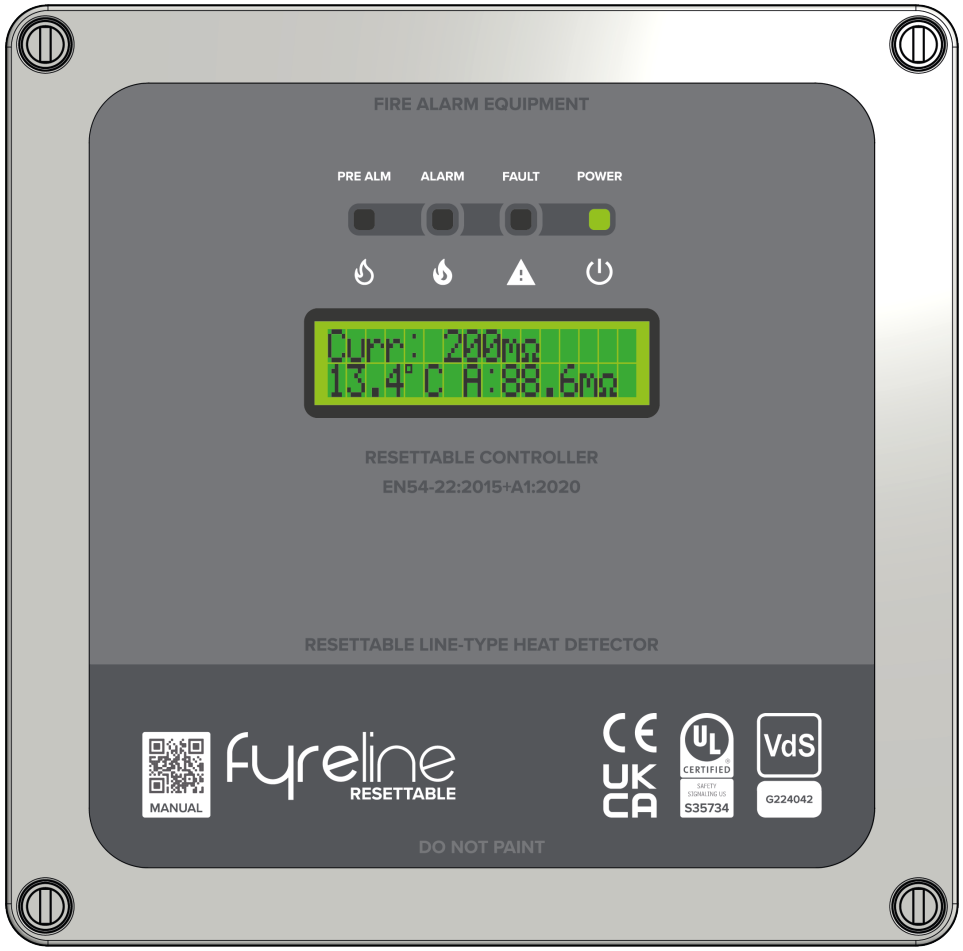
FyreLine Resettable

System Guide



Date: October 2026
Document: EF.FLENRSG
Issue: 1.4

This page is intentionally left blank.

Intellectual Property and Copyright

This document includes registered and unregistered trademarks. All trademarks displayed are the trademarks of their respective owners. Your use of this document does not constitute or create a licence or any other right to use the name and/or trademark and/or label.

This document is subject to copyright owned by Eurofyre Limited. You agree not to copy, communicate to the public, adapt, distribute, transfer, sell, modify or publish any contents of this document without the express prior written consent of Eurofyre.

Disclaimer

The contents of this document is provided on an “as is” basis. No representation or warranty (either express or implied) is made as to the completeness, accuracy or reliability of the contents of this document. The manufacturer reserves the right to change designs or specifications without obligation and without further notice. Except as otherwise provided, all warranties, express or implied, including without limitation any implied warranties of merchantability and fitness for a particular purpose are expressly excluded.

General Warning

This product must only be installed, configured and used strictly in accordance with the General Terms and Conditions, User Manual and product documents available from Eurofyre. All proper health and safety precautions must be taken during the installation, commissioning and maintenance of the product. The system should not be connected to a power source until all the components have been installed. Proper safety precautions must be taken during tests and maintenance of the products when these are still connected to the power source. Failure to do so or tampering with the electronics inside the products can result in an electric shock causing injury or death and may cause equipment damage. Eurofyre is not responsible and cannot be held accountable for any liability that may arise due to improper use of the equipment and/or failure to take proper precautions. Only persons trained through an Eurofyre accredited training course can install, test and maintain the system.

Liability

You agree to install, configure and use the products strictly in accordance with the User Manual and product documents available from Eurofyre.

Eurofyre is not liable to you or any other person for incidental, indirect, or consequential loss, expense or damages of any kind including without limitation, loss of business, loss of profits or loss of data arising out of your use of the products. Without limiting this general disclaimer the following specific warnings and disclaimers also apply:

Fitness for Purpose

You agree that you have been provided with a reasonable opportunity to appraise the products and have made your own independent assessment of the fitness or suitability of the products for your purpose. You acknowledge that you have not relied on any oral or written information, representation or advice given by or on behalf of Eurofyre or its representatives.

Total Liability

To the fullest extent permitted by law that any limitation or exclusion cannot apply, the total liability of Eurofyre in relation to the products is limited to:

- in the case of services, the cost of having the services supplied again; or
- in the case of goods, the lowest cost of replacing the goods, acquiring equivalent goods or having the goods repaired.

Indemnification

You agree to fully indemnify and hold Eurofyre harmless for any claim, cost, demand or damage (including legal costs on a full indemnity basis) incurred or which may be incurred arising from your use of the products.

Miscellaneous

If any provision outlined above is found to be invalid or unenforceable by a court of law, such invalidity or unenforceability will not affect the remainder which will continue in full force and effect. All rights not expressly granted are reserved.

Scope

The installation guide provides a comprehensive description of the FyreLine Resettable system.

This guide introduces the FyreLine Resettable features, technical specifications and gives an understanding of its components and their function. You will also find instructions on installing, cabling and testing.

This guide is for anyone involved with the design, maintenance and purchasing of a FyreLine Resettable system. It is assumed that anyone using this product has the knowledge and appropriate certification from local fire and electrical authorities.

Document Conventions

The following typographic conventions are used in this document:

Convention	Description
Bold	**Used to denote:** Emphasis.
Italics	**Used to denote:** References to other parts of this document or other documents.

The following icons are used in this document:

Convention	Description
	**Recommended guideline:** Advising to do so.
	**Caution:** Not appropriate to do so or; care taken to avoid danger or mistakes.

Contact Us

Telephone	+44 (0) 1329 835 024
Email	sales@eurofyre.co.uk technical@eurofyre.co.uk
Website	www.eurofyre.co.uk

Table Of Contents

1 VdS EN54-22 Approval 6
1.1 Approval Specifics 6
1.2 Approval Components 6
1.3 Response Classes 7
2 UL 521 (Category Code UQGS) Listing 8
2.1 Approval Specifics 8
2.2 Approval Components 8
2.3 Response Classes 8
3 Important Guidelines 9
4 Overview 10
4.1 Introduction 10
4.2 Typical Addressable System Wiring 10
4.3 Typical Conventional System Wiring 11
5 Theory of Operation 11
5.1 Alarm Temperatures 11
5.2 Pre-Alarm Temperatures 13

5.3 Application Temperatures 14
6 Technical Specification 14
6.1 FyreLine Resettable Controller 14
6.2 FyreLine Resettable EOL Module 17
6.3 FyreLine Resettable Sensor Cable 18
7 Mounting Guidelines 20
7.1 FyreLine Resettable Controller 20
7.2 FyreLine Resettable EOL Module 20
7.3 FyreLine Resettable Sensor Cable 21
8 Area Protection 22
9 Controller Wiring 24
9.1 Remote Reset 24
9.2 Modbus RS-485 RTU/ASCII 24
9.3 Hazardous Area Installation 24
10 Typical System Wiring 25
11 Useful Information 26
11.1 Leader Cable 26
11.2 Low Temperature Considerations 26
11.3 Joining Sensor Cable 26
12 Commissioning 27
13 Normal Operation 28
14 Fault Conditions 30
15 Alarm Conditions 31
16 Resetting Controller After an Alarm Condition 31
17 Testing & Verification 32
17.1 FyreLine Resettable Controller Testing 32
17.2 FyreLine Resettable Functional Testing 33
18 FyreLine Resettable Controller Re-commissioning 33
19 Glossary 33
Appendix A - Alarm Temperature Charts 34

1 VdS EN54-22 Approval

1.1 Approval Specifics

Certificate No.	G224042
Holder of the Approval	Eurofyre Limited Unit C1 Knowle Village Business Park Mayles Lane Wickham Hampshire PO17 5DY United Kingdom
Subject of Approval	Resettable line-type heat detector (FyreLine Resettable)
Use	In automatic fire detection and fire alarm systems
Basis of Approval	VdS 2543:2021-03 EN54-22:2015+A1:2020
Environmental Group	II (All components)

Table 1: VdS Approval Specifics

1.2 Approval Components

Part Number	Model Number	Description	EN54-22 Definition
18-502	FLRC	FyreLine Resettable Controller	Sensor Control Unit
18-503	FLREOL	FyreLine Resettable EOL Module	Functional Unit
18-501	FLRJB	FyreLine Resettable Junction Box	Functional Unit
18-510/511/512	FLR100-PVC	FyreLine Resettable LHD Cable, PVC, 54°C to 100°C	Sensing Element
18-520/521/522	FLR100-NYL	FyreLine Resettable LHD Cable, Nylon, 54°C to 100°C	Sensing Element
18-540/541/542	FLR100-SSB	FyreLine Resettable LHD Cable, Stainless Steel Braided, 54°C to 100°C	Sensing Element

Table 2: VdS Approval Components

⚠	**The FyreLine Resettable Leader Cable variants have not been approved by VdS.**

1.3 Response Classes

Sensor Control Unit	Sensing Element	Controller Parameter	Response Classification	Max Sensor Cable Zone Length	Min Sensor Cable Zone Length	Typical Application Temperature	Max Application Temperature
FyreLine Resettable Controller	FyreLine Resettable LHD Cable, PVC	Class A1I/A2I	A1I	500m	50m	25°C	50°C
	FyreLine Resettable LHD Cable, Nylon						
	FyreLine Resettable LHD Cable, Stainless Steel Braided						
FyreLine Resettable Controller	FyreLine Resettable LHD Cable, PVC	Class A1I/A2I	A2I	500m	50m	25°C	50°C
	FyreLine Resettable LHD Cable, Nylon						
	FyreLine Resettable LHD Cable, Stainless Steel Braided						
FyreLine Resettable Controller	FyreLine Resettable LHD Cable, PVC	Class BI	BI	500m	30m	40°C	65°C
	FyreLine Resettable LHD Cable, Nylon						
	FyreLine Resettable LHD Cable, Stainless Steel Braided						

Table 3: VdS Response Classes

2 UL 521 (Category Code UQGS) Listing

2.1 Approval Specifics

UL File No.	S35734
UL Category (CCN)	UQGS
Holder of Approval	Eurofyre Limited Unit C1 Knowle Village Business Park Mayles Lane Wickham Hampshire PO17 5DY United Kingdom
Subject of Approval	Heat-automatic Fire Detectors
Requirements	UL521 “Heat Detectors for Fire Protective Signalling Systems”

Table 4: UL 521 Approval Specifics

2.2 Approval Components

Part Number	Model Number	Description	UL Model No.
18-502	FLRC	FyreLine Resettable Controller	FLRC, FyreLine Resettable Controller for use with Heat Detection Cable
18-503	FLREOL	FyreLine Resettable EOL Module	FLREOL, FyreLine Resettable End-Of-Line Module Heat Detector Accessory
18-510/511/512	FLR100-PVC	FyreLine Resettable LHD Cable, PVC, 54°C to 100°C	FLR100-PVC, FyreLine Resettable Heat Detection Cable (1)
18-520/521/522	FLR100-NYL	FyreLine Resettable LHD Cable, Nylon, 54°C to 100°C	FLR100-NYL, FyreLine Resettable Heat Detection Cable with Nylon Outer Jacket (1)

Table 5: UL 521 Approval Components

⚠	**The FyreLine Resettable Junction Box and Leader Cable variants have not been approved by UL.**

2.3 Response Classes

UL Model No.	Type	Compatibility Restrictions	Contact Arrangement	Temp Range	Spacing (Smooth Ceiling)	Spacing (to Wall or Partition)
FLRC, FyreLine Resettable Controller for use with Heat Detection Cable	HSC	None	-	-	-	-
FLR100-PVC, FyreLine Resettable Heat Detection Cable (1)	HSC	D1	NO	54°C to 100°C (129°F to 212°F)	10.6m (35ft)	5.3m (17.5ft)
FLR100-NYL, FyreLine Resettable Heat Detection Cable with Nylon Outer Jacket (1)						

Table 6: UL 521 Response Classes

⚠	**D1 - Listing limited to specific system control unit. Information on compatible control unit indicated on installation drawing of control unit and/or detector.** **(1) - The models FLR100-PVC, FyreLine Resettable Heat Detection Cable and FLR100-NYL, FyreLine Resettable Heat Detection Cable with Nylon Outer Jacket must be used with an FLRC, FyreLine Resettable Controller and a FLREOL, FyreLine Resettable End-Of-Line Module Heat Detector Accessory.**

3 Important Guidelines

1. Please read this System Guide thoroughly before commencing installation and ensure all recommendations and advice are followed.
2. Install the FyreLine Resettable Linear Heat Detection System accordingly to meet local and country installation requirements.
3. For UL listed installations, FyreLine Resettable linear heat detection cable must be installed in accordance with NFPA 70 & 72, NEC 760 (National Electric Code).
4. For EN54-22 approved installations, FyreLine Resettable linear heat detection cable must be installed in accordance with DIN VDE 0833-2 or country equivalent (such as BS 5839-1).
5. Installation of the FyreLine Resettable Linear Heat Detection System should only be undertaken by trained, qualified personnel.

