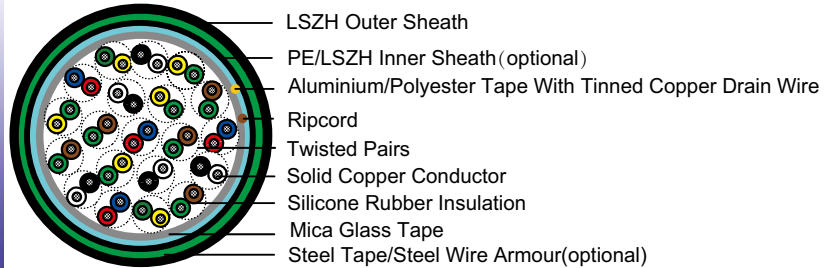




225V SR Insulated & LSZH Sheathed Fire Alarm Cables

JE-H(St)H...Bd FE180 E30 (CU/SR/OSCR/LSZH 225V Class 1)

JE-H(St)HSAWAH...Bd FE180 E30 (CU/SR/OSCR/LSZH/SWA/LSZH 225V Class 1)



APPLICATION

The cables are used for the internal wiring of building when the circuit integrity during fire is paramount. The cables are intended for use in fire fighting plants with special ceramized silicone insulation, with and without aluminum foil and LSZH outer sheath. The fire alarm cables with 30 to 90 minutes circuit integrity should be used for control voltages and data transfer in alarm and fire alarm systems, where a system circuit integrity E30/E60/E90 depending on lay system in accordance with DIN 4102-12 is required. The circuit integrity is guaranteed with a test voltage of 110V.

STANDARDS

Basic design to VDE 0815

FIRE PERFORMANCE

Circuit Integrity	IEC 60331-23; BS 6387 CWZ; DIN VDE 0472-814(FE180); CEI 20-36/2-1; SS229-1; NBN C 30-004 (cat. F3); NF C32-070-2.3(CR1)
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Note: Asterisk * denotes superseded standard.

CABLE CONSTRUCTION

Conductors: Solid annealed bare or tinned copper sized 0.6/0.8/0.9mm as per class 1 of VDE 0295/ IEC 60228.

Insulation: Silicone Rubber compound as per DIN VDE 0266.

Cabling Elements: Insulated cores are twisted to form pairs with varying lay length to minimize crosstalk. Two-pair cable had four cores laid in quad formation.

Cabling: Pairs are cabled together. In cables with 8 pairs or more, 4 pairs are assembled to form a bunch, and the bunches are then cabled together.

Cable Core Assembly: The twisted pairs are stranded to the core in layers.

Core Wrapping: One or more non hygroscopic polyester tapes are helically or longitudinally laid with an overlap prior to sheathing.

Screen: A laminated Aluminum/Polyester tape is placed in contact with solid copper 0.6mm or 0.8mm drain wire.

Inner Sheath(optional): PE or thermoplastic LSZH compound type.

Armour (optional): Either corrugated steel tape armour or galvanized steel wire is applied over an inner polyethylene sheath. For steel tape armour, the 0.15mm thick steel tape is coated with a copolymer and applied with an overlap. For steel wire armour, single layer of galvanized steel wire armour is applied.

Ripcord: Nylon ripcord may be placed parallel to the cores to facilitate sheath removal.

Drain Wire: A solid tinned earth/continuity wire shall be laid longitudinally for screened cables.

Outer Sheath: Thermoplastic LSZH compound HM2 as per DIN VDE 0207-24 .

COLOUR CODE

Quad colour in each bundle:

Pair 1: Blue-Red Pair 2: Green-Yellow Pair 3: Green-Brown Pair 4: White-Black

The individual bundles are identified by a numbered helix.

TYPE CODE

JE-	Fire alarm cable	H	Halogen free & zero halogen
Bd	Unit stranding.	(St)	Static shield of Aluminum tape
FE180	Insulation integrity (950°C 180 minutes)	E30	30 minutes system circuit integrity
STA	Corrugated steel tape	SWA	Steel wire armour
SWB	Steel wire braid		

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: 8 x Overall Diameter (unarmoured cable)
10 x Overall Diameter (armoured cables)

ELECTRICAL PROPERTIES

Conductor Diameter	mm	0.6	0.8	0.9
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Conductor Size	mm ²	0.283	0.5	0.312
Maximum Conductor Resistance @20°C	Ω/km	63	34.6	28.0
Maximum Loop Resistance @20°C	Ω/km	130	73.2	60
Minimum Insulation Resistance @500V DC @20°C	MΩ.km	100	100	100
Maximum Average Attenuation @0.8KHz	dB/km	1.7	1.2	0.74
Nominal Mutual Capacitance @0.8KHz	nF/km	120	120	120
Maximum Capacitance Unbalance K1 @0.8KHz pair-to-pair	pF/100m	200	200	200
Working Voltage	V	225	225	225
Nominal Insulation Thickness	mm	0.3	0.4	0.45
Nominal Insulated Conductor Diameter	mm	1.2	1.6	1.7

