

Application

The cable is designed to handle low frequency signals for short-range applications and is intended to be terminated in Insulation Displacement Connectors (IDC), but may be soldered or wrapped. The cable is intended to take the place of Polyvinyl Chloride (PVC) sheathed cables and will withstand similar environments with a similar working life.

Construction

There are two modes of construction; Layer for general use and Units of 20 pairs which include a 1.38mm diameter insulated earth conductor, for use with customer distribution schemes.

Product Description

Plain annealed solid copper wire; polyethylene insulated twisted pair, polyester tape, continuity wire, aluminised polyester screen, fire retardant tape, LSZH sheath.

N.B. In the event of fire, the gases evolved from this cable are free from Halogen and the design is optimised to limit the quantity and cleanliness of the smoke evolved during this period. Although the acronym LSZH is applied to the sheath material, the terms LSOH, ZHLS and HFFR are also applicable.

Physical Characteristics

Number of Pairs	Conductor Diameter (mm)	Minimum Insulation Radial (mm)	Maximum Insulated Diameter (mm)	Pair Elements & Unit Size	Minimum Sheath Radial (mm)	Maximum Overall Diameter (mm)
2	0.5	0.15	0.95	Pairs 1 - 2	4.5	97.8
3	0.5	0.15	0.95	Pairs 1 - 3	5.0	97.8
4	0.5	0.15	0.95	Pairs 1 - 4	5.8	97.8
6	0.5	0.15	0.95	Pairs 1 - 6	6.8	97.8
12	0.5	0.15	0.95	Pairs 1 - 12	9.1	97.8
25	0.5	0.15	0.95	Pairs 1 - 25	11.4	97.8
10 + Earth	0.5	0.15	0.95	½ x 20	8.6	97.8
20 + Earth	0.5	0.15	0.95	20	12.0	97.8
40 + Earth	0.5	0.15	0.95	20	15.0	97.8
50 + Earth	0.5	0.15	0.95	20	18.0	97.8
80 + Earth	0.5	0.15	0.95	20	22.5	97.8
100 + Earth	0.5	0.15	0.95	20	27.0	97.8
160 + Earth	0.5	0.15	0.95	20	30.3	97.8
320 + Earth	0.5	0.15	0.95	20	39.5	97.8

Electrical Characteristics at 20°C

Parameter – 0.5 mm Conductor	Unit	Value
Conductor Resistance, Max Average @ 20°C	Ohms/km	97.8
Insulation Resistance, Min Value @ 20°C (500 volts/1 Min)	megohms	50
Mutual Capacitance, Max Average @ 20°C	nF/km	80
Capacitance Unbalance, Max Average @ 20°C	pF/500m	500

Fire Performance

Test	Unit	Value	Comment
Fume Emission	Independent Microscopy	No halogen, nitrogen, phosphorous or sulphur containing compounds (trace elements ≤ 0.5% w/w)	Compliant
Single Cable Vertical Burn Test	BS EN 50265-2-1 IEC 60332-1: 2004	Onset of char (from top support): > 50mm Extent of char (from top support): < 540mm	Compliant
Bunched Cable Vertical Burn Test	BS EN 50266-2-4 BS EN 50266-2-5	Category C (1.5 NMV) Category D (< 12mm diameter)	Compliant
Acid Gas Emission	BS EN 50267-2-1: 1999	Less than 5mg/g	Compliant
Smoke Emission	BS EN 61034-2: 2005	Minimum light transmittance 60%	Compliant

Colour Scheme for Pairs

Cabling Element No.	a-wire	b-wire	Cabling Element No.	a-wire	b-wire
1	WHITE-Blue	BLUE	16	YELLOW-Blue	BLUE
2	WHITE-Orange	ORANGE	17	YELLOW-Orange	ORANGE
3	WHITE-Green	GREEN	18	YELLOW-Green	GREEN
4	WHITE-Brown	BROWN	19	YELLOW-Brown	BROWN
5	WHITE-Grey	GREY	20	YELLOW-Grey	GREY
6	RED-Blue	BLUE	21	VIOLET-Blue	BLUE
7	RED-Orange	ORANGE	22	VIOLET-Orange	ORANGE
8	RED-Green	GREEN	23	VIOLET-Green	GREEN
9	RED-Brown	BROWN	24	VIOLET-Brown	BROWN
10	RED-Grey	GREY	25	VIOLET-Grey	GREY
11	BLACK-Blue	BLUE			
12	BLACK-Orange	ORANGE			
13	BLACK-Green	GREEN			
14	BLACK-Brown	BROWN			
15	BLACK-Grey	GREY			

Note 1: Uppercase letters indicate the base, solid colour of insulation, and the lower case indicates ink bands applied onto the base colour.

Make-up & Unit Identification Colours – 20 Pair Unit

Pair Size	10 Pair	20 Pair	40 Pair	50 Pair	80 Pair	100 Pair	160 Pair	320 Pair
Make-Up	Number of Units							
Centre	½	1	4 x ½	5 x ½	1	1	4 x ½	1
1 st Layer					6 x ½	8 x ½	6	5
2 nd Layer						*****		10
Unit No.	Colours of Unit Lappings							
1	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange
2			Green	Natural	Orange	Orange	Green	Orange
3				Green*	Natural	Natural	Orange	Natural
4					Green	Natural	Natural	Natural
5						Green	Natural	Natural
6							Natural	Green
7							Natural	Orange
8							Green	Natural
9 – 15								Natural
16								Green

Note 1: ½ refers to sub-units of 10 Pairs.

Note 2: These cables include the single 1.38mm diameter insulated conductor.

* The Green colour lapping shall be applied to the last ½ unit.

***** At the manufacturer's discretion the first layer may be 4 x 1.

Alternatively the centre layer may be 5 x 1 in which case the Unit lappings shall be coloured Orange, 3 x Natural, Green.

Note on sheath material