



# Specialist linear heat detection





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# Welcome to FFE

FFE is a global innovator in the design and manufacture of **specialist fire detection solutions**. We exist to ensure that all lives and livelihoods are protected from fire, even in the most challenging environments.

Established in 1974, FFE has been a trusted provider of specialist fire detection solutions for over 50 years, protecting lives, assets and property around the world. Our products, designed and manufactured in the UK, and our solutions are synonymous with quality, reliability and innovation, reflecting decades of experience and a deep commitment to excellence.

Building on this foundation, our product range consists of Proreact, delivering reliable Linear Heat Detection, ensuring continuous fire protection in industrial and commercial environments; Talentum, providing fast flame detection in industries where early intervention is critical and Fireray, offering quick, accurate and dependable beam smoke detection for large indoor spaces. We are continually expanding our product portfolio to meet evolving fire safety needs.

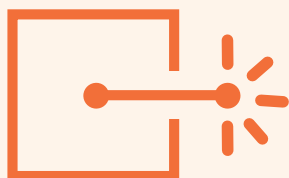
We believe that fire safety is not just about products; it is about expertise, dedication and continuous innovation. With our entire team operating under one roof, we take pride in being experts in fire detection, giving you the highest level of support and technical expertise. Whether your application is common or highly specialised, we are committed to providing you with the most advanced and effective fire safety solutions and complete peace of mind.

**Protecting lives.  
Protecting assets.  
Protecting property.**

# Why use our linear heat detectors?



**Unaffected by dirt, dust and damp**  
Maintains detection capabilities  
in harsh environments



**Flexible and reliable performance**  
Designed for use in both indoor  
and outdoor installations



**Wide coverage**  
Up to 3,000 metres (9,842 ft) of  
LHD Cable per zone



**Manufactured in the UK**  
Short lead times ensuring quick  
delivery across Europe

## Specialist linear heat detection for industrial and commercial environments.

### Key features

Provides rapid and early warning of potential fire hazards

Real-time temperature monitoring along the entire cable length

Adjustable settings to suit specific environmental conditions

Designed to withstand harsh conditions, including high humidity, dust, and chemical exposure

Compatible with existing fire alarm and suppression systems

### Why use Proreact?

Our range of Fixed and Programmable linear heat detection cables are designed for precise and reliable fire detection in a variety of environments. These advanced cables continuously monitor temperature changes throughout their length, warning early of potential fire hazards. With robust construction to withstand harsh conditions and customisable sensitivity settings, Proreact cables ensure comprehensive and accurate heat detection, making them ideal for industrial, commercial and residential applications.

### The Proreact range

#### Fixed Activation Temperature LHD

Description	Part no. UL	Part No. EN	
Controller	A1349	A1397	
End-of-Line Unit	A1385	A1398	
Junction Box	A1343	A1343	
Approvals	Nylon	Stainless Steel	Activation Temperature
UL, ULC, FM, CE, RoHS	F1070	F1078	68°C (155°F)
	F1071	F1079	78°C (172°F)
	F1072	F1080	88°C (190°F)
	F1073	F1081	105°C (221°F)
	F1069	F1082	185°C (365°F)
	F1132	F1133	230°C (446°F)
EN54, CE, RoHS	F1182	F1192	68°C (155°F)
	F1180	F1190	78°C (172°F)
	F1181	F1191	88°C (190°F)

#### Programmable Activation Temperature LHD

	Part no.		
Controller	A1389		
End-of-Line Unit	A1470		
Junction Box	A1471		
Approvals	Nylon	Stainless Steel	Activation Temperature
UL, EN54, CNBOP, EN54, RoHS	F3051	F3052	54°C (129°F) to 100°C (212°F)



# The Proreact range

## Fixed

Designed to trigger a response when a specific temperature is reached.



## Programmable

This unique sensor cable and its method of control continuously responds to changes in temperature.



## Accessories

Our comprehensive range of accessories and tools for your specialist application.



# Specialist linear heat detection

## Fixed Activation Temperature UL



### Sensor Control Unit

The Fixed Activation Temperature Sensor Control Unit is an EN54 certified dual zone alarm point distance locating module that is compatible with the Fixed Activation Temperature LHD range of cables. It can monitor up to 6,000 metres (19,686 ft) across two zones of digital LHD cable. It contains the popular interlock detection mode from the Fixed Activation Temperature Interface Monitor Module that reduces the possibility of false alarms.



### Detection Cable

The Fixed Activation Temperature LHD Cable consists of a twisted pair of metal cores, sheathed in advanced temperature sensitive polymers. These polymers soften at a given temperature that brings the cores into contact and triggers an alarm.

### Junction Box

Proreact Fixed Activation Temperature Junction Box is an optional component that can be employed to connect different lengths of Proreact Fixed Activation Temperature Sensor Cable together should it be required. Such instances could be if there is a desire to increase the total length of sensor cable within a zone or if a small section of sensor cable needs replacing following an activation.



