fyreline DIGITAL

Digital Linear Heat Detection Systems

SIGNALING UL LISTED

eurofyre LIMITED

Contents

An Introduction To Eurofyre

Eurofyre are a global provider of specialist fire detection and associated safety products for commercial and industrial applications. The systems we manufacture, supply and promote are designed to give users time to respond to possible threats before the loss of critical infrastructure, high value assets, business downtime and, most crucially, life.

Based in the UK, Eurofyre Ltd is a privately owned company established in 2007. Our ambition is to provide the highest possible quality and level of service to all of our customers and we strive to achieve this by providing comprehensive online literature and specific training programs together with excellent pre and post-sale technical support.

Complete System Supplier

To meet the demands of today's fire alarm and life safety requirements, we have positioned ourselves as a "complete system supplier" to ensure optimum customer satisfaction.

Our broad range of products include:

- Conventional fire detection systems
- 2-wire fire detection systems
- Analogue addressable fire detection systems
- Wireless fire detection
- Linear heat detection
- High sensitivity aspirating smoke detection systems
- Open-area smoke detection
- Video smoke detectors
- Combustible gas detection systems
- Voice evacuation systems
- Carbon monoxide detection systems
- Power supply units

The advantage of being a complete system supplier means there are no compatibility issues when it comes to choosing a fire alarm system. By providing a complete range, such as our ProFyre analogue addressable fire alarm system, we can ensure you have a one stop shop for all necessary components including the control panel, smoke and heat detectors, sounders and interfaces.

Approval/Certification

Many of the products we manufacture and distribute are third-party certified by internationally recognised test and approval bodies such as the LPCB, BSI, Intertek, VdS, UL and FM. This confirms to specifiers, installers and consumers alike that our products meet the design and performance requirements of key British, European and international standards.

Key Features

UL 521 Approved and compliant with the EN54:28 standard	✓
Cable based sensing allows detection at the point of risk	✓
Low installation, maintenance and repair costs	✓
Reliable solution for hazardous areas	✓
Low material cost	✓

Overview

FyreLine digital linear heat detection cable uses fixed temperature detection technology to provide early warning of fire or overheating equipment. Heat sensing cables are capable of detecting heat anywhere along their length and designed for use in a vast range of applications and environments from tunnels, cable trays, racking to sensing changes in temperature within escalators and other applications where many risks of fire are hidden from view. Linear heat detection is highly cost-effective and can be easily installed with, or in place of, conventional heat detectors where traditional style detection may be difficult to install or maintain or is too expensive.

Approvals

The FyreLine digital PVC and Nylon coated linear heat detection cables are fully approved by the Underwriters Laboratories (UL) and bears the CE mark to show that they comply with all the applicable Directives including the CPR, EMC and the Low Voltage Directive (LVD).

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"Heat Actuated Device for Special Applications"

Control Number: 27EE

ML File Number: S35734

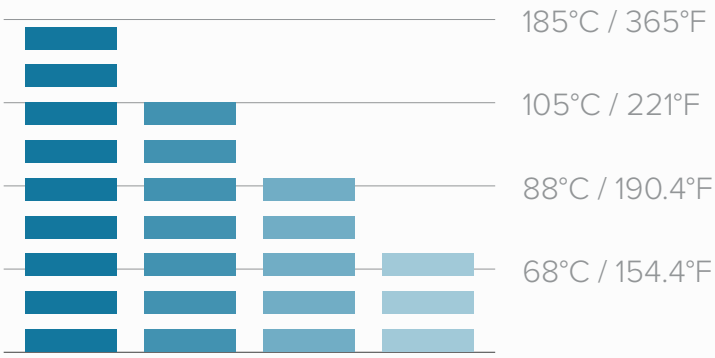
Typical Applications

FyreLine linear heat detection is well suited to a wide range of applications, including:

Cable Trays	Warehouse Storage
Conveyor Belts	Thatched Roofs
Floating and Fixed Roof Tanks	Waste Recycling Facilities
Road and Access Tunnels	Train/Metro Underground Tunnels
Car Parks	Hazardous Areas
Boiler Rooms	Power Stations
Kitchens	Plant Rooms
Low Temperature Applications	Heritage Property
Escalators	Ships and Marine

How Does Linear Heat Detection Work?

