ENATS* 09-6 Issue 5

Multipair PVC Insulated and Sheathed - Armoured, Un-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 150 V d.c. or 110 V a.c.

Specification

- Generally in accordance with ESI 09-6 Issue 5
- **Conductors:** Solid (Class 1) plain copper conductors to BS EN 60228
- **Insulation:** PVC insulation Type 2 to BS7655
- **Pair Identification:** See colour code chart 4 on page 4:50
- **Binder Tape:** p.e.t.p. tape of suitable overlap
- **Inner Sheath:** PVC inner sheath Type TM.1 or 6 to BS EN 50363-4-1
- Mild galvanised steel wires to BS EN 10257-1
- **Outer Sheath:** Black PVC outer sheath Type TM.1 or 6 to BS EN 50363-4-1. In addition, the PVC outer sheath displays following characteristics:
  Minimum oxygen index: 30%
  Maximum HCL Emission @ 800°C: 15%
- Flame retardant to BS EN 60332-3-24 & IEC60332-3-24 Category C (NMV1.5)
- **Voltage Rating:** 150 V d.c./110 V a.c.
- **Temperature Rating:** 70°C maximum conductor operating temperature

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

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Anixter Number	Number of Pairs	Nominal Cond Area	Nominal Cond Stranding	Insulation Thickness	Nominal Diameter Under Armour	Armour Wire Diameter	Nominal O/D	Approx Cable Weight	Minimum Bending Radius (fixed bend)
		mm^2	#/mm	mm	mm	mm	mm	kg/km	mm
A11A0-P002F	2PR(QD)	0.50 to 0.28	1/0.6	0.30	3.80	0.90	7.80	135	50
A11A0-P005F	5PR	0.50 to 0.28	1/0.6	0.30	6.30	0.90	10.20	225	70
A11A0-P010F	10PR	0.50 to 0.28	1/0.6	0.30	7.90	0.90	12.30	315	80
A11A0-P020F	20PR	0.50 to 0.28	1/0.6	0.30	10.10	1.25	14.90	455	90
A11A0-P040F	40PR	0.50 to 0.28	1/0.6	0.30	17.30	1.25	23.20	890	140
A11A0-P060F	60PR	0.50 to 0.28	1/0.6	0.30	20.70	1.60	27.50	1240	170
A11A0-P100F	100PR	0.50 to 0.28	1/0.6	0.30	27.10	1.60	34.10	2050	210
A11A0-P200F	200PR	0.50 to 0.28	1/0.6	0.30	46.00	2.00	56.00	5660	340

(QD) = Quad

For further technical information refer to page 4:50.

Non-armoured versions also available.

Details upon request.

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PAIR IDENTIFICATION

Pairs will be identified as given in colour code chart 4 below:

COLOUR CODE CHART 4

Pair Number	Colour	
	Wire a	Wire b
1	White	Blue
2	White	Orange
3	White	Green
4	White	Brown
5	White	Grey
6	Red	Blue
7	Red	Orange
8	Red	Green
9	Red	Brown
10	Red	Grey
11	Black	Blue
12	Black	Orange
13	Black	Green
14	Black	Brown
15	Black	Grey
16	Yellow	Blue
17	Yellow	Orange
18	Yellow	Green
19	Yellow	Brown
20	Yellow	Grey

2-pair cables are laid up in quad formation in order of rotation: white, red, blue, orange.
Cables having 40-pairs and above are laid up in 20-pair units, each individual 20-pair unit having pair identification as per colour code chart 4. Each unit shall be identified by a numbered tape applied directly on to the unit binder tapes or by a separate longitudinal tape applied under a clear unit binder tape. The numbers shall run from 1 upwards in units of 1.

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ELECTRICAL CHARACTERISTICS

Conductor Resistance
Maximum d.c. conductor resistance @ 20°C (LOOP) 136 ohms/km.

Insulation Resistance
Minimum insulation resistance @ 20°C 50 Mohms/km.

Mutual Capacitance
Maximum mutual capacitance 125nF/km (@ 1kHz) PVC insulation.

Capacitance Unbalance
Maximum capacitance unbalance:
2-pair 800pF for 500m of cable @ 1kHz.
above 2-pair 400pF for 500m of cable @ 1kHz.

Mutual Inductance
Maximum mutual inductance 1000μH for 500m of cable @1kHz.

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