

fyreline  
ANALOGUE

Analogue Linear Heat  
Detection Systems

SIGNALING



LISTED

europyre  
LIMITED

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## Contents

<b>An Introduction To Eurofyre.....</b>	<b>3</b>
Complete System Supplier.....	3
Approval/Certification.....	3
<b>Key Features.....</b>	<b>4</b>
<b>Overview .....</b>	<b>4</b>
<b>Approvals .....</b>	<b>4</b>
<b>Typical Applications .....</b>	<b>5</b>
<b>How Does Linear Heat Detection Work? .....</b>	<b>6</b>
Pre-alarm & Alarm Temperatures .....	6
Fire Alarm System Integration.....	7
Sensing Cable Construction .....	7
<b>Analogue Control Module + EOL.....</b>	<b>8</b>
Analogue Control Module Tech Specs .....	9
<b>Chemical Resistance Table .....</b>	<b>10</b>
<b>PVC Coated Sensing Cable .....</b>	<b>11</b>
<b>Nylon Coated Sensing Cable .....</b>	<b>12</b>
<b>Polypropylene Coated Sensing Cable.....</b>	<b>13</b>
<b>Stainless Steel Braid Coated Sensing Cable.....</b>	<b>14</b>
Sensing Cable Tech Specs.....	15
<b>Mounting Clips &amp; Accessories .....</b>	<b>16</b>
<b>ProFyre Power Supply Unit.....</b>	<b>21</b>
Power Supply Unit Tech Specs .....	22

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# 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.

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

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## 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 EN54:22 draft standard ✓
- Self-restorable analogue type system with optional pre-alarm setting ✓
- Cable based sensing allows detection at the point of risk ✓
- Low installation, maintenance and repair costs ✓
- Reliable solution for hazardous areas ✓

## Overview

The FyreLine Analogue Heat Detector is a rugged, easy-to-install detection system, consisting of a control module and detection cable, that is designed to interface with a standard fire alarm panel or addressable monitor module.

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 analogue control modules and PVC 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).

### SIGNALING



“Heat Actuated Device for Special Applications”

Control Number: 27EE

UL File Number: S35734



## Typical Applications

FyreLine Analogue Heat Detectors automatically compensate for changes in ambient temperature to maintain the accuracy of the alarm temperature and offer up to 500 metres of continuous detection per control module. This flexibility makes FyreLine Analogue Heat detectors extremely flexible for use in 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

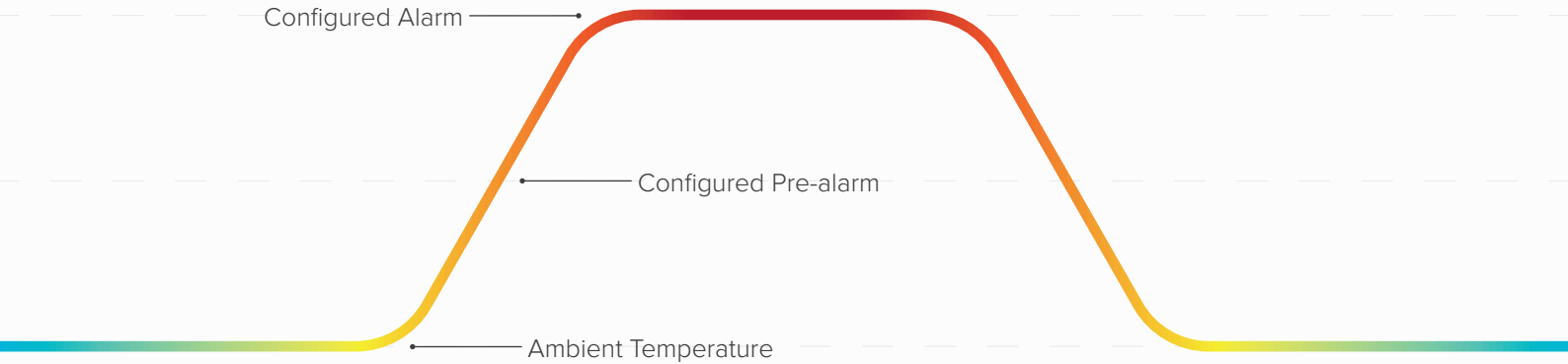


Ships and Marine



# ? How Does Linear Heat Detection Work?

FyreLine Analogue Heat Sensing Cable contains specially coated, heat-sensitive polymers. When the polymer changes temperature the resistance of the cable is affected. The control module monitors the cable's resistance and any abnormal changes trigger either a pre-alarm or an alarm, giving the user time to investigate and take any necessary action.