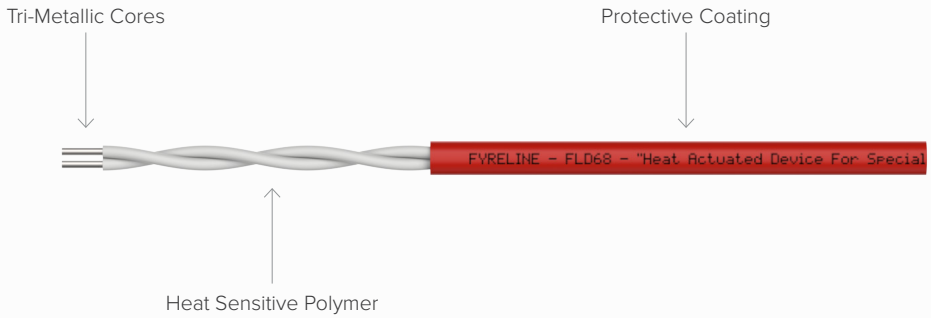
FyreLine fixed temperature heat sensing cable is available in four different temperature ratings:



Fire Alarm System Integration

The digital linear heat detection cable can be directly connected to a single zone of a conventional fire alarm control panel, or, easily interfaced to an addressable loop using an addressable zone/switch monitor.

Sensing Cable Construction



FyreLine linear fixed heat sensing cable is constructed using two twisted and tensioned, tri-metallic conductors. Each of the conductive cables are coated in a heat sensitive polymer which, when heated to its rated temperature, melts, causing the two cables to touch. The resulting short sends a signal to the fire alarm control panel, indicating that a fire (or excessive heat) has been detected. Once a fire has been detected the damaged length of cable is easily replaceable.

Chemical Resistance Table

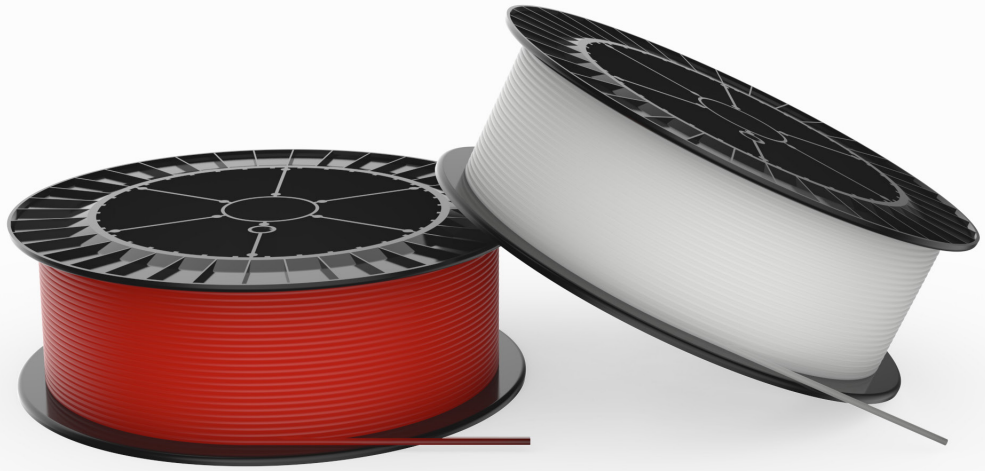
The following table provides a chemical resistance comparison for all the available outer sheath materials on the FyreLine Digital sensor cable:

Chemical	PVC	Nylon
Ammonia, Liquid	★★★★★	★★★
Butane	★★★★★	★★★★★
Copper Nitrate	★★★★★	★
Fuel Oils	★★★★★	★★★★★
Gasoline	★★	★★★★★
Hydrofluoric Acid	★	★
Kerosene	★★★★★	★★★★★
Diesel Fuel	★★★★★	★★★★★
Acetic Acid	★★	★★★★★

PVC Coated Sensing Cable

The standard coating used on Digital cables is made from PVC and is suitable for most environments. However, PVC should not be used when the cables are directly exposed to UV (sunlight) or hazardous chemicals (eg. hydrocarbons) for long periods, or for applications where they may be exposed to regular mechanical abrasion.

