

## AJ-2Y(L)2YDB2Y S(H45)

### Applications

The cables are designed for transmission of low frequent signals up to 90 KHz through symmetric circuits in railway networks, and are suitable for laying directly into the ground or in ducts.



### **№** Standards

- Dlk 1.013.109y
- Dlk 1.013.110y

#### Construction

- Conductors: Solid Annealed copper, 0.9 or 1.4 mm nominal diameter.
  - Insulation: Solid polyethylene.
- Cabling Element: Four insulated conductors are twisted together to form a quad.
- Stranding: Quads are helically stranded in concentric layers. Cables from 7 quads on, have two extra conductors of 0.5mm with perforated insulation (surveillance conductors).
- Outer PE Sheath
  Copper Wire
  PE-copolymer Coated Aluminium Tape
  Quad
  Solid PE Insulation
  Solid Copper Conductor
  Non Hygroscopic Tape
  Extra Perforated Insulated Conductor
  Inner PE Sheath
  Double Steel Tapes
- Core Wrapping: Plastic tape(s) with overlapping.
- Moisture Barrier: One laminated sheath made of aluminium tape (0.15mm) coated with PE-Copolymer on at least one side is applied with longitudinally overlap.
  - Inner Sheath: Low density polyethylene.
  - Electrostatic Shield: One layer of helically applied copper wires (0.9, 1.2, 1.4 or 1.8mm).
- Electromagnetic Shield: Two helically applied steel tapes (0.5 or 0.8mm thick, depending on required reduction factor).
  - Outer Sheath: Low density polyethylene.

### ■ Type Codes

AJ– outdoor cable with protection against inductive influences

2Y solid PE conductor insulation
(L)2Y inner laminated PE sheath
D copper wire concentric screen

B steel tape armor 2Y outer PE sheath

# Caledonian Railway Cables

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# RAILSIG RAILWAY SIGNALLING & CONTROL CABLES

S signal cable
LG layer stranding
H(n) operating capacity

### ■ Ring marking of Quad

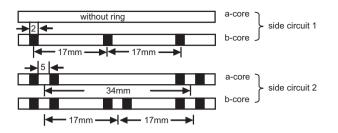
The single core is identified by black ring markings:

Side Circuit 1 a-wire without marking

b-wire 1 mark distance 17mm

Side Circuit 2 a-wire 2 marks distance 34mm

b-wire 2 marks distance 17mm



### ■ Electrical Characteristics at 20°C

Nominal Conductor Diameter	mm	0.9	1.4
Maximum Conductor Resistance	Ω/km	56.6	23.4
Minimum Insulation Resistance @500 V DC (1min)	MΩ.km	10000	10000
Maximum Conductor Capacitance @800Hz (AC)	nF/km	45	45
Maximum Capacitance Unbalance @800Hz			
K <sub>1</sub> (100% / 50% all values)	pF/km	650/150	650/150
K <sub>9-12</sub> neighboured quads	pF/km	500/150	500/150
K <sub>9-12</sub> over-neighboured quads	pF/km	150	150
ea <sub>1/2</sub>	pF/km	1300	1300
Miniumum Far-end Crosstalk Attenuation @90KHz			
100% / 80% all values	dB/km	58/62	33/45
Maximum Attenuation @90KHz	dB/km	3.3	2.6
Dielectric Strength, conductor to conductor (DC voltage 1min)	V	3535	3535
Surveillance Conductors			
Loop resistance, maximum	Ω/km	190	190
Insulation resistance			
- dry cable core, minimum	MΩ.km	1000	1000
- wet cable core, maximum	KΩ.km	30	30
Optional: Nominal Reduction Factor @ 100 V/km, 16 2/3 Hz			
rk 401 series		0.15	0.15
rk 501 series		0.35	0.35
rk 601 series		0.55	0.55
Operating Voltage AC/DC	V	420/600	420/600
Test Voltage 50 Hz 1 min			
Core to Core	$V_{ m eff}$	2500	2500
Core to Screen	$V_{ m eff}$	2500	2500

### Mechanical and Thermal Properties

• Minimum Bending Radius: 10×OD

• Temperature Range: -40°C to +60°C (during operation); -10°C +60°C (during installation)



# ■ Dimensions and Weight

Cable Code	Number of Quads	Nominal Sheath Thickness mm		Nominal Overall Diameter mm	Nominal Weight kg/km			
		Inner	Outer	111111	Ng/NIII			
0.9mm Conductor, 1.8mm Insulated Wire rk 601 Series								
RS109y-2Y(L)2YDB2Y-3Q0.9-S(H45)-R6	3	1.3	1.2	21.0	650			
RS109y-2Y(L)2YDB2Y-5Q0.9-S(H45)-R6	5	1.3	1.2	23.0	800			
RS109y-2Y(L)2YDB2Y-10Q0.9-S(H45)-R6	10	1.3	1.2	28.0	1130			
RS109y-2Y(L)2YDB2Y-20Q0.9-S(H45)-R6	20	1.3	1.2	35.0	1670			
RS109y-2Y(L)2YDB2Y-30Q0.9-S(H45)-R6	30	1.3	1.2	40.0	2180			
RS109y-2Y(L)2YDB2Y-40Q0.9-S(H45)-R6	40	1.3	1.2	45.0	2650			
0.9mm Conductor, 1.8mm Insulated Wire rk 401 Series								
RS109y-2Y(L)2YDB2Y-10Q0.9-S(H45)-R4	10	1.3	1.2	31.0	1880			
RS109y-2Y(L)2YDB2Y-20Q0.9-S(H45)-R4	20	1.3	1.2	38.0	2640			
RS109y-2Y(L)2YDB2Y-30Q0.9-S(H45)-R4	30	1.3	1.2	43.0	3310			
RS109y-2Y(L)2YDB2Y-40Q0.9-S(H45)-R4	40	1.3	1.2	48.0	3880			
1.4mm Conductor, 2.6mm Insulated Wire rk 501 Series								
RS109y-2Y(L)2YDB2Y-3Q1.4-S(H45)-R5	3	1.3	1.2	25.0	1060			
RS109y-2Y(L)2YDB2Y-5Q1.4-S(H45)-R5	5	1.3	1.2	29.0	1360			
RS109y-2Y(L)2YDB2Y-10Q1.4-S(H45)-R5	10	1.3	1.2	37.0	2040			
RS109y-2Y(L)2YDB2Y-20Q1.4-S(H45)-R5	20	1.3	1.2	47.0	3180			
RS109y-2Y(L)2YDB2Y-30Q1.4-S(H45)-R5	30	1.3	1.2	54.0	4220			
RS109y-2Y(L)2YDB2Y-40Q1.4-S(H45)-R5	40	1.3	1.2	61.0	5180			
1.4mm Conductor, 2.6mm Insulated Wire rk 401 Series								
RS109y-2Y(L)2YDB2Y-3Q1.4-S(H45)-R4	3	1.3	1.2	28.0	1650			
RS109y-2Y(L)2YDB2Y-5Q1.4-S(H45)-R4	5	1.3	1.2	31.0	1950			
RS109y-2Y(L)2YDB2Y-10Q1.4-S(H45)-R4	10	1.3	1.2	39.0	2880			
RS109y-2Y(L)2YDB2Y-20Q1.4-S(H45)-R4	20	1.3	1.2	49.0	4180			
RS109y-2Y(L)2YDB2Y-30Q1.4-S(H45)-R4	30	1.3	1.2	56.0	5330			
RS109y-2Y(L)2YDB2Y-40Q1.4-S(H45)-R4	40	1.3	1.2	63.0	6430			

















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