### End-of-Line Unit

The Fixed Activation Temperature End-of-Line Unit with test facility has also been certified to EN54-28:2016 and enables users to undertake hassle-free functional testing of the system. Users can verify normal conditions, trouble and alarm functions of a system by simulating a break in the cable or overheat condition.

#### KEY FEATURES

- Designed for use in both indoor and outdoor installations
- Low smoke zero halogen material coating
- Wide coverage – up to 3,000 metres (9,840 ft) of Proreact Fixed Activation Temperature LHD cable per zone
- The Proreact Fixed Activation Temperature Sensor Control Unit can monitor up to two zones of Proreact Fixed Activation Temperature LHD cable
- Improved testing and maintenance functionality with the Proreact Fixed Activation Temperature End-of-Line Unit
- Manufactured in the UK and short lead times ensuring quick delivery across Europe

#### APPLICATIONS

- Cable trays
- Car parks
- Cold storage
- Conveyor belts
- Mines
- Oil and gas tank farms

#### APPROVALS

Worldwide approvals include EN54 to meet end user specifications certification. Visit our website for up-to-date approvals information.



# Technical specifications

## Fixed Activation Temperature UL

Sensor Control Unit	
MECHANICAL SPECIFICATION	
Colour	Light Grey with clear lid
Dimensions	180(h) x 120(w) x 60.5(d) mm (7"(h) x 4¾"(w) x 2½"(d))
Rating	NEMA 4, 4X (IP65)
Weight	0.67 kg (1½ lb)

ELECTRICAL SPECIFICATION	
Wiring size	0.08mm <sup>2</sup> to 4mm <sup>2</sup> (28 AWG to 11 AWG)
Operating voltage	12–36 Vdc
Current consumption – normal	15–5 mA
Current consumption – alarm	40–15 mA
Terminal blocks – spacing	5 mm rising clamp (¼")
Terminal blocks – rating	16A
Terminal blocks – wire size	0.08 mm <sup>2</sup> to 4mm <sup>2</sup> (28 AWG to 11 AWG)
Supervised circuits	Power, Input Zone 1, Input Zone 2
Inputs	Up to 2 Class B Zones of Proreact Fixed Activation Temperature
Inputs – max zone length	3000 m (9,840 ft)
Inputs – min zone length	1 m (¾ ft)
Inputs – end-of-line resistor	3.6 kΩ (included)
Inputs – short circuit current	0.5 mA
Inputs – max zone voltage	5 V
Outputs – communications	Two wire RS-485 Modbus RTU/ASCII
Outputs – sounder	2.4kHz 92dBa @ 10cm buzzer
Outputs – alarm	2x Form C volt-free relay contacts (resistive, common) Max V 30Vac or 42.4Vdc – Max Current 2A, Max Switching Power 60W, 62.5VA
Outputs – fault	2x Optoisolated phototransistor output (resistive, common) Max V 35Vdc – Max Current 80mA, Max Power Dissipation 150mW

ENVIRONMENTAL SPECIFICATION	
Operating temperature	–20°C to +50°C (–4°F to +122°F)
Relative humidity	–35°C to +55°C (–31°F to +131°F)

	Junction Box	End-of-Line Unit
MECHANICAL SPECIFICATION		
Colour	White	White
Dimensions	155(h) x 145(w) x 60(d) mm (6"(h) x 5¾"(w) x 2¼"(d))	155(h) x 145(w) x 60(d) mm (6"(h) x 5¾"(w) x 2¼"(d))
Rating	IP66 rated enclosure supplied with 2 IP67 rated cable glands	IP66 rated enclosure supplied with 2 IP67 rated cable glands
Weight	0.24 kg (½ lb)	0.28 kg (½ lb)

ELECTRICAL SPECIFICATION		
Inputs – end-of-line resistor	5 DIN Rail mounted terminals and 2 cable glands	2x 5mm rising lamp

# Technical specifications

## Fixed Activation Temperature UL LHD Cable

Part number	F1070	F1071	F1072	F1073	F1069	F1132
Activation temperature	68°C (154°F)	78°C (172°F)	88°C (190°F)	105°C (221°F)	185°C (365°F)	UL: 218°C (424°F) FM: 235°C (455°F)

MECHANICAL SPECIFICATION						
Material	Nylon	Nylon	Nylon	Nylon	Nylon	Silicone Rubber
Colour	Black	Black	Black	Black	Black	Green
Diameter	4.5 mm	4.5 mm	4.5 mm	4.5 mm	4.5 mm	5.00 mm
Min. bend radius	50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")	63.5 mm (2.5")
Max. zone length	3,000 m (9,840 ft)	3,000 m (9,840 ft)	3,000 m (9,840 ft)	3,000 m (9,840 ft)	3,000 m (9,840 ft)	1,000 m (3,280 ft)

