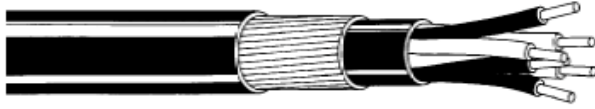


ENATS 09-6 Issue 7

Multipair PE Insulated & Sheathed - Armoured, Non-Screened



APPLICATION

These light current control cables are primarily for use with control, indication and alarm equipment for switchgear and similar power apparatus in power stations and substations. Suitable for use on circuits where the nominal voltage does not exceed 150V d.c. or 110V a.c. **Rated for use in areas where the induced voltage does not exceed 5 kV.**

SPECIFICATION

- . In accordance with ENATS 09-6 Issue 7 Table E.2A
- . **Conductors:** Solid (Class 1) plain copper conductors to BS EN 60228.
- . **Insulation:** Polyethylene Type TI Y to BS7870-8.2 Table 7.
- . **Pair Identification:** See colour code chart 5.
- . **Binder Tape:** p.e.t.p tape of suitable overlap.
- . **Inner Sheath:** Polyethylene Type TM Y to BS7870-8.2
- . Mild galvanised steel wires to BS EN10257-1
- . **Outer Sheath:** Black PVC outer sheath Type TM.1 to BS7655.
- . Flame retardant to BS EN 60332-1-2
- . **Voltage Rating:** 150V d.c./110V a.c. and rated for use in areas where induced voltage does not exceed 5 kV
- . **Temp Rating:** 70°C max conductor operating temperature.

** ESI standards are now covered under ENATS (Energy Network Association Technical Specification). Standard number remains the same, i.e. ENATS 09-6.*

Anixter Part No.	No. of Pairs	Non. Cond. Area mm ²	Nom. Cond. Stranding #/mm	Insulation Thickness mm	Nom. Diameter Under Armour mm	Armour Wire Diameter mm	Nom. O/D mm	Approx. Cable Weight kg/km	Min. Bending Radius (fixed bend) mm
A11J-P004-5KV	4	0.50	1/0.8	0.5	9.5	0.9	14.1	400	90
A11J-P007-5KV	7	0.50	1/0.8	0.5	11.4	0.9	16.3	500	100
A11J-P019-5KV	19	0.50	1/0.8	0.5	18.0	1.6	24.8	1300	150
A11J-P037-5KV	37	0.50	1/0.8	0.5	24.3	1.6	31.5	1800	190
A11J-P061-5KV	61	0.50	1/0.8	0.5	31.0	2.0	40.4	2900	250

The part numbers detailed above are for un-filled and non-graphite coated cables, where the induced voltage does not exceed 5 kV. Part numbers for cables used in areas where the induced voltage exceeds 5 kV but does not exceed 15 kV are as above, but with the suffix -15KV in lieu of -5KV. e.g. A11J-P007-15KV

For further technical information refer to page 4:60

Technical Information for ENATS 09-6 Issue 7 Table E.2A

PAIR IDENTIFICATION

Pairs will be identified as given in colour code chart 5 below:

COLOUR CODE CHART 5

Pair No.	Colour	
	Wire a	Wire b
4 Pair Cable		
1	Black	Violet
2	Red	Yellow
3	Green	Brown
4	Blue	White
7 Pair Cable		
1	Red	Yellow
2	Black	Violet
3*	Orange	Grey
4	Green	Brown
5*	Orange	Blue
6	Green	Brown
7*	Orange	White

* Nominated pairs designed for use at carrier frequencies in the range 12 kHz to 108 kHz.

19 Pair Cable

Centre pair and first layer as 7-pair above. Outer layer:

Black/Violet
 Odd pairs: Red/Yellow
 Even Pairs: Green/Brown
 Blue/White

37 Pair Cable

Centre pair and first and second layers as 19-pair above. Outer layer:

Black/Violet
 Odd pairs: Red/Yellow
 Even Pairs: Green/Brown
 Blue/White

61Pair Cable

Centre pair and first, second and third layers as 37-pair above. Outer layer:

Black/Violet
 Odd pairs: Red/Yellow
 Even Pairs: Green/Brown
 Blue/White

ELECTRICAL CHARACTERISTICS

Conductor Resistance

Max. DC conductor resistance @ 20°C (LOOP) 73.6 ohms/km

Insulation Resistance

Min. insulation resistance @ 20°C 500 Mohms/km (at least 90% of measurements shall be greater than 5000 Mohms/km)

Attenuation after Laying and Jointing (Non-Loaded) at 10°C, Unfilled

Frequency (Hz)	Induced Voltage Rating	
	5kV	Up to 15kV
300	0.54 dB/km	0.49 dB/km
1,000	0.95 dB/km	0.86 dB/km
2,000	1.31 dB/km	1.18 dB/km
3,000	1.56 dB/km	1.40 dB/km
4,000	1.76 dB/km	1.57 dB/km
5,000	1.92 dB/km	1.72 dB/km
60,000	3.9 dB/km	3.0 dB/km
108,000	4.4 dB/km	3.7 dB/km

Attenuation after Laying and Jointing (Loaded, 44 mH coils) at 10 °C, Unfilled

Frequency (Hz)	Induced Voltage Rating	
	5kV	Up to 15kV
300	0.41 dB/km	0.36 dB/km
1,000	0.46 dB/km	0.40 dB/km
2,000	0.47 dB/km	0.42 dB/km
3,000	0.50 dB/km	0.43 dB/km

Attenuation after Laying and Jointing (Loaded, 88 mH coils) at 10 °C, Unfilled

Frequency (Hz)	Induced Voltage Rating	
	5kV	Up to 15kV
300	0.31 dB/km	0.27 dB/km
1,000	0.34 dB/km	0.29 dB/km
2,000	0.34 dB/km	0.31 dB/km
3,000	0.38 dB/km	0.31 dB/km

Cross-talk between adjacently terminated pairs

Measured cross-talk at a frequency of 800 - 1300 Hz shall be not worse than 74 dB. Where carrier operation is specified, cross-talk shall be measured between three nominated carrier pairs at 108 kHz. The measured far end cross-talk shall be not worse than 70 dB.