✓	Support the detection cable at a maximum of 0.5m (1.5ft) intervals.
✓	Test the detection cable on the reel, before installation, using a multimeter.
✓	Ensure the maximum ambient temperature of the application will not exceed the allowed maximum application temperature for the chosen alarm temperature.
✓	When protecting an area, ensure adjacent runs of detection cable are spaced at less than or equal to the maximum allowed spacing detailed in the corresponding fire alarm system design standard.
✓	Ensure the detection cable is not in contact with any material which may conduct heat onto the cable. A silicone sleeve must be placed between the fixing clip and detection cable.
✓	Ensure any cable glands used are tightened to form a secure, moisture proof seal around the detection cable. Some applications may benefit from silica gel packets in the control unit and end-of-line enclosures to dry out any residual moisture.
✓	Periodically test the FyreLine Resettable Linear Heat Detection system to ensure correct operation of the system.
✓	Ensure between 1% to 3% of the FyreLine Resettable sensor cable is accessible post-installation to allow functional testing to be carried out

⚠	Avoid allowing the detection cable to come in contact with any material which acts as a heat sink. This may affect the activation of the cable in alarm situations.
⚠	Do not connect lengths of FyreLine Resettable Linear Heat Detection cable in ‘T’ connections or spurs.
⚠	Do not paint the detection cable.
⚠	Do not place the detection cable under excessive tension.
⚠	Do not bend the detection cable at right angles. Refer to the minimum bend radius value for each sensor cable type.
⚠	Avoid subjecting the detection cable to mechanical damage which could result in false activation.
⚠	Avoid laying the detection cable in areas where heavy traffic may result in the cable being crushed.
⚠	Do not use FyreLine Resettable sensor cable with different three letter codes on the same zone. FyreLine Resettable Sensor cables with different three letter codes must use separate FyreLine Resettable Controllers.

4 Overview

4.1 Introduction

FyreLine Resettable Linear Heat Detection (LHD) system comprises of FyreLine Resettable Linear Heat Detection (LHD) sensor cable, a FyreLine Resettable Controller and a FyreLine Resettable end of line unit. The system offers alternative overheat protection in a vast range of applications and industries, from power generation to oil and gas industries.

The FyreLine Resettable technology offers separate Pre-Alarm, Alarm and Modbus outputs in order to maximise functionality, coupled with open and short circuit detection and discrimination.

Ambient temperature compensation maintains alarm temperature accuracy. The system is also resettable following an overheat or fire condition if the components are not exposed to temperatures above the maximum recoverable temperature (see table 12 under section 6.3).

Using a zone or switch monitor, or input/output module, the FyreLine Resettable LHD system can easily be interfaced to an addressable loop. Alternatively it can be directly connected to the initiating zone of any conventional fire alarm control panel (as shown below).

4.2 Typical Addressable System Wiring

⚠	**Power supply unit powering the FyreLine Resettable Controller is not shown.**

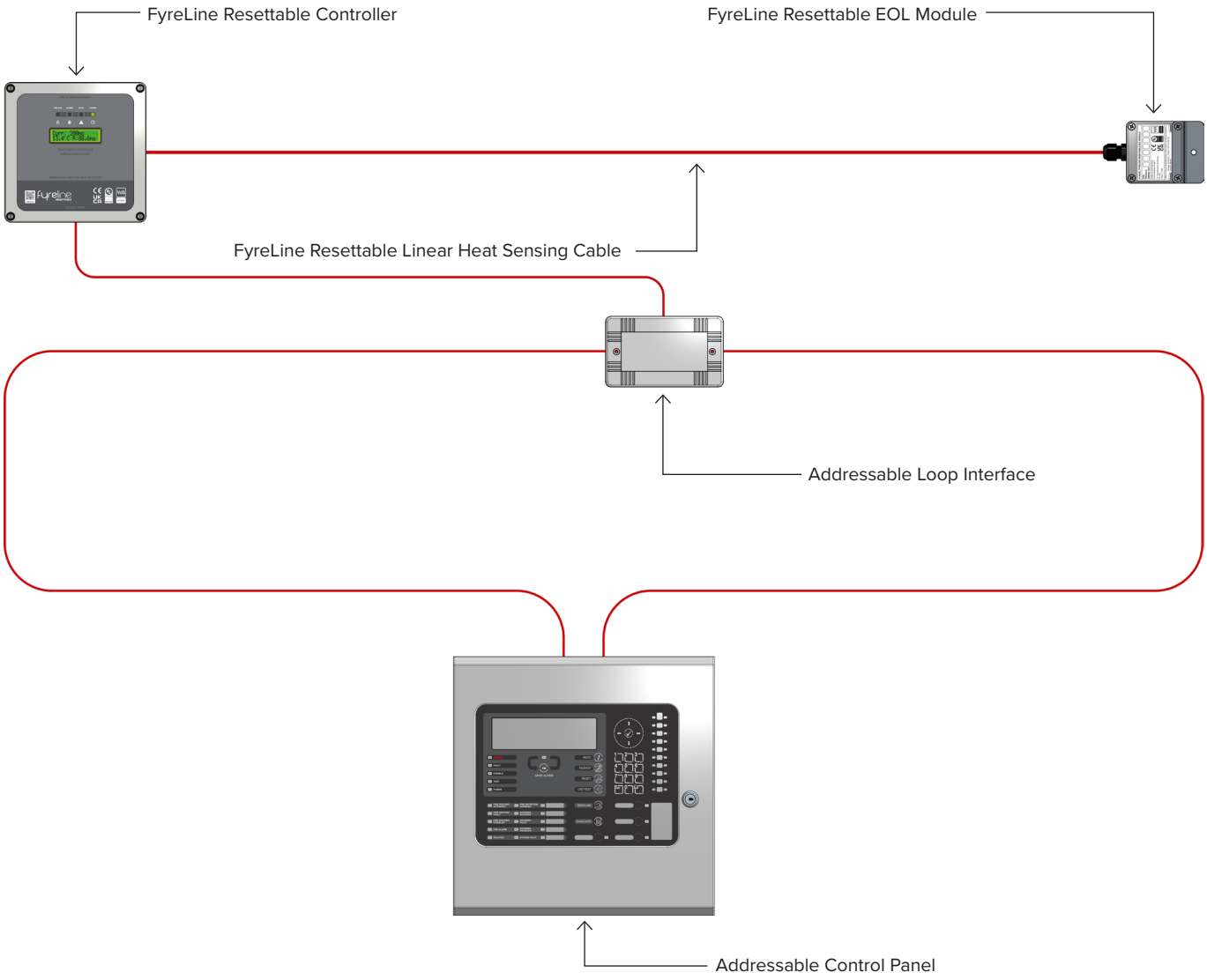


Figure 1: Typical Installation of the FyreLine Resettable Controller on a Addressable System

4.3 Typical Conventional System Wiring

⚠	**Power supply unit powering the FyreLine Resettable Controller is not shown.**

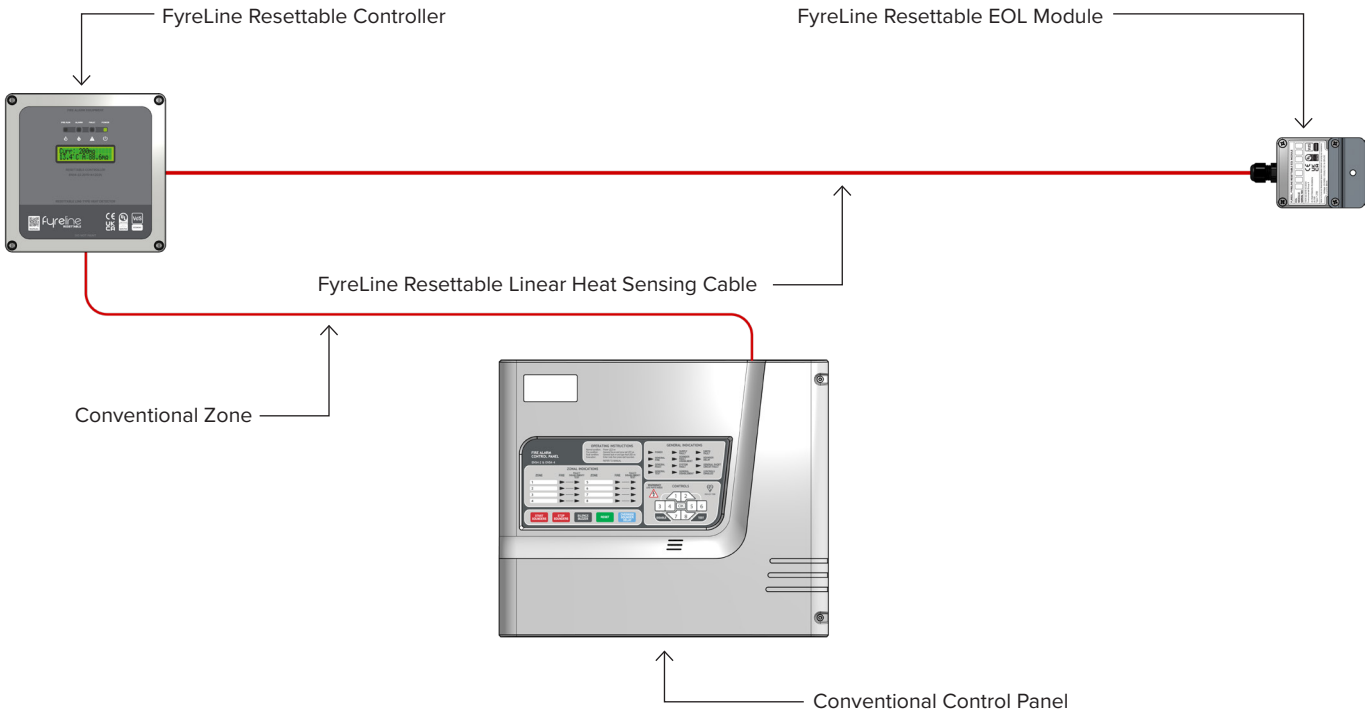


Figure 2: Typical Installation of the FyreLine Resettable Controller on a Conventional System

5 Theory of Operation

The FyreLine Resettable LHD system uses a heat sensitive cable to monitor an area, critical equipment or the like, for an overheat or fire condition.

The FyreLine Resettable Controller continuously monitors the resistance of temperature sensitive polymers within the FyreLine Resettable LHD cable. The resistance of the FyreLine Resettable LHD cable decreases as the temperature around the cable increases. An abnormal change in resistance, due to an overheat condition, along the cable triggers either a Pre-Alarm or Alarm on the FyreLine Resettable Controller. The FyreLine Resettable Controller can be interfaced to a conventional or addressable fire alarm system.

For the alarm temperature to be stable across a range of ambient temperatures, the FyreLine Resettable Controller measures the average ambient temperature across the entire cable and dynamically adjusts the alarm threshold accordingly.

It is important therefore to ensure that the FyreLine Resettable Controller is set up correctly and the cable resistance and the average ambient temperature as shown on the FyreLine Resettable Controller are as expected. See the Commissioning section for more information about setting up a FyreLine Resettable LHD system.

5.1 Alarm Temperatures

The FyreLine Resettable LHD system is designed so that an alarm will be triggered when the temperature around a section of FyreLine Resettable LHD cable (equal to 3% of its total length) reaches a nominal alarm temperature predetermined by the chosen setting on the FyreLine Resettable Controller (as shown in Table 7).

The actual exposure temperature required to trigger an alarm will be lower than the nominal alarm temperature (as shown in Table 7) if a larger section of FyreLine Resettable LHD cable is exposed to an abnormal rise in temperature. Likewise, the actual exposure temperature will be higher that the nominal alarm temperature if a shorter section of FyreLine Resettable LHD cable is exposed to an abnormal rise in temperature.

When the sensor cable is installed and operated in hotter environments, the sensor cable may need to be exposed to a higher temperature than that required in a cooler environment in order to trigger an alarm for a given setting on the FyreLine Resettable Controller. In such circumstances, the FyreLine Resettable Controller dynamically adjusts the alarm threshold to reduce the likelihood of false alarms.

Refer to the Appendix A for more information on the typical and maximum application temperature for each controller setting.

Please refer to the charts on the following page for illustrative examples of the expected temperature a given portion of Resettable LHD cable must be exposed to in order to trigger an alarm by FyreLine Resettable Controller setting.