Net weights						
100m reel	2.64 kg (5¾ lb)	2.64 kg (5¾ lb)	2.66 kg (5⅞ lb)	2.56 kg (5⅝ lb)	1.79 kg (4 lb)	-
200m reel	5.28 kg (11½ lb)	5.28 kg (11½ lb)	5.31 kg (11¾ lb)	5.12 kg (11¼ lb)	3.59 kg (8 lb)	-
500m reel	13.21 kg (29⅞ lb)	13.21 kg (29⅞ lb)	13.28 kg (29¼ lb)	12.81 kg (28¼ lb)	8.97 kg (19¾ lb)	-
1000m reel	26.42 kg (58¼ lb)	26.42 kg (58¼ lb)	26.56 kg (58½ lb)	25.61 kg (56½ lb)	17.94 kg (39½ lb)	-

Gross weights						
100m reel	3.29 kg (7.25 lb)	3.29 kg (7.25 lb)	3.31 kg (7.30 lb)	3.21 kg (7.08 lb)	2.44 kg (5.38 lb)	-
200m reel	5.93 kg (13.07 lb)	5.93 kg (13.07 lb)	5.96 kg (13.14 lb)	5.77 kg (12.72 lb)	4.24 kg (9.34 lb)	-
500m reel	16.01 kg (35.30 lb)	16.01 kg (35.30 lb)	16.08 kg (35.45 lb)	15.61 kg (34.41 lb)	11.77 kg (25.95 lb)	-
1000m reel	29.56 kg (65.17 lb)	29.56 kg (65.17 lb)	29.70 kg (65.48 lb)	28.75 kg (63.21 lb)	21.08 kg (46.47 lb)	-

ENVIRONMENTAL SPECIFICATION						
Max. amb. temp.	45°C (113°F)	45°C (113°F)	65°C (149°F)	65°C (149°F)	125°C (257°F)	170°C (338°F)
Min. amb. temp.	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)
Relative humidity	0-100% RH	0-100% RH	0-100% RH	0-100% RH	0-100% RH	-

ELECTRICAL SPECIFICATION						
Max. voltage rating	30 Vac, 42 Vdc	30 Vac, 42 Vdc	30 Vac, 42 Vdc	30 Vac, 42 Vdc	30 Vac, 42 Vdc	-
Resistance	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	-
Capacitance	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	-
Inductance	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	-

SPACING						
UL	10 m (35 ft)	10 m (35 ft)	10 m (35 ft)	10 m (35 ft)	-	-
FM	9 m (30 ft)	9 m (30 ft)	9 m (30 ft)	7.5 m (25 ft)	-	-

CHEMICAL RESISTANCE SCALE 1-5 (1 = not recommended, 5 = little to no impact)						
Acetic acid	1	1	1	1	1	4
Ammonia, liquid	3	3	3	3	3	3
Butane	5	5	5	5	5	2
Copper nitrate	1	1	1	1	1	5
Diesel fuel	5	5	5	5	5	3
Fuel oils	5	5	5	5	5	3
Gasoline	5	5	5	5	5	3
Hydrofluoric acid	1	1	1	1	1	1
Kerosene	5	5	5	5	5	3



Part number	F1078	F1079	F1080	F1081	F1082	F1133
Activation temperature	68°C (154°F)	78°C (172°F)	88°C (190°F)	105°C (221°F)	185°C (365°F)	UL: 218°C (424°F), FM: 235°C (455°C)

MECHANICAL SPECIFICATION						
Material	Nylon with Stainless Steel Braid	Nylon with Stainless Steel Braid	Nylon with Stainless Steel Braid	Nylon with Stainless Steel Braid	Nylon with Stainless Steel Braid	Silicone Rubber with Stainless Steel Braid
Colour	Silver braid	Silver braid	Silver braid	Silver braid	Silver braid	Silver braid
Diameter	4.1 mm	4.1 mm	4.1 mm	4.1 mm	4.1 mm	5.5 mm
Min. bend radius	50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")	50 mm (2")	63.5 mm (2.5")
Max. zone length	3,000 m (9,840 ft)	3,000 m (9,840 ft)	3,000 m (9,840 ft)	3,000 m (9,840 ft)	3,000 m (9,840 ft)	1,000 m (3,280 ft)

ENVIRONMENTAL SPECIFICATION						
Max. amb. temp.	45°C (113°F)	45°C (113°F)	65°C (149°F)	65°C (149°F)	125°C (257°F)	170°C (338°F)
Min. amb. temp.	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)
Relative humidity	0-100% RH	0-100% RH	0-100% RH	0-100% RH	0-100% RH	-

ELECTRICAL SPECIFICATION						
Max. voltage rating	30 Vac, 42 Vdc	30 Vac, 42 Vdc	30 Vac, 42 Vdc	30 Vac, 42 Vdc	30 Vac, 42 Vdc	-
Resistance	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	~100Ω/km (29Ω/kft) per leg	-
Capacitance	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	88 – 150 pF/m (26 – 45 pF/ft)	-
Inductance	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	540 – 1050 nH/m (165 – 320 nH/ft)	-

