
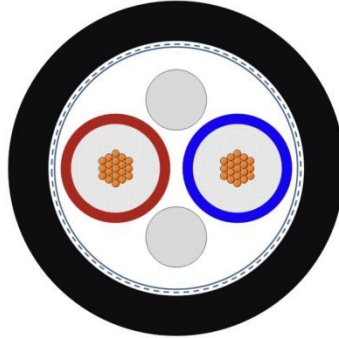


2173000	DATA SHEET	
valid from: 26.09.2022	UNITRONIC® TRAIN MVB 1x2x0,5	

Application

Field of use:	Flexible bus cable for the Multifunction Vehicle Bus (MVB) for serial data communication in railway vehicles. MVB is a component of the Train Communication Network (TCN) and standardized in IEC 61375-3-1.
Performance:	Screened foiled twisted pair cable, having a nominal impedance of 120 Ω. Designed for transmission rates of 1.5 Mbit/s. The MVB 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:	MVB, TCN, RS-485 and others




Design

Certification	EN 45545-2: Hazard Level HL1, HL2, HL3 fire prevention acc. to NF F 16-101 Internal: Vehicle Categories A1, A2, B External: Vehicle Categories A2, B Category D for flame propagation Category F0 for smoke density
Conductor	fine-wire stranded tinned copper 0.5 mm ² (19 x 0.185 mm) conductor diameter: ca. 0.92 mm
Insulation	foamed polyolefine core diameter: ca. 2.45 mm
Core identification code	red/blue
Stranding	cores stranded to pair, with 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. 5.6 mm
Taping	thin non-woven tape (optional)
Outer sheath	cross-linked polymer compound, halogen free and flame retardant acc. to EN 50264-1, EM 104 black, similar RAL 9005 outer diameter: ca. 7.6 mm

Electrical properties at 20 °C

Conductor resistance	max. 40.1 Ω/km
Insulation resistance	min. 5 GΩ x km
Mutual capacitance	max. 46 nF/km (1.5 MHz)
Capacitive coupling	max. 1500 pF/km (1.5 MHz)
Characteristic impedance	120 Ω ±10% (0.75 MHz - 3 MHz)
Attenuation	max. 15 dB/km (1.5 MHz) max. 20 dB/km (3 MHz)
Near-end cross-talk	min. 45.0 dB/km (0.75 MHz - 3 MHz)
Velocity of propagation	0.74 c
Transfer impedance	max. 20 mΩ/m (20 MHz)

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Maximum operating voltage 125 V (not for power purposes)
Test voltage core/core: 1000 V
core/screen: 1000 V

Mechanical and thermal properties

Minimum bending radius occasional flexing: 10 x outer diameter
fixed installation: 3 x outer diameter

Temperature range occasional flexing: -35 °C up to +90 °C
fixed installation: -45 °C up to +90 °C

Burning load 0.438 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

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

Toxicity acc. to EN 50305

Weather and UV resistance acc. to EN 50289-4-17 resp. VDE 0819-289-4-17 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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