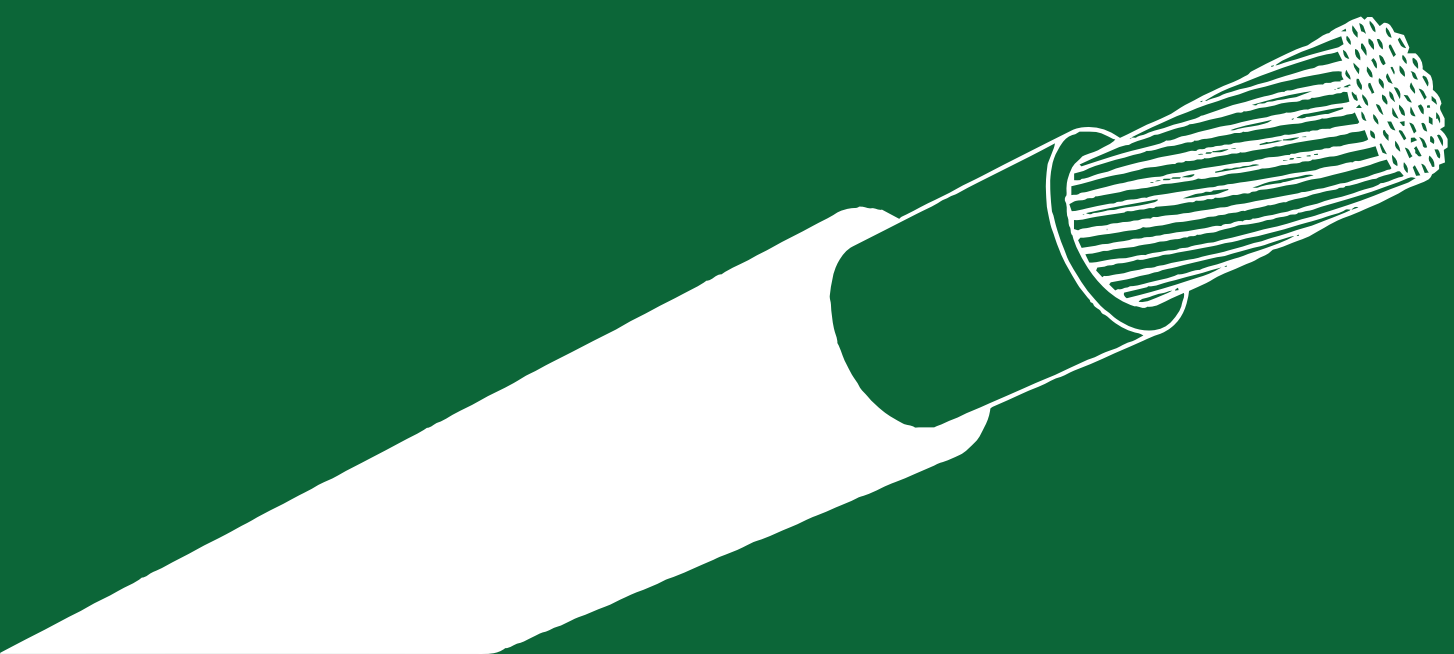
TIKA

CABLE

Fire Safety Cables



FIRE SAFETY CABLES

Description

Fire safety cables are critical for life protection — they must maintain circuit integrity during a fire, resist flame propagation, and emit minimal smoke and zero toxic halogen gases. These cables are specified for emergency systems that must continue operating when a fire occurs, allowing occupants to evacuate safely and firefighters to respond effectively.

This category is organized by fire performance level. LSZH Fire Resistant cables (BS 6387 Cat C/W/Z) maintain power and signal during fire even under mechanical shock and water spray. LSZH Flame Retardant cables resist fire spread but do not maintain circuit integrity. PVC Flame Retardant cables offer basic performance at lower cost. LPCB/BASEC certified cables carry independent third-party verification for the highest assurance.

Typical applications:

- Fire alarm and detection systems
- Emergency lighting circuits
- Smoke extraction and pressurization fans
- Fire pumps and sprinkler systems
- Voice alarm (PA) systems
- Escape route signage and lighting

Specification

LSZH Fire Resistant Cable (Low Smoke Zero Halogen)

This is the highest-grade fire safety cable, designed to maintain circuit integrity during a fire. The cable features solid copper conductors, mica glass tape wrapped around each conductor (providing fire resistance), XLPE insulation, and a LSZH outer sheath. During a fire, the mica tape continues to insulate the conductor even at temperatures exceeding 950°C, allowing emergency systems to operate for 60, 120, or 180 minutes (depending on design). The LSZH sheath emits very low smoke and zero toxic halogen gases when burned, protecting evacuation routes from becoming smoke-filled death traps. These cables are mandatory for fire alarms, emergency lighting, smoke extraction fans, fire pumps, and voice alarm systems in public buildings, hospitals, airports, and high-rise towers.