SPACING						
UL	10 m (35 ft)	10 m (35 ft)	10 m (35 ft)	10 m (35 ft)	-	-
FM	9 m (30 ft)	9 m (30 ft)	9 m (30 ft)	7.5 m (25 ft)	-	-

CHEMICAL RESISTANCE SCALE 1-5 (1 = not recommended, 5 = little to no impact)						
Acetic Acid	1	1	1	1	1	4
Ammonia, Liquid	3	3	3	3	3	3
Butane	5	5	5	5	5	2
Copper Nitrate	1	1	1	1	1	5
Diesel Fuel	5	5	5	5	5	3
Fuel Oils	5	5	5	5	5	3
Gasoline	5	5	5	5	5	3
Hydrofluoric Acid	1	1	1	1	1	1
Kerosene	5	5	5	5	5	3

# Specialist linear heat detection

## Fixed Activation Temperature EN



### Sensor Control Unit

The Fixed Activation Temperature Sensor Control Unit is an EN54 certified dual zone alarm point distance locating module that is compatible with the Fixed Activation Temperature LHD range of cables. It can monitor up to 2,000 metres (6,562 ft) across two zones of digital LHD cable. It contains the popular interlock detection mode from the Fixed Activation Temperature Sensor Control Unit that reduces the possibility of false alarms.

### Junction Box

Proreact Fixed Activation Temperature Junction Box is an optional component that can be employed to connect different lengths of Proreact Fixed Activation Temperature Sensor Cable together should it be required. Such instances could be if there is a desire to increase the total length of sensor cable within a zone or if a small section of sensor cable needs replacing following an activation.

#### KEY FEATURES

Designed for use in both indoor and outdoor installations

Low smoke zero halogen material coating

Wide coverage – up to 1,000 metres (3,280 ft) of Proreact Fixed Activation Temperature LHD cable per zone

The Proreact Fixed Activation Temperature Sensor Control Unit can monitor up to two zones of Proreact Fixed Activation Temperature LHD cable

Improved testing and maintenance functionality with the Proreact Fixed Activation Temperature End-of-Line Unit

Manufactured in the UK and short lead times ensuring quick delivery across Europe

#### APPLICATIONS

Cable trays

Car parks

Cold storage

Conveyor belts

Mines

Oil and gas tank farms

#### APPROVALS

Worldwide approvals include EN54 to meet end user specifications certification. Visit our website for up-to-date approvals information.



### Detection Cable

The Fixed Activation Temperature LHD Cable consists of a twisted pair of metal cores, sheathed in advanced temperature sensitive polymers. These polymers soften at a given temperature that brings the cores into contact and triggers an alarm.

### End-of-Line Unit

The Fixed Activation Temperature End-of-Line Unit with test facility has also been certified to EN54-28:2016 and enables users to undertake hassle-free functional testing of the system. Users can verify normal conditions, trouble and alarm functions of a system by simulating a break in the cable or overheat condition.



# Technical specifications

## Fixed Activation Temperature EN

Sensor Control Unit	
MECHANICAL SPECIFICATION	
Colour	Light Grey with clear lid
Dimensions	180(h) x 120(w) x 60.5(d) mm (7"(h) x 4¾"(w) x 2½"(d))
Rating	NEMA 4, 4X (IP65)
Weight	0.67 kg (1½ lb)
ELECTRICAL SPECIFICATION	
Wire size	0.08mm <sup>2</sup> to 4mm <sup>2</sup> (28 AWG to 11 AWG)
Operating voltage	12–36 Vdc
Current consumption – normal	15–5 mA
Current consumption – alarm	40–15 mA
Terminal blocks – spacing	5 mm (¼") rising clamp
Terminal blocks – rating	16 A
Terminal blocks – wire size	0.08 mm <sup>2</sup> to 4mm <sup>2</sup> (28 AWG to 11 AWG)
Supervised circuits	Power, Input Zone 1, Input Zone 2
Inputs	Up to two Class B zones of Proreact EN Digital LHD Cable
Inputs – max zone length	1000 m (3,280 ft)
Inputs – min zone length	1 m (¾ ft)
Inputs – end-of-line resistor	3.6 kΩ (included)
Inputs – short circuit current	0.5 mA
Inputs – max zone voltage	5 V
Outputs – communications	Two wire RS-485 Modbus RTU/ASCII
Outputs – sounder	2.4kHz 92dBa @ 10cm buzzer
Outputs – alarm	2x Form C volt-free relay contacts (resistive, common) Max V 30Vac or 42.4Vdc – Max Current 2A, Max Switching Power 60W, 62.5VA
Outputs – fault	2x Optoisolated phototransistor output (resistive, common) Max V 35 Vdc – Max Current 80 mA, Max Power Dissipation 150 mW
ENVIRONMENTAL SPECIFICATION	
Operating temperature	–20°C to +50°C (–4°F to +122°F)
Relative humidity	0 to 98%

