

Scope

This specification details polyvinyl chloride (PVC) insulated and sheathed cables for use with Insulation Displacement Connectors (IDC).

Cables with layer construction	: For installation in customer's premises where good appearance is required.
Cables with 20 pair units + Earth construction	: For use with customer's distribution schemes.
Cables with 16 pair units	: For use with the binary number system.
Cables with 30 pair units	: For use with pcm systems

Conductors

Tinned annealed copper wire in accordance with IEC Publication 28, International Standard of Resistance of Copper. Dimensions and resistance are given in Table 1.

Insulation

The conductors are uniformly insulated with PVC TI54 to BS7878 to a radial thickness and overall diameter in accordance with Table 1. The insulated conductors are uniformly twisted together to form a pair with a maximum lay length of 100mm, and colour coded for identification given in Table 4.

Cable Formation

The pairs are laid up in layer or unit construction in accordance with Table 2. Each unit is identified by a coloured whipping tape as laid out in Table 3.

Outer Covering

Extruded PVC sheath type TI51 complying with BS7878. A non-metallic rip cord is provided under the cable sheath. (All the cables listed are also available with a LSZH sheathing compound to BS7878 providing reduced flame propagation and low halogen and acidic gases during combustion)

Electrical Characteristics

Insulation Resistance	:	50 M Ω /Km @ 20°C (Min)
Capacitance Unbalance	:	200 pF/500 mtrs @ 1 kHz (0.40mm conductor, unit) (Max) 300 pF/500 mtrs @ 1 kHz (0.40mm conductor, layer) (Max) 500 pF/500 mtrs @ 1 kHz (0.50mm conductor) (Max)
Flame Propagation	:	M84A Classification A

General Note
AEI Cables reserves the right to amend the product information without notice or liability.
The information is considered accurate at the time of going to print.

© **AEI Cables Limited** Durham Road, Birtley, Chester-le-Street, County Durham DH3 2RA

Telephone: +44 (0) 191 410 3111 Facsimile: +44 (0) 191 410 8312
Email: sales@aeicables.co.uk or technical@aeicables.co.uk
Website: www.aeicables.co.uk



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Table 1 Conductor – Dimension and Resistance

Conductor		Insulation Thickness (Min)	Overall Diameter (Max)
0.40mm	153.00 Ω/Km @ 20°C	0.15mm	0.85mm
0.50mm	97.80 Ω/Km @ 20°C	0.15mm	0.95mm
1.38mm	12.40 Ω/Km @ 20°C	0.55mm	3.50mm

Table 2a Make-Up and dimensions of cable – Layer.

Number of Pairs	Conductor Diameter	Sheath Thickness (Min)	Overall Diameter (Max)
2 Pair	0.40mm	0.40mm	3.90mm
3 Pair	0.40mm	0.50mm	5.30mm
4 Pair	0.40mm	0.50mm	5.80mm
6 Pair	0.40mm	0.60mm	6.80mm
10 Pair	0.40mm	0.60mm	8.30mm
12 Pair	0.40mm	0.70mm	8.90mm
20 Pair	0.40mm	0.70mm	10.40mm
25 Pair	0.40mm	0.80mm	11.10mm

Table 2b Make-Up and dimensions of cable – Layer.

Number of Pairs	Conductor Diameter	Sheath Thickness (Min)	Overall Diameter (Max)
3 Pair	0.50mm	0.65mm	5.00mm ***
3 Pair (S) *	0.50mm	0.65mm	5.50mm
4 Pair	0.50mm	0.65mm	5.80mm
6 Pair	0.50mm	0.60mm	6.80mm
10 Pair	0.50mm	0.60mm	8.30mm
12 Pair	0.50mm	0.70mm	9.10mm
15 Pair	0.50mm	0.70mm	9.80mm
20 Pair **	0.50mm	0.80mm	10.70mm
25 Pair	0.50mm	0.80mm	11.40mm

* S denotes a screened cable.

** This conductor shall contain an additional 0.50mm diameter insulated conductor coloured Violet.

*** The maximum overall diameter is dictated by BT installation practices.

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Table 2c Make-Up and dimensions of cable – Layer (Triple).

Number of Pairs	Conductor Diameter	Sheath Thickness (Min)	Overall Diameter (Max)
1 Triple	0.40mm	0.40mm	3.80mm
5 Triple	0.40mm	1.20mm	13.00mm
1 Triple	0.50mm	0.40mm	4.00mm
5 Triple	0.50mm	1.20mm	13.50mm

Table 2d Make-Up and dimensions of cable – Unit.

