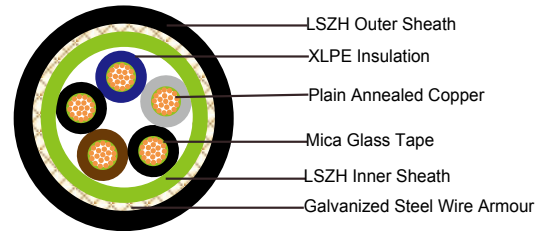
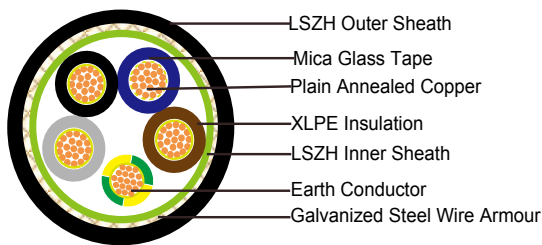
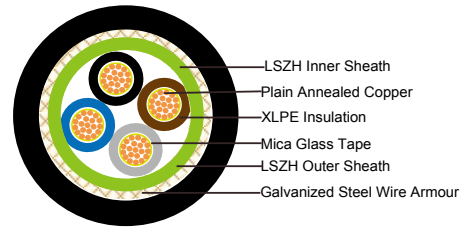
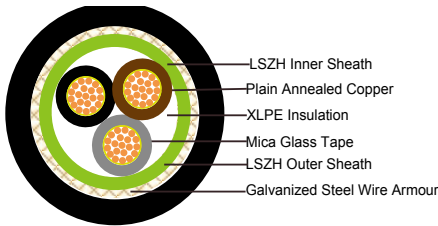


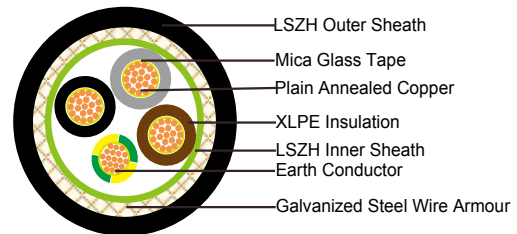


600/1000V Mica/XLPE Insulated, LSZH Sheathed , Armoured Power Cables (Multicore) FFX400 1mRZ1MZ1-R (CU/MGT+XLPE/LSZH/SWA/LSZH 600/1000V Class 2) Feeder Cables for Security SDB, TDB Terminal Security Equipment



APPLICATION

This cable is designed for areas where the integrity of the electrical properties circuit is critical in maintaining power supply. Applications can be found in emergency lightings, control and power circuits, power stations, fire alarm systems, underground tunnels, communications systems, sewage treatment plants, lifts, escalators, and high-rise buildings.



STANDARDS

Basic design to BS 7846

FIRE PERFORMANCE

Circuit Integrity	IEC 60331-21; BS 6387 CWZ; DIN VDE 0472-814(FE180); CEI 20-36/2-1; SS229-1; NBN C 30-004 ; NF C32-070-2.3(CR1); BS 7846-(F2)
System Circuit Integrity	DIN 4102-12, E30 depending on lay system
Flame Retardance (Single Vertical Wire Test)	EN 60332-1-2; IEC 60332-1-2; BS EN 60332-1-2; VDE 0482-332-1 ; NBN C 30-004 (cat. F1); NF C32-070-2.1(C2); CEI 20-35/1-2; EN 50265-2-1*; DIN VDE 0482-265-2-1*
Reduced Fire Propagation (Vertically-mounted bundled wires & cable test)	EN 60332-3-24 (cat. C); IEC 60332-3-24; BS EN 60332-3-24; VDE 0482-332-3; NBN C 30-004 (cat. F2); NF C32-070-2.2(C1); CEI 20-22/3-4; EN 50266-2-4*; DIN VDE 0482-266-2-4

Halogen Free	IEC 60754-1; EN 50267-2-1; DIN VDE 0482-267-2-1; CEI 20-37/2-1 ; BS 6425-1*
No Corrosive Gas Emission	IEC 60754-2; EN 50267-2-2; DIN VDE 0482-267-2-2; CEI 20-37/2-2 ; BS 6425-2*
Minimum Smoke Emission	IEC 61034-1&2; EN 61034 -1&2; DIN VDE 0482-1034-1&2; CEI 20-37/3-1&2; EN 50268-1&2*; BS 7622-1&2*
No Toxic Gases	NES 02-713; NF C 20-454

Note: Asterisk * denotes superseded standard.