	Junction Box	End-of-Line Unit
MECHANICAL SPECIFICATION		
Colour	White	Light grey
Dimensions	155(h) x 145(w) x 60(d) mm (6"(h) x 5¾"(w) x 2¼"(d))	155(h) x 145(w) x 60(d) mm (6"(h) x 5¾"(w) x 2¼"(d))
Rating	IP66 rated enclosure supplied with 2 IP67 rated cable glands	IP66 rated enclosure supplied with 2 IP67 rated cable glands
Weight	0.24 kg (½ lb)	0.29 kg (⅝ lb)
ELECTRICAL SPECIFICATION		
Inputs – end-of-line resistor	5 DIN Rail mounted terminals and 2 cable glands	2 x 5mm rising lamp

# Technical specifications

## Fixed Activation Temperature EN LHD Cable

Part number	F1182, F1192	F1180, F1190	F1181, F1191
Activation temperature	68°C (154°F)	78°C (172°F)	88°C (190°F)

ELECTRICAL SPECIFICATION			
Capacitance per m (ft)	<100pF	<100pF	<100pF
Inductance per m (ft)	<3.2µH	<3.2µH	<3.2µH
Resistance per m (ft)	Approx 2.5 Ω	Approx 2.5 Ω	Approx 2.5 Ω

ENVIRONMENTAL SPECIFICATION			
Nominal activation temp.	68°C (154°F)	78°C (172°F)	88°C (190°F)
Maximum ambient temp.	45°C (113°F)	45°C (113°F)	65°C (149°F)
Minimum ambient temp.	-40°C (-40°F)	-40°C (-40°F)	-40°C (-40°F)
Relative humidity	0% to 98%	0% to 98%	0% to 98%

SPACING			
FM	9.14 m (30 ft)	9.14 m (30 ft)	9.14 m (30 ft)
UL	10.67 m (35 ft)	10.67 m (35 ft)	10.67 m (35 ft)
Installation recommendations	Please refer to our User Manual for mounting and wiring instructions. The installation of Proreact LHDs should be undertaken in accordance with recognised national or international standards and codes of practice.		

CHEMICAL RESISTANCE SCALE 1-5 (1 = not recommended, 5 = little to no impact)	
Acetic acid	4
Ammonia, liquid / gas	5
Butane	2
Copper nitrate	5
Diesel fuel	3
Fuel oils	3
Gasoline	3
Hydrofluoric acid	4
Kerosene	1

These ratings are given as a guide and for constant exposure to the chemicals shown at normal\* temperatures. \*10 to 30°C (50 to 86°F)



**NYLON CABLE****Low-smoke zero halogen (LSZH), UV stable, oil resistant, flame retardant**

Part number	F1182	F1180	F1181
Activation temperature	68°C (154°F)	78°C (172°F)	88°C (190°F)

**APPROVALS**

UL file no.	S36157	S36157	S36157
UL model designation	EN68	EN78	EN88
EN54-28 performance type	T068-V10-A045	T078-V10-A045	T088-V10-A065
EN54-28 environmental group	II	III	-

**MECHANICAL SPECIFICATION**

Material	Nylon	Nylon	Nylon
Colour	Red	Red	White
Diameter	5.72 mm +/- 0.12 mm (1/4" +/- 0.005")	5.72 mm +/- 0.12 mm (1/4" +/- 0.005")	5.72 mm +/- 0.12 mm (1/4" +/- 0.005")
Minimum bend radius	100 mm (4")	100 mm (4")	100 mm (4")
Weight 100 m (328 ft)	Net	4.1 kg (9lb)	4.1 kg (9lb)
	Gross	6.76 kg (15 lb)	6.76 kg (15 lb)
	Dimensions	430 x 135 mm (17" x 5 1/4")	430 x 135 mm (17" x 5 1/4")
Weight 200 m (656 ft)	Net	8.2 kg (18 lb)	8.2 kg (18 lb)
	Gross	10.86 kg (24 lb)	10.86 kg (24 lb)
	Dimensions	430 x 135 mm (17" x 5 1/4")	430 x 135 mm (17" x 5 1/4")
Weight 500 m (1640 ft)	Net	20.5 kg (45 lb)	20.5 kg (45 lb)
	Gross	23.7 kg (52 1/4 lb)	23.7 kg (52 1/4 lb)
	Dimensions	430 x 250 mm (17" x 9 3/4")	430 x 250 mm (17" x 9 3/4")
Maximum zone length	1000 m (3,280 ft)	1000 m (3,280 ft)	1000 m (3,280 ft)

**STAINLESS STEEL CABLE****Low-smoke zero halogen (LSZH) UV stable, oil resistant  
flame retardant, increased mechanical strength, abrasion resistant**