⚠	**Rate-of-rise Activation** **Note: for the Class A1I/A2I, 54°C and 64°C Alarm settings the controller will also trigger an alarm if approximately 2% of the sensor cable is heated at more than 15°C per minute for longer than 3 minutes. This will show as a rate alarm (see step 25 in the commissioning procedure).**

VdS EN54-22:2015 +A1:2020 Approved	UL listed (UQGS)	Available Controller Settings	Nominal Alarm Temperature	
			°C	°F
✓	×	Class A1I/A2I	66	151
✓	×	Class BI	80	176
×	✓	54	54	129
×	✓	64	64	147
×	✓	72	72	162
×	✓	79	79	174
×	✓	86	86	187
×	✓	100	100	212

Table 7: FyreLine Resettable settings & nominal alarm temperatures in typical application temperatures (based on 3% of total cable length)

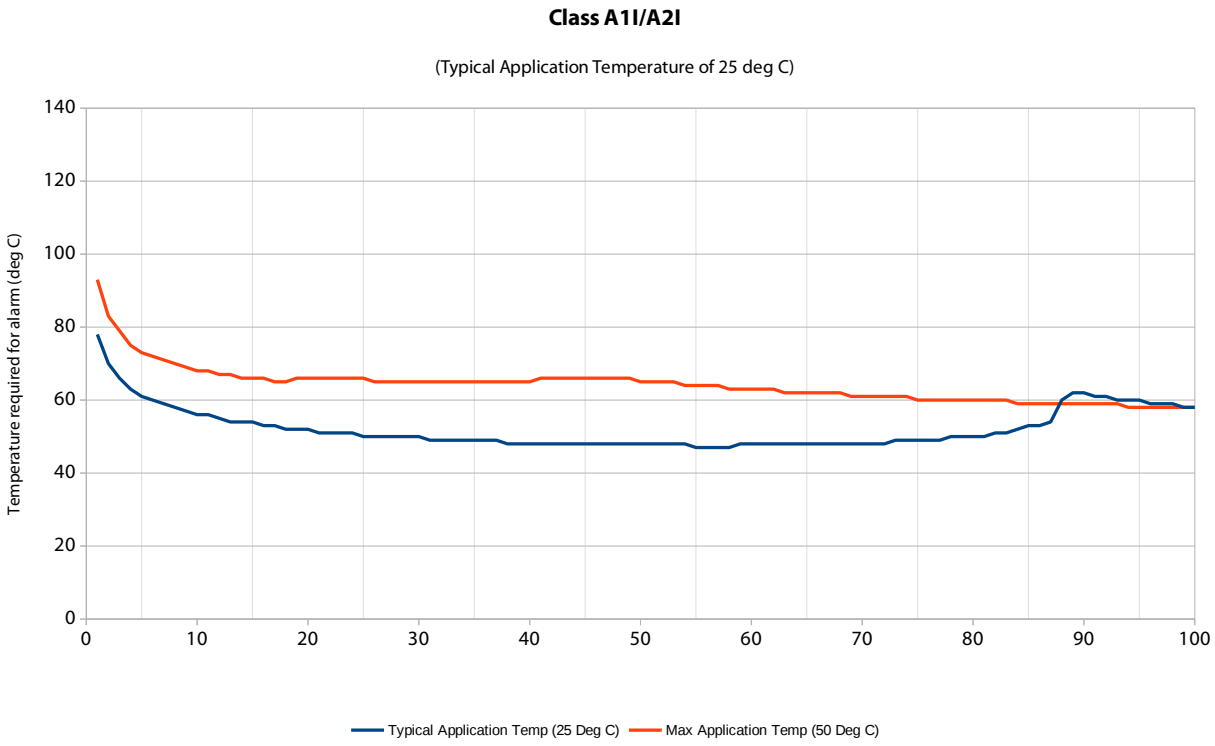


Chart 1: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in Class A1I/A2I Setting

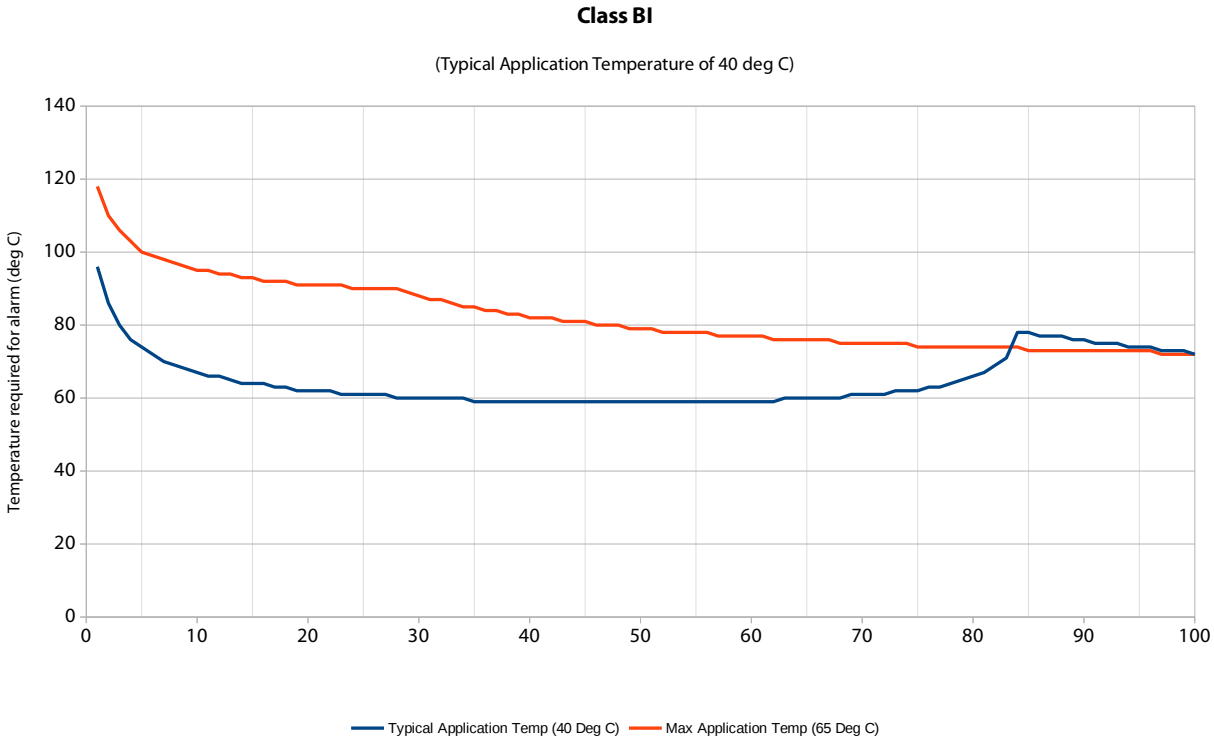


Chart 2: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in Class BI Setting

⚠	**Illustrative examples for the other FyreLine Resettable settings can be found in Appendix A.**

5.2 Pre-Alarm Temperatures

The FyreLine Resettable LHD system has an in-built Pre-Alarm feature that enables users to receive an early notification of a temperature increase before an alarm is triggered. Users can take advantage of this additional functionality in several of the available settings. Table 8 presents the available Pre-Alarm temperatures for selected settings. See the Commissioning section for more information about setting up a Pre-Alarm temperature.

VdS EN54-22:2015 +A1:2020 Approved	UL listed (UQGS)	Available Controller Settings	Nominal Alarm Temperature	Nominal Pre-Alarm Temperature(s)
			°C	°C
✓	×	Class A1I/A2I	66	54
✓	×	Class BI	80	54, 64
×	✓	54	54	Not Available
×	✓	64	64	54
×	✓	72	72	54, 64
×	✓	79	79	54, 64, 71
×	✓	86	86	54, 64, 71, 79
×	✓	100	100	54, 64, 71, 79, 93

Table 8: Available Pre-Alarm temperatures on the FyreLine Resettable Controller

5.3 Application Temperatures

In order to minimise false alarms and ensure the FyreLine Resettable LHD system responds as expected, it is very important to make sure that the chosen controller setting for selecting the alarm temperature is suitable for use given the typical and maximum application temperatures that are likely to be expected during normal operation in the installed environment. Refer to Table 9 below for the recommended typical and maximum application temperatures for a given alarm temperature selection.

VdS EN54-22:2015 +A1:2020 Approved	UL listed (UQGS)	Available Controller Settings	Recommended Typical Application Temperature		Maximum Application Temperature	
			°C	°F	°C	°F
✓	×	Class A1I/A2I	25	77	50	122
✓	×	Class BI	40	104	65	149
×	✓	54	15	59	30	86
×	✓	64	25	77	47	117
×	✓	72	30	86		
×	✓	79	35	95		
×	✓	86	40	104	65	149
×	✓	100	50	122		

Table 9: Recommended typical and maximum application temperatures dependent upon chosen controller setting

The recommended typical application temperatures and maximum application temperatures for the two VdS approved settings are given in accordance with those in EN54-22:2015+A1:2020 section 4.1.2.

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 of the controller DO NOT exceed 75% and 30°C respectively.

6 Technical Specification

6.1 FyreLine Resettable Controller

Operating Voltage	20V DC to 30V DC (VdS EN54) 23V DC to 30V DC (UL)
Maximum Power Consumption	2W
Maximum Current Consumption	Without LCD Backlight: 31mA @ 20V DC to 20mA @ 30V DC Without LCD Backlight and Alarm: 61mA @ 20V DC to 39mA @ 30V DC With LCB Backlight and Alarm: 85mA @ 20V DC to 59mA @ 30V DC
Continuous Operating Temperature Range	-20°C to +50°C
Continuous Operating Humidity Range	0% to 95% RH (ambient temperatures -20°C to +30°C) 0% to 75% RH (ambient temperatures greater than +30°C)
Relay Outputs	Alarm & Pre-Alarm FORM C 2A @ 30V DC - Resistive (60W) 0.25A @ 250V AC (62.5VA) - Resistive
Fault Output	Normally Closed Opto-isolated Phototransistor Output Max V: 35V DC Max I: 80mA Max P: 150mW
Dimensions (W x H x D)	182mm x 180mm x 90mm
Weight	860g
IP Rating	IP65 (IK08)
Enclosure Material	Polycarbonate

Remote Reset	5-28V DC for Minimum 3 Seconds
Modbus Output	2-wire RS-485 Modbus RTU or ASCII
Integral Temperature Sensor	Alarm if Sensor Controller reaches 100°C