VOLTAGE RATING

600/1000V

CABLE CONSTRUCTION

Conductor: Plain annealed copper wire, stranded according to IEC 60228 class 2.

Insulation: Mica glass tape covered by extruded cross-linked XLPE compound

Cabling: The cores are cabled together in concentric layers with suitable non-hygroscopic fillers.

Inner Sheath: Thermoplastic LSZH compound type LTS3 as per BS 7655-6.1

Armouring: Galvanized steel wire armour

Outer Sheath: Thermoplastic LSZH compound type LTS3 as per BS 7655-6.1

COLOUR CODE

Insulation Colour as per BS7671

	With Earth Conductor	Without Earth Conductor
2 Cores	-	Brown, Blue
3 Cores	Yellow/Green, Brown, Blue	Brown, Gray, Black
4 Cores	Yellow/Green, Brown, Gray, Black	Brown, Gray, Black, Blue
5 Cores	Yellow/Green, Brown, Gray, Black, Blue	Brown, Gray, Black, Blue, Black
Above 5 Cores	Yellow/Green, Black Numbered	Black Numbered

Sheath Colour: Black (other colors upon request)

PHYSICAL AND THERMAL PROPERTIES

Temperature Range During Operation: -30°C ~ 90°C

Temperature Range during Installation : -5°C ~ 50°C

Minimum Bending Radius: 8 x OD

ELECTRICAL PROPERTIES

Dielectric Test:	3500 V r.m.s. x 5' (core / core)
Insulation Resistance	1000 MΩ x km (at 20°C)
Short Circuit Temperature	250°C (up to 5 secs)



CONSTRUCTION PARAMETERS

Cable Code	Conductor			Nominal Insulation Thickness	Nominal Overall Diameter	Approx. Weight
	No. of Core × Cross Section / CPC Cross Section	No./ Nominal Diameter of Strands	Dia. of Conductor			
		No./mm	mm			
3 CORES						
FFX400 1mRZ1MZ1-R 3G1.5	3×1.5	7/0.53	1.59	0.7	16.5	420
FFX400 1mRZ1MZ1-R 3G2.5	3×2.5	7/0.67	2.01	0.7	17	500
FFX400 1mRZ1MZ1-R 3G4	3×4	7/0.85	2.55	0.7	18.5	600
FFX400 1mRZ1MZ1-R 3G6	3×6	7/1.04	3.12	0.7	19.8	785
FFX400 1mRZ1MZ1-R 3G10	3×10	7/1.35	4.05	0.7	22.6	1030
FFX400 1mRZ1MZ1-R 3G16	3×16	1/1.70	5.1	0.7	25	1370
FFX400 1mRZ1MZ1-R 3G25	3×25	7/2.14	6.42	0.9	29	1900
FFX400 1mRZ1MZ1-R 3G35	3×35	19/1.53	7.65	0.9	32	2300
FFX400 1mRZ1MZ1-R 3G50	3×50	19/1.78	8.9	1.0	35	2900
FFX400 1mRZ1MZ1-R 3G70	3×70	19/2.14	10.7	1.1	40	4000
FFX400 1mRZ1MZ1-R 3G95	3×95	19/2.52	12.6	1.1	45	5400
FFX400 1mRZ1MZ1-R 3G120	3×120	37/2.03	14.21	1.2	49	6450
FFX400 1mRZ1MZ1-R 3G150	3×150	37/2.25	15.75	1.4	55	8200
FFX400 1mRZ1MZ1-R 3G185	3×185	37/2.52	17.64	1.6	60	9800
FFX400 1mRZ1MZ1-R 3G240	3×240	61/2.25	20.25	1.7	68	12300
FFX400 1mRZ1MZ1-R 3G300	3×300	61/2.52	22.68	1.8	74	14800
FFX400 1mRZ1MZ1-R 3G400	3×400	61/2.85	25.65	2	83	17600
3 CORES + 1 EARTH CONDUCTOR						
FFX400 1mRZ1MZ1-R 3G16/6	3×16/6	7/1.70	5.1	0.7	23.6	13000
FFX400 1mRZ1MZ1-R 3G16/10	3×16/10	1/1.70	5.1	0.7	26.5	1425
FFX400 1mRZ1MZ1-R 3G25/6	3×25/6	7/2.14	6.42	0.9	27.1	1870
FFX400 1mRZ1MZ1-R 3G25/10	3×25/10	7/2.14	6.42	0.9	28.3	1960
FFX400 1mRZ1MZ1-R 3G25/16	3×25/16	7/2.14	6.42	0.9	29.8	2070
FFX400 1mRZ1MZ1-R 3G35/10	3×35/10	19/1.53	7.65	0.9	30.0	2110
FFX400 1mRZ1MZ1-R 3G35/16	3×35/16	19/1.53	7.65	0.9	30.5	2190
FFX400 1mRZ1MZ1-R 3G35/25	3×35/25	19/1.53	7.65	0.9	32.8	2400
FFX400 1mRZ1MZ1-R 3G50/16	3×50/16	19/1.78	8.9	1.0	36	3100
FFX400 1mRZ1MZ1-R 3G50/25	3×50/25	19/1.78	8.9	1.0	36.6	3250