Part number	F1192	F1190	F1191
Activation temperature	68°C (154°F)	78°C (172°F)	88°C (190°F)

**APPROVALS**

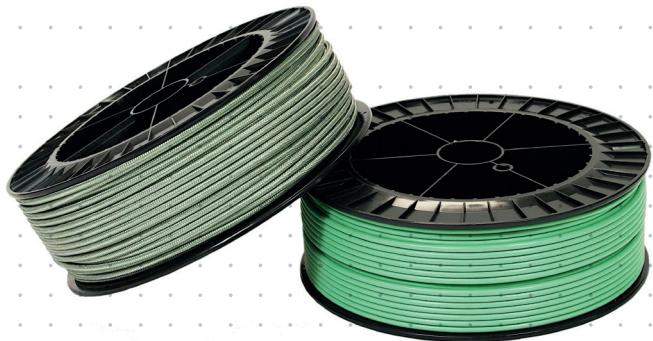
UL file no.	S36157	S36157	S36157
UL model designation	EN68SS	EN78SS	EN88SS
EN54-28 performance type	T068-V10-A045	T078-V10-A045	T088-V10-A065
EN54-28 environmental group	II	III	-

**MECHANICAL SPECIFICATION**

Material	Stainless steel over PVC	Stainless steel over PVC	Stainless steel over PVC
Colour	Silver braid over red	Silver braid over red	Silver braind over white
Diameter	6.3 mm +/- 0.12 mm (1/4" +/- 0.005")	6.3 mm +/- 0.12 mm (1/4" +/- 0.005")	6.3 mm +/- 0.12 mm (1/4" +/- 0.005")
Minimum bend radius	125 mm (5")	125 mm (5")	125 mm (5")
Maximum zone length	1000 m (3,280 ft)	1000 m (3,280 ft)	1000 m (3,280 ft)

# Specialist linear heat detection

## Fixed Activation Temperature



### Very High Temperature Linear Heat Detection

Proreact Fixed Activation Temperature Linear Heat Detection (LHD) Cable has been developed with options to detect and alert operators of overheating and fires in environments that are normally exposed to extremely high temperatures.

Our LHD Cable is specially constructed to provide a reliable form of linear heat detection that can withstand continuous ambient operating temperatures of up to 170°C (338°F) and high humidity (>90% Relative Humidity). It is approved in line with UL521 and FM Class 3210 standards and is fully RoHS compliant.

The cable can be used in conjunction with automatic fire suppression systems in order to manage instances of overheating or fires at the earliest opportunity.

Proreact Fixed Activation Temperature LHD cable is compatible with the Proreact Fixed Temperature Interface Monitor Module to allow operators to accurately pinpoint the location of an incident and to minimise the likelihood of false alarms.

#### KEY APPLICATIONS

##### 1. Steel and metal processing plants

Rolling mills, furnaces, and casting areas experience extreme ambient heat and airborne contaminants. 230°C Fixed Activation Temperature cable provides robust, continuous fire detection across conveyors and production lines, maintaining safety without false alarms.

##### 2. Power generation facilities

Turbine enclosures, cable trays, and exhaust ducts in thermal and nuclear power plants demand heat-resistant detection. 230°C Fixed Activation Temperature cable withstands prolonged high temperatures, ensuring early warning and operational continuity.

#### KEY FEATURES

Linear heat detection cable with an activation temperature of 230°C (445°F)

Can withstand continuous ambient operating temperatures of up to 170°C (338°F)

Highly chemical resistant outer coating

Optional stainless steel braid outer coating for additional protection

Quickly locate and respond to an incident with the optional Proreact Fixed Temperature Interface Monitor Module

#### APPROVALS

Worldwide approvals include UL, FM, CE, RoHS to meet end user specifications certification. Visit our website for up-to-date approvals information.

#### TECHNICAL DATA

Part number	F1132
Activation temperature	230°C (445°F)
Operating temperature range	-40°C (-40°F) to 170°C (338°F)
Operating temperature range	fire detector
Colour	Green (in accordance with NFPA & UL521)
Diameter	5 mm +/- 0.1 mm (0.196" +/- 0.04")
Diameter with SS braid	5.5 mm +/- 0.1 mm (0.216" +/- 0.04")
Optional coatings	Stainless steel braiding





## Australian Fuel Storage Site

Proreact digital linear heat detection was installed at a major refinery, delivering fast, accurate fire detection across hazardous fuel tanks. Its robust construction and interlock functionality ensure reliable performance in extreme conditions, helping to protect critical infrastructure and prevent costly downtime.



