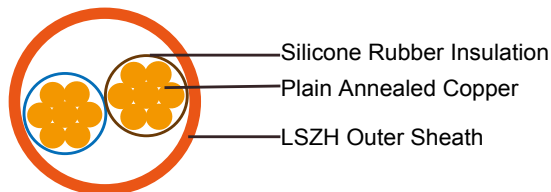
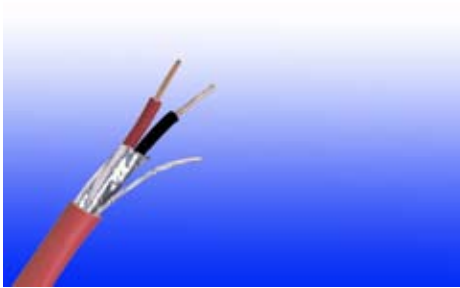


600/1000V SR Insulated Flexibles Control Cables (2-4 Cores & Multicores)

FFX400 1SZ1-R(PH60)(CU/SR/LSZH 600/1000V Class 2)

FFX400 1SZ1-F(PH60)(CU/SR/LSZH 600/1000V Class 5)



APPLICATION

The cables are designed for power supply and signals transmission, indoor or outdoor even wet environment. They are designed for fixed laying in free air, in pipe or conduit, on masonry and metal structures or suspended in places where in case of fire people are exposed to serious risks for emission of smoke, toxic and corrosive gases and where you want to avoid damage to facilities, equipment, goods. They are primarily intended for feeding of: emergency exits, alarm signals, warning of smoke or gas, escalators.

STANDARDS

Basic design adapted from BS 7629-1

FIRE PERFORMANCE

Circuit Integrity	IEC 60331-21; BS 6387 CWZ; DIN VDE 0472-814(FE180); BS 8434-1 (30mins); BS 5839-1 Clause 26 2d; CEI 20-36/2-1; SS229-1; NBN C 30-004 (cat. F3); NF C32-070-2.3(CR1)
Circuit Integrity with mechanical shock	EN 50200(PH60); CEI 20-36/4-0
Circuit Integrity with mechanical shock & water spray	EN 50200 annex E
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Note: Asterisk * denotes superseded standard.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

600/1000 V

CABLE CONSTRUCTION

Conductors: Plain annealed copper wire, stranded for section up to 10mm² according to IEC(EN) 60228 class 2 or flexible for section above 10mm² according to IEC(EN) 60228 class 5.

Insulation: Fire resistant silicone rubber compound type EI2 as per BS 7655-1.1.

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

Outer Sheath: Thermoplastic LSZH compound type LTS3 as per BS 7655-6.1 (Thermosetting LSZH compound type SW2-SW4 as per BS 7655-2.6 can be offered.)

COLOUR CODE

Insulation Colour:

Without earth conductor

2 cores blue - brown

3 cores brown - black - grey

4 cores blue - brown - black - grey

5 cores blue - brown - black - grey - black With earth conductor

3 cores yellow/green - blue - brown

4 cores yellow/green - brown - black - grey

5 cores yellow/green - blue - brown - black - grey

Sheath Colour: red (other colours on request).

PHYSICAL AND THERMAL PROPERTIES

Temperature range during operation (fixed state): -30°C – +90°C

Temperature range during installation (mobile state): -20°C – +50°C

Minimum bending radius: 6 x Overall Diameter

ELECTRICAL PROPERTIES

Dielectric test:	3500 V r.m.s. x 5' (core/core)
Insulation Resistance	≥300 MΩ x km (at 20°C)
Short circuit Temperature	350°C