FFX400 1mRZ1MZ1-R 3G50/35	3×50/35	19/1.78	8.9	1.0	38.1	3400
FFX400 1mRZ1MZ1-R 3G70/25	3×70/25	19/2.14	10.7	1.1	41	3990
FFX400 1mRZ1MZ1-R 3G70/35	3×70/35	19/2.14	10.7	1.1	42	4760
FFX400 1mRZ1MZ1-R 3G70/50	3×70/50	19/2.14	10.7	1.1	44	5120
FFX400 1mRZ1MZ1-R 3G95/25	3×95/25	19/2.52	12.6	1.1	46.7	6150
FFX400 1mRZ1MZ1-R 3G95/35	3×95/35	19/2.52	12.6	1.1	47.2	6340
FFX400 1mRZ1MZ1-R 3G95/50	3×95/50	19/2.52	12.6	1.1	47.8	6500
FFX400 1mRZ1MZ1-R 3G95/70	3×95/70	19/2.52	12.6	1.1	48.1	6540
FFX400 1mRZ1MZ1-R 3G120/35	3×120/35	37/2.03	14.21	1.2	49.0	6600
FFX400 1mRZ1MZ1-R 3G120/50	3×120/50	37/2.03	14.21	1.2	50.5	6990
FFX400 1mRZ1MZ1-R 3G120/70	3×120/70	37/2.03	14.21	1.2	51	7200
FFX400 1mRZ1MZ1-R 3G120/95	3×120/95	37/2.03	14.21	1.2	52.3	7600
FFX400 1mRZ1MZ1-R 3G150/50	3×150/50	37/2.25	15.75	1.4	57	9000
FFX400 1mRZ1MZ1-R 3G150/70	3×150/70	37/2.25	15.75	1.4	59	10600
FFX400 1mRZ1MZ1-R 3G150/95	3×150/95	37/2.25	15.75	1.4	60	10900
FFX400 1mRZ1MZ1-R 3G150/120	3×150/120	37/2.25	15.75	1.4	61	11100
FFX400 1mRZ1MZ1-R 3G185/70	3×185/70	37/2.52	17.64	1.6	63	11650
FFX400 1mRZ1MZ1-R 3G185/95	3×185/95	37/2.52	17.64	1.6	64	12000
FFX400 1mRZ1MZ1-R 3G185/120	3×185/120	37/2.52	17.64	1.6	65	12300
FFX400 1mRZ1MZ1-R 3G185/150	3×185/150	37/2.52	17.64	1.6	67	12700
FFX400 1mRZ1MZ1-R 3G240/95	3×240/95	61/2.25	20.25	1.7	71	13500
FFX400 1mRZ1MZ1-R 3G240/120	3×240/120	61/2.25	20.25	1.7	73	14000
FFX400 1mRZ1MZ1-R 3G240/150	3×240/150	61/2.25	20.25	1.7	74	14700
FFX400 1mRZ1MZ1-R 3G240/185	3×240/185	61/2.25	20.25	1.7	74.3	15100
FFX400 1mRZ1MZ1-R 3G300/120	3×300/120	61/2.52	22.68	1.8	75	15600
FFX400 1mRZ1MZ1-R 3G300/150	3×300/150	61/2.52	22.68	1.8	77	16000
FFX400 1mRZ1MZ1-R 3G300/180	3×300/180	61/2.52	22.68	1.8	79	17560
FFX400 1mRZ1MZ1-R 3G300/240	3×300/240	61/2.52	22.68	1.8	86	18900
4 CORES						
FFX400 1mRZ1MZ1-R 4G1.5	4×1.5	7/0.53	1.59	0.7	16	475
FFX400 1mRZ1MZ1-R 4G2.5	4×2.5	7/0.67	2.01	0.7	17.8	570
FFX400 1mRZ1MZ1-R 4G4	4×4	7/0.85	2.55	0.7	19.8	690
FFX400 1mRZ1MZ1-R 4G6	4×6	7/1.04	3.12	0.7	21	940
FFX400 1mRZ1MZ1-R 4G10	4×10	7/1.35	4.05	0.7	23.3	1200
FFX400 1mRZ1MZ1-R 4G16	4×16	1/1.70	5.1	0.7	26.5	1400
FFX400 1mRZ1MZ1-R 4G25	4×25	7/2.14	6.42	0.9	30.5	2400
FFX400 1mRZ1MZ1-R 4G35	4×35	19/1.53	7.65	0.9	34	2800