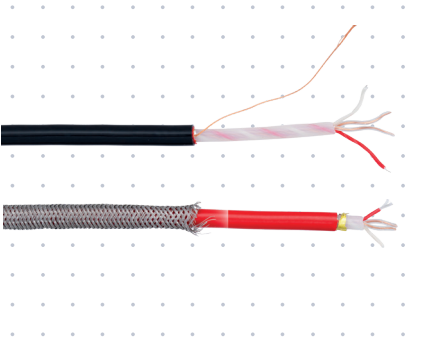
# Specialist linear heat detection

## Programmable Activation Temperature



### Control Unit

Our Programmable Activation Temperature LHD system has a wide range of alarm temperatures to suit different environments. These can be programmed on the LCD display on the Control Unit or through a laptop connection. Installers can also select pre-alarm temperatures to receive early notification of an unexpected rise in temperature before a chosen alarm temperature is reached. Each Control Unit comes with a Modbus RS-485 output and an inbuilt test feature as standard.



### Sensor Cable

The Control Unit detects variations in temperature which result in changes in resistance along the Programmable Activation Temperature Sensor Cable. The Sensor Cable is a multi-core linear heat detector, available in Nylon coated or PVC coated with a Stainless Steel braid.

### Junction Box

Our Programmable Activation Temperature Junction Box is an optional component that can be employed to connect different lengths of Programmable Activation Temperature Sensor Cable together should it be required. Such instances could be if there is a desire to increase the total length of sensor cable within a zone or if a small section of sensor cable needs replacing following an activation.



### End-of-Line Unit

The Programmable Activation Temperature End-of-line Unit has a key role in the operation of the Programmable Activation Temperature LHD technology, allowing the Control Unit to detect a short circuit or open circuit in the Sensor Cable. It is small and can easily be mounted on surfaces.

KEY FEATURES
Up to 500 m (1640 ft) of LHD cable per zone (up to 2 zones)
Two Sensor Cable types to suit a wide range of applications
Low installation costs and easy to maintain versus alternative technologies

BENEFITS
Accommodates up to 500m (1640 ft) of Sensor Cable
Enables a single system to provide suitable coverage over a wide area
Does not have to be replaced following an alarm if the Sensor Cable is not subject to a temperature above its maximum recoverable temperature (125°C, 257°F)

Compensates for ongoing changes in ambient temperature to reduce the likelihood of false alarms during operation
Rate-of-rise activation feature allows for a response to quick escalations in temperature around the sensor cable
Unaffected by dirt, dust, and damp

APPLICATIONS	
Cable trays	Industrial
Car parks	Infrastructure
Conveyor belts	Oil and gas
Energy	Solar photovoltaic
Factories	Warehouses

APPROVALS
Worldwide approvals include EN54 and UL to meet end user specifications certification. Visit our website for up-to-date approvals information.

# Technical specifications

## Programmable Activation Temperature

Control Unit	
MECHANICAL SPECIFICATION	
Colour	Red
Dimensions	180 (h) x 182(w) x 90(d) mm (7 1/8"(h) x 7 1/8"(w) x 3 1/2"(d))
Rating	IP65 (IK08)
Weight	0.86 kg (2 lb)

ELECTRICAL SPECIFICATION	
Operating voltage	20 Vdc – 30 Vdc (EN54) 23 Vdc – 30 Vdc (UL)
Max power consumption	2W
Max current consumption	40-15 mA
without LCD backlight	31mA @ 20 Vdc to 20 mA @ 30 Vdc
without LCD backlight and alarm	61 mA @ 20 Vdc to 39 mA @ 30 Vdc
with LCD backlight and alarm	85 mA @ 20 Vdc to 59 mA @ 30 Vdc
Relay outputs	Alarm and Pre-alarm FORM C
	2A @30 Vdc - resistive 60W
	0.25 A @250 Vac (62.5 A) - resistive
Fault output	Normally closed Opto-isolated phototransistor output
	Max V: 35 Vdc Max I: 80 mA Max P: 150 mW
Remote reset	5-28 Vdc for minimum 3 seconds
Modbus output	2-wire RS-485 Modbus RTU or ASCII
Integral temperature sensor	Alarm if sensor control unit reaches 100°C (212°F)

ENVIRONMENTAL SPECIFICATION	
Operating temperature	-20°C to +50°C (-4°F to +122°F)
Relative humidity	0-99% RH (ambient temp between -40°C to +40°C (-40°F to +104°F) 0-75% RH (ambient temp greater than +40°C (+104°F))

	Junction Box	End-of-Line Unit
MECHANICAL SPECIFICATION		
Colour	White	Silver
Dimensions	155(h) x 145(w) x 60(d) mm (6"(h) x 5 3/4"(w) x 2 1/4"(d))	35 (h) x 100(w) x 60(d) mm (1 3/8" (h) x 4"(w) x 2 3/8"(d))
Rating	IP66 rated enclosure supplied with 2 IP67 rated cable glands	IP65
Weight	0.24 kg (1/2 lb)	0.12 kg (1/4 lb)

ELECTRICAL SPECIFICATION	
Inputs – end-of-line resistor	5 DIN Rail mounted terminals and – 2 cable glands

