

# ENATS\* 09-6 Issue 7

Multipair LSZH Insulated and Sheathed - Collective Screen, Armoured



## Application

These light current control cables are intended 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.

## Specification

- Generally in accordance with ENATS 09-6 Issue 7 Table E.3B but with the addition of a collective screen.
- **Conductors:** Solid (Class 1) plain copper conductors to BS EN 60228.
- **Insulation:** Polythene insulation Type 03 to BS6234.
- **Pair Identification:** See colour code chart 4 on page 4:50.
- **Binder Tape:** p.e.t.p. tape of suitable overlap.
- **Collective Screen:** tinned copper drain wire under and in contact with aluminium/p.e.t.p. laminated tape applied metallic side down.
- **Inner Sheath:** LSF inner sheath Type LTS1 or LTS3 to BS7655.
- Mild galvanised steel wires to BS EN10257-1.
- **Outer Sheath:** Black LSF outer sheath Type LTS1 or LTS3 to BS7655. In addition, the LSF outer sheath displays following characteristics:  
Minimum oxygen index: 30%.  
Maximum HCL Emission @ 800°C: 0.5%.
- Flame retardant to BS EN 60332-3-24 & IEC60332-3-24 Category C (NMV1.5).
- **Voltage Rating:** 150V d.c./110V a.c.
- **Temperature Rating:** 70°C maximum conductor operating temperature.

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 <sup>2</sup>	#/mm	mm	mm	mm	mm	kg/km	mm
A11BQ-P002LSF	2P(Q)	0.50	1/0.8	0.30	5.6	0.9	10.0	220	80
A11BQ-P005LSF	5P	0.50	1/0.8	0.30	9.0	0.9	13.6	310	110
A11BQ-P010LSF	10P	0.50	1/0.8	0.30	11.4	1.25	16.9	550	140
A11BQ-P020LSF	20P	0.50	1/0.8	0.30	14.9	1.25	20.6	780	170
A11BQ-P030LSF	30P	0.50	1/0.8	0.30	19.1	1.6	25.7	1115	210
A11BQ-P040LSF	40P	0.50	1/0.8	0.30	23.4	1.6	30.2	1345	250
A11BQ-P050LSF	50P	0.50	1/0.8	0.30	24.3	1.6	32.3	1780	260
A11BQ-P060LSF	60P	0.50	1/0.8	0.30	26.9	1.6	34.1	2010	280

(Q) = Quad

For further technical information refer to page 4.50.

Non-armoured versions also available.

Details upon request.

# Technical Information for ENATS\* 09-6 Issue 7

## 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) 73.6 ohms/km.

**Insulation Resistance**

Minimum insulation resistance @ 20°C 80 Mohms/km (PVC), 1500 Mohms/km (PE).

**Mutual Capacitance**

Maximum mutual capacitance 150nF/km (@ 1kHz) PVC insulation, 75nF/km (@ 1kHz) PE 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 915 $\mu$ H for 500m of cable @1kHz.

\* 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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