FFX400 1mRZ1MZ1-R 4G50	4×50	19/1.78	8.9	1	38	3500
FFX400 1mRZ1MZ1-R 4G70	4×70	19/2.14	10.7	1.1	44	5300
FFX400 1mRZ1MZ1-R 4G95	4×95	19/2.52	12.6	1.1	48.5	6700
FFX400 1mRZ1MZ1-R 4G120	4×120	37/2.03	14.21	1.2	54	8500
FFX400 1mRZ1MZ1-R 4G150	4×150	37/2.25	15.75	1.4	59	10000
FFX400 1mRZ1MZ1-R 4G185	4×185	37/2.52	17.64	1.6	64.5	12200
FFX400 1mRZ1MZ1-R 4G240	4×240	61/2.25	20.25	1.7	74	15400
FFX400 1mRZ1MZ1-R 4G300	4×300	61/2.52	22.68	1.8	82	19500
FFX400 1mRZ1MZ1-R 4G400	4×400	61/2.85	25.65	2	92	25500
4 CORES + 1 EARTH CONDUCTOR						
FFX400 1mRZ1MZ1-R 4G16/6	4×16/6	7/1.70	5.1	0.7	24	1300
FFX400 1mRZ1MZ1-R 4G16/10	4×16/10	7/1.70	5.1	0.7	26	1600
FFX400 1mRZ1MZ1-R 4G25/6	4×25/6	7/2.14	6.42	0.7		
FFX400 1mRZ1MZ1-R 4G25/10	4×25/10	7/2.14	6.42	0.7	29	2015
FFX400 1mRZ1MZ1-R 4G25/16	4×25/16	7/2.14	6.42	0.7	32	2540
FFX400 1mRZ1MZ1-R 4G35/10	4×35/10	19/1.53	7.65	0.9		
FFX400 1mRZ1MZ1-R 4G35/16	4×35/16	19/1.53	7.65	0.9	35	3000
FFX400 1mRZ1MZ1-R 4G35/25	4×35/25	19/1.53	7.65	0.9	35.6	3170
FFX400 1mRZ1MZ1-R 4G50/16	4×50/16	19/1.78	8.9	1.0	40	3800
FFX400 1mRZ1MZ1-R 4G50/25	4×50/25	19/1.78	8.9	1.0	41.4	4100
FFX400 1mRZ1MZ1-R 4G50/35	4×50/35	19/1.78	8.9	1.0	43.0	4432
FFX400 1mRZ1MZ1-R 4G70/25	4×70/25	19/2.14	10.7	1.1	47	6900
FFX400 1mRZ1MZ1-R 4G70/35	4×70/35	19/2.14	10.7	1.1	48	7200
FFX400 1mRZ1MZ1-R 4G70/50	4×70/50	19/2.14	10.7	1.1	50	7600
FFX400 1mRZ1MZ1-R 4G95/25	4×95/25	19/2.52	12.6	1.1	52	8100
FFX400 1mRZ1MZ1-R 4G95/35	4×95/35	19/2.52	12.6	1.1	53	8250
FFX400 1mRZ1MZ1-R 4G95/50	4×95/50	19/2.52	12.6	1.1	54	8390
FFX400 1mRZ1MZ1-R 4G95/70	4×95/70	19/2.52	12.6	1.1	54.3	8460
FFX400 1mRZ1MZ1-R 4G120/35	4×120/35	37/2.03	14.21	1.2	54.7	8600
FFX400 1mRZ1MZ1-R 4G120/50	4×120/50	37/2.03	14.21	1.2	55	8800
FFX400 1mRZ1MZ1-R 4G120/70	4×120/70	37/2.03	14.21	1.2	56	9100
FFX400 1mRZ1MZ1-R 4G120/95	4×120/95	37/2.03	14.21	1.2	57	9400
FFX400 1mRZ1MZ1-R 4G150/50	4×150/50	37/2.25	17.64	1.4	61	10800
FFX400 1mRZ1MZ1-R 4G150/70	4×150/70	37/2.25	17.64	1.4	62	11100
FFX400 1mRZ1MZ1-R 4G150/95	4×150/95	37/2.25	17.64	1.4	64	11500
FFX400 1mRZ1MZ1-R 4G150/120	4×150/120	37/2.25	17.64	1.4	65	11900
FFX400 1mRZ1MZ1-R 4G185/70	4×185/70	37/2.52	17.64	1.6	66	12900

