SAMA KEBEL *FiRLL* Fire Resistant Cables are intended for use in fixed installations in critical areas. *FiRLL* Fire Resistant Cables are low smoke, halogen free, flame retardant, fire resistant and having the following functional characteristics:

1. Critical applications:

♦ *FiRLL* Fire Resistant Cables are not only suitable for emergency circuits such as lighting, power, control, instrumentation, wiring etc. but also for areas where maintaining circuit integrity and/or control of fire spread are deemed desirable.

2. Enhanced circuit integrity during fire:

♦ When fire breaks out, *FiRLL* Fire Resistant Cables with its excellent fire resistant characteristic enhanced circuit integrity [comply with IEC60331 or SS299 or BS6387 Cat. CWZ], *FiRLL* Fire Resistant Cables comply with the most stringent fire performance test such as SS299 or BS6387 Cat. CWZ:

◇ ***Resistance to fire alone***
Maintain circuit integrity when burning at over 950°C for 3 hours during test

◇ ***Resistance to fire and water***
Maintain circuit integrity when burning at 650°C for 15 minutes, then for 15 minutes with fire and water during test

◇ ***Resistance to fire with mechanical shock***
Maintain circuit integrity when burning at 950°C for 15 minutes with 30 second interval hammer blows during test

3. Excellent flame retardant

♦ *FiRLL* Fire Resistant Cables comply with IEC60332-1 test on single vertical insulated cable under fire conditions and it is self extinguish. *FiRLL* Fire Resistant Cables have excellent flame retardant and do not drip when burnt. There is minimum production of flaming debris and thus reducing the likelihood of propagating fire and reducing risks of further flame development. *FiRLL* Fire Resistant Cables assist in the control of fire spreading [comply with IEC60332-3-22 (Cat. A) or IEC60332-3-23 (Cat. B) or IEC60332-3-24 (Cat. C)]:

◇ ***IEC60332-3-22 (Cat. A)***
Total volume of non-metallic materials contained in 1m of cable = 7L;
Flame application time during test = 40 minutes

◇ ***IEC60332-3-23 (Cat. B)***
Total volume of non-metallic materials contained in 1m of cable = 3.5L;
Flame application time during test = 40 minutes

◇ ***IEC60332-3-24 (Cat. C)***
Total volume of non-metallic materials contained in 1m of cable = 1.5L;
Flame application time during test = 20 minutes

4. Minimum smoke emission

♦ Dense smoke is release when fire breaks out and its reduces visibility during evacuation. Fire victims would have difficulties of catching breath when smoke is dense and lack of oxygen, causing panic and disorder. *FiRLL* Fire Resistant Cables only have minimum smoke emission [comply with IEC61034-2] and do not release dense smoke during fire thus do not hinder victims from discovering escape route.

5. Halogen free

♦ Certain equipment with normal flame retardant or fire resistant cable only retards or resists fire but it would release toxic and poisonous gases when its electric wires and cables caught fire. The use of *FiRLL* Fire Resistant Cables however ensure high degree of safety in public, commercial and industrial environments as *FiRLL* Fire Resistant Cables compose of non-halogenated materials as well as they do not release corrosive and acidic gases such as HCL or CO etc. [comply with IEC60754-1 and IEC60754-2]. Only non-corrosive and non-acidic gases are emitted during fire and therefore *FiRLL* Fire Resistant Cables reduce threat to damage and reduce risks to hamper the performance of emergency systems and human lungs. Using *FiRLL* Fire Resistant Cables can thus prevent losses of human lives and increase chances of survivor when fire breaks out. *FiRLL* Fire Resistant Cables are most suitable for installation in public areas such as hospital, airport, theatre, shopping complex, stadium, tunnel, subway and special industrial environment such as power station etc.

6. Ease of installation

♦ The installation of *FiRLL* Fire Resistant Cables is similar to normal installation of wires and cables. *FiRLL* Fire Resistant Cables are durable and flexible enough to be pulled into conduit and trunking during installation. *FiRLL* Fire Resistant Cables are ideal to update existing emergency devices such as alarm and lighting systems previously wired using PVC cables in existing conduit or trunking in the public, commercial and industrial environments.

7. RoHS

♦ Traditional PVC cables which contain lead will cause environmental issues when disposed improperly. *FiRLL* Fire Resistant Cables are non-lead cables and can comply with European RoHS Directive (Restriction of Hazardous Substances). *FiRLL* Fire Resistant Cables do not contain hazardous substances such as cadmium, lead, mercury, hexavalent chromium, polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs).

8. Special sheathing requirements

♦ *FiRLL* Fire Resistant Cables use special mica based fire-resistant tape which is non-toxic, halogen-free as its primary insulation layer. Secondary insulation and sheathing materials of *FiRLL* Fire Resistant Cables can be special grade of thermoplastic or thermoset low smoke, halogen-free, flame retardant materials. Anti-termite sheathing or anti-rodent sheathing or UV protection sheathing or higher flame retardant sheathing is available upon request.