Application
The cables are designed for permanent installation inside of rolling stock to connect fixed parts. A typical application is a communication system in a locomotive. The system uses a wire backed bus system to the TCN standard for control and instrumentation and for diagnostics. This bus system consists of the rail bus WTB (Wired Train Bus) and the road bus MVB (Multifunction Vehicle Bus) which are connected via redundant gateways.

Construction
Conductor
Stranded tinned copper conductor according to IEC 60228 class 5
Insulation
Foam PE or foam skin PE
Cable Element
Twisted pair
Core Wrapping
Plastic tape(s)
EMC Screen 1
Aluminium clad polyester foil
EMC Screen 2
Tinned copper braid
Core Wrapping
Plastic tape(s)
Outer Sheath
Cross-linked oil resistant LSZH compound

Electrical & Mechanical Properties
Nominal Voltage 300 V
Max. Temperature 90 °C
Min. Temperature -40 °C
Bending Radius 12 × Overall Diameter

Chemical & Environmental Properties
EN 60684-2
EN 50305; EN 60811-2-1
EN 50305
No fluorine
Resistance to mineral oil & fuel oil, acid & alkali
Resistance to ozone

Fire Performance for Rolling Stock Application
EN 50306-2
DIN 5510-2
BS 6853
NF F 16-101
Hazard levels HL1, HL2/HL3, HL4
Protection level 1/2/3/4
Interior use 1a, 1b, II; Exterior use 1a, 1b, II
F0
**Databus Cables**

**Fire Performance in General**

EN 50265-2-1; IEC 60332-1-2; NF C 32-070 2.1 (C2)
EN 50266-2-4 + EN 50305; IEC 60332-3-24;
NF C 32-070 2.2 (C1); VDE 0472 Teil 804
EN 50268-2; IEC 61034-2; NF C 32-073;
NF C 20-902; NF F 16 101; VDE 0472 Teil 816
EN 50267-2-1; IEC 60754-1; NF C 32-074;
NF C 20-454; VDE 0472 Teil 815
EN 50267-2-2/3; IEC 60754-2; NF C 32-074;
NF C 20-453; VDE 0472 Teil 813
EN 50305; NF X 70-100; NF F 63 808; TM1-04; BS6853
NF F 63 808; BS6853; NF F 16 101

FRL-WTB/MVB-02Y(ST+C)H-1P20A

<table>
<thead>
<tr>
<th>Nominal Cross-Sectional Area</th>
<th>Number &amp; Nominal Diameter of Strands</th>
<th>Nominal Sheath Thickness</th>
<th>Nominal Overall Diameter</th>
<th>Nominal Weight</th>
<th>Max. Conductor Resistance 20 °C</th>
<th>Impedance @0.75-3MHz</th>
<th>@1MHz</th>
<th>@2MHz</th>
<th>Max Attenuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm²</td>
<td>AWG No/mm</td>
<td>mm</td>
<td>mm</td>
<td>kg/km</td>
<td>Ω/km</td>
<td>Ω</td>
<td>dB/km</td>
<td>dB/km</td>
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</tr>
<tr>
<td>0.62</td>
<td>20</td>
<td>19/0.2</td>
<td>1.2</td>
<td>8.3</td>
<td>33.1</td>
<td>120 +/-12</td>
<td>10</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

**IRM**

- IRM 903: Fuel Oil Resistant
- IRM 902: Mineral Oil Resistant
- IRM 901: Damped Oil Resistant

**Performance Features**

- Vertical flame propagation for a single insulated wire or cable
- Vertical flame spread of vertically mounted bunched wires or cables
- Low Smoke Emission
- Halogen Free
- Low Corrosivity (Acidity & Conductivity)
- Low Toxicity
- Smoke Index
- Low Corrosivity
- Low Smoke Emission
- Zero Halogen
- Zero Halogen
- Zero Halogen