ENVIRONMENTAL SPECIFICATION	
Operating temperature range	-40°C to +125°C (-40°F to 257°F)
Relative humidity	0-99% RH (ambient temp between -40°C to +40°C (-40°F to +104°F) 0-75% RH (ambient temp greater than +40°C (+104°F))



# Technical specifications

## Programmable Activation Temperature LHD Cable

Part number	F3051	F3052
<b>MECHANICAL SPECIFICATION</b>		
Material	Nylon	Stainless Steel over PVC
Colour	Black	Silver braid over Red
Diameter	6.0 mm (1/4")	5.3 mm (1/4")
Minimum bend radius	100 mm (4")	75mm (3")
Maximum zone length	500 m (1,640 ft)	500 m (1,640 ft)
<b>ENVIRONMENTAL SPECIFICATION</b>		
Nominal activation temp.	54°C to 100°C (129°F to 212°F)	54°C to 100°C (129°F to 212°F)
Maximum ambient temp.	Dependant on Alarm temp. see table below	Dependant on Alarm temp. see table below
Minimum ambient temp.	-40°C (-40°F)	-40°C (-40°F)
Relative humidity	0-99% RH (ambient temp between -40°C to +40°C (-40°F to +104°F) 0-75% RH (ambient temp greater than +40°C (+104°F)	0-99% RH (ambient temp between -40°C to +40°C (-40°F to +104°F) 0-75% RH (ambient temp greater than +40°C (+104°F)
<b>SPACING</b>		
EN54	10.7 m (35 ft)	10.7 m (35 ft)
UL (Smooth Ceiling)	10.7 m (35 ft)	10.7 m (35 ft)
UL (to Wall or Partition)	5.3 m (17.5 ft)	5.3 m (17.5 ft)
Minimum bend radius	100 mm (4")	75mm (3")
Maximum zone length	500 m (1,640 ft)	500 m (1,640 ft)
<b>CHEMICAL RESISTANCE SCALE 1-5* (1 = not recommended, 5 = little to no impact)</b>		
Ammonia, Liquid / Gas	3	4
Ammonia Nitrate	1	5
Butane	5	5
Copper Nitrate	1	5
Fuel Oils	5	5
Gasoline	5	5
Hydrofluoric Acid	1	1
Methyl Ethyl Ketone	5	5
Diesel Fuel	5	5
Ethyl Alcohol	5	5
Ethanol	5	5

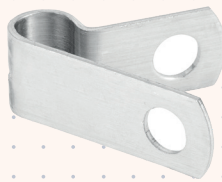
ALARM, PRE ALARM AND MAXIMUM AMBIENT TEMPERATURES					
Approval	Available controller settings	Nominal alarm temperature	Available pre-alarm temperature	Recommended typical application temperature	Maximum application temperature
EN54-22:2015	Class A1 I/A2I	66°C (151°F)	54°C (129°F)	25°C (77°F)	50°C (122°F)
	Class B1	80°C (176°F)	54°C (129°F) 64°C (147°F)	40°C (104°F)	65°C (149°F)
UL	54	54°C (129°F)	Not available	15°C (59°F)	30°C (86°F)
	64	64°C (147°F)	54°C (129°F)	25°C (77°F)	47°C (117°F)
	72	72°C (162°F)	54°C (129°F) 64°C (147°F)	30°C (86°F)	47°C (117°F)
	79	79°C (174°F)	54°C (129°F) 64°C (147°F) 71°C (160°F)	35°C (95°F)	47°C (117°F)
	86	100°C (212°F)	54°C (129°F) 64°C (147°F) 71°C (160°F) 79°C (174°F)	40°C (104°F)	65°C (149°F)
	100	66°C (151°F)	54°C (129°F) 64°C (147°F) 71°C (160°F) 79°C (174°F) 93°C (199°F)	50°C (122°F)	65°C (149°F)

# Proreact accessories

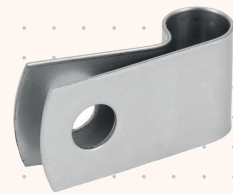
To complement your Proreact installation, we also offer a comprehensive range of accessories and tools for your specialist application.



**Ceiling / Wall J-Clip [SS]**  
PN: A1149-100



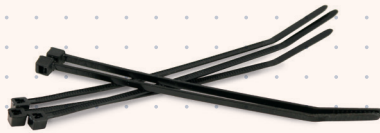
**Surface P-Clip [Al]**  
PN: A1362-100



**Surface P-Clip [SS]**  
PN: A1329-100



**Cable Tray V-Clip [SS]**  
PN: A1174-100



**Indoor/Outdoor Tiewrap**  
PN: A1175-100



**Indoor Tiewrap (High Temp)**  
PN: A1176-11



**Indoor/Outdoor Tiewrap (High Temp)**  
PN: A1177-100



**Silicone Sleeves**  
PN: C1283-100

## Find out more

For more information on the full Proreact range visit:

[ffeuk.com/proreact](https://ffeuk.com/proreact)







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