RT/F3 E1/E2/E3 Type Axle Counter Cable

**Applications**

The cables are designed for transmission of signals up to 90 kHz in axle counter train detection systems.

**Standards**

- RT/E/PS/00031

**Construction**

- Conductors: Tinned copper wire, 0.9 or 1.4 mm nominal diameter.
- Insulation: Solid polyethylene.
- Cabling Element: Two insulated conductors are twisted together to form a pair.
- Stranding: Pairs are helically stranded in concentric layers.
- Filling: Cable core interstices are filled with a low-permittivity compound. Unfilled cables option can be offered upon request.
- Core Wrapping: Plastic tape(s) with overlapping.
- Moisture Barrier: One laminated sheath made of aluminium tape coated with PE-Copolymer on at least one side is applied with longitudinally overlap.
- Inner Sheath: Polyethylene or LSZH fire retardant compound.
- Electrostatic Shield: One layer of helically applied copper wires.
- Electromagnetic Shield: Two helically applied steel tapes.
- Outer Sheath: Polyethylene or LSZH fire retardant compound. Ruggedised PE sheath compound can be offered upon request.

**Type Codes**

- F1 class: Non LSZH cables
- D type: Unarmoured types
- S type: Steel tape armoured types
- E1, E2 & E3 types: 3 different induction protection levels available.
- F5 class: Unfilled cables
- R type: Ruggedised PE sheath
- B type: Brass tape armoured types

**Electrical Characteristics at 20°C**

<table>
<thead>
<tr>
<th>Nominal Conductor Diameter</th>
<th>mm</th>
<th>0.9</th>
<th>1.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Conductor Cross Section</td>
<td>mm²</td>
<td>0.63</td>
<td>1.5</td>
</tr>
<tr>
<td>Maximum Conductor Resistance</td>
<td>Ω/km</td>
<td>30.0</td>
<td>12.5</td>
</tr>
</tbody>
</table>
Minimum Insulation Resistance @500 V DC (1min) MΩ.km 5000 5000
Nominal Mutual Capacitance @800Hz/1000Hz (AC) nF/km 42+3 47+3
Dielectric Strength, conductor to screen (DC voltage 2mins) V 3000 3000
Maximum Average Attenuation @1.0KHz dB/km 0.73 0.45
@2.4KHz dB/km 1.10 0.62
@40KHz dB/km 2.88 1.77
@90KHz dB/km 3.70 2.41
@1.024MHz dB/km 11.2 7.45
Minimum Average Near-end Crosstalk Attenuation @1.0KHz dB/km 60 60
@2.4KHz dB/km 60 60
@40KHz dB/km 50 50
@90KHz dB/km 50 50
@1.024MHz dB/km 35 35
Maximum Reduction Factor @100V/km,50Hz EMI RF 1 (modest level) 0.65 0.65
EMI RF 2 (medium level) 0.45 0.45
EMI RF 3 (high level) 0.20 0.20

Mechanical and Thermal Properties
- Minimum Bending Radius: 7.5×OD (unarmoured); 10×OD (armoured)
- Temperature Range: -30°C to +60°C (during operation); -10°C to +60°C (during installation)

Dimensions and Weight

<table>
<thead>
<tr>
<th>Cable Code</th>
<th>Number of Pairs</th>
<th>Nominal Sheath Thickness mm</th>
<th>Nominal Overall Diameter mm</th>
<th>Nominal Weight kg/km</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Inner</td>
<td>Outer</td>
<td></td>
</tr>
<tr>
<td>0.9mm Conductor, 1.8mm Insulated Wire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-2P0.9</td>
<td>2</td>
<td>2.2</td>
<td>2.4</td>
<td>23.4</td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-10P0.9</td>
<td>10</td>
<td>2.2</td>
<td>2.4</td>
<td>31.8</td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-12P0.9</td>
<td>12</td>
<td>2.2</td>
<td>2.4</td>
<td>35.0</td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-19P0.9</td>
<td>19</td>
<td>2.2</td>
<td>2.4</td>
<td>41.4</td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-24P0.9</td>
<td>24</td>
<td>2.2</td>
<td>2.4</td>
<td>44.0</td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-2P1.4</td>
<td>2</td>
<td>2.2</td>
<td>2.4</td>
<td>33.6</td>
</tr>
<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-10P1.4</td>
<td>10</td>
<td>2.2</td>
<td>2.4</td>
<td>40.2</td>
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<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-12P1.4</td>
<td>12</td>
<td>2.2</td>
<td>2.4</td>
<td>42.2</td>
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<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-19P1.4</td>
<td>19</td>
<td>2.2</td>
<td>2.4</td>
<td>47.5</td>
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<tr>
<td>RS/RT/F3-S/E3-2Y(F)(L)2YDB2Y-24P1.4</td>
<td>24</td>
<td>2.2</td>
<td>2.4</td>
<td>52.5</td>
</tr>
</tbody>
</table>

UV Resistant | Water Resistant | Rated voltage | Impact Resistant | Buried in Ground | Laid In Ducts

PE Sheath
Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1

LSZH Sheath
Flame Retardant
NF C32-070-2.1(C2)
IEC 60332-1EN 50265-2-1
Fire Retardant
NF C32-070-2.2(C1)
IEC 60332-3EN50268
Zero Halogen
IEC 60754-1/NF C20-454
EN 50267-2-1
Low Smoke Emission
IEC 61034/NFC20-902
EN 50268/NF C32-073
Low Corrosivity
IEC 60754-1/NF C20-454
EN 50267-2-1/NF C32-074
Low Toxicity
IEC 60754-1/NF C20-454
EN 50267-2-1/NF C32-0453