

EA491HS-Ed1

## SHIELDED PAIRS RAILWAY SIGNALING CABLES, ARMOURED LSZH SHEATH WITH A Rf OF 0,3. ADIF SPECIFICATION



Signaling cable



Fire Retardant



Low smoke emission



Zero Halogen



Impact resistant



UV resistant



Rodent resistant



EMI protected



ROHS Compliant

### STANDARDS

Construction: ADIF ET 03.365.051.6 2<sup>nd</sup> edition

Other complementary standards: EN 50266-2-4 CAT. C, EN 50267-2-2, EN 50268-2 and NF-C 20454

### DESCRIPTION AND APPLICATION

Cables of 1 to 20 pairs individually shielded with an aluminium/polyester laminate. Conductors of 0.9 and 1.4 mm nominal diameter, PE insulation. Pairs are stranded in layers to form the core that is protected with a LSZH anti-inductive sheath with a reduction factor of 0,3. They are used as signalling cables in railways infrastructures where protection against power lines induction is required. For installation in ducts or directly buried in tunnels where fire resistance is needed. Protected against rodents.

### CONSTRUCTION

- **Conductors:** Annealed copper, 0.9 and 1.4 mm of nominal diameter.
- **Insulation:** Solid polyethylene.
- **Cabling elements:** Shielded pairs with an aluminium/polyester tape. Continuity tinned wire under the tape.
- **Lay-up.** Stranded in layers. Colour code as per ADIF ET-03.365.051.6.
- **Core wrapping:** Dielectric tape longitudinally applied with overlap.
- **Cable screen.** Corrugate copper tape longitudinally applied with overlap.
- **Inner sheath:** LSZH material.
- **Armour:** Two 0.5 mm thick steel tapes helically applied.
- **Outer sheath:** UV resistant LSZH material coloured green RAL 6018.
- **Sheath marking:** The outer sheath shall be marked in white ink, at regular intervals, with the following information:
  - Name of manufacturer/ Year/ Length marks
  - Other type of marks according to the costumer



All drawings, designs, specifications and particulars of weights, dimensions, etc. in this documentation are only indicative and must not be considered contractual.

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<b>ELECTRICAL CHARACTERISTICS (20°C)</b>	0,9 mm	1,4 mm
Conductor resistance ( $\Omega/km$ )	Average: 27,5±1 / Maximum: 29	Average: 11,2±0,5 / Maximum: 11,9
Loop Resistance unbalance (%) $100 \times (R_{max} - R_{min}) / (R_{max} + R_{min})$	Average: 1 % / Maximum 2 %	
Minimum insulation resistance ( $M\Omega \times km$ , 20°C, 500 V)	35000	
Mutual capacitance ( $nF/km$ , 1000 Hz)	Average: 59±3 / Maximum 65	
<b>Note</b> :Average limit apply only to cables from 7 pairs		
Dielectric strength (Vdc, 3 s)		
conductor – conductor		4500
conductor – individual shield		1500
Between individual shields		300
Inductance (mH/Km, 20°C, 1000Hz)	-	0,72

<b>TRANSMISION CHARACTERISTICS (20°C)</b>	0,9	1,4
Equal Level Far-end crosstalk (ELFEXT, dB/km)		
1 kHz		80
3 kHz		80
5kHz		75
10kHz		65
Near- end crosstalk (NEXT)		
1 kHz		80
3 kHz		80
5kHz		80
10kHz		75

<b>REDUCTION FACTOR, R<sub>k</sub> (50 Hz)</b>	0,90	1,4
Induced Voltage (V/km)		
110	0.3	0.3
320	0.3	0.3

### MECHANICAL CHARACTERISTICS

Temperature range: from -25° C to +75° C

Bending radius: 15 x R<sub>cable</sub>

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## DIMENSIONS AND WEIGHTS

Diameter: 0.90 mm					
Code	No. quad.	Cable Diam. (mm)	Aprox weight. (kg/km)	Length (m)	Drum type

EA491HS90000102N	1	18.9	673	1000	A2
EA491HS90000302N	3	23.8	893	1000	A4
EA491HS90000502N	5	25.6	1017	1000	A4
EA491HS90000602N	6	26.2	1066	1000	A4
EA491HS90001002N	10	31.1	1391	1000	A6
EA491HS90001402N	14	34.6	1614	1000	A8

Diameter : 1.40 mm					
Code	No. quad.	Cable Diam. (mm)	Aprox weight. (kg/km)	Length (m)	Drum type

EA491HSA4000102N	1	19.3	692	1000	A2
EA491HSA4000202N	2	25.3	984	1000	A4
EA491HSA4000402N	4	28.9	1243	1000	A6
EA491HSA4000602N	6	31.5	1440	1000	A6
EA491HS90000802N	8	34.6	1670	1000	A8
EA491HSA4001002N	10	37.4	1899	1000	B0
EA491HSA4001202N	12	39.9	2103	1000	B0
EA491HSA4001402N	14	42.7	2358	1000	B0
EA491HSA4001602N	16	44.7	2544	1000	B0
EA491HSA4001802N	18	46.9	2755	1000	BB
EA491HSA4002002N	20	49.3	2997	1000	BB

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