Table 10: FyreLine Resettable Controller Technical Specification

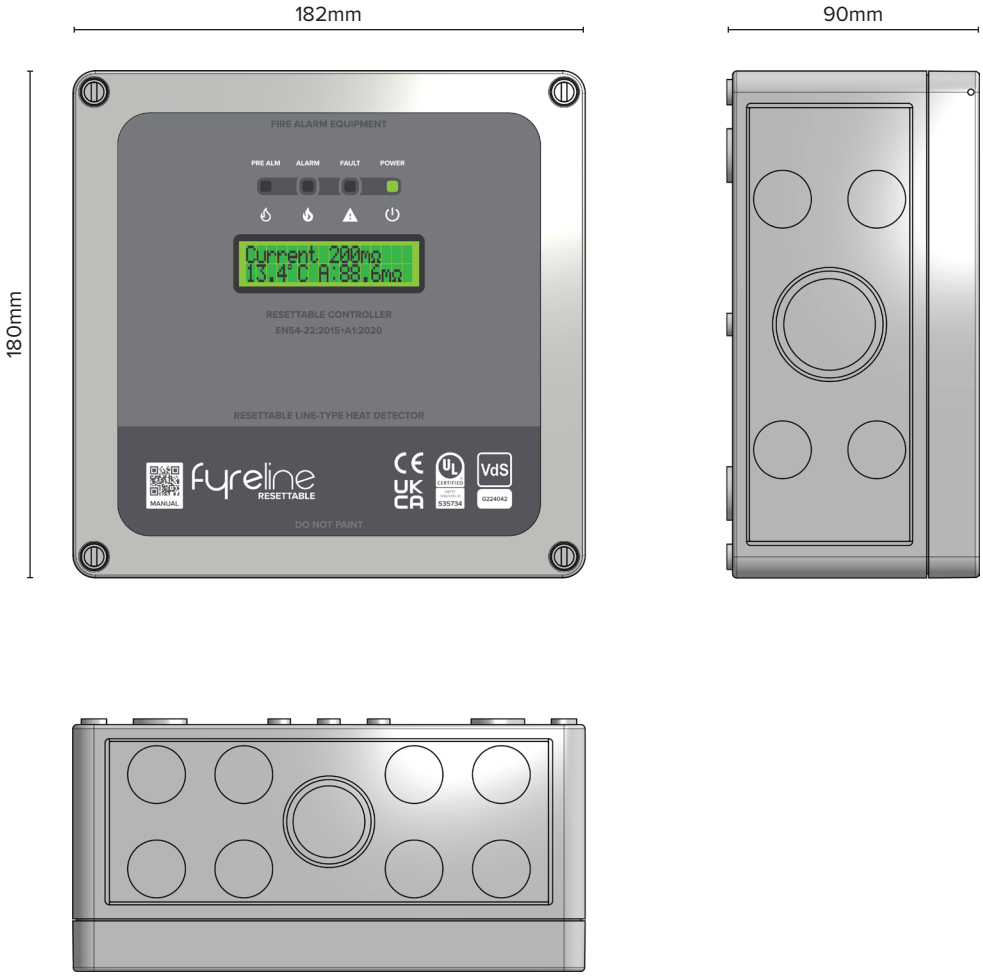


Figure 3: FyreLine Resettable Controller Dimensional Drawing

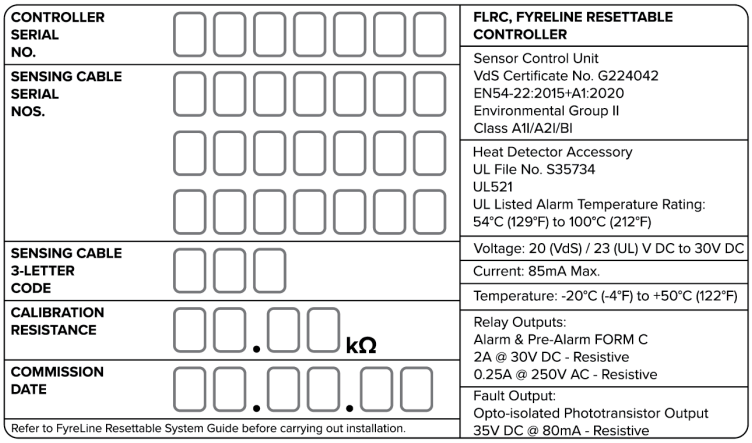


Figure 4: FyreLine Resettable Controller Internal Label

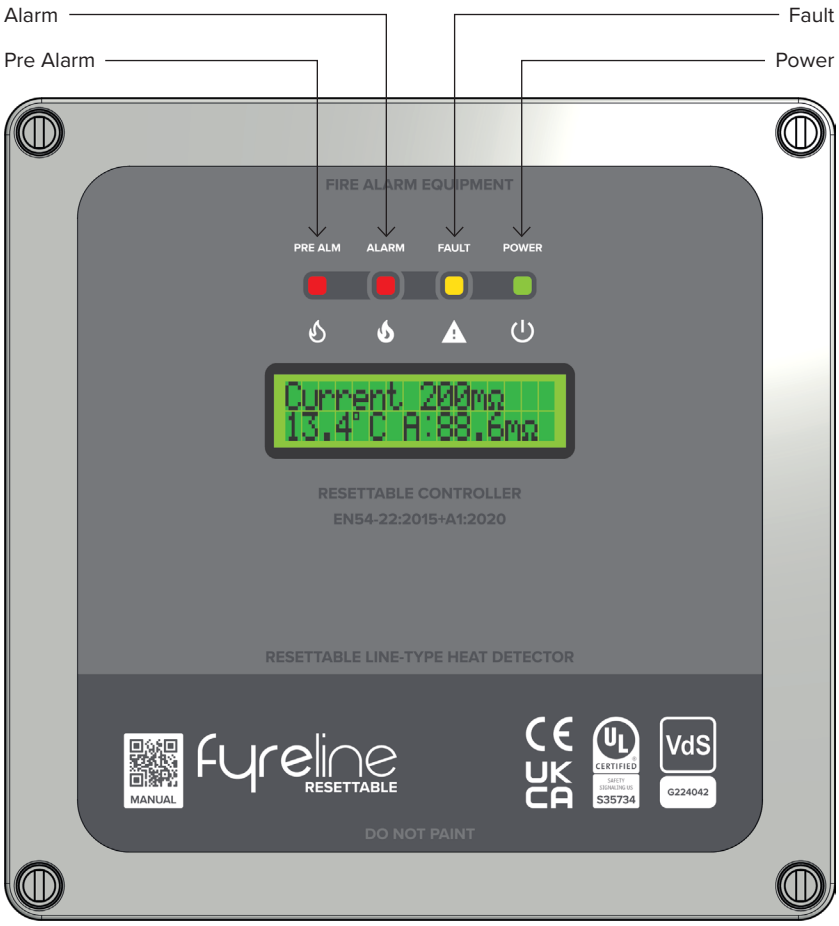


Figure 5: FyreLine Resettable Controller LED Indication

6.2 FyreLine Resettable EOL Module

Continuous Operating Temperature Range	-40°C to +125°C
Continuous Operating Humidity Range	0% to 99% RH (ambient temperatures -40°C to +40°C) 0% to 75% RH (ambient temperatures greater than +40°C)
Dimensions (W x H x D)	100mm x 60mm x 35mm
Weight	115g
IP Rating	IP65
Enclosure Material	Aluminium

Table 11: FyreLine Resettable EOL Module Technical Specification

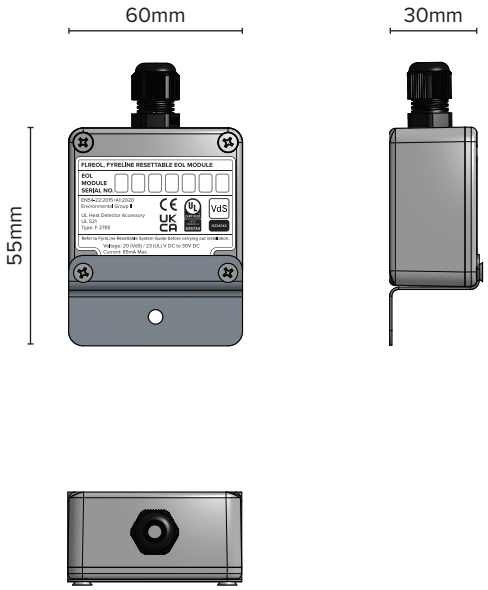


Figure 6: FyreLine Resettable EOL Module Dimensional Drawing

6.3 FyreLine Resettable Sensor Cable

Sensor Cable Product	FyreLine Resettable PVC Coated Sensor Cable	FyreLine Resettable Nylon Coated Sensor Cable	FyreLine Resettable PVC and Stainless Steel braided Sensor Cable
VdS EN54-22 Approved (Certificate No. G224042)	✓	✓	✓
UL 521 Listed (File No. S35734)	✓	✓	×
VdS Model Number	FyreLine Resettable LHD Cable, PVC, 54°C to 100°C	FyreLine Resettable LHD Cable, Nylon, 54°C to 100°C	FyreLine Resettable LHD Cable, Stainless Steel Braided, 54°C to 100°C
UL Model Number	FLR100-PVC, FyreLine Resettable Heat Detection Cable (1)	FLR100-NYL, FyreLine Resettable Heat Detection Cable with Nylon Outer Jacket (1)	-
Eurofyre Part Number	18-510/511/512	18-520/521/522	18-540/541/542
Description	FyreLine Resettable LHD Cable, PVC, 54°C to 100°C	FyreLine Resettable LHD Cable, Nylon, 54°C to 100°C	FyreLine Resettable LHD Cable, Stainless Steel Braided, 54°C to 100°C
Construction	Overall insulated, 4-core twisted with 100% coverage foil-shield and shield dump wire		
Final Insulation	PVC	Nylon	Stainless Steel braid (min. 70% coverage)
Wire Overall Diameter	4.83mm (0.190 in)	6.00mm (0.235 in)	5.33mm (0.210 in)
Weight (kg per km)	25.6	36.3	39.3
Colour	Red	Black	Silver
Minimum Bend Radius	60mm (2.36 in)	100mm (4 in)	75mm (3 in)
Maximum Ambient Temperature	Dependent upon Alarm Temperature (see Table 7)		
Minimum Ambient Temperature	-40°C		
Maximum Recoverable Temperature	+125°C		
Continuous Operating Humidity Range	0% to 99% RH (ambient temperatures between -40°C to +40°C) 0% to 75% RH (ambient temperatures greater than +40°C)		
Minimum Zone Length	50m / 164ft (Class A1I/A2I and 54°C alarm settings) 30m / 100ft (all other alarm settings)		
Maximum Zone Length	500m / 1640ft (all alarm settings)		
EN54-22 Environmental Group	II		
White Core Resistance Per Metre	Approx 17 Ω/m		
Red Core Resistance Per Metre	Approx 3.3 Ω/m		
Clear Core Resistance Per Metre (each)	Approx 0.1 Ω/m		
Features	Hard PVC outer coating suitable for indoor and outdoor use. Not suitable for use in direct sunlight and/or exposed to harsh chemicals.	Hard Nylon outer jacket. UV stable for indoor and outdoor use in direct sunlight. Excellent resistance to hydrocarbons.	Stainless Steel braid for increased mechanical toughness and abrasion resistance. Suitable for indoor/outdoor use with limited exposure to direct sunlight and not exposed to harsh chemicals.

Chemical Resistance	These ratings are given as a guide and for constant, complete exposure to the chemicals listed. Shown at normal (10°C to 30°C) temperatures. (* - not recommended, ***** - little or no impact)		
Ammonia, Liquid / Gas	*****	***	****
Ammonia Nitrate	****	*	*****
Butane	***	*****	*****
Copper Nitrate	*****	*	*****
Fuel Oils	*****	*****	*****
Gasoline	***	*****	*****
Hydrofluoric Acid	***	*	*
Methyl Ethyl Ketone	*	*****	*****
Diesel Fuel	*****	*****	*****
Ethyl Alcohol	***	*****	*****
Ethanol	***	*****	*****

Table 12: FyreLine Resettable Sensor Cable Technical Specification

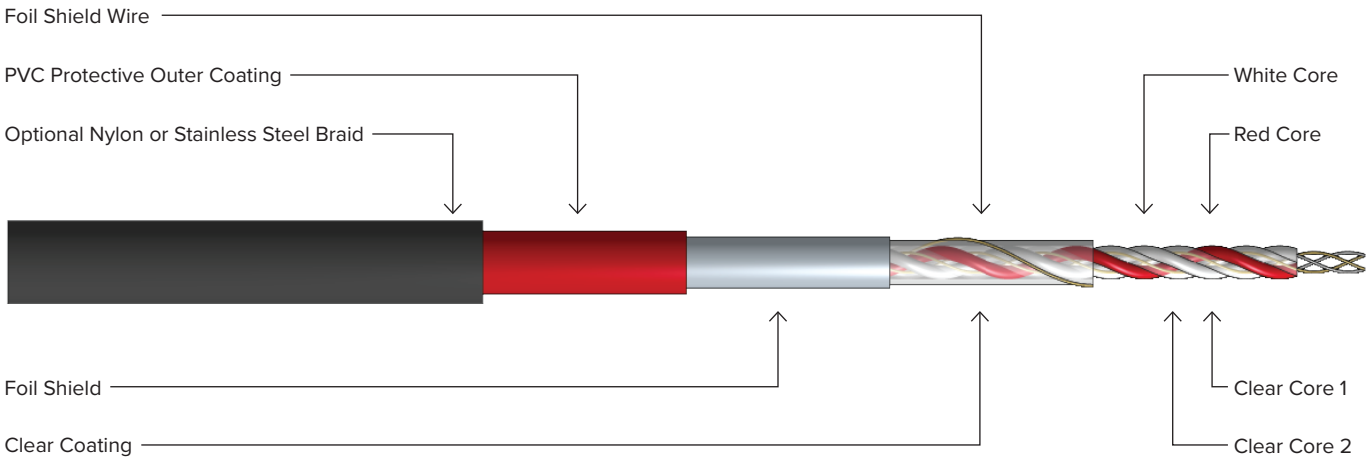


Figure 7: FyreLine Resettable Sensing Cable Illustration Drawing

7 Mounting Guidelines

7.1 FyreLine Resettable Controller

The FyreLine Resettable Controller should be wall mounted (or equivalent) using four screws in each corner of the base of the enclosure. The fixing dimensions are 167mm x 165mm and shown in Figure 9.

