



# Caledonian

## Railway Cables

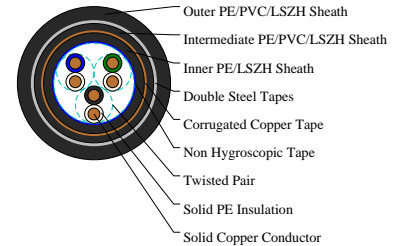
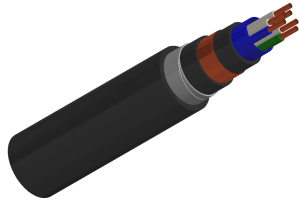
www.caledonian-cables.com

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### ZPAU & ZPAU-SH Main Signalling Cables (AC Electrified Lines)

1.13mm conductor, 2.3mm Insulated Wire

RS/ZPAU-2Y2Y(K)2YB2Y-3P1S



### 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 ( $R.F= 0.26$  at inductive voltage 100V/km) and are suitable for installation in intercity railways electrified at 25KV ac.

### STANDARDS

SNCF CT 445 / SNCT ST 698G

NF F 55-698

### VOLTAGE RATING

750V DC/450V AC

### CABLE CONSTRUCTION

Conductors: Solid annealed copper.

Insulation: Solid polyethylene.

Cabling Element: Each two conductors are twisted together to form a pair.

Stranding: Pairs are helically stranded in layers to form the cable core.

Core Wrapping: Plastic tape(s) with overlapping.

Inner Sheath: PE sheath. LSZH FR option can be offered upon request to NF C 32 070.2.2 (C1).

Electrostatic Shield: One corrugated copper tape.

Intermediate Sheath: PE/PVC sheath. LSZH FR option can be offered upon request to NF C 32 070.2.2 (C1).

Electromagnetic Shield: Two helically applied steel tapes of 0.5mm.

Outer Sheath: PE/PVC compound. LSZH FR option can be offered upon request to NF C 32 070.2.2 (C1).

Remarks: ZPAU: PE/PVC Sheath; ZPAU-SH: LSZH Sheath.

### PHYSICAL AND THERMAL PROPERTIES

Minimum Bending Radius: 8xOD (static); 16xOD (dynamic)

Temperature Range: -40°C to +70°C (during operation); -20°C to +50°C (during installation)

### Electrical Properties

Electrical Characteristics at 20°C:



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Railway Cables

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Nominal Conductor Diameter:1.13 mm

Nominal Cross Section Area:1 mm sq

Maximum Conductor Resistance (DC):18.1 Ω/km

Minimum Insulation Resistance @500 V DC (3min) :5000 MΩ.km

Maximum Mutual Capacitance @1000Hz (AC): 55 nF/km

Maximum Capacitance Unbalance (pair to pair) @800Hz:

100% cases:400 pF/500m

99% cases:200 pF/500m

Attenuation @45KHz:2.5 dB/km

Characteristic Impedance @45KHz:120Ω

Dielectric Strength, conductor to conductor (DC voltage 3secs):4500V

Operating Voltage (AC/DC):450/750V

peak value (AC):900V

## DIMENSION AND PARAMETERS

No. of Pairs	Nominal Cross-sectional Area	Conductor Diameter	Nominal Diameter over Insulation	Nominal Inner Sheath Thickness	Nominal Interm. Sheath Thickness	Nominal Outer Sheath Thickness	Nom. Overall Diameter	Approx. Weight
	mm <sup>2</sup>	mm	mm	mm	mm	mm	mm	kg/km
3	1	1.13	2.3	1	0.8	1.6	22.2	820



Anti Induction



Buried in Ground



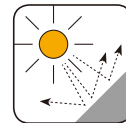
Laid In Ducts



Mineral Oil Resistant



Rated voltage



UV Resistant