After an alarm is triggered the system can simply be reset with little disruption. FyreLine Analogue Linear Heat Detection cable is 'self-restorable' so does not need to be replaced unless it has become severely damaged.

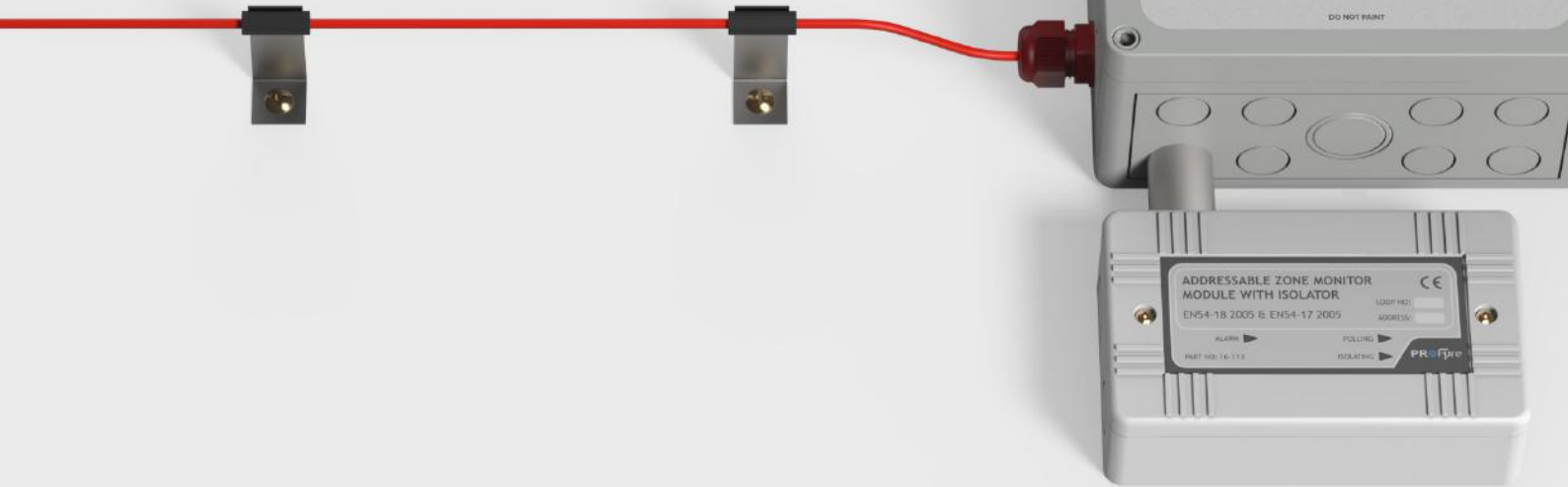
## 🌡️+ Pre-alarm & Alarm Temperatures

The following pre-alarm and alarm temperature threshold configurations are available on the FyreLine analogue linear heat detection system range:

Pre-alarm Temperature (Optional)	Alarm Temperature
Not Available	54°C
54°C	64°C
54°C, 64°C	72°C
54°C, 64°C, 71°C	79°C
54°C, 64°C, 71°C, 79°C	86°C
54°C, 64°C, 71°C, 79°C, 93°C	100°C