FFX400 1mRZ1MZ1-R 4G185/95	4×185/95	37/2.52	17.64	1.6	68	13600
FFX400 1mRZ1MZ1-R 4G185/120	4×185/120	37/2.52	17.64	1.6	70	14700
FFX400 1mRZ1MZ1-R 4G185/150	4×185/150	37/2.52	17.64	1.6	73	15500
FFX400 1mRZ1MZ1-R 4G240/95	4×240/95	61/2.25	20.25	1.7	77	16900
FFX400 1mRZ1MZ1-R 4G240/120	4×240/120	61/2.25	20.25	1.7	78	17600
FFX400 1mRZ1MZ1-R 4G240/150	4×240/150	61/2.25	20.25	1.7	79	18200
FFX400 1mRZ1MZ1-R 4G240/185	4×240/185	61/2.25	20.25	1.7	80	19100
FFX400 1mRZ1MZ1-R 4G300/120	4×300/120	61/2.52	22.68	1.8	81	19700
FFX400 1mRZ1MZ1-R 4G300/150	4×300/150	61/2.52	22.68	1.8	83	21060
FFX400 1mRZ1MZ1-R 4G300/180	4×300/180	61/2.52	22.68	1.8	85	22170
FFX400 1mRZ1MZ1-R 4G300/240	4×300/240	61/2.52	22.68	1.8	87	24500
5 CORES						
FFX400 1mRZ1MZ1-R 5G1.5	5×1.5	7/0.53	1.59	0.7	18.8	558
FFX400 1mRZ1MZ1-R 5G2.5	5×2.5	7/0.67	2.01	0.7	20.9	670
FFX400 1mRZ1MZ1-R 5G4	5×4	7/0.85	2.55	0.7	23.3	811
FFX400 1mRZ1MZ1-R 5G6	5×6	7/1.04	3.12	0.7	24.7	1105
FFX400 1mRZ1MZ1-R 5G10	5×10	7/1.35	4.05	0.7	27.4	1410
FFX400 1mRZ1MZ1-R 5G16	5×16	1/1.70	5.1	0.7	31.1	1645
FFX400 1mRZ1MZ1-R 5G25	5×25	7/2.14	6.42	0.9	35.8	2820
FFX400 1mRZ1MZ1-R 5G35	5×35	19/1.53	7.65	0.9	40.0	3290
FFX400 1mRZ1MZ1-R 5G50	5×50	19/1.78	8.9	1	44.7	4113
FFX400 1mRZ1MZ1-R 5G70	5×70	19/2.14	10.7	1.1	51.7	6228
FFX400 1mRZ1MZ1-R 5G95	5×95	19/2.52	12.6	1.1	57.0	7873
FFX400 1mRZ1MZ1-R 5G120	5×120	37/2.03	14.21	1.2	63.5	9988
FFX400 1mRZ1MZ1-R 5G150	5×150	37/2.25	15.75	1.4	69.3	11750
FFX400 1mRZ1MZ1-R 5G185	5×185	37/2.52	17.64	1.6	75.8	14335
FFX400 1mRZ1MZ1-R 5G240	5×240	61/2.25	20.25	1.7	87.0	18095
FFX400 1mRZ1MZ1-R 5G300	5×300	61/2.52	22.68	1.8	96.4	22913
FFX400 1mRZ1MZ1-R 5G400	5×400	61/2.85	25.65	2	108.1	29963

ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C

Ambient Temperature : 30°C



Current-Carrying Capacities (Amp)

Nominal Cross Section Area	Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated horizontal cable tray or Reference Method 13 [free air])		In single-way ducts		Laid direct in ground	
	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core or 4-core cable 3-phase a.c.
1	2	3	4	5	6	7	8	9
mm ²	A	A	A	A	A	A	A	A
1.5	27	23	29	25	-	23	-	28
2.5	36	31	39	33	-	30	-	36
4	49	42	52	44	-	40	-	48
6	62	53	66	56	-	50	-	60
10	85	73	90	78	-	65	-	80
16	110	94	115	99	115	94	140	115
25	146	124	152	131	145	125	180	150
35	180	154	188	162	175	150	215	180
50	219	187	228	197	210	175	255	215
70	279	238	291	251	260	215	315	265
95	338	289	354	304	310	260	380	315
120	392	335	410	353	355	300	430	360
150	451	386	472	406	400	335	480	405
185	515	441	539	463	455	380	540	460
240	607	520	636	546	520	440	630	530
300	698	599	732	628	590	495	700	590
400	787	673	847	728	660	560	790	670

Voltage Drop (Per Amp Per Meter)

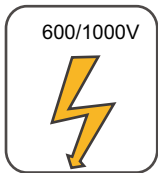
Nominal Cross Section Area	2-core cable d.c.	2 cables, single-phase a.c.	3 or 4 cables, 3-phase a.c.	2 cables, single-phase a.c. In ducts or in ground	3 or 4 cables, 3-phase a.c. In ducts or in ground
	2	3	4		
1	2	3	4	5	6
mm ²	mV/A/m	mV/A/m	mV/A/m	mV/A/m	mV/A/m

1.5	31	31			27			31	25
2.5	19	19			16			19	15
4	12	12			10			12	9.7
6	7.9	7.9			6.8			7.9	6.5
10	4.7	4.7			4			4.7	3.9
16	2.9	2.9			2.5			2.9	2.6
		r	x	z	r	x	z		
25	1.85	1.35	0.16	1.9	1.6	0.14	1.65	1.9	1.6
35	1.35	1.35	0.155	1.35	1.15	0.135	1.15	1.35	1.2
50	0.98	0.99	0.155	1	0.86	0.135	0.87	1	0.87
70	0.67	0.67	0.15	0.69	0.59	0.13	0.6	0.69	0.61
95	0.49	0.5	0.15	0.52	0.43	0.13	0.45	0.52	0.45
120	0.39	0.4	0.145	0.42	0.34	0.13	0.37	0.42	0.36
150	0.31	0.32	0.145	0.35	0.28	0.125	0.3	0.35	0.3
185	0.25	0.26	0.145	0.29	0.22	0.125	0.26	0.29	0.25
240	0.195	0.2	0.14	0.24	0.175	0.125	0.21	0.24	0.21
300	0.155	0.16	0.14	0.21	0.14	0.12	0.185	0.21	0.19
400	0.12	0.13	0.14	0.19	0.115	0.12	0.165	0.19	0.18

Note : r = conductor resistance at operating temperature

x = reactance

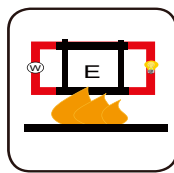
z = impedance



Rated Voltage



Standard



Circuit Integrity
IEC 60331/BS 6387
NF C32-070-2.3(CR1)



Reduced Fire Propagation
NF C32-070-2.2(C1)
IEC60332-3-24/EN50266-2-4



Flame Retardancy
NF C32-070-2.1(C2)
IEC60332-1-2/EN50265-2-1



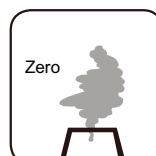
Low Toxicity
NES 02-713/NF C 20-454



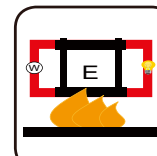
Low Corrosivity
IEC60754-2
EN50267-2-2/3
NF C 32-074



Low Smoke Emission
IEC 61034-1&2
EN 50268-1&2/NF C32-073



Zero
Halogen Free
IEC60754-1
EN50267-2-1



Functional Integrity
DIN 4102-12