Recommended Screw Size	
Minimum Screw Length	20mm
Maximum Thread Diameter	4.5mm
Maximum Head Diameter	7mm

Table 13: FyreLine Resettable Controller Recommended Screw Size

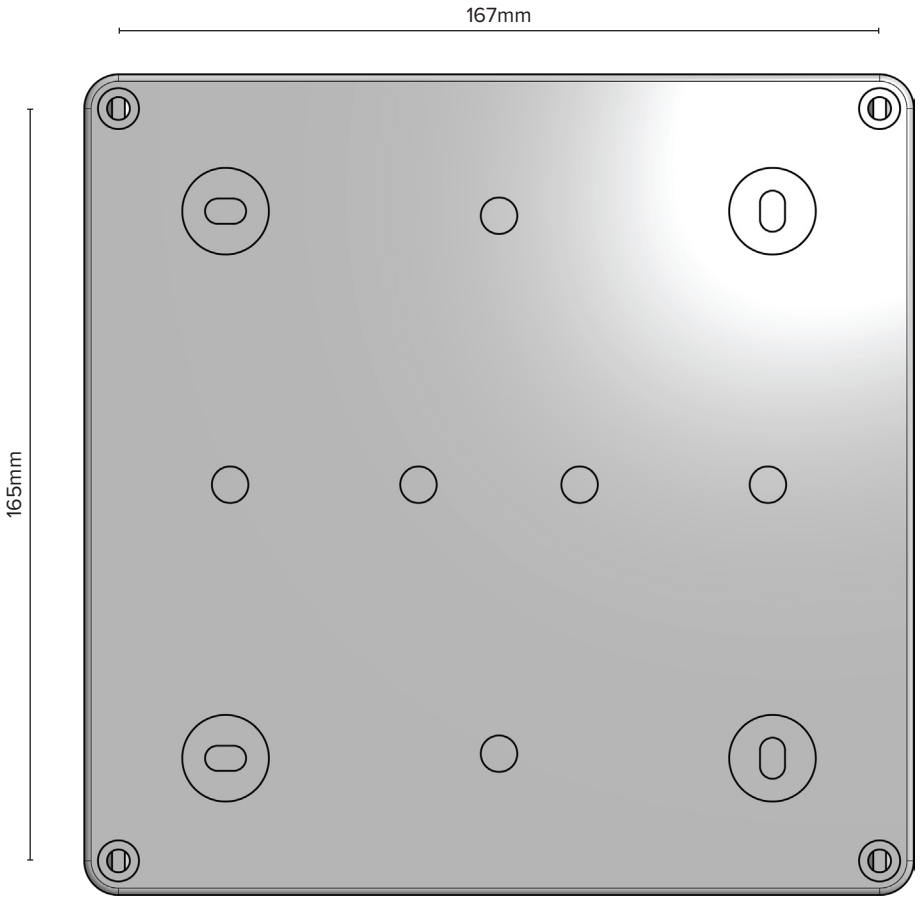


Figure 8: FyreLine Resettable Controller Fixing Dimensional Drawing

7.2 FyreLine Resettable EOL Module

The FyreLine Resettable EOL Module is intended to be mounted on a flat surface using a single screw in the centre of the bracket attached to the lid of the EOL Module enclosure (see Figure 9).

⚠	**Do not mount the EOL Module directly onto a metal surface.**

Recommended Screw Size	
Minimum Screw Length	25mm
Maximum Thread Diameter	5mm
Maximum Head Diameter	15mm

Table 14: FyreLine Resettable EOL Module Recommended Screw Size

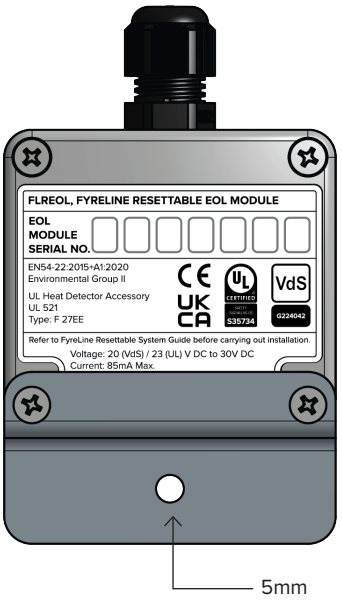


Figure 9: FyreLine Resettable EOL Module Fixing Dimensional Drawing

7.3 FyreLine Resettable Sensor Cable

For area protection applications, the FyreLine Resettable Sensor Cable should be mounted securely to the ceiling, or equivalent, above the area requiring detection. A suitable fixing method is shown in the Figure 10.

When protecting critical pieces of equipment the FyreLine Resettable Sensor Cable should be mounted in such a way as to minimise vibration, accidental damage caused by impact or shock and to minimise heat transfer from metal parts, for example.

⚠	**Always ensure a silicone sleeve is placed between the sensor cable and the mounting bracket or fixing.**
⚠	**The recommended spacing between clips is 0.5m.**
⚠	**It may be necessary to place more supports around bends or corners and other transition areas.**
⚠	**Avoid excessive tension in the sensor cable. No greater than 50N.**
⚠	**Always use a reel stand or equivalent when unspooling the sensor cable from the reel.**

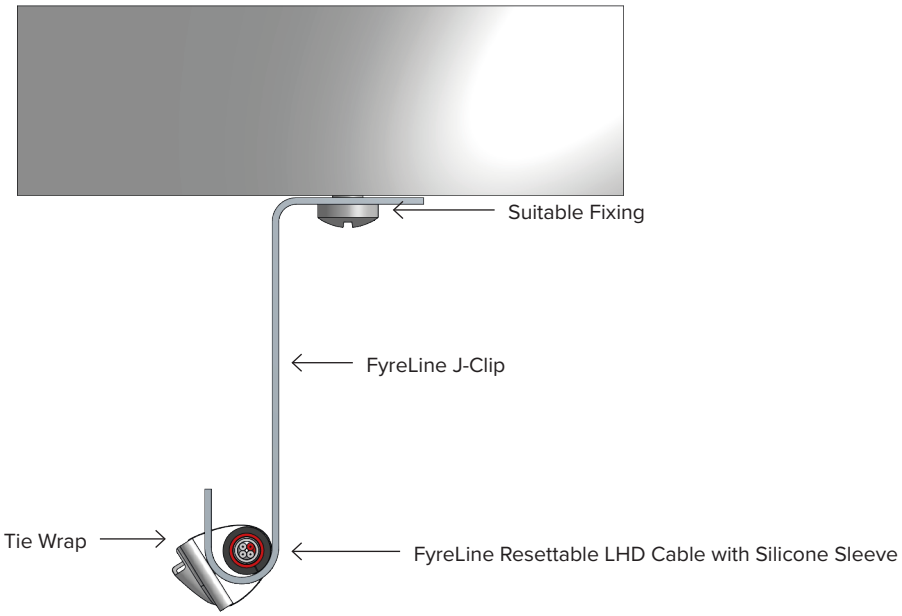


Figure 10: FyreLine Resettable Sensor Cable Recommended Mounting Dimensional Drawing

8 Area Protection

The FyreLine Resettable LHD system is suitable for area protection applications where the sensor cable is typically installed on the ceiling, for example in a warehouse. The sensor cable should be installed with a minimum distance between the cable and ceiling of 20mm. This is especially important when the sensor cable is mounted to a uninsulated ceiling where a warm boundary layer can develop and delay the operation of the detector.

⚠	**The recommended spacing between clips is 0.5m.**
⚠	**Ensure the spacing between adjacent runs of sensor cable is in accordance with the recommended guidelines, such as Section 6.2.7.12 of DIN VDE 0833-2, Section 22.6 of BS 5839-1 or Section 17.6 of NFPA 72 (or other country equivalent code).**
⚠	**In any case, the sensor cable should not be mounted closer than 0.5m to any walls, equipment or stored goods (shown as B in Figure 12).**
⚠	**Ensure the minimum distance between the sensor cable and ceiling is 20mm.**
⚠	**Ensure the length of sensor cable used is between the minimum and maximum zone length (see table 12 for details).**

For DIN VDE 0833-2 compliant installations the maximum horizontal distance from the sensor cable to any point on the ceiling is given as C in Table 15.

Room Size	**Roof Pitch**	
	Flat & up to 20°	**Over 20° Pitch**
Up to 30m^2	C = 4.4m (A = 8.8m)	C = 4.4m (A = 8.8m)
Over 30m^2	C = 3.5m (A = 7m)	C = 5.0m (A = 10m)

Table 15: DIN VDE 0833-2 Max Distance to Sensor Cable

Therefore the distance between two parallel runs of sensor cable (shown as A in Figure 11 below) must not be greater than the distance shown in Table 15. For Class A1l, the maximum ceiling height (h) is 9m (see DIN VDE 0833-2 section 6.1.5.3).

For BS 5839-1 compliant installations or UL 521 and NFPA 72 compliant installations, the maximum horizontal distance between any point in a protected area and the linear heat detection cable nearest to that point is given as C in Table 16. This spacing is also in accordance with the spacing detailed in the UL listing (see Section 2) for UL 521 and NFPA 72 installations.

Ceiling Type	**Distance**	**Standard**
Flat Ceiling	C = 5.3m (A = 10.6m)	BS5839-1
	C = 7.6m / 25ft (A = 15.2m / 50ft)	UL 521

Table 16: BS 5839-1 or UL 521/NFPA 72 Maximum Distance to Sensor Cable

⚠	**For pitched ceilings a greater spacing may be allowed. Refer to BS 5839-1 Section 22.6 for more information.**
⚠	**For UL 521 and NFPA 72 compliant installations, refer to section 17.6 of NFPA 72 for guidance when installing linear heat detection on pitched ceilings or where obstructions may be present.**

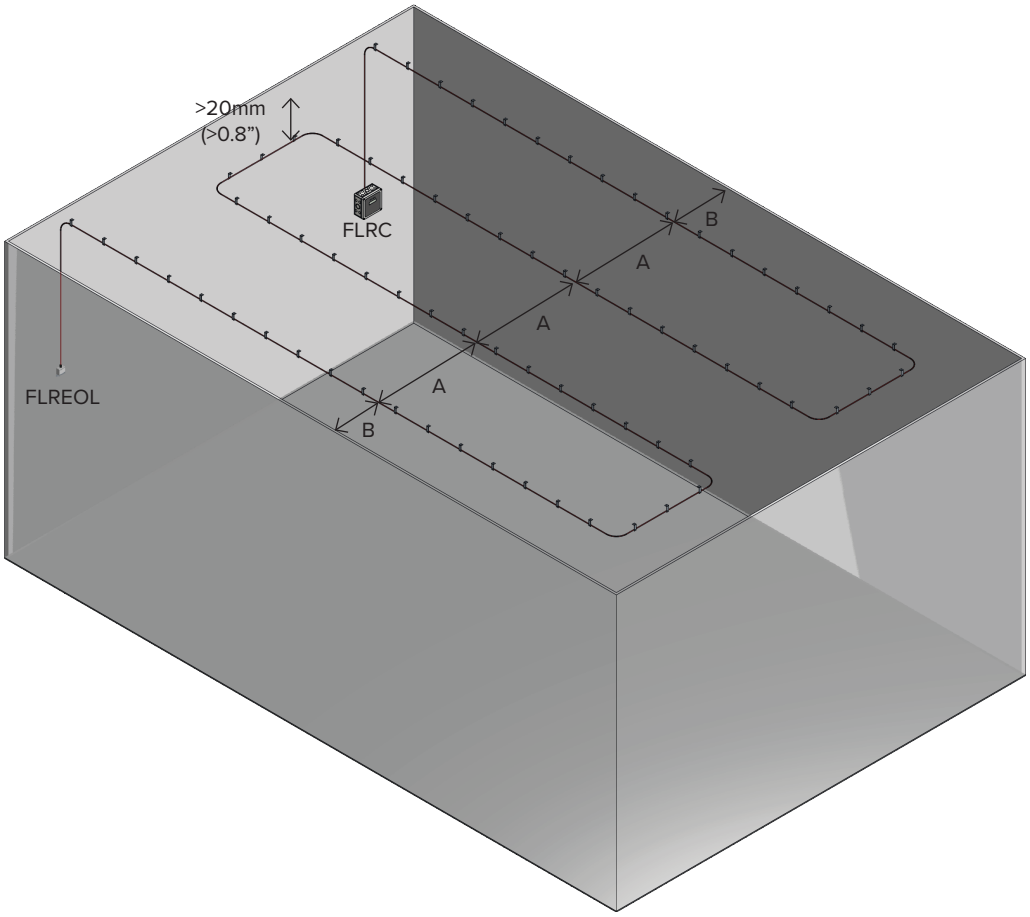


Figure 11: Area Protection with the FyreLine Resettable LHD System

9 Controller Wiring

The FyreLine Resettable Controller is designed to be connected to any standard fire alarm control panel or addressable monitor module. It is intended to be powered via the 24V DC switched power output which is interrupted when the control panel is reset or via a battery-backed EN54-4 power supply for EN54 compliant installations or UL listed power supply with a UTRZ category code for UL compliant installations.