CONSTRUCTION PARAMETERS

Cable Code	No. of Core X Cross Section	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
	mm ²	mm	mm	mm	kg/km
2 core					
FFX400 1SZ1-R(PH60)	2x1.5	1.0	1.2	9,2	124
FFX400 1SZ1-R(PH60)	2x2.5	1.1	1.3	10,0	155
FFX400 1SZ1-R(PH60)	2x4.0	1.1	1.4	11,2	207
FFX400 1SZ1-R(PH60)	2x6.0	1.1	1.5	13,1	298
FFX400 1SZ1-F(PH60)	2x10	1.1	1.6	15,9	441
FFX400 1SZ1-F(PH60)	2x16	1.1	1.7	17,4	602
3 core					
FFX400 1SZ1-F(PH60)	3x1.5	1.0	1.2	9,8	148
FFX400 1SZ1-F(PH60)	3x2.5	1.1	1.3	10,6	188
FFX400 1SZ1-F(PH60)	3x4.0	1.1	1.4	12,1	263
FFX400 1SZ1-F(PH60)	3x6.0	1.1	1.5	14,4	372
FFX400 1SZ1-F(PH60)	3x10	1.1	1.6	16,8	541
FFX400 1SZ1-F(PH60)	3x16	1.1	1.7	19,4	777
4 core					
FFX400 1SZ1-F(PH60)	4x1.5	1.0	1.3	10,6	176
FFX400 1SZ1-F(PH60)	4x2.5	1.1	1.4	11,5	228
FFX400 1SZ1-F(PH60)	4x4.0	1.1	1.5	13,6	332
FFX400 1SZ1-F(PH60)	4x6.0	1.1	1.6	11,5	214
FFX400 1SZ1-F(PH60)	4x10	1.1	1.7	18,5	680
FFX400 1SZ1-F(PH60)	4x16	1.1	1.8	21,2	973
5 core					
FFX400 1SZ1-F(PH60)	5x2.5	1.1	1.4	12,6	266
FFX400 1SZ1-F(PH60)	5x4.0	1.1	1.5	14,5	399
FFX400 1SZ1-F(PH60)	5x6.0	1.1	1.6	17,6	576
FFX400 1SZ1-F(PH60)	5x10	1.1	1.7	20,5	850
FFX400 1SZ1-F(PH60)	5x16	1.1	1.8	23,3	1202



ELECTRICAL PROPERTIES

Conductor Operating Temperature : 90°C

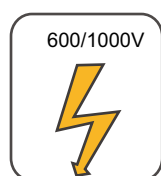
Ambient Temperature : 30°C

Current-Carrying Capacities (Amp)

Nominal Cross Section Area	Reference Method 4 (enclosed in an conduit insulated wall etc)	Reference Method 3 (enclosed in conduit on a wall or ceiling, or in trunking)		Reference Method 1 (clipped direct)		Reference Method 11 (on a perforated cable tray), or Reference Method 13 (free air)	
	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core cable single phase a.c. or d.c.	one 3-core cable or one 4-core cable 3-phase a.c.	one 2-core	one 3-core
						cable singlephase	cable or one
						a.c. or	4-core cable
						d.c.	3-phase a.c.
1	2	3	4	5	6	7	8
mm ²	A	A	A	A	A	A	A
1.5	16.5	22	19.5	24	22	26	23
2.5	22	30	26	33	30	36	32
4	30	40	35	45	40	49	42
6	38	51	44	58	52	63	54
10	51	69	60	80	71	86	75
16	68	91	80	107	96	115	100

Voltage Drop (Per Amp Per Meter)

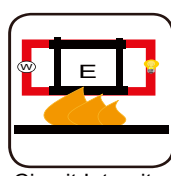
Nominal Cross Section Area	2-core cable d.c.	2-core cable single-phase a.c.	3-core or 4-core cable 3-phase a.c.
1	2	3	4
mm ²	mV/A/m	mV/A/m	mV/A/m
1.5	31	31	27
2.5	19	19	16
4	12	12	10
6	7.9	7.9	6.8
10	4.7	4.7	4
16	2.9	2.9	2.5



Rated Voltage



Standard



Circuit Integrity
IEC 60331/BS 6387
EN 50200
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



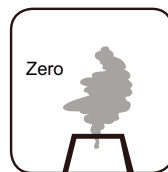
Low Toxicity
NES 02-713/NF C 20-454



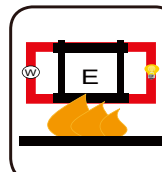
Low Corrosivity
IEC60754-2
EN50267-2-2/3
NF C 32-074



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



Halogen Free
IEC60754-1
EN50267-2-1



Functional Integrity
DIN 4102-12