

TRI-RATED CABLE

BS6231 / UL758 / CSA22.2



Application

Heat resistant, flame retardant cable designed for use in the switch control, relay and instrumentation panels of power switchgear and for purposes such as internal connectors in rectifier equipment, motor starters and controllers. Tri-rated cable is sometimes referred to as BS6231 cable.

Standards

EN 50525-2-31*, BS 6231 Type CK, UL Subj.758, CSA C22.2 No. 210 (HD 21.7 S2) #LL246095, IEC/EN 60228
Flame Retardant according to IEC/EN 60332-1-2

*BS EN 50525-2-31 covers harmonised conductor sizes up to 35mm², cables above this size are generally to the specification. Where it is intended to connect cables contained within this data-sheet to equipment or accessories confirmation should be obtained to ensure that they are capable of withstanding the operating temperature of the cable.

Characteristics

Voltage Rating (U_o/U)

UL, CSA, BS 6231: 0.6/1kV

0.5mm² - 1mm²: BS EN 50525-2-31 - H05V2-K: 300/500V

1.5mm² and above: BS EN 505-2-31 - H07V2-K: 450/750V

Temperature Rating

UL, CSA: -15°C to +105°C

BS 6231: -15°C to +90°C

Minimum Bending Radius

6 x overall diameter

Construction

UL Style Number

1015

Conductor

Class 5 flexible copper conductor

Insulation

PVC (Polyvinyl Chloride)



Dimensions

NO. OF CORES	NOMINAL CROSS SECTIONAL AREA mm ²	APPROXIMATE AWG	NOMINAL THICKNESS OF INSULATION mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
1	0.5	21	0.8	2.7	11
1	0.75	19	0.8	2.85	15
1	1	18	0.8	3	18
1	1.5	16	0.8	3.3	23
1	2.5	14	0.8	3.75	35
1	4	12	0.8	4.35	48
1	6	10	0.8	4.85	69
1	10	8	1	6.3	117
1	16	6	1	8.1	191
1	25	4	1.2	9.4	281
1	35	2	1.2	10.9	389
1	50	1	1.4	13.1	560
1	70	2/0	1.4	15.1	774
1	95	3/0	1.6	16.1	991
1	120	4/0	1.6	17.9	1231
1	150	250 MCM	1.8	20.2	1534
1	185	350 MCM	2	22.85	1878
1	240	450 MCM	2.2	24.4	2381

Colour Codes

COLOUR	Black	Green	Blue	Light Blue	Dark Blue	Grey	Green/Yellow	Orange	Red	Pink	Yellow	Violet	Brown	White
CODE	BK	GN	BL	LTBL	DKBL	GR	GY	OR	RD	PK	YW	VI	BR	WH

Conductors

Class 5 Flexible Copper Conductors for Single Core and Multi-Core Cables

NOMINAL CROSS SECTIONAL AREA mm ²	MAXIMUM DIAMETER OF WIRES IN CONDUCTOR mm	MAXIMUM RESISTANCE OF CONDUCTOR AT 20°C ohms/km
		Plain Wires
0.5	0.21	39
0.75	0.21	26
1	0.21	19.5
1.5	0.26	13.3
2.5	0.26	7.98
4	0.31	4.95
6	0.31	3.3
10	0.41	1.91
16	0.41	1.21
25	0.41	0.78
35	0.41	0.554
50	0.41	0.386
70	0.51	0.272
95	0.51	0.206
120	0.51	0.161
150	0.51	0.129
185	0.51	0.106
240	0.51	0.0801

The above table is in accordance with EN 60228

Electrical Characteristics

Current Carrying Capacity and Voltage Drop

NOMINAL CROSS SECTIONAL AREA mm ²	CURRENT RATING (PEAK) Amps	VOLTAGE DROP mV/A/m
0.5	11	46
0.75	14	31
1	17	22
1.5	21	15
2.5	30	9.1
4	41	5.7
6	53	3.8
10	75	2.2
16	100	1.4
25	136	0.89
35	167	0.64
50	204	0.45
70	259	0.32
95	321	0.24
120	374	0.19
150	429	0.16
185	496	0.13
240	595	0.1

Current ratings are based on a conductor operating temperature of 90°C and an ambient air temperature of 45°C and assumes single cable isolated in free air.

De-Rating Factors

De-Rating Factor for Ambient Temperature 60°C Thermoplastic or Thermosetting Insulated Cords

AIR TEMPERATURE	45°C	50°C	55°C	60°C	65°C	70°C	75°C
DE-RATING FACTOR	1.00	0.97	0.90	0.82	0.73	0.63	0.52

Where cables are to be grouped, the following factors should be applied

NO. OF CABLES IN GROUP	2	3	4	5	6	7	8
DE-RATING FACTOR	0.80	0.70	0.65	0.60	0.56	0.53	0.50

The information contained within this datasheet is for guidance only and is subject to change without notice or liability. All the information is provided in good faith and is believed to be correct at the time of publication. When selecting cable accessories, please note that actual cable dimensions may vary due to manufacturing tolerances.