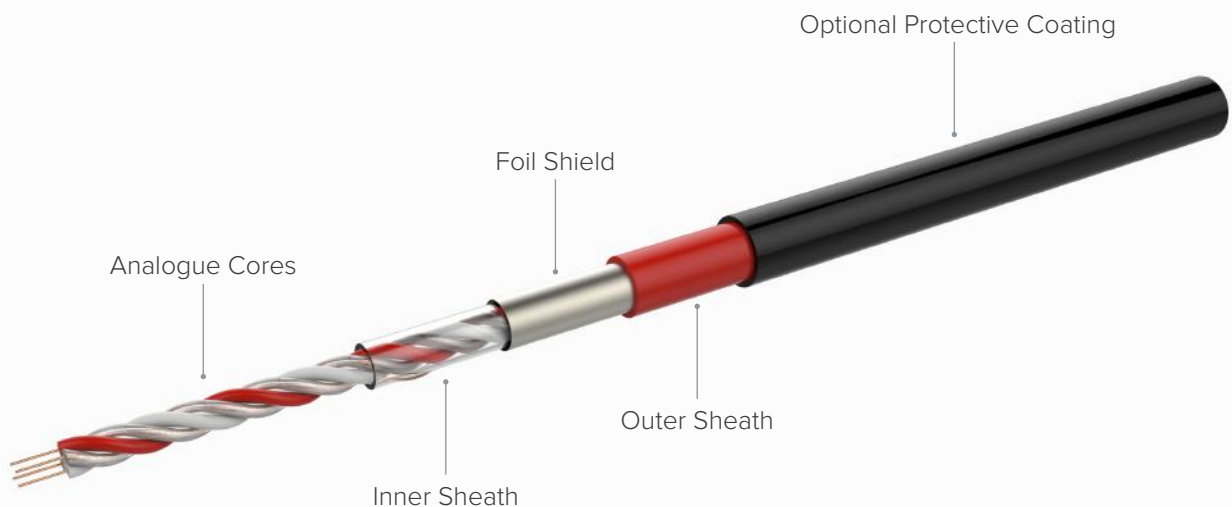
## Fire Alarm System Integration

The analogue linear heat detection control module can be connected directly 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 Analogue Linear Heat Detection cable is constructed using a pair of copper conductors coated in a temperature sensitive polymer whose resistance changes as a function of temperature. A calibration resistance (white) and average ambient temperature sensor (red) core are twisted with the two original conductors. A foil shield, outer sheath and optional protective coating is extruded over the twisted cores.



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## Analogue Control Module + EOL

The analogue control module is designed for use with FyreLine Analogue Linear Heat Detection cables. The control module interfaces between a fire alarm control panel or addressable module and a single zone of Analogue Linear Heat Detection cable.

The control module monitors the resistance of specially doped polymers within the sensor cable which change as a function of temperature. An abnormal change in resistance along the detection cable triggers either a pre-alarm or alarm on the interface module. The unit is intended to be simple and straightforward to install. Commissioning of the controller can be done using a standard laptop computer or a built-in self-programming module.

The Analogue control module complies with the latest standards and is housed in an IP66 rated enclosure.



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## Ordering Information

### Analogue Control Module

18-200	FLAC	Programmable Interface including End-of-Line Module
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18-201	FLACPC	Programmable Interface, PC Only, including End-of-Line Module
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# Analogue Control Module Tech Specs

Approvals	CE Marked, UL Listed	
Dimensions (W x H x D)	182mm x 180mm x 90mm (7 1/8" x 7 1/8" x 3 1/2")	
Enclosure Rating	IP66 (IK08) polycarbonate with removable cover	
Finish	Light grey	
Operating Temperature Range	0°C – 50°C (32°F – 122°F)	
Supply Voltage	20 – 28Vdc	
Humidity	0% to 90% RH	
Current Consumption, Normal & Fault	<70mA <40mA (PC Only Version)	
Current Consumption, Pre-alarm OR Alarm	<80mA	
Current Consumption, Alarm (& Pre-alarm)	<100mA	
Current Consumption, Fault	<70mA	
Visual Indicators	Function	Colour
	ALARM	Red
	PRE-ALARM	Red
	FAULT	Orange
	POWER	Green
Relay Outputs (Latching)	ALARM, PRE-ALARM (all Form C) 2A @ 30Vdc load rating – resistive 0.25A @ 250Vac load rating – resistive	
Fault Output	Opto-isolated Phototransistor Output Max 50V @ 20mA	
Remote Reset	Isolated input for resetting module remotely (20-28Vdc pulse for at least 5s)	
Alarm/Pre-alarm Temperature Range	54°C* – 100°C (129°F – 212°F)	

\* **NOTE:** 54°C alarm or pre-alarm setting is for use in controlled ambient areas only. Specifically, when the overall sensor cable length is less than 75m (246ft) ensure the humidity and temperature **DO NOT** exceed 75% and 30°C respectively.

