ZCO3 & ZCO3-SH Main Signalling Cables
(AC Electrified High Speed Lines)

Applications
The cables are designed for connection between traffic control centers and equipment shelters along the trackside. The cables are specially designed to give good induction protection (R.F=0.21 at inductive voltage 100V/km) and are suitable for installation in high speed railway lines electrified at 25KV ac.

Standards
- SNCF CT 445
- NF F 55-698

Construction
- Conductors: Solid annealed copper, 1.0 mm² nominal cross section area.
- Insulation: Solid polyethylene.
- Cabling Element: Four conductors are twisted to form a quad.
- Stranding: Quads are helically stranded to get the cable core.
- Core Wrapping: Plastic tape(s) with overlapping.
- Inner Sheath: Low density polyethylene. LSZH FR option can be offered upon request to NF C 32 070.2.2 (C1).
- Electrostatic Shield: Corrugated copper tape.
- Intermediate Sheath: Low density polyethylene. LSZH FR option can be offered upon request to NF C 32 070.2.2 (C1).
- Electromagnetic Shield: Two helically applied steel tapes (0.5mm).
- Outer Sheath: PE/PVC compound. LSZH FR option can be offered upon request to NF C 32 070.2.2 (C1).

Electrical Characteristics at 20°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Conductor Diameter</td>
<td>1.13</td>
</tr>
<tr>
<td>Nominal Cross Section Area</td>
<td>1.0</td>
</tr>
<tr>
<td>Maximum Conductor Resistance (DC)</td>
<td>Ω/km</td>
</tr>
<tr>
<td>Minimum Insulation Resistance @500 V DC (3mins)</td>
<td>MΩ/km</td>
</tr>
<tr>
<td>Maximum Mutual Capacitance (AC) @1000Hz</td>
<td>nF/km</td>
</tr>
<tr>
<td>Maximum Capacitance Unbalance @800Hz</td>
<td>pF/500m</td>
</tr>
<tr>
<td>Dielectric Strength, conductor to conductor (DC voltage 3mins)</td>
<td>V</td>
</tr>
<tr>
<td>Operating Voltage AC/DC</td>
<td>V</td>
</tr>
</tbody>
</table>

Solid Copper Conductor
Solid PE Insulation
Quad
Non Hygroscopic Tape
Inner PE/LSZH Sheath
Corrugated Copper Tape
Intermediate PE/LSZH Sheath
Double Steel Tapes
Outer PE/PVC/LSZH Sheath

Multipair/Multiquad Signalling & Control Cables for Trackside France RATP Railway Standard
Reduction Factor

<table>
<thead>
<tr>
<th>Inductive voltage (V/km)</th>
<th>50</th>
<th>70</th>
<th>100</th>
<th>370</th>
<th>400</th>
<th>470</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduction factor @50Hz</td>
<td>0.42</td>
<td>0.30</td>
<td>0.21</td>
<td>0.16</td>
<td>0.18</td>
<td>0.31</td>
</tr>
</tbody>
</table>

Mechanical and Thermal Properties

- Minimum Bending Radius: 8×OD (static); 16×OD (dynamic)
- Temperature Range: -40°C to +70°C (during operation); -20°C to +50°C (during installation)

Dimensions and Weight

<table>
<thead>
<tr>
<th>Cable Code</th>
<th>No. of Quads</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>Interm.</td>
<td>Outer</td>
</tr>
<tr>
<td>1.13mm Conductor, 2.33 Insulated Wire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS/ZCO3-2Y2Y(K)2YB2Y-2Q1S</td>
<td>2</td>
<td>0.8</td>
<td>1.0</td>
<td>1.6</td>
</tr>
<tr>
<td>RS/ZCO3-2Y2Y(K)2YB2Y-4Q1S</td>
<td>4</td>
<td>0.8</td>
<td>1.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

- Anti Induction
- UV Resistant
- Mineral Oil Resistant
- Rated Voltage 1500V DC/450V AC
- Buried in Circuits
- Laid in Ducts

PE Sheath

- Zero Halogen
  IEC 60754-1/EN 50631-2-1
- Zero Halogen
  IEC 60754-1/EN 50631-2-1

PVC Sheath

- Flame Retardant
  NF C32-070-2.1(C2)
  IEC 60332-1/EN 50265-2-1

LSZH Sheath

- Flame Retardant
  NF C32-070-2.1(C2)
  IEC 60332-1/EN 50265-2-1
- Fire Retardant
  NF C32-070-2.3(C1)
  IEC 60332-3/EN 50265-2-1
- Zero Halogen
  IEC 60754-1/EN 50265-2-1
- Low Smoke Emission
  IEC 60334/EN 50268-2-1
- Low Corrosivity
  EN 50267-2-2/EN 50268-2-1
- Low Toxicity
  IEC 60754-2/EN 50265-2-1