Number of Pairs	Conductor Diameter	Size of Unit	Sheath Thickness (Min)	Overall Diameter (Max)
8	0.40mm	8	0.60mm	7.20mm
16	0.40mm	16	0.70mm	9.80mm
32	0.40mm	4 x 8	0.80mm	12.00mm
64	0.40mm	1 x 16 + 6 x 8	1.10mm	16.00mm
30	0.40mm	30	0.80mm	11.80mm
120	0.40mm	1 x 30 + 6 x 15	1.60mm	24.80mm
150	0.40mm	1 x 30 + 8 x 15	1.70mm	26.00mm *
8	0.50mm	8	0.60mm	7.60mm
16	0.50mm	16	0.70mm	10.20mm
32	0.50mm	4 x 8	0.80mm	12.40mm
64	0.50mm	1 x 16 + 6 x 8	1.10mm	16.50mm
128	0.50mm	4 x 8 + 6 x 16	1.60mm	25.40mm
256	0.50mm	16 x 16	2.00mm	35.20mm
10 + E	0.50mm	10	0.60mm	8.60mm
20 + E	0.50mm	20	0.70mm	12.00mm
40 + E	0.50mm	4 x 10	0.90mm	15.00mm
50 + E	0.50mm	5 x 10	1.00mm	17.00mm
80 + E	0.50mm	1 x 20 + 6 x 10	1.20mm	22.50mm
100 + E	0.50mm	5 x 20	1.50mm	27.00mm
160 + E	0.50mm	4 x 10 + 6 x 20	1.70mm	30.30mm
200 + E	0.50mm	10 x 20	1.80mm	32.00mm
320 + E	0.50mm	16 x 20	2.20mm	39.50mm
30	0.50mm	30	0.80mm	12.20mm
120	0.50mm	1 x 30 + 6 x 15	1.60mm	25.10mm
150	0.50mm	1 x 30 + 8 x 15	1.70mm	26.00mm *

The E suffix indicates that these cables also include a single insulated earth wire coloured Cream with 1.38mm diameter conductor.

* The maximum overall diameter is dictated by BT installation practices.

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Table 3a Make-Up and Unit Identification Colours – 16 Pair Unit.

Pair	8	16	32	64	128	256
Centre	1 x ½*	1	4 x ½*	1	4 x ½*	1
1 st Layer				6 x ½*	6	5
2 nd Layer						10
1	Orange	Orange	Orange	Orange	Orange	Orange
2			Green	Orange	Green	Orange
3				Natural	Orange	Natural
4				Green	Natural	Natural
5					Natural	Natural
6					Natural	Green
7					Natural	Orange
8					Green	Natural
9 – 15						Natural
16						Green

* ½ refers to sub-units of 8 pairs.

Table 3b Make-Up and Unit Identification Colours – 20 Pair Unit.

Pair	10	20	40	50	60	80	100	160	200	320
Centre	1 x ½*	1	4 x ½*	5 x ½*	3	1	5	4 x ½*	2	1
1 st Layer						6 x ½*		6	8	5
2 nd layer										10
1	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange
2			Green	Natural	Natural	Orange	Natural	Green	Green	Orange
3				Green**	Green	Natural	Natural	Orange	Orange	Natural
4						Green	Natural	Natural	Natural	Natural
5							Green	Natural	Natural	Natural
6								Natural	Natural	Green
7								Natural	Natural	Orange
8								Green	Natural	Natural
9									Natural	Natural
10									Green	Natural
11 – 15										Natural
16										Green

* ½ refers to sub-units of 10 pairs.

** The Green lapping tape is applied to the last ½ unit
All the above cables include an Earth Wire.

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Table 3c Make-Up and Unit Identification Colours – 30 Pair Unit.

Pair	30	120	150
Centre 1 st Layer	1 x ½*	1 6 x ½*	1 8 x ½*
1	Orange	Orange	Orange
2		Orange	Orange
3		Natural	Natural
4		Green	Blue
5			Green

* ½ refers to sub-units of 15 pairs.

Table 4 Colour coding

Cabling Element	Colour of insulation	
	a – wire	b - wire
1	WHITE – blue	BLUE – white
2	WHITE – orange	ORANGE – white
3	WHITE – green	GREEN – white
4	WHITE – brown	BROWN – white
5	WHITE – grey	GREY – white
6	RED – blue	BLUE – red
7	RED – orange	ORANGE – red
8	RED – green	GREEN – red
9	RED – brown	BROWN – red
10	RED – grey	GREY – red
11	BLACK – blue	BLUE – black
12	BLACK – orange	ORANGE – black
13	BLACK – green	GREEN – black
14	BLACK – brown	BROWN – black
15	BLACK – grey	GREY – black
16	YELLOW – blue	BLUE – yellow
17	YELLOW – orange	ORANGE – yellow
18	YELLOW – green	GREEN – yellow
19	YELLOW – brown	BROWN – yellow
20	YELLOW – grey	GREY – yellow

Base colours are indicated by the use of upper case letters and ring mark colours by the use of lower case.

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