Where the standard PVC is not recommended other materials/sheaths are available to provide a suitable solution.



Ordering Information

Standard PVC Sensing Cable

18-011	FLD68	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, PVC, UL - 100m Reel Length
18-012	FLD68	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, PVC, UL - 200m Reel Length
18-013	FLD68	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, PVC, UL - 500m Reel Length
18-014	FLD68	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, PVC, UL - 1000m Reel Length
18-021	FLD88	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, PVC, UL - 100m Reel Length
18-022	FLD88	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, PVC, UL - 200m Reel Length
18-023	FLD88	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, PVC, UL - 500m Reel Length
18-024	FLD88	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, PVC, UL - 1000m Reel Length
18-031	FLD105	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, PVC, UL - 100m Reel Length
18-032	FLD105	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, PVC, UL - 200m Reel Length
18-033	FLD105	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, PVC, UL - 500m Reel Length
18-034	FLD105	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, PVC, UL - 1000m Reel Length

Nylon Coated Sensing Cable

A Nylon coated cable is the common choice when hazardous hydrocarbons such as fuel oils, diesel, kerosene etc. are present. Nylon cables are coloured black and provide suitable UV protection when used in direct sunlight. Nylon is much tougher than PVC and therefore provides additional mechanical protection.

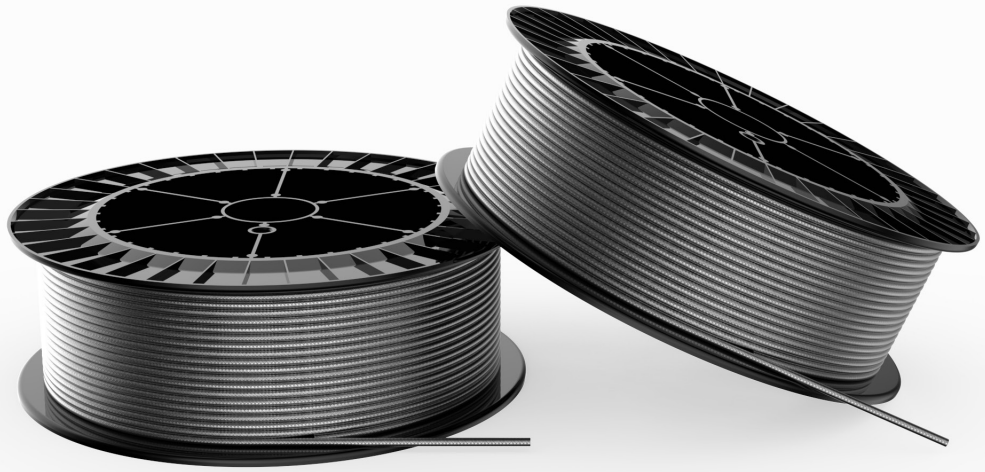
Ordering Information

Nylon Coating for Outdoor UV Protection & Increased Durability

18-041	FLD68N	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Nylon Coated, 100m Reel Length
18-042	FLD68N	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Nylon Coated, 200m Reel Length
18-043	FLD68N	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Nylon Coated, 500m Reel Length
18-044	FLD68N	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Nylon Coated, 1000m Reel Length
18-051	FLD88N	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Nylon Coated, 100m Reel Length
18-052	FLD88N	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Nylon Coated, 200m Reel Length
18-053	FLD88N	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Nylon Coated, 500m Reel Length
18-054	FLD88N	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Nylon Coated, 1000m Reel Length
18-061	FLD105N	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Nylon Coated, 100m Reel Length
18-062	FLD105N	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Nylon Coated, 200m Reel Length
18-063	FLD105N	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Nylon Coated, 500m Reel Length
18-064	FLD105N	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Nylon Coated, 1000m Reel Length

Stainless Steel Braid Coated Sensing Cable

Any of the above cables can be armoured by placing stainless steel braiding over the outside of the cable. This provides the ideal solution for areas where the cable may be accidentally cut or where it may be subject to mechanical abrasion.