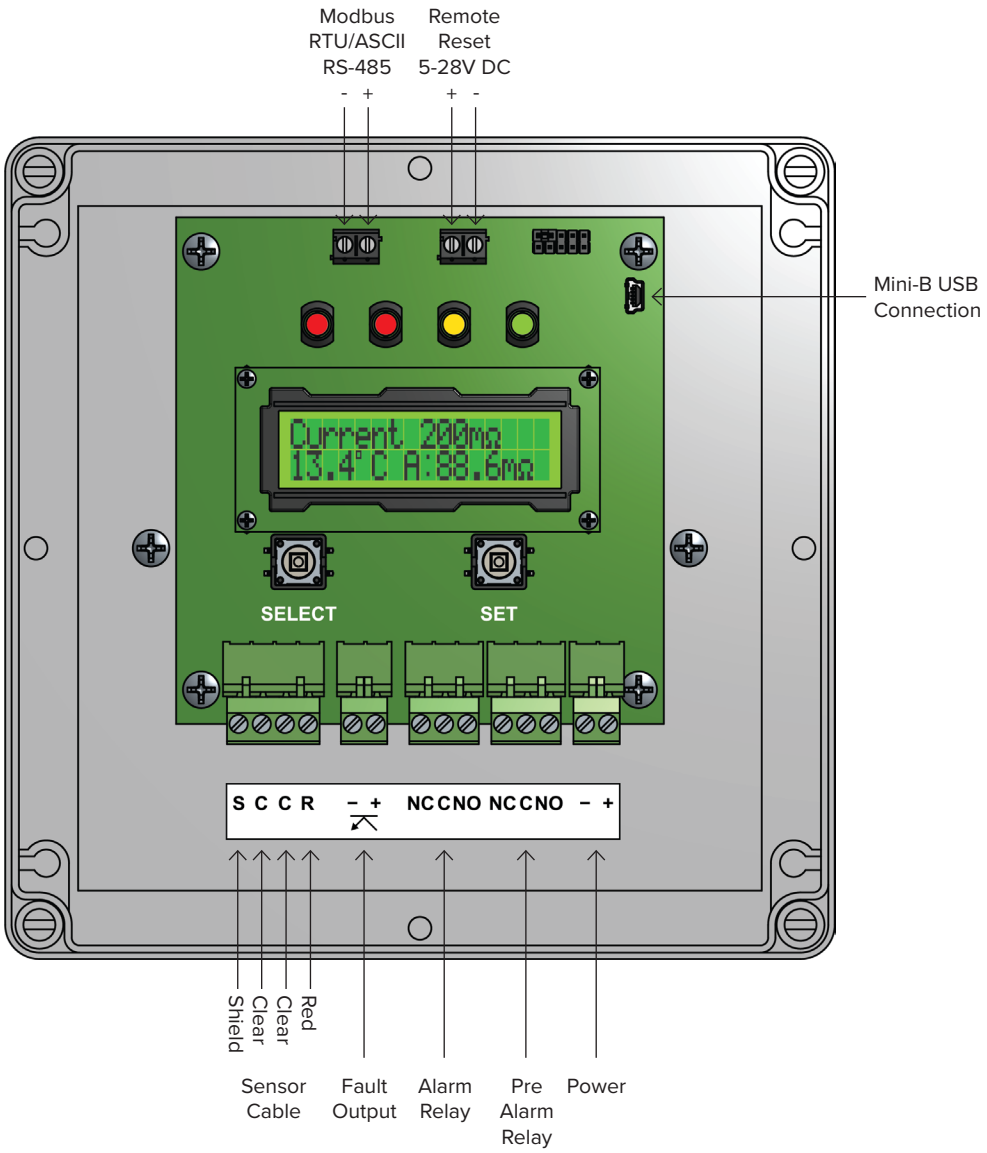


Figure 12: FyreLine Resettable PCB Wiring Diagram

9.1 Remote Reset

The remote reset function allows the FyreLine Resettable Controller to be reset from a remote point. In order to trigger a reset supply 5 to 28V DC (approx 2mA max.) for at least 3 seconds to the remote reset input.

9.2 Modbus RS-485 RTU/ASCII

The FyreLine Resettable Controller includes a Modbus RS-485 RTU/ASCII output. This can be used to read back additional information from the FyreLine Resettable system as well as the fault and alarm status. For example, by reading the sensor cable ambient temperature via the Modbus output, it is possible to use the FyreLine Resettable Controller and Sensor Cable as a distributed temperature sensor.

9.3 Hazardous Area Installation

For installations in hazardous areas please refer to the FyreLine Resettable Hazardous Area installation instructions for suitable recommendations and advice.

10 Typical System Wiring

The components of the FyreLine Resettable LHD system should be connected in the manner shown in Figure 15.

⚠	**Connect the sensor cable to the EOL Module first then measure the connections using a calibrated multimeter at the other end without the cable plugged into the Controller. The values should match those shown in Table 17.**
⚠	**The connection of the clear cores in the sensor cable into the FyreLine Resettable Controller are polarity sensitive. They must go in the correct order (as shown in Figure 13).**
⚠	**Make a note of the cable three letter code. Do not mix and match sensor cables with different three letter codes on the same control unit.**
⚠	**Take care to cut the shield wire back at the EOL Module. Do not mount the EOL Module on a metal surface.**
⚠	**The calibration resistance is the value between the white core and the clear core which is adjacent to the red core in the sensor cable (as shown in Figure 13).**
⚠	**Record all the sensor cable serial numbers, the sensor cable three letter reel code and the measured calibration resistance on the label in the control unit (shown in Figure 13).**

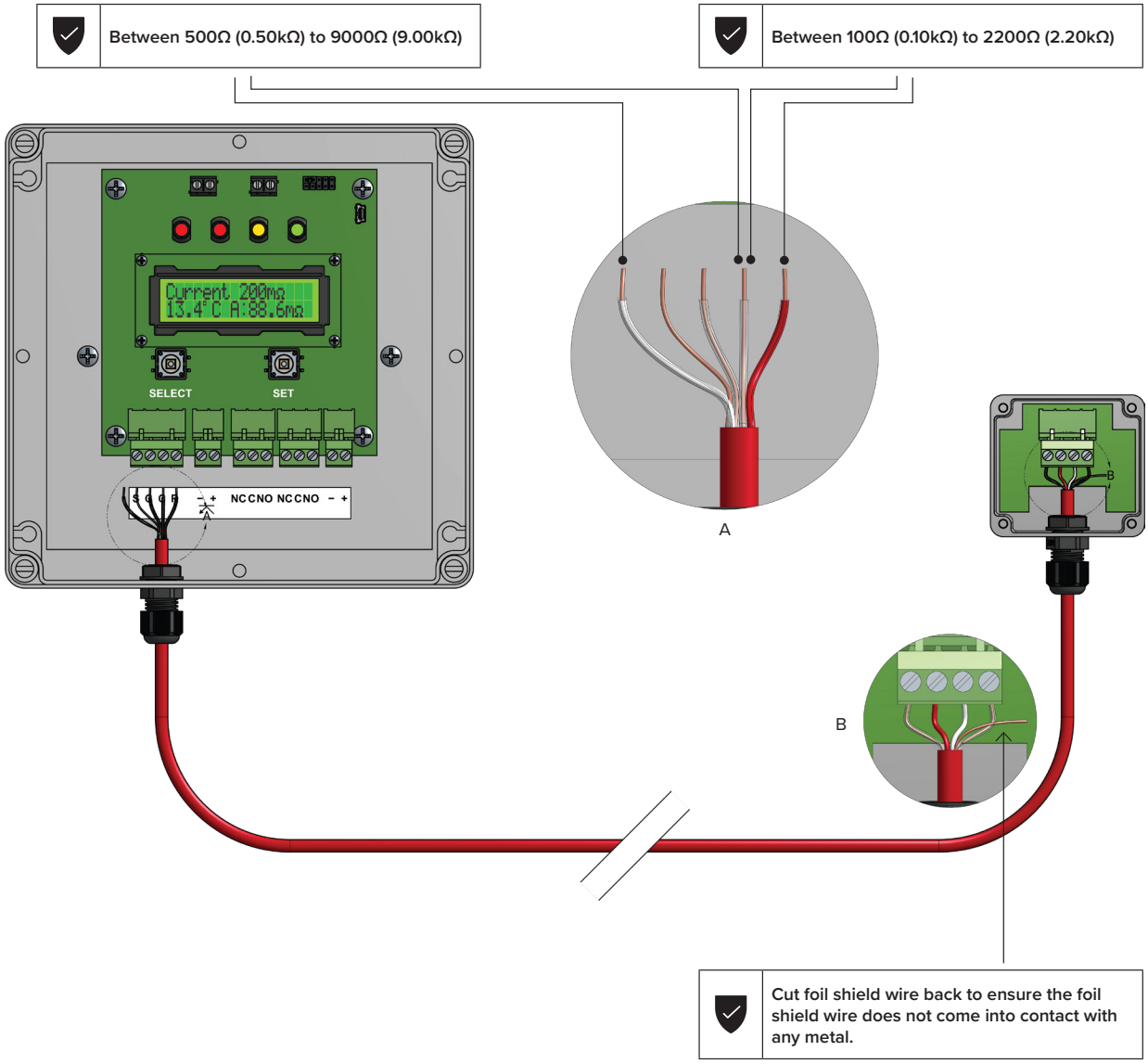


Figure 13: FyreLine Resettable Typical System Wiring Diagram

Red Wire Resistance	Red Core to adjacent Clear Core	Between 100Ω (0.10kΩ) to 2200Ω (2.20kΩ)
Calibration Resistance	Clear Core to White Core	Between 500Ω (0.50kΩ) to 9000Ω (9.00kΩ)

Table 17: Expected Resistance Values During Commissioning

11 Useful Information

11.1 Leader Cable

Leader (non-sensing) cable may be used between the FyreLine Resettable Controller and the FyreLine Resettable Sensor Cable. Only leader cable approved for use with the FyreLine Resettable LHD system should be used between the FyreLine Resettable Controller and FyreLine Resettable Sensor Cable.

⚠	**The use of leader cable between the control unit and sensor cable is not UL and VdS approved.**

The FyreLine Resettable Junction Box must be used to connect the leader cable to the detection cable.

⚠	**The maximum length of leader cable between the Controller and the Sensor Cable is 250m.**

11.2 Low Temperature Considerations

FyreLine Resettable Linear Heat Detection cable is suitable for use in ambient down to -40°C (-40°F). Such conditions occur in cold storage freezer warehouses and outdoors for example.

When installing LHD cable in low ambients or for use in low temperature conditions careful consideration of the conditions and environment should be undertaken.

If possible, do not install the LHD cable when the ambient temperature is below -10°C (-14°F). The materials within the cable will become less flexible and are more prone to damage during installation. If the ambient temperature is likely to drop significantly after installing the cable take into account linear shrinkage of the cable when attaching support brackets. The cable can shrink in length by 1 to 2% at -40°C (-40°F).

A silicone sleeve insulator must be placed around the cable before clipping into the support bracket. This prevents damage to the cable and reduces the heat sink effect of the clip.

The minimum bend radius of the detection cable should be increased to twice (2x) the specified value shown on table 12 to account for the reduced flexibility. The maximum distance between support brackets should be no more than 0.5m (1.5ft) and it is important to support the cable close to either side of any bend.

Ensure any junction boxes or other enclosures are waterproof and suitable for the expected operating temperatures.

Refer to the Technical Specifications for the minimum operating temperature of each component in the FyreLine Resettable LHD System.

11.3 Joining Sensor Cable

It may be necessary to connect two or more lengths of resettable linear heat detection cable together during installation or the lifecycle of the system. For example, if the FyreLine Resettable LHD cable gets damaged or has exceeded the maximum restorable temperature of 125 °C (257 °F), the section can be removed and a new section spliced in its place. Likewise, during installation two lengths of resettable linear heat detection cable may be connected together to extend the zone or to aid in physical installation of the cable. Only connect Resettable linear heat detection cables with the same three letter code together.

The FyreLine Resettable Junction Box should be used to connect two ends of resettable sensor cable together. The FyreLine Resettable Junction Box includes two cable glands and five connection terminals mounted on a DIN rail. The four cores and shield wire should be connected to the corresponding cores and shield wire on the adjoining cable using the connection terminals.

⚠	**The FyreLine Resettable Junction Box is not approved by UL.**
⚠	**When replacing a section of the detection cable for any reason, the section including at least 3m (10ft) either side of the damaged area should be replaced.**
⚠	**Ensure any replacement cable used to splice in a new length is the same three letter code as the existing cable. Do not mix and match Sensor Cable with different three letter codes on the same Controller.**
⚠	**Ensure the total length of Sensor Cable after joining is between the minimum and maximum zone length (see Table 12 for details).**

12 Commissioning

⚠	**Before beginning to commission the system ensure that the installation of the Controller, Sensor Cable, EOL Module and any Junction Boxes have been carried out in accordance with the information provided herein. Incorrect installation may result in unwanted alarms, faults or malfunction of the system even after successfully commissioning the control unit**

1. If the Controller is being commissioned for the first time the screen will prompt whether the Controller is to be programmed using the built-in display and SET and SELECT buttons. (Alternatively, selecting 'No' will continue and the screen will show "FAULT: NO SETUP". The Controller may be programmed with a laptop in this instance).	
2. If "Yes" was selected in the previous step, enter the calibration resistance. (See Section 10 Typical System Wiring for how to measure the calibration resistance). The value can be changed by pressing the SELECT button to cycle through 0-9. Press SET to move to the next column in the resistance reading.	
3. After the values have been entered the Controller will prompt you to double check the value. Press SELECT to change to "Yes" if the value shown is correct and press SET to continue. Otherwise select "No" and press SET to return to Step 2.	
4. The Controller will prompt to double check the zone length based upon the entered calibration resistance. Press SELECT to change to "Yes" and then press SET to continue. Otherwise select "No" and press SET to return to Step 2.	
5. Enter the three letter code corresponding to the Sensor Cable. ⚠ **The three letter code is printed on the reel label and once per metre on the Sensor Cable. You should record the three letter code on the label affixed to the reverse of the control unit lid during commissioning (see Figure 4).**	
6. Confirm the entered three letter code is correct. Press SELECT to change to "Yes" and press SET to continue. Otherwise select "No" and press SET to return to Step 5.	
7. If the installation is in a hazardous area, press SELECT to change to "Yes" and press SET to continue. Otherwise select "No" and press SET to continue to Step 10.	
8. Enter the I.S. barrier resistance in ohms. This value is the series resistance introduced by the barrier connecting the red core of the sensor cable to the control unit.	
9. Confirm the I.S barrier resistance is correct. Select "Yes" and press SET to continue.	
10. Select the alarm temperature chosen for the application. See Section 5 Theory of Operation for choosing an alarm temperature.	
11. Select whether the pre-alarm function should be enabled. If no pre-alarm is required, select "No" and continue to Step 13.	

