

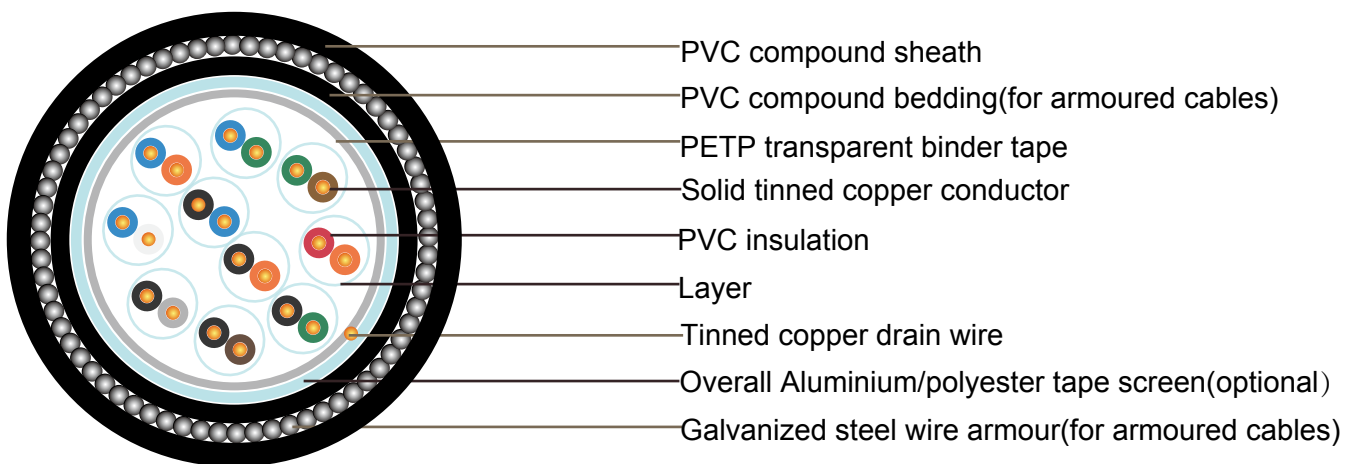


### Multipair instrument cables ESI 09-6 Issue 5

#### 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 where the nominal voltage does not exceed 150V d.c. or 110V a.c. The cables are also suitable for telemetry applications where large conductor size are required. An optional collective aluminum tape screen can be provided. In case if the installation environment is prone to flooding or prolonged period of dampness, PE insulation should be considered as an alternative to PVC.

#### Construction



<b>Conductor</b>	Solid tinned annealed copper, sizes: 1/0.9mm(0.64mm <sup>2</sup> ) to BS6360
<b>Insulation</b>	PVC (polyvinyl chloride) type 2 to BS7655
<b>Pairing</b>	Two insulated conductors uniformly twisted together with a lay not exceeding 100mm
<b>Colour code</b>	See technical information
<b>Binder tape</b>	PETP transparent tape
<b>Collective screen(optional)</b>	Aluminum/polyester tape is applied over the laid up pairs metallic side down in contact with a longitudinal 1/0.5mm to 1/0.8mm tinned copper drain wire
<b>Bedding (for armoured cables)</b>	PVC (polyvinyl chloride) to type TM 1 or 6 to BS EN 50363-4-1
<b>Armouring (for armoured cables)</b>	Galvanized steel wire armour
<b>Outer sheath</b>	Black PVC (polyvinyl chloride) to type TM 1 or 6 to BS EN 50363-4-1



### Electrical Properties

**Maximum conductor temperature:** + 70°C

**Minimum bending radius:** 6 x overall diameter

**Minimum ambient temperature:** - 20°C after installation and only when cable is in a fixed position

<b>Voltage rating</b>	150V d.c. or 110V a.c.
<b>Test voltage</b>	2Kv r.m.s. between conductors, 5Kv r.m.s. between all conductors and armour
<b>Maximum conductor resistance(loop)</b>	59.34Ohm/km at 20 °C
<b>Minimum insulation resistance</b>	80MOhm/km at 20 °C
<b>Maximum mutual capacitance</b>	150Nf/km at 1 KHz
<b>Flame retardancy</b>	BS 4066 part 1(IEC 60332-1) or BS 4066 part 3(IEC 60332-3)

### Parameter

#### Unarmoured

Number of pairs	Nominal diameter of conductor	Nominal Conductor Cross-Sectional Area	Insulation thickness	Sheath thickness	Diameter Under Armour	Cable weight
	mm	mm <sup>2</sup>	mm	mm	mm	Kg/Km
<b>UN-SCREENED CABLES</b>						
2(Q)	0.9	0.64	0.3	1.3	5.7	45
5	0.9	0.64	0.3	1.4	9.4	115
10	0.9	0.64	0.3	1.5	13	205
20	0.9	0.64	0.3	1.6	16.8	380
30	0.9	0.64	0.3	1.7	19.9	570
50	0.9	0.64	0.3	1.9	25.4	920
100	0.9	0.64	0.3	2	35.5	1820
<b>SCREENED CABLES</b>						
2(Q)	0.9	0.64	0.3	1.3	6.2	50
5	0.9	0.64	0.3	1.4	9.9	125
10	0.9	0.64	0.3	1.5	13.5	215
20	0.9	0.64	0.3	1.6	17.3	390
30	0.9	0.64	0.3	1.7	20.4	580
50	0.9	0.64	0.3	1.9	25.9	940
100	0.9	0.64	0.3	2	36	1850



armoured

Number of pairs	Nominal diameter of conductor	Insulation thickness	Bedding Thickness	Diameter Under Armour	Diameter of armour wire	Sheath thickness	Overall diameter	Cable weight
	mm							mm
UN-SCREENED CABLES								
2(Q)	0.9	0.3	0.8	5.7	0.9	1.3	10.1	200
5	0.9	0.3	1	9.4	0.9	1.4	14.1	370
10	0.9	0.3	1.1	13	1.25	1.5	18.6	610
20	0.9	0.3	1.2	16.8	1.25	1.6	22.7	930
30	0.9	0.3	1.4	19.9	1.6	1.7	26.7	1390
50	0.9	0.3	1.6	25.4	1.6	1.9	32.6	1940
100	0.9	0.3	1.9	35.5	2	2	44.1	3700
SCREENED CABLES								
2(Q)	0.9	0.3	0.8	6.2	0.9	1.3	10.6	220
5	0.9	0.3	1	9.9	0.9	1.4	14.6	380
10	0.9	0.3	1.1	13.5	1.25	1.5	19.1	630
20	0.9	0.3	1.2	17.3	1.25	1.6	23.2	955
30	0.9	0.3	1.4	20.4	1.6	1.7	27.2	1415
50	0.9	0.3	1.6	25.9	1.6	1.9	33.1	2000
100	0.9	0.3	1.9	36	2	2	44.6	3750