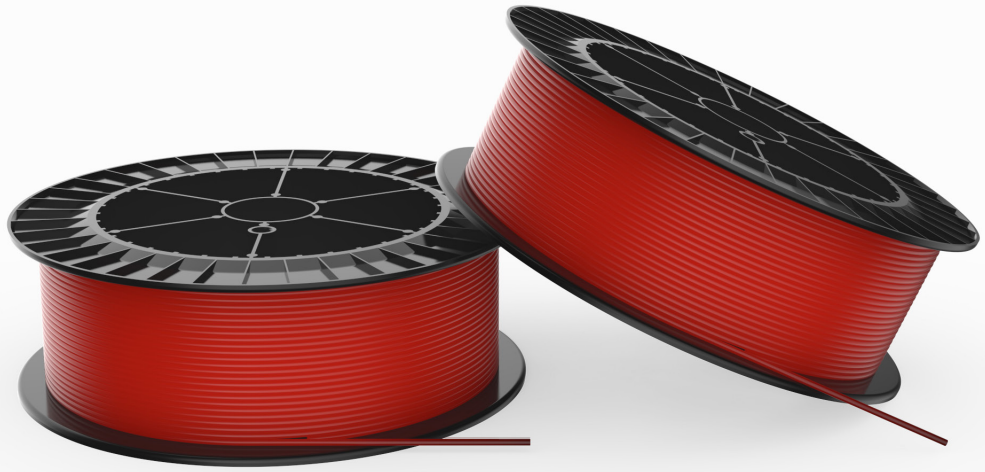
Ordering Information

Stainless Steel Braided for Enhanced EMC & Mechanical Protection

18-071	FLD68S	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Stainless Steel Braided, 100m Reel Length
18-072	FLD68S	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Stainless Steel Braided, 200m Reel Length
18-073	FLD68S	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Stainless Steel Braided, 500m Reel Length
18-074	FLD68S	Digital Linear Heat Sensing Cable, 68°C Alarm Temp, Stainless Steel Braided, 1000m Reel Length
18-081	FLD88S	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Stainless Steel Braided, 100m Reel Length
18-082	FLD88S	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Stainless Steel Braided, 200m Reel Length
18-083	FLD88S	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Stainless Steel Braided, 500m Reel Length
18-084	FLD88S	Digital Linear Heat Sensing Cable, 88°C Alarm Temp, Stainless Steel Braided, 1000m Reel Length
18-091	FLD105S	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Stainless Steel Braided, 100m Reel Length
18-092	FLD105S	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Stainless Steel Braided, 200m Reel Length
18-093	FLD105S	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Stainless Steel Braided, 500m Reel Length
18-094	FLD105S	Digital Linear Heat Sensing Cable, 105°C Alarm Temp, Stainless Steel Braided, 1000m Reel Length

High Temperature Coated Sensing Cable

The High Temperature coated linear heat cable is manufactured from two different types of nylon, with the outer sheath being a chemical resistant material. Commonly used in high temperature areas, hazardous and safe areas where chemicals such as hydrocarbon fuel oils, diesel, kerosene etc. are present.



Ordering Information

High Temperature Sensor Cable, 185 Degrees C Alarm

18-101	FLD185	Digital Linear Heat Sensing Cable, 185°C Alarm Temp, 100m Reel Length
18-102	FLD185	Digital Linear Heat Sensing Cable, 185°C Alarm Temp, 200m Reel Length
18-103	FLD185	Digital Linear Heat Sensing Cable, 185°C Alarm Temp, 500m Reel Length
18-104	FLD185	Digital Linear Heat Sensing Cable, 185°C Alarm Temp, 1000m Reel Length