CONSTRUCTION PARAMETERS

VDE CODE: JE-SH(St)H...x2x0.8 Bd FE180/E30

Cable Code	No. of Pairs	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
		mm	mm	mm	kg/km
0.8mm Conductor, 1.6mm Insulated Wire					
JE-H(St)H...1x2x0.8 Bd FE180/E30	1	0.4	1.0	6.0	46
JE-H(St)H...2x2x0.8 Bd FE180/E30	2	0.4	1.0	6.6	61
JE-H(St)H...4x2x0.8 Bd FE180/E30	4	0.4	1.0	8.8	104
JE-H(St)H...6x2x0.8 Bd FE180/E30	6	0.4	1.0	10.8	160
JE-H(St)H...8x2x0.8 Bd FE180/E30	8	0.4	1.0	12.8	218
JE-H(St)H...10x2x0.8 Bd FE180/E30	10	0.4	1.2	13.1	220
JE-H(St)H...12x2x0.8 Bd FE180/E30	12	0.4	1.2	13.5	235
JE-H(St)H...16x2x0.8 Bd FE180/E30	16	0.4	1.2	14.7	297
JE-H(St)H...20x2x0.8 Bd FE180/E30	20	0.4	1.2	16.1	367
JE-H(St)H...24x2x0.8 Bd FE180/E30	24	0.4	1.4	18.1	440
JE-H(St)H...30x2x0.8 Bd FE180/E30	30	0.4	1.4	20.1	645
JE-H(St)H...32x2x0.8 Bd FE180/E30	32	0.4	1.4	20.6	645
JE-H(St)H...40x2x0.8 Bd FE180/E30	40	0.4	1.4	22.5	656
JE-H(St)H...50x2x0.8 Bd FE180/E30	50	0.4	1.6	24.3	840

VDE CODE: JE-SH(St)HSAH...x2x0.6/0.8/0.9 Bd FE180/E30

Cable Code	No. of Pairs	Nominal Insulation Thickness	Nominal Sheath Thickness	Nominal Overall Diameter	Approx. Weight
		mm	mm	mm	kg/km
0.6mm Conductor, 1.2mm Insulated Wire					

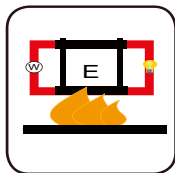
JE-H(St)HSAWAH...2x2x0.6 Bd FE180/E30	2	0.3	1.0/1.8	12.1	305
JE-H(St)HSAWAH...3x2x0.6 Bd FE180/E30	3	0.3	1.0/1.8	12.6	325
JE-H(St)HSAWAH...6x2x0.6 Bd FE180/E30	6	0.3	1.0/1.8	12.6	380
JE-H(St)HSAWAH...8x2x0.6 Bd FE180/E30	8	0.3	1.0/1.8	14.6	415
JE-H(St)HSAWAH...10x2x0.6 Bd FE180/E30	10	0.3	1.0/1.8	16.5	450
JE-H(St)HSAWAH...12x2x0.6 Bd FE180/E30	12	0.3	1.0/1.8	17.0	500
JE-H(St)HSAWAH...20x2x0.6 Bd FE180/E30	20	0.3	1.0/1.8	20.5	580
JE-H(St)HSAWAH...25x2x0.6 Bd FE180/E30	25	0.3	1.0/1.8	21.5	940
JE-H(St)HSAWAH...30x2x0.6 Bd FE180/E30	30	0.3	1.0/1.8	22.5	1300
0.8mm Conductor, 1.6mm Insulated Wire					
JE-H(St)HSAWAH...2x2x0.8 Bd FE180/E30	2	0.4	1.0/1.8	14.0	415
JE-H(St)HSAWAH...3x2x0.8 Bd FE180/E30	3	0.4	1.0/1.8	14.0	425
JE-H(St)HSAWAH...6x2x0.8 Bd FE180/E30	6	0.4	1.0/1.8	15.0	485
JE-H(St)HSAWAH...8x2x0.8 Bd FE180/E30	8	0.4	1.0/1.8	17.5	520
JE-H(St)HSAWAH...10x2x0.8 Bd FE180/E30	10	0.4	1.2/1.8	19.0	540
JE-H(St)HSAWAH...12x2x0.8 Bd FE180/E30	12	0.4	1.2/1.8	20.5	600
JE-H(St)HSAWAH...20x2x0.8 Bd FE180/E30	20	0.4	1.4/1.8	24.5	1050
JE-H(St)HSAWAH...25x2x0.8 Bd FE180/E30	25	0.4	1.4/1.8	27.0	1250
JE-H(St)HSAWAH...30x2x0.8 Bd FE180/E30	30	0.4	1.4/1.8	28.5	1450
0.9mm Conductor, 1.8mm Insulated Wire					
JE-H(St)HSAWAH...10x2x0.9 Bd FE180/E30	10	0.45	1.2/1.8	19.7	600
JE-H(St)HSAWAH...15x2x0.9 Bd FE180/E30	15	0.45	1.2/1.8	23.0	1020
JE-H(St)HSAWAH...20x2x0.9 Bd FE180/E30	20	0.45	1.4/1.8	25.3	1160
JE-H(St)HSAWAH...25x2x0.9 Bd FE180/E30	25	0.45	1.4/1.8	27.3	1330
JE-H(St)HSAWAH...30x2x0.9 Bd FE180/E30	30	0.45	1.4/1.8	29.3	1520



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



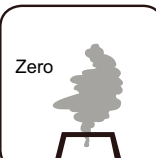
Low Toxicity
NES 02-713/NF C 20-454



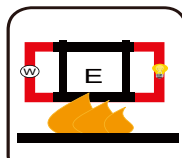
Low Corrosivity
IEC60754-2
EN50267-2-2/3
NF C 32-074



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