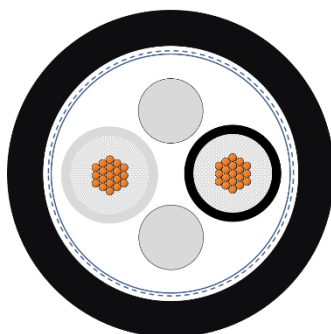


2173004	DATA SHEET	
valid from: 08.05.2025	UNITRONIC® TRAIN WTB 1x2x0.75	

Application

Field of use:	Flexible bus cable for the Wire Train Bus (WTB) for serial data communication in railway vehicles. WTB is a component of the Train Communication Network (TCN) and standardized in IEC 61375-2-1.
Performance:	Screened foiled cable, having a nominal impedance of 120 Ω. Designed for transmission rates of 1 Mbit/s. The WTB transmits time-critical control signals in real time.
Characteristics:	flame retardant, no flame propagation, halogen free, low smoke density, ozone resistant, UV resistant, oil resistant, fuel resistant, resistant to acids and alkalis
Applications:	WTB, TCN, RS-485 and others
Approvals:	NF F 16-101 Fire testing – Types of rolling stock: External category: A2, B Internal category: A1, A2, B NF F 16-101 Fire testing – Fire Classification: Flammability: class D Smoke and toxicity: class F0 EN 45545-2: Hazard Level HL1, HL2, HL3



Design

Conductor	fine-wire stranded tinned copper 0.75 mm ² (19 x 0.226 mm) conductor diameter: ca. 1.1 mm
Insulation	Foamed skin PE (Polyethylene) core diameter: ca. 3.2 mm
Core identification code	white/black
Stranding	2 cores stranded to pair, with 2 fillers on top: plastic foil (overlapping)
Screen	plastic laminated aluminium foil (overlapping) on top: braid of tinned copper wires (coverage 85 % ± 5 %) diameter over braid: ca. 7.0 mm
Taping	thin non-woven tape (optional)
Outer sheath	cross-linked polymer compound EM 104 acc. to EN 50264-1, table 4 black, similar RAL 9005 outer diameter: ca. 9.0 mm

Electrical properties at 20 °C

Conductor resistance	max. 26.7 Ω/km	
Insulation resistance	core/core: min. 5 GΩxkm core/screen: min. 5 GΩxkm	
Mutual capacitance	max. 65 nF/km (1 MHz)	
Capacitive coupling	max. 1500 pF/km (1 MHz)	
Characteristic impedance	120 Ω ± 10% (0.5 MHz - 2 MHz)	
Attenuation	max. 10 dB/km (1 MHz) max. 14 dB/km (2 MHz)	
Velocity of propagation	0.74 c	

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Transfer impedance	max. 20 mΩ/m (20 MHz)
Maximum operating voltage	125 V (not intended to be used in conjunction with low impedance sources, such as power grids)
Test voltage	core/core: 1000 V
	core/screen: 1000 V

Mechanical and thermal properties

Minimum bending radius	fixed installation:	3 x outer diameter
	occasional flexing:	10 x outer diameter
Temperature range	fixed installation:	-45 °C up to +90 °C
	occasional flexing:	-35 °C up to +90 °C
Burning load	0.726 kWh/m (calculated value)	
Flammability	flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2	
	flame propagation acc. to IEC 60332-3-25 resp. EN 60332-3-25	
	class D acc. to NF C 32-070, category C1 and C2	
Halogen free	acc. to IEC 60754-1 resp. EN 60754-1	
	acc. to EN 50264-1 appendix B	
Corrosivity of gases	acc. to IEC 60754-2 resp. EN 60754-2	
Smoke density	acc. to IEC 61034-2 resp. EN 61034-2	
	class F0 acc. to NF X 10-702	
Toxicity	acc. to EN 50305	
	class F0 acc. to NF X 70-100	
Weather and UV resistance	acc. to EN 50289-4-17 cables with black sheath are suitable for permanent outdoor use	
Ozone resistance	acc. to EN 50305	
Oil resistance	acc. to EN 50264-1, EM 104	
Fuel resistance	acc. to EN 50264-1, EM 104	
Tests	Test procedures for electrical characteristics and transmission characteristics acc. to EN 50288-1.	
General requirements	These cables are conform to the EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances) and the LV-Directive 2014/35/EU (Low voltage Directive).	
Environmental information	These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).	

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