Sensing Cable Tech Specs

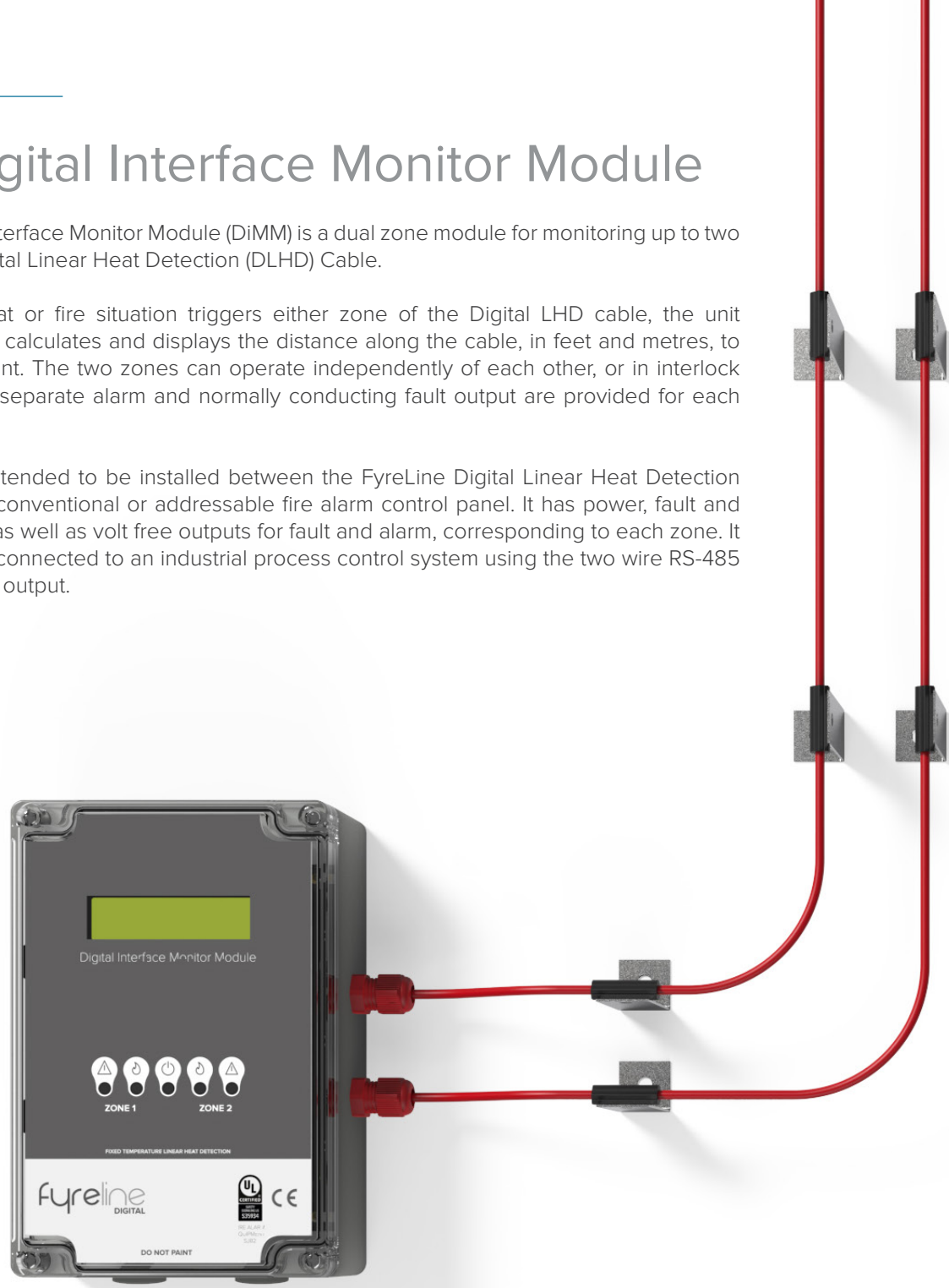
Construction	Overall insulated, twisted pair of tri-metallic cores
Insulation	PVC, 1 kV tested protective outer coating
Additional Insulation Options	Nylon, Stainless Steel Braided
Approvals	CE Marked, RoHS Compliant, UL Listed
Maximum Zone Length	3,000m (10,000ft)
Wire Overall Diameter	3.60mm ± 0.12mm (0.142” ± 0.005”)
Additional Nylon Coated Diameter	4.50mm ± 0.12mm (0.177” ± 0.005”)
Minimum bend radius	50mm (2”)
Ambient Temperature Range (dependant upon action temperature)	-40°C – +125°C (-40°F – +257°F)
Max Voltage Rating	30Vac, 42Vdc
Resistance	~100Ω/km (29Ω/kft) per leg
Velocity of Propagation	~55%
Capacitance	88 – 150 pF/m (26 – 45 pF/ft)
Inductance	540 – 1050 nH/m (165 – 320 nH/ft)

Digital Interface Monitor Module

The Digital Interface Monitor Module (DiMM) is a dual zone module for monitoring up to two zones of Digital Linear Heat Detection (DLHD) Cable.