Low Smoke Zero Halogen FR Cable

LSZH Flame Retardant Cable

This cable provides fire safety through flame retardancy rather than circuit integrity. It features copper conductors, XLPE insulation, and a LSZH outer sheath. While it will not maintain electrical function during a fire, this cable is designed to resist flame propagation — meaning a fire will not travel along the cable length from one compartment to another. The LSZH sheath ensures low smoke and zero halogen emissions, protecting people and sensitive electronics. These cables are specified for general power and control circuits in public buildings, underground spaces, marine vessels, and data centers where smoke and toxic gas are unacceptable but full fire resistance is not required by code.

Flame Retardant FR Cable

PVC Flame Retardant Armoured Cable

This cable offers basic flame retardancy at an economical price point. Featuring copper or aluminium conductors, PVC insulation, steel wire armour (SWA), and a flame retardant PVC sheath, this cable is designed to meet IEC 60332-1 (single vertical flame test) or IEC 60332-3 (bunched flame test). While PVC produces dense black smoke and hydrogen chloride gas when burned, the flame retardant additives prevent fire spread along the cable. This cable is suitable for general building applications where fire safety codes do not mandate LSZH or fire resistant cables, such as standalone industrial buildings, outdoor installations, and non-public areas.

LPCB / BASEC Certified Fire Cable

These cables carry third-party certification from LPCB (Loss Prevention Certification Board, UK) or BASEC (British Approvals Service for Cables). Certified to LPS 1047, BS 6387, or BS 8491 standards, these cables have undergone rigorous testing for fire resistance under mechanical shock and water spray — simulating real fire conditions where burning debris falls on cables and fire hoses are deployed. These cables are rated for 120, 180, or 240 minutes of circuit integrity. Specifying LPCB or BASEC certified cables provides assurance to insurers, fire authorities, and building owners that the cable meets the highest international standards. These cables are mandatory for fire critical systems in airports, petrochemical plants, data centers, and high-value commercial buildings.

Fire Resistant Control Cable

This multicore control cable combines fire resistance with signal integrity. Featuring screened copper conductors (to reject electromagnetic interference), mica fire barrier tape, XLPE insulation, and a LSZH sheath, this cable maintains control circuit operation during a fire. It is specifically designed for fire pump controls, damper actuators, pressurization fan controls, and building management system (BMS) circuits that must remain operational during emergency mode. The multicore construction (typically 2 to 20 cores) allows multiple control circuits within a single cable, simplifying installation and reducing cost.

Non - Armoured FR Cable

Steel Wire Armoured FR Cable

FRMI & LPCB FR Cable

Overhead Conductors

Parameter	LSZH Fire Resistant	LSZH Flame Retardant	PVC Flame Retardant Armoured	LPCB Certified Fire Cable
Voltage Rating	0.6/1kV or 300/500V	0.6/1kV	0.6/1kV	0.6/1kV
Conductor	Solid or stranded copper	Stranded copper	Stranded copper or aluminium	Solid copper (annealed)
Fire Barrier	Mica glass tape (wrapped over each conductor)	None	None	Multi-layer mica + ceramic-forming silicone
Insulation	XLPE (over mica tape)	XLPE	PVC	XLPE or EPR
Sheath Material	LSZH (ST8 to BS 7655)	LSZH (ST8)	Flame retardant PVC (ST2)	LSZH (certified composition)
Halogen Content	Zero (IEC 60754-1/2)	Zero	High (HCl gas emitted)	Zero
Smoke Density	Low (IEC 61034, <5% transmission loss)	Low	High (dense black smoke)	Low
Flame Retardancy	IEC 60332-1 and IEC 60332-3 (Cat C/A)	IEC 60332-3	IEC 60332-1 or 60332-3	IEC 60332-3
Fire Resistance Rating	BS 6387 Cat C, W, Z or BS 8491 (120/180/240 min)	None (circuit fails during fire)	None	BS 6387 Cat C, W, Z or BS 8491
Fire with Mechanical Shock	Yes (BS 6387 Cat W)	No	No	Yes
Fire with Water Spray	Yes (BS 6387 Cat Z)	No	No	Yes
Test Temperature	650°C – 950°C (depending on standard)	N/A	N/A	650°C – 950°C
pH of combustion gases	>4.3 (IEC 60754-1)	>4.3	<2.0 (acidic)	>4.3
Conductivity of gases	<10 µS/mm (IEC 60754-2)	<10 µS/mm	>100 µS/mm	<10 µS/mm
Standards	BS 6387, BS 8491, IEC 60331, IEC 60754, IEC 61034	IEC 60332-3, IEC 60754, IEC 61034	IEC 60332-1/3	LPS 1047, BS 6387, BS 8491
Third Party Certification	Optional (BASEC)	Optional	None typically	LPCB, BASEC