
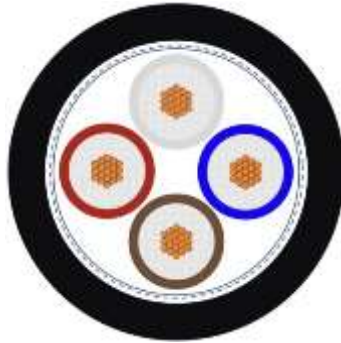


2173002	<b>DATA SHEET</b>	
valid from: 03.06.2020	<b>UNITRONIC® TRAIN MVB 2x2x0,5</b>	

## Application


UNITRONIC® TRAIN MVB is a fieldbus cable for the Multifunction Vehicle Bus (MVB). MVB is a field bus for the Train Communication Network (TCN) and normatively specified by IEC 61375-3-1. It has a data transfer rate of 1.5 Mbit/s and is used primarily for the transmission of commands in a railway vehicle. The MVB is used in conjunction with the WTB (Wire Train Bus) for data communication in trains.

## Design



Certification	<p>EN 45545-2: Hazard Level HL1, HL2, HL3  acid and alkaline resistance acc. to EN 50264-1, EM 104  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</p>
Conductor	<p>fine-wire stranded tinned copper  0.5 mm<sup>2</sup>, 19 x 0.185 mm, <math>\varnothing</math> approx. 0.92 mm</p>
Insulation	foamed polyethylene, core $\varnothing$ : ca. 2.30 mm
Core identification code	pair 1: red/blue, pair 2: grey/brown
Stranding	cores stranded to star quad
Screen	<p>plastic laminated aluminium foil (overlapping)  on top:  braid of tinned copper wires (coverage 85 % <math>\pm</math> 5 %)</p>
Taping	thin non-woven tape (optional)
Outer sheath	<p>cross-linked polymer compound, halogen free and flame retardant  acc. to EN 50264-1, EM 104  black, similar RAL 9005  outer <math>\varnothing</math>: 8.30 mm</p>

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### Electrical properties at 20°C

Conductor resistance	max. 40.1 Ω/km
Insulation resistance	min. 5 GΩ x km
Inductance	nom. 850 μH/km (1 kHz)
Capacitive coupling	max. 46 nF/km (1 MHz)
Characteristic impedance	120 Ω (±10%) at 0.5 MHz - 5 MHz
Attenuation	max. 15 dB/km (1 MHz) max. 20 dB/km (2 MHz) nom. 26.4 dB/km (3 MHz) nom. 30.1 dB/km (4 MHz) nom. 33.1 dB/km (5 MHz)
Velocity of propagation	0,74 c
Signal transit time	nom. 450 ns/ 100m (2 MHz)
Transfer impedance	nom. 20 mΩ/m (20 MHz)
Peak 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 cable Ø fixed installation: 3 x cable Ø
Temperature range	occasional flexing: -35 °C up to +90 °C fixed installation: -45 °C up to +90 °C
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
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
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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