## Chemical Resistance Table

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

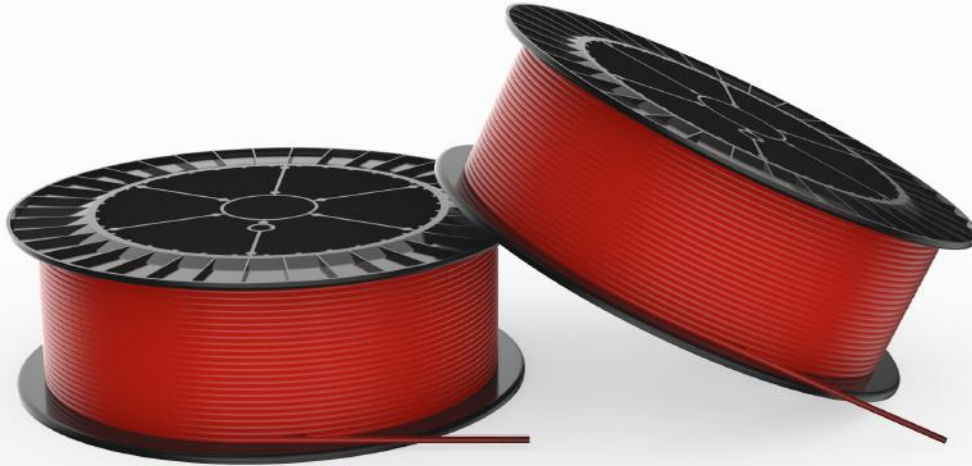
Chemical	PVC	Nylon	Polypropylene
Ammonia, Liquid	★★★★★	★★★	★★★★★
Butane	★★★★★	★★★★★	★
Copper Nitrate	★★★★★	★	★★★★★
Fuel Oils	★★★★★	★★★★★	★★★
Gasoline	★★	★★★★★	★★
Hydrofluoric Acid	★	★	★★★★★
Kerosene	★★★★★	★★★★★	★
Diesel Fuel	★★★★★	★★★★★	★★★★
Acetic Acid	★★	★★★★★	★★★★★

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## PVC Coated Sensing Cable

The standard coating used on Analogue 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.



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## Ordering Information

### Standard PVC Sensing Cable

18-210	FLA100	Analogue Linear Heat Sensing Cable, 54 to 100°C Alarm Temp. UL 521 - 100m Reel Length
18-211	FLA100	Analogue Linear Heat Sensing Cable, 54 to 100°C Alarm Temp. UL 521 - 200m Reel Length
18-212	FLA100	Analogue Linear Heat Sensing Cable, 54 to 100°C Alarm Temp. UL 521 - 500m Reel Length

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## 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.



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## Ordering Information

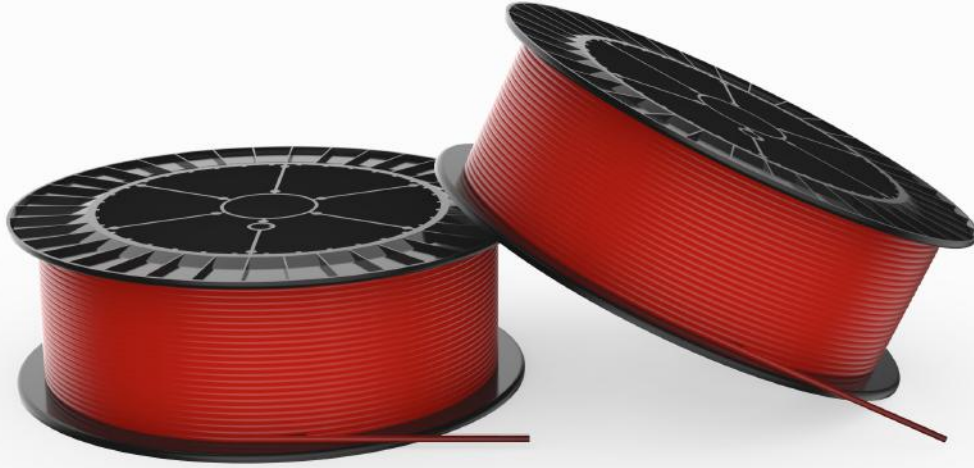
Nylon Coating for Outdoor UV Protection & Increased Durability

18-220	FLA100N	Analogue Linear Heat Sensing Cable, Nylon Coated, 54 to 100°C Alarm Temp. - 100m Reel Length
18-221	FLA100N	Analogue Linear Heat Sensing Cable, Nylon Coated, 54 to 100°C Alarm Temp. - 200m Reel Length
18-222	FLA100N	Analogue Linear Heat Sensing Cable, Nylon Coated, 54 to 100°C Alarm Temp. - 500m Reel Length

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## Polypropylene Coated Sensing Cable

Polypropylene is the least common option and, although it is tougher than PVC, is mainly used for applications where strong acids are present or in corrosive environments.



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## Ordering Information

Polypropylene Coating for Chemical Protection & Caustic Environments

18-230	FLA100P	Analogue Linear Heat Sensing Cable, Polypropylene Coated, 54 to 100°C Alarm Temp. - 100m Reel Length
18-231	FLA100P	Analogue Linear Heat Sensing Cable, Polypropylene Coated, 54 to 100°C Alarm Temp. - 200m Reel Length
18-232	FLA100P	Analogue Linear Heat Sensing Cable, Polypropylene Coated, 54 to 100°C Alarm Temp. - 500m Reel Length

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## 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.