If an overheat or fire situation triggers either zone of the Digital LHD cable, the unit automatically calculates and displays the distance along the cable, in feet and metres, to the alarm point. The two zones can operate independently of each other, or in interlock mode and a separate alarm and normally conducting fault output are provided for each zone.

The unit is intended to be installed between the FyreLine Digital Linear Heat Detection cable and a conventional or addressable fire alarm control panel. It has power, fault and alarm lights, as well as volt free outputs for fault and alarm, corresponding to each zone. It may also be connected to an industrial process control system using the two wire RS-485 Modbus RTU output.



Ordering Information

Optional Digital Interface Monitor Module

18-004	FLDDL2	Digital Interface Monitor Module, 2 Zone, 1m to 3000m (10,000ft), 12 - 36V DC

FLDDL2 Tech Specs

Weight	0.48kg (1.05lbs)
Dimensions W x H x D	120mm x 180mm x 60.5mm (4.72” x 7.08” x 2.38”)
Cable Entries	Bottom: 2 x M16 Threaded Plug Right: 2 x M12 Threaded Plug Left: 2 x M12 Threaded Plug
IP Rating	IP65
Operating Voltages	12 - 36Vdc
Normal Operation (Standby)	<12mA <4mA
Alarm	<40mA <15mA
Operating Temperatures	-20°C - +50°C (-4°F – +122°F)
Supervised Circuits	Power, Input Zone 1 & Input Zone 2
Inputs	Up to two zones of FyreLine Digital LHD Cable 3000m
Maximum Zone Length	3000m (10,000ft)
Minimum Zone Length	1m (3,2ft)
End of Line Resistor	1kohm (included)
Short Circuit Current	0.5mA
Maximum Voltage	5V
Ground Fault Impedance	0 ohms
Communications	Two-wire RS-485 Modbus RTU (field wiring limited to same room to comply with UL lisiting)
Buzzer	2x Form C volt-free relay contacts (resistive, common) Max V: 30Vac or 42.4Vdc Max Current: 2A Max Switching Power: 60W, 62.5VA
Fault	2x Optoisolated photo-transistor output (resistive, common) Max V: 35Vdc Max Current: 80mA Max Power Dissipation: 150mW

Mounting Clips & Accessories

The FyreLine Zintec and Stainless Steel mounting accessories have been specifically chosen to comply with the latest requirements detailed in BS 5839-1 (Code of practice for design, installation, commissioning and maintenance of fire detection and fire alarm systems for buildings).

Section 26.2 Part F states that:

Methods of cable support should be non-combustible and such that circuit integrity will not be reduced below that afforded by the cable used, and should withstand a similar temperature and duration to that of the cable, while maintaining adequate support.

NOTE 8 In effect, this recommendation precludes the use of plastic cable clips, cable ties or trunking, where these products are the means of cable support.

NOTE 9 Experience has shown that collapse of cables, supported only by plastic cable trunking, can create a serious hazard for firefighters, who could become entangled in the cables.

Zintec mounting accessories are suitable for general indoor and outdoor use. Stainless steel mounting accessories are suitable for indoor and outdoor use and in environments where the clip may be exposed to harsh chemicals e.g. hydrocarbons or in a caustic environment.

Standard L-Clip

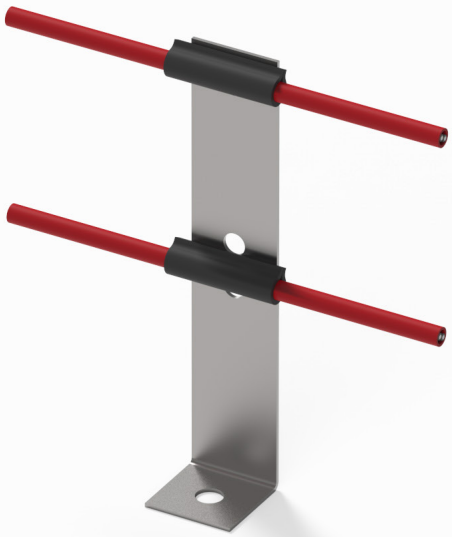
18-300	Zintec Steel, 25 Pack
18-301	Zintec Steel, 100 Pack
18-310	Stainless Steel, 100 Pack