12. Select the desired pre-alarm temperature based upon the chosen alarm temperature. See Section 5 Theory of Operation for choosing a pre-alarm temperature.	
13. Once the desired settings have been chosen, the screen will show the diagnostic information. The top line “Curr:” shows the current measured resistance of the Sensor Cable. The bottom line shows the measured average ambient temperature of the sensor cable (in this case 13.4°C) and the alarm threshold resistance (in this case 88.6MΩ).	

13 Normal Operation

⚠ **Ensure the measured average ambient temperature of the Sensor Cable (in this case 13.4°C) closely matches (within +/- 2.5°C) the actual average ambient temperature of the Sensor Cable. Use an accurate, calibrated temperature measuring device (e.g. thermocouple probe) to determine the actual ambient temperature of the Sensor Cable before adjusting the measured ambient temperature. Ensure the Sensor Cable has had sufficient time to stabilise to the surrounding ambient temperature before making any adjustments.** 14. The measured ambient temperature can be adjusted in the following steps.	
15. Press SELECT to show the normal operation menu options. The first menu option allows adjustment of the measured average ambient temperature. Press SET to go into the sub-menu (see Step 16) or SELECT to go to the next option (see Step 17).	
16. If ‘Adjust Amb Temp’ is selected the screen will display as shown right. Press SELECT to adjust the ambient temperature higher or SET to adjust the ambient temperature lower. Once the ambient temperature is correct, do not press any buttons for 10 seconds. The Controller will save the current setting and return to the diagnostics screen (see Step 13).	
17. The Controller stores the most recent three alarm conditions. Press SET on the ‘Alarm Log?’ option to cycle through the last three logs. Otherwise skip to Step 19.	

18. The alarm log format is shown right. The most recent alarm is shown first (1). Cycle through previous alarms by pressing SET. On the top line the date and time of the alarm is shown (depending upon the current time set in the Controller, see Step 19). On the bottom line the average Sensor Cable temperature at the time of the alarm is shown (in this case 33.4°C) and the lowest measure cable resistance during the time the alarm occurred and the alarm was reset (in this case 65.2MΩ).	
19. The last menu option shows the current time and date set in the Controller. This can only be updated using the laptop software. Contact your support partner to obtain the latest version of the software and operating instructions. If the time and date is not set the starting value when the control unit is first switched on is “00:00 00/00/18”.	
20. If the SELECT or SET buttons have not been pressed for 10 seconds the controller will return to normal operation and display the diagnostic screen.	

14 Fault Conditions

21. If the Controller has been erased or not commissioned the screen will show “FAULT: NO SETUP”. Press and hold the SET and SELECT buttons for 15 seconds to return to the start of the commissioning process (see Step 1).	
22. In the event the voltage to the FyreLine Controller falls below the minimum value (see Section 6.1), the fault output will stop conducting, the fault LED will light and the screen will show “FAULT: UNDER V”.	
23. If a fault occurs in the Sensor Cable, the fault LED will illuminate, the fault output will stop conducting and the Controller will try to determine which core has broken (if only one core has broken). The screen will display as shown right. The letters correspond to the “S C C R” connections on the PCB (see Section 9 Controller Wiring). 24. If “S X C R” is shown then this can indicated either a break on the corresponding Clear Core or that the Clear Cores have been wired the wrong way round (see Section 10 Typical System Wiring).	
25. If “S C C X” is shown this indicates that there is a possible break or poor connection on the Red Core of the Sensor Cable, or the calculated cable length does not match the actual cable length attached to the Controller.	
26. If “S X X X” is shown then this can indicate that the Clear Core adjacent to the Red Core is broken or has a poor connection, more than one core on the Sensor Cable is broken or the Sensor Cable has been disconnected.	

15 Alarm Conditions

27. If the current measured resistance of the Sensor Cable (“Curr”) drops below the alarm threshold (as shown on the display right), the Controller will trigger an alarm.

⚠	**The pre-alarm threshold is not shown on the built-in display. The laptop/PC software must be used to determine this value**

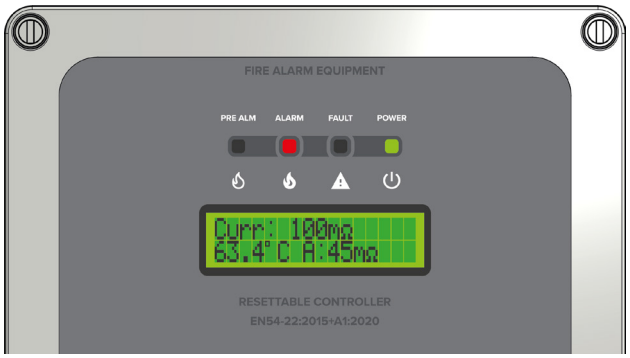
The alarm output will be set and the alarm LED will illuminate.



28. If the rate-of-change of the resistance of the cable exceeds a preset value (equal to when approximately 2% of the cable is heated at greater than 15°C/min for at least 3 minutes), a rate alarm may be triggered. The alarm output will be set, the alarm LED will illuminate and the display will show “Rate Alarm”.



29. If the measured average ambient temperature of whole Sensor Cable exceeds the alarm temperature for the chosen alarm setting, the Controller will trigger an alarm. For example, in this case the measured ambient temperature is 63.4°C which is above the alarm temperature for the whole cable on alarm setting Class A1I/A2I. The alarm output will be set and the alarm LED will illuminate.



16 Resetting Controller After an Alarm Condition

Following an alarm condition the alarm (or pre-alarm) output will latch (remain set) until the Controller is reset. Providing none of the conditions listed in steps 24 to 26 remain, there are several methods to reset the alarm condition:

1. Press the SET button on the control unit for >3s to clear the alarm condition.
2. Provide 5 to 28V DC to the Remote Reset input for >3s (see Section 9 Controller Wiring).
3. Send a “Write Single Coil (0x05)” command to coil address 0 via the Modbus RS-485 connection.
4. Interrupt power to the control unit for at least 3s.

17 Testing & Verification

Routine maintenance and checking should be carried out to ensure the FyreLine Resettable System is functioning as expected and has not been damaged.

A visual inspection should be performed to ensure all support brackets and other aspects of the physical installation are suitable. The cable should also be visually checked for damage. Check to make sure the silicone sleeves are correctly installed around the cable in the clips.

Any joints or connections that have been made should be checked to make sure they are secure and any junction boxes should be checked to ensure they are correctly installed.

17.1 FyreLine Resettable Controller Testing

An Resettable test board is included with each FyreLine Resettable Controller. It is a small PCB that can be plugged into the Sensor Cable terminals on the Controller and simulates a 50m length of Sensor Cable. It is useful for carrying out regular maintenance on the Controller, without any Sensor Cable attached.

To use the Resettable test board first disconnect the sensor cable from the Controller and connect the board into the Sensor Cable terminals as shown in Figure 14. In order to test the Controller, it must be re-commissioned to simulate a 50m cable length (calibration resistance = 0.84kohms). Press and hold the SET and SELECT buttons on the Controller for 15s. The screen should return to display step 1 in the Section 12 Commissioning. Select “Yes” and proceed through the commissioning procedure but enter a calibration resistance of 0.84kohms.

⚠	**Make a note of the existing calibration resistance and alarm temperature shown on the screen. You will need to re-enter these values after the Controller test procedure has completed and you are returning the Controller to normal operation.**
⚠	**Do not change the three letter code when using the test board. It is acceptable for the three letter code entered in the Controller to remain the same during the test procedure.**

Set the alarm temperature to 54°C and proceed through the remaining steps in the commissioning procedure.

The Controller should show the diagnostics screen as per normal operation. With the test fault switch in the “OK” position the “Curr:” value should be 200MΩ +/- 30MΩ. Turn the ambient temperature dial counterclockwise until the temperature in the bottom left hand of the display is approximately 25°C. The “A:” value should be below the “Curr:” value.

Pressing and holding the Test Alarm Button for between 5 seconds to 10 seconds should reduce the “Curr:” value to below the “A:” value. When this happens an alarm should be triggered. Release the Test Alarm Button and press the SET button to reset the alarm condition.

Toggle the Test Fault Switch to put the system into a fault condition after approx 5 seconds.

Once testing has been completed, the Sensor Cable should be reconnected and the control unit re-commissioned with the original calibration resistance and alarm values.

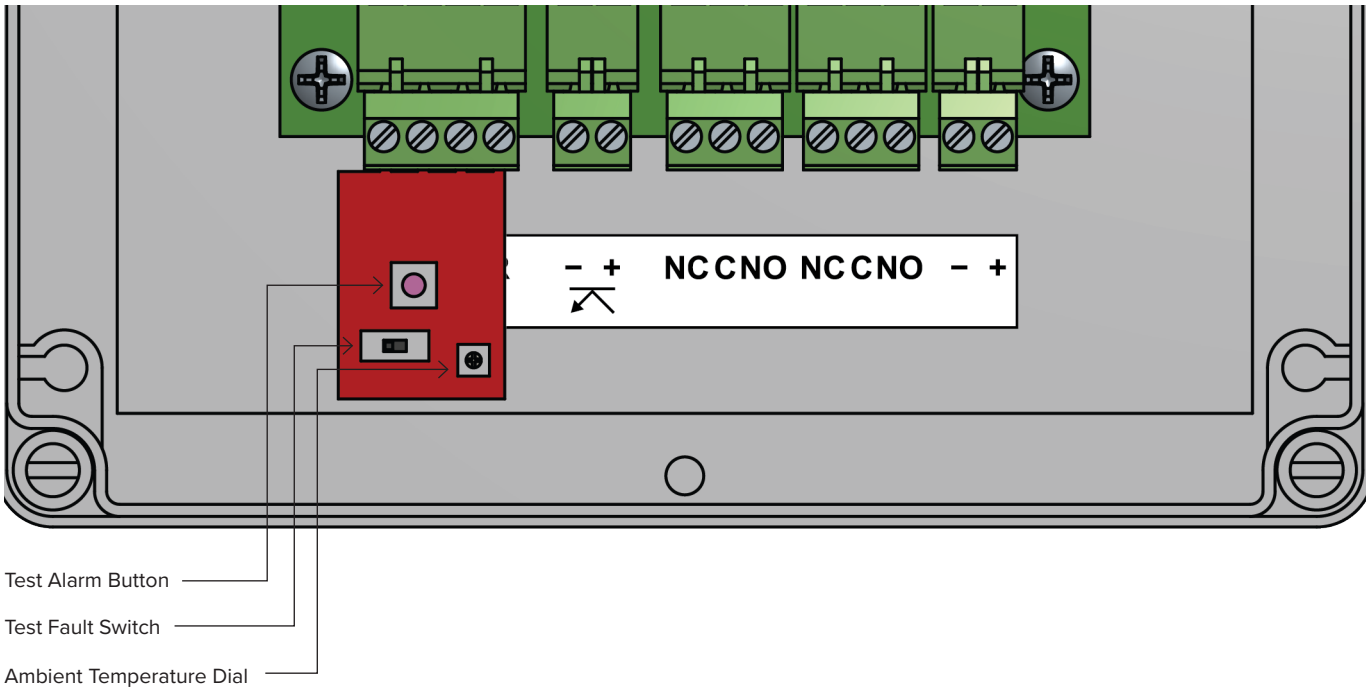


Figure 14: FyreLine Resettable Test Board

17.2 FyreLine Resettable Functional Testing

Resettable Linear Heat Detection Cable is restorable up to 125˚C (257˚F) and should be functionally tested to ensure it is working correctly. Consideration should be made during installation to make a portion (between 1% to 3%) of the Sensor Cable accessible (i.e. within reach) for future testing. Wherever possible, for functional testing the system should be set to the lowest action temperature given the ambient conditions at the time of testing. Using a suitable device heat between 1% and 3% of detection cable up to a maximum of 125˚C (257˚F). Once the action temperature (including any tolerances) has been reached the system should alarm. Ensure the action temperature is reset to the required value before placing the system back into normal operation.

A suitable test kit for heating the Sensor Cable in order to carry out a functional test is available from Eurofyre through your supply partner.

18 FyreLine Resettable Controller Re-commissioning

To reset the FyreLine Controller, press and hold the SET and SELECT buttons in normal operation for 15 seconds (during which time the power light will flash quickly). The Controller will reset and the display will show “Self Program? Correct? No”.

The commissioning procedure can be carried out once again by cycling through the screens using the SET and SELECT buttons. See the Section 12 Commissioning for more information. The chosen values from the previous setup will be presented by the Controller at each point during the commissioning procedure.

