
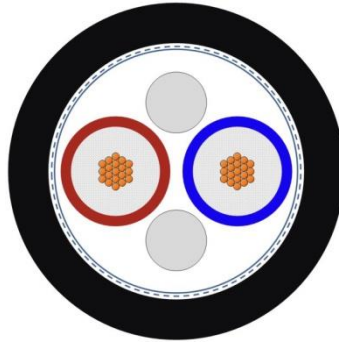


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| 2173000 | DATA SHEET |  |
| valid from: 2025-11-27 | UNITRONIC® TRAIN MVB 1x2x0.5 | |

Application

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| Field of use: | 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 star quad 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

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| 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

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| 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 |

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| Transfer impedance | max. 20 mΩ/m (20 MHz) | |
| Maximum operating voltage | 125 V (not for power purposes) | |
| Test voltage | core/core: | 1000 V |
| | core/screen: | 1000 V |

Mechanical and thermal properties

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| Minimum bending radius | fixed installation: | 3 x outer diameter |
| | occasional flexing: | 10 x outer diameter |
| Temperature range | fixed installation: | -40 °C up to +90 °C |

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| 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 IEC 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 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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