Dimensions: 50mm Height

Dual Height L-Clip

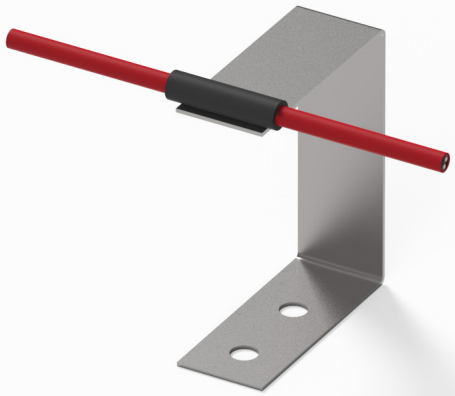
18-302	Zintec Steel, 100 Pack
18-311	Stainless Steel, 100 Pack

Dimensions: 100mm Height



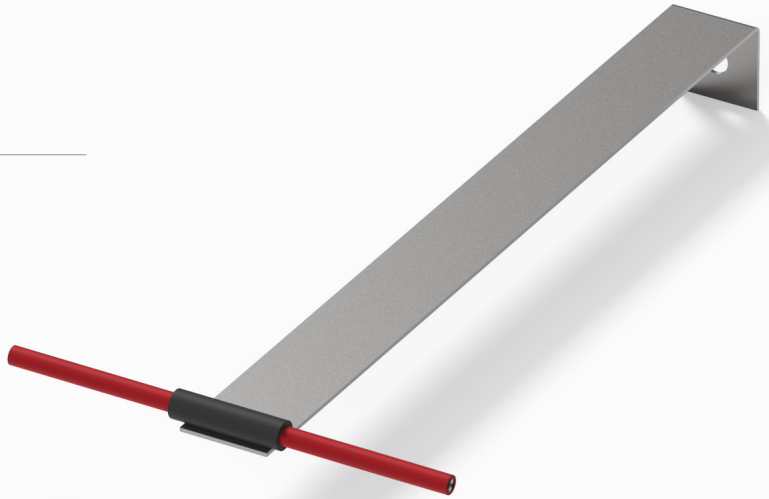
Channel Bracket

18-303	Zintec Steel, 100 Pack
18-312	Stainless Steel, 100 Pack
Dimensions:	(H) 60mm x (W) 50mm



200mm L-Clip

18-304	Zintec Steel, 100 Pack
18-314	Stainless Steel, 100 Pack
Dimensions:	200mm Height or Width



Distance Piece

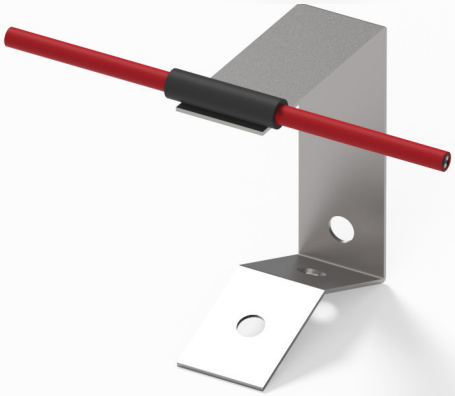
18-305	Zintec Steel, 100 Pack
18-315	Stainless Steel, 100 Pack
Dimensions:	200mm Height or Width

V-Clip

18-313	Stainless Steel, 100 Pack
Dimensions:	(H) 50mm x (W) 120mm

Pipe Clip

18-306	Zintec Steel, 100 Pack
18-316	Stainless Steel, 100 Pack
Dimensions:	(H) 60mm x (W) 50mm



