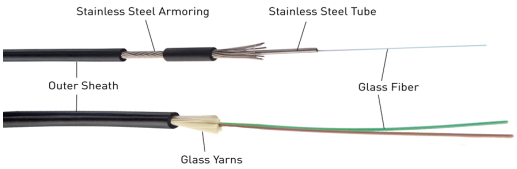
PRODUCT DATA SHEET

Linear Heat Detection
Fibre Optic Sensor Cables - MultiMode

FEATURES

- ✓ Suited for indoor and outdoor use
- ✓ 2 Multimode (MM) fibres for temperature sensing
- ✓ Halogen free & Flame Retardant Non Corrosive(FRNC) sheath
- ✓ Precise localisation of events
- ✓ Temperature, strain, vibration and acoustic measurement
- ✓ Immune to electromagnetic interference (EMI)
- ✓ Maintenance free (essential for inaccessible areas)
- ✓ Suitable for use in explosive hazard areas
- ✓ Small, flexible and purely passive sensor element



PRODUCT DESCRIPTION

Linear Heat Detection (LHD) fibre optic sensor cables are used not only for data transmission, but also for measuring temperature, strain, and acoustic signals, even in harsh environments and enable efficient monitoring of critical infrastructures and buildings such as rail and road tunnels, airports, mining shafts, parking stations and warehouses.

Sensor Cable Safety S2000A

The S2000A is a fast responding sensor cable with a tight buffered fibre, compact dimensions, high flexibility and good bending behaviour. Due to the aramid yarns, the cable has a high tensile strengths. Upon request, this cable is available in other colours.

Sensor Cable Steel S2002A

The S2002A is a fast responding armoured sensor cable with stainless steel loose tubes and outer sheath. Due to this design the sensor cable has a high tensile strength, high crush resistance, provides excellent rodent protection and is longitudinally and laterally watertight. Upon request, this cable is available in other colours.

These special linear heat sensor cables are suited for indoor and outdoor use. Each cable includes two multimode (MM) fibres for temperature sensing. They are halogen free and have a flame retardant, non corrosive (FRNC) cable sheath.

Note: Indent item, lead times apply

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TECHNICAL SPECIFICATIONS

Design Components				
Cable Types	S2000A	S2000A-RED	S2002A	S2002A-RED
Cable Version	Safety		Steel armoured	
Outer Sheath Material	Flame Retardant Non-Corrosive (FRNC)			
Armoring	Swellable aramid yarns (metal free)		Stainless steel AISI 316L tube Stainless steel AISI 3161L wires	
Cable Design	GRP strength member, fibre tight buffered in aramid yarn		Gel free, fibre loose in FIMT (Fibre in metal tube)	
Standard Fiber Count / Cable	2 mm			
UV-resistant	Yes	No	Yes	No
Longitudinal water resistant	No		Yes	

Mechanical / Physical Details				
Cable Types	S2000A	S2000A-RED	S2002A	S2002A-RED
Approximate weight (Note 1)	17 kg/km		29 kg/km	
Outer diameter (Note 1)	4.0 mm		3.8 mm	
Crush resistance (Note 2)	1,000 N/10 cm		9,600 N/10 cm (Note 5)	
Tensile strength (installation) (Note 2)	1,000 N		1,500 N	
Tensile strength (operation) (Note 2)	800 N		1,100 N	
Operating temperature	-40°C to +85°C			
Short term temperature	-40°C to +150°C			
Functional integrity (Note 4)	up to +750°C			

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Optical Details	
MM fibre type	OM2 (50/125 µm)
MM-Attenuation	850 nm wavelength - Maximum: 2,7 dB/km / Typical: 2.5 dB/km 1300 nm wavelength - Maximum: 0,8 dB/km / Typical: 0.7 dB/km

Installation Details		
Outer diameter (Note 1)	4.0 mm	3.8 mm
Static bending radius (Note 2)	15 x D (outer Ø)	
Repeated bending (Note 2)	20 x D (outer Ø)	
Installation temperature	-5°C to +50°C	

Cable Length		
Max. length / drum	8,000 m	8,500 m
Typical length / drum	4,000 m	4,500 m

APPROVALS

Standard / Certification	Remark
IEC 60331-25[2]	Tests for electrical cables under fire conditions - Circuit integrity - Part 25 Procedures and requirements - Optical fibre cables
IEC 60332-1	Tests on electric and optical fibre cables under fire conditions - Part 1-1: Test for vertical flame propagation for a single insulated wire or cable
IEC 60332-2	Tests on electrical and optical fibre cables under fire conditions - Part 2-2: Test for vertical flame propagation for a single small insulated wire or cable - Procedure for diffusion flame
IEC 60332-3-24	Tests on electrical and optical fibre cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C
IEC 60754-1	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content
IEC 607754-2	Tests on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity
IEC 60793	Optical fibres - Part 1-1: Measurement methods and test procedures - General and guidance
IEC 60794-1-2	Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures - General guidance
IEC 61034-2	Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements
EN 187000	Generic specification: Optical fibre cables
Vds EN-54	Resettable line-type heat detectors, tested and approved by Vds
UL 521 approved	Heat Detectors for Fire Protective Signalling Systems
FM 3210 approved	Heat detectors for automatic fire alarm signalling

(Note 1)	Tolerance of -5% / +10%
(Note 2)	Crush resistance IEC 60794-1-2 method E3A Tensile strength short term (installation) IEC 60794-1-2 method E1 A/B Tensile strength long term (operation) IEC 60794-1-2 method E1 A/b Static band radius IEC 60794-1-2 method E11 Repeated bending IEC 60794-1-2 method E6
(Note 3)	Pre-assembled sensor cable connectors are optionally available in order to reduce deployment cost and time. These enable a quicker and easier installation, with no need to organise a fusion splicer and splice box to connect the sensor cable to the DTS or DAS. Pigtails are supplied with E2000 8° connectors. For safe transportation they are covered with a flexible protective tube when shipped.
(Note 4)	Functional integrity of the sensor cable tested for 2 hours with min. flame temperature of 750°C as per IEC 603331-25. In tunnel fire testing it has been demonstrated that the functional integrity of the cable was maintained for several minutes with temperatures exceeding 1000°C
(Note 5)	600N/cm in operation / max. 960/cm during installation.

ORDERING INFORMATION

AP-S2000A-BLACK	Linear Heat Detection - Sensor Cable Safety S2000A - BLACK
AP-S2000A-RED	Linear Heat Detection - Sensor Cable Safety S2000A - RED
AP-S2002A-BLACK	Linear Heat Detection - Sensor Cable Steel S2002A - BLACK
AP-S2002A-RED	Linear Heat Detection - Sensor Cable Steel S2002A - RED

Note: Indent item, lead times apply