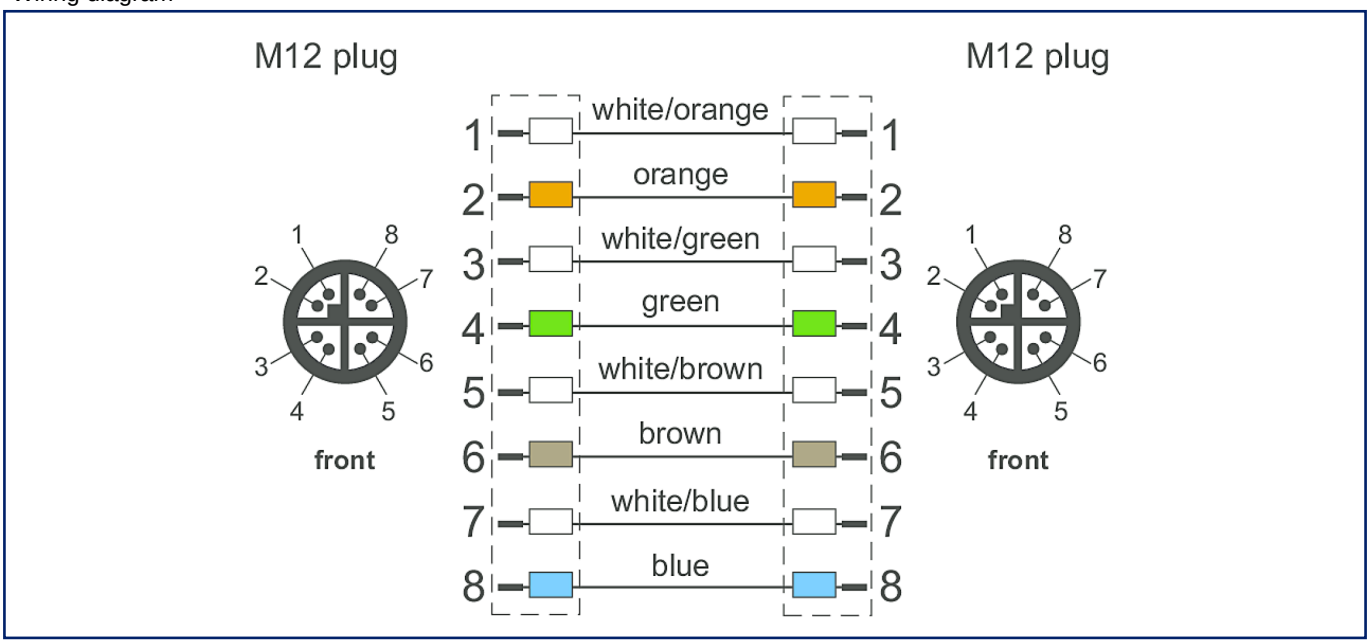
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Illustrations

Dimensional drawing



Wiring diagram



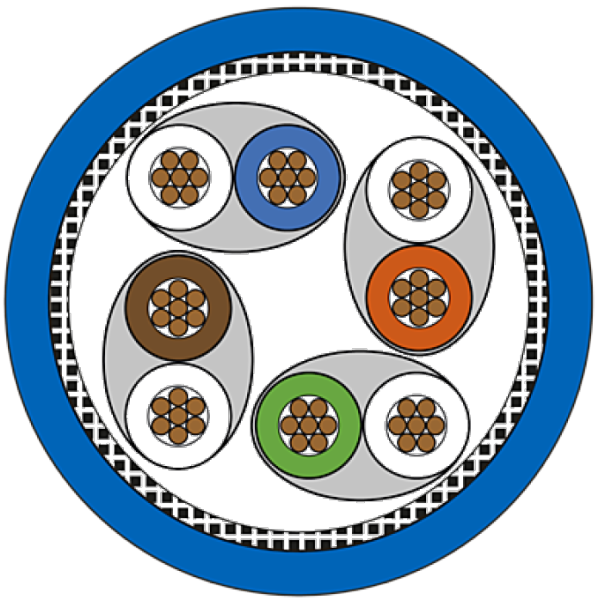
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Principle diagram



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