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## Ordering Information

Stainless Steel Braided for Enhanced EMC & Mechanical Protection

18-240	FLA100S	Analogue Linear Heat Sensing Cable, Stainless Steel Braided, 54 to 100°C Alarm temp. - 100m Reel Length
18-241	FLA100S	Analogue Linear Heat Sensing Cable, Stainless Steel Braided, 54 to 100°C Alarm temp. - 200m Reel Length
18-242	FLA100S	Analogue Linear Heat Sensing Cable, Stainless Steel Braided, 54 to 100°C Alarm temp. - 500m Reel Length

## Sensing Cable Tech Specs

Approvals	CE Marked, UL Listed	
Outer Jacket	High Temperature Red PVC	
Additional Insulation Options	Nylon, Polypropylene, Stainless Steel Braided	
Overall Diameter	4.57mm ± 0.075mm (0.180" ± 0.003")	
Humidity	0% to 99% RH	
RFI Shielding	Twisted and Foil shielding to reduce inductance and RF susceptibility	
Cores	<b>Function</b>	<b>Colour</b>
	Calibration Resistance	White
	Sensor Core	Red
	Conductor & Specially Doped Polymer Core	Clear
	Conductor & Specially Doped Polymer Core	Clear
Maximum Continuous Length	500m (1640ft)	
Minimum Continuous Length	30.5m (100ft)	
Operating Temperature Range	-40°C to 125°C (-40°F to 257°F)	
Continuous Ambient Temperature Range	-40°C to 90°C (-40°F to 194°F)	

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## 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.

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### Standard L-Clip

18-300      Zintec Steel, 25 Pack

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18-301      Zintec Steel, 100 Pack

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18-310      Stainless Steel, 100 Pack

Dimensions: 50mm Height



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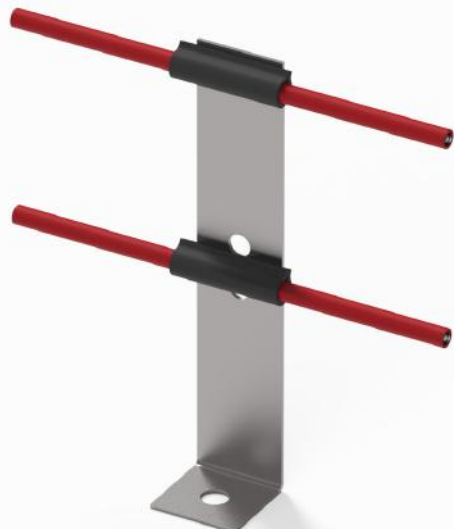
### Dual Height L-Clip

18-302      Zintec Steel, 100 Pack

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18-311      Stainless Steel, 100 Pack

Dimensions: 100mm Height





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## Channel Bracket

18-303      Zintec Steel, 100 Pack

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18-312      Stainless Steel, 100 Pack

Dimensions: (H) 60mm x (W) 50mm



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## 200mm L-Clip

18-304      Zintec Steel, 100 Pack

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18-314      Stainless Steel, 100 Pack

Dimensions: 200mm Height or Width



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## Distance Piece

18-305      Zintec Steel, 100 Pack

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18-315      Stainless Steel, 100 Pack

Dimensions: 200mm Height or Width



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## V-Clip

18-313      Stainless Steel, 100 Pack

Dimensions: (H) 50mm x (W) 120mm



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## Pipe Clip

18-306      Zintec Steel, 100 Pack

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18-316      Stainless Steel, 100 Pack

Dimensions: (H) 60mm x (W) 50mm



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## Beam Clip

18-340      Beam Clip (2-3mm), 100 Pack

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18-341      Beam Clip (3-8mm), 100 Pack

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18-342      Beam Clip (8-14mm), 100 Pack

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18-343      Beam Clip (14-20mm), 100 Pack



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## Indoor/Outdoor UV & Heat Stabilised Tie Wrap

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



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## Extra High Temperature Indoor Heat Stabilised Tie Wrap

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



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## 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



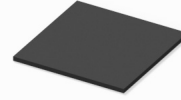
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## High Temperature Silicone Pads

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<sup>2</sup> x 1mm



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## Analogue End of Line Module

The analogue end of line module is used to terminate a FyreLine Analogue Linear Heat Sensing Cable.

It comes supplied with one gland, and has a 4-way removable terminal block with PCB within.

18-202      (Replacement) End-of Line Module

Dimensions: (W) 60mm x (H) 55mm x (D) 30mm



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## Junction Box

The junction box is a quick and efficient method of interconnecting and joining lengths of an FyreLine Analogue 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

[Empty white rounded rectangular box for representative information]