P-Clip

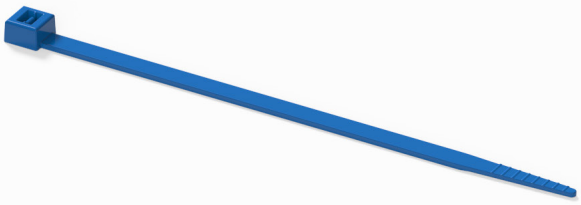
18-360	Aluminium P-Clip, 100 Pack
18-361	Stainless Steel P-Clip, 100 Pack

Indoor/Outdoor UV & Heat Stabilised Tie Wrap

18-320	110°C Constant Rated Indoor/ Outdoor Tie Wrap, 100 Pack

Extra High Temperature Indoor Heat Stabilised Tie Wrap

18-321	170°C Constant Rated Indoor Tie Wrap, 100 Pack

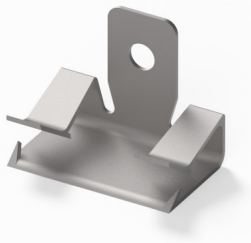


High Temperature Indoor/Outdoor Stainless Tie Wrap

18-322	High Temperature Stainless Steel Indoor/Outdoor Tie Trap, 100 Pack
18-331	Hand Tool for Stainless Steel Tie Wrap

Beam Clip

18-340	Beam Clip (2-3mm), 100 Pack
18-341	Beam Clip (3-8mm), 100 Pack
18-342	Beam Clip (8-14mm), 100 Pack
18-343	Beam Clip (14-20mm), 100 Pack

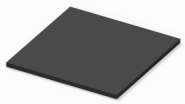


High Temperature Silicone Pads

Silicone pads insulate and protect the LHD cable from abrasion, excessive pressure and any heat transfer from a metal mounting bracket to the cable, which may affect the operation of the cable.

18-330	Silicone Pad, 100 Pack

Dimensions: 25mm^2 x 1mm



Junction Box

The junction box is a quick and efficient method of terminating the end-of-line or to interconnect and join lengths of an FyreLine Digital Linear Heat Sensing Cable. It can also be used as an in-line junction box for the incoming leader cable.

It comes supplied with two glands, and has a five-way DIN rail mounted terminal block within.

18-131	Junction Box

Dimensions: (W) 94mm x (H) 94mm x (D) 57mm

ProFyre Power Supply Unit

The ProFyre range of power supplies employ state-of-the-art switch mode power technology to provide a continuous and reliable source of 24V dc power to meet the technical and legislative requirements of the professional fire detection and alarm industry/installer.

There are two metal-clad boxed versions available, 1.5A or 4A ‘true-load’, each having two monitored and fused outputs with internal space for up to 2 x 12Ah or 17Ah batteries respectively. An innovative door mounted LCD display together with 4 LED indicators and two control switches, provides fast and efficient visual status of all critical functions.

Information you can access on-screen includes output voltage, output current, charge type and battery state.

This unit itself uses a three-state charger, using Boost, Float or Pulse modes depending on the current state of the battery.

Under mains fail conditions the PSU will disconnect the batteries when they are fully discharged to prevent battery damage. The PSU will also signal a fault if it detects high internal resistance within the battery.

Ordering Information

Power Supply Units

28-001	1.5A True Load, Power Supply, 24VDC, 96-264VAC (EN54-4) 12AH Max
28-002	4A True Load, Power Supply, 24VDC, 96-264VAC (EN54-4) 17AH Max

Power Supply Unit Tech Specs

Type	ProFyre P2	ProFyre P5
Mains Voltage	96 to 264Vac @ 47/63 Hz	
Operating Voltage	28Vdc Nominal	
Power Rating	75W	150W
Efficiency	79%	86%
Power Output	1.5A	4A
Power Supply Outputs	2 Fused Outputs	2 Fused Outputs
Maximum Current Per Output	0.625mA	2A
Battery Charging Current	750mA	920mA
Fault Relay Rating	SELV 1A	
Operating Conditions	Tested to: -10°C to 60°C (14°F to 140°F) Humidity: 0% to 95% RH, non-condensing	
IP Rating	IP30	
Design Environment	Indoor Use Only	
Mounting	Flush or Surface	Surface
Weight	3kg	3.5kg
Dimensions (W x H x D)	375mm x 335mm x 128mm	375mm x 403mm x 128mm

Representative

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