⚠	**Once the screen shows “Self Program? Correct? No” the settings have been erased and the Controller requires re-commissioning to return to normal operation.**

19 Glossary

Alarm Condition	A fire or overheat around the Resettable LHD cable which triggers the sensor controller.
Pre-alarm Condition	An abnormal temperature around the Resettable LHD cable which activates a pre-alarm signal at the sensor controller.
Cable Glands	Used to form a dust-proof and weatherproof seal around a cable entering or exiting an enclosure.
Resettable Linear Heat Detection Cable	A sensing cable where the main characteristic is a predictable and repeatable change in resistance between at least two cores of the sensor cable. The change in resistance is monitored by a sensor controller.
Area/Room Protection	An application in which the sensing element is installed at a distance from the potential fire hazard close to the ceiling or roof of the area to be protected (BS EN54-22:2015+A1:2020 section 3.1.10).
Local Protection	An application in which the sensing element is installed in relatively close proximity to the potential fire risk (BS EN54-22:2015+A1:2020 section 3.1.5).
EOL Module	A module which allows a current flow through a circuit to monitor the integrity of the circuit. In the event of a break in the circuit, current will stop flowing completely and a trouble or fault signal will be triggered.
Fault Condition	A break in one or more cores of the Resettable LHD cable or a malfunction of the Resettable Controller.
Junction Box	A secure, dust-proof and weatherproof enclosure to protect a join between two lengths of Resettable LHD cable or a length of Resettable LHD cable and leader cable.
Leader Cable	A non-temperature sensing cable which transmits the signals between two components in the system, e.g. the Resettable Controller and the Resettable LHD cable. Does not provide fire detection and may be fire-rated to continue functioning even in a fire condition.
Two-wire RS-485 Modbus RTU/ASCII Communications	An industry standard, signalling protocol used to communicate information between components in a system, for example a SCADA system or PLC. Often used to provide more information to be communicated than simple open or closed status communicated by a relay output.
Zone	A single circuit of FyreLine Resettable linear heat detection cable connected to a single FyreLine Resettable Controller.

Table 18: Glossary

Appendix A - Alarm Temperature Charts

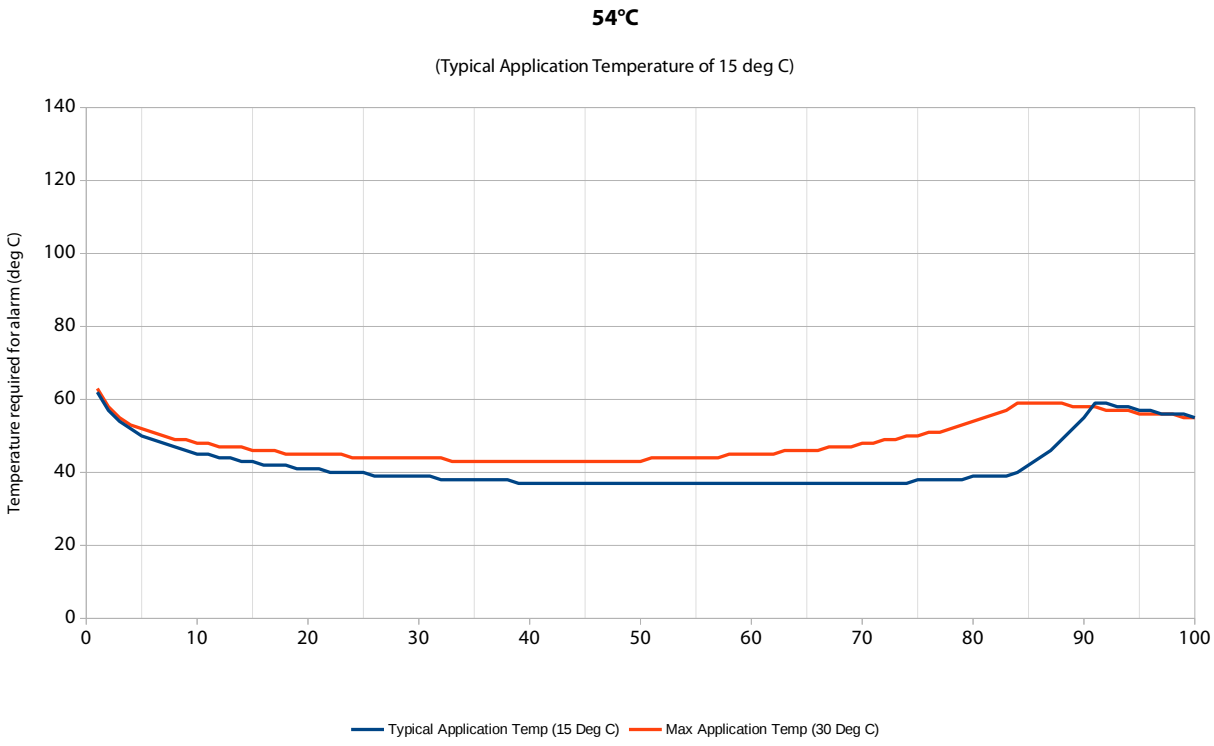


Chart A1: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in 54°C Setting

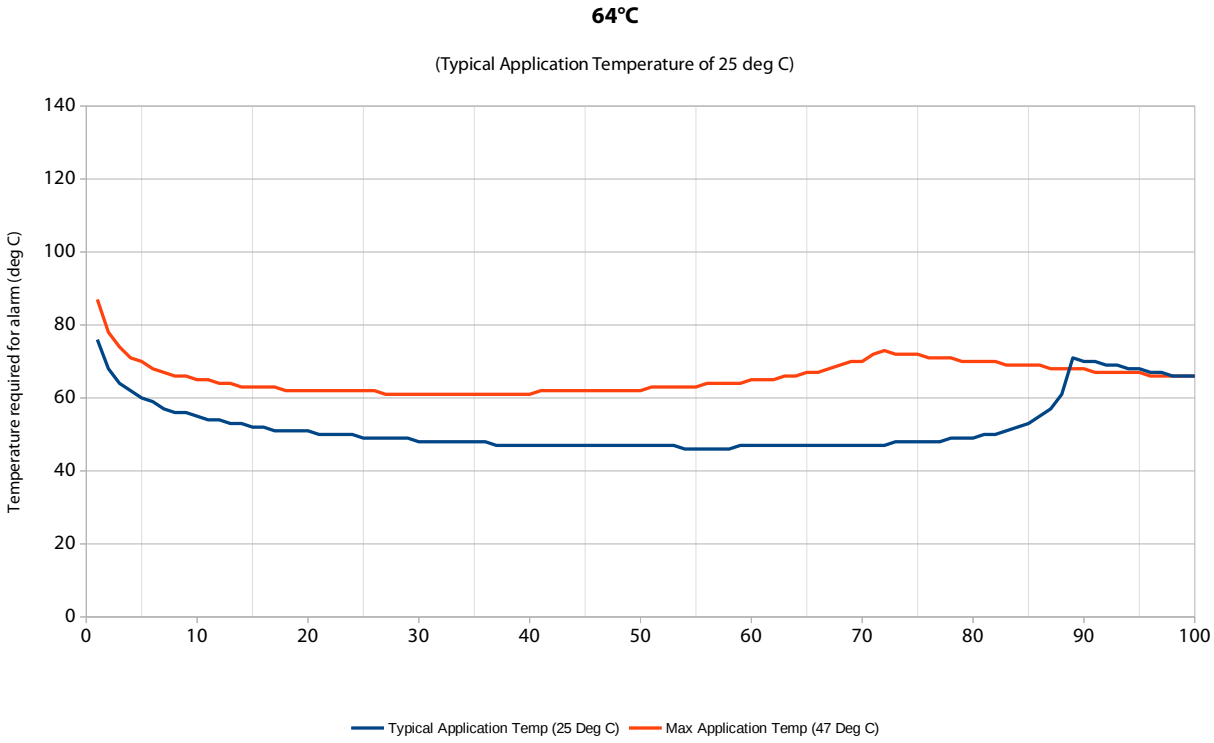


Chart A2: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in 64°C Setting

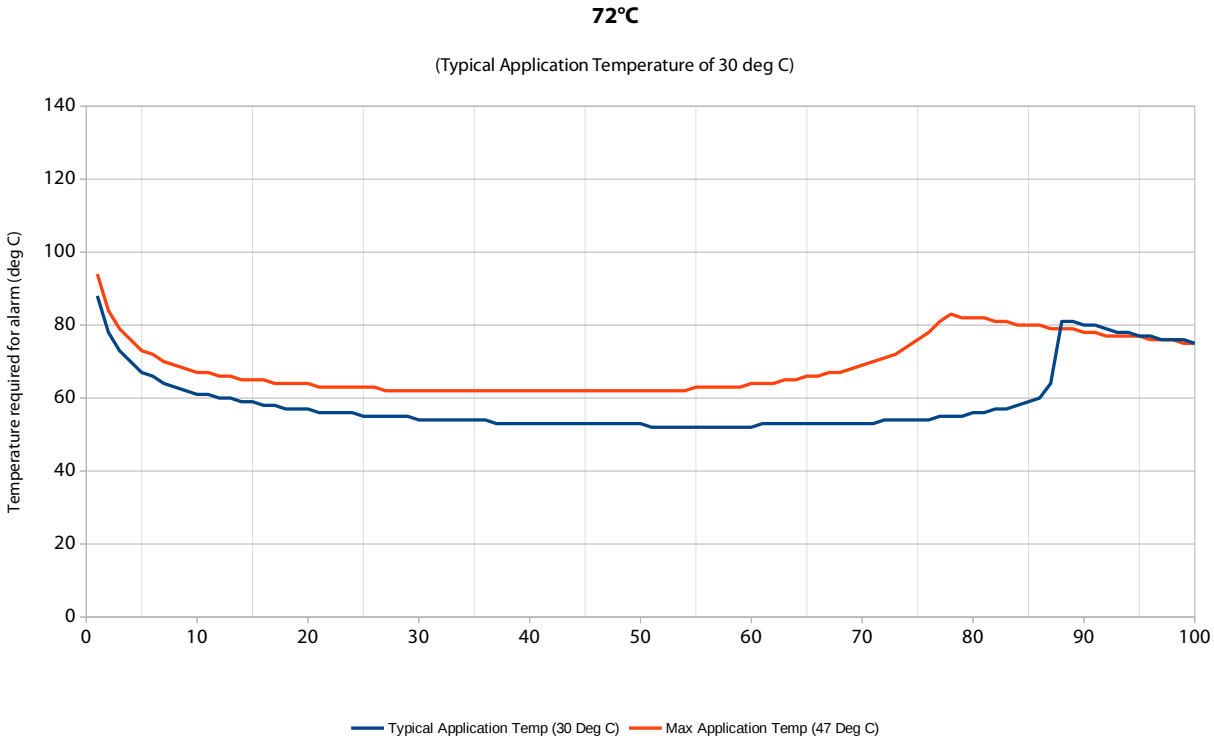


Chart A3: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in 72°C Setting

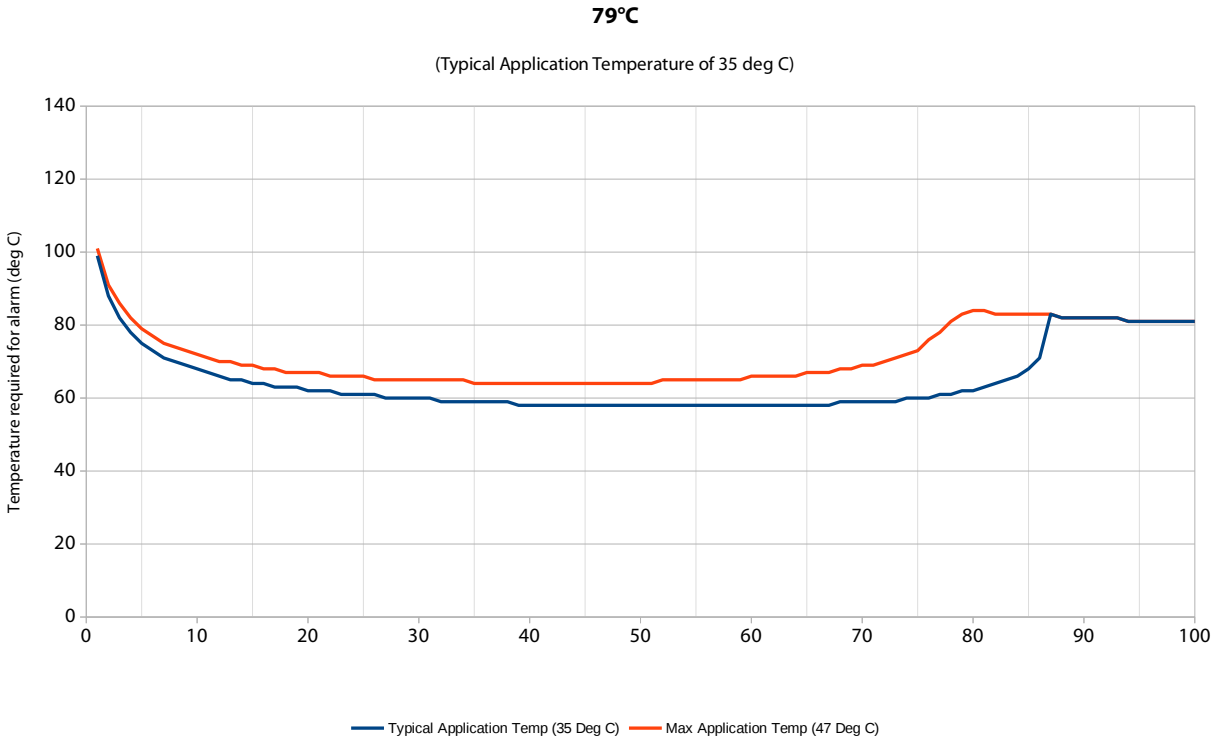


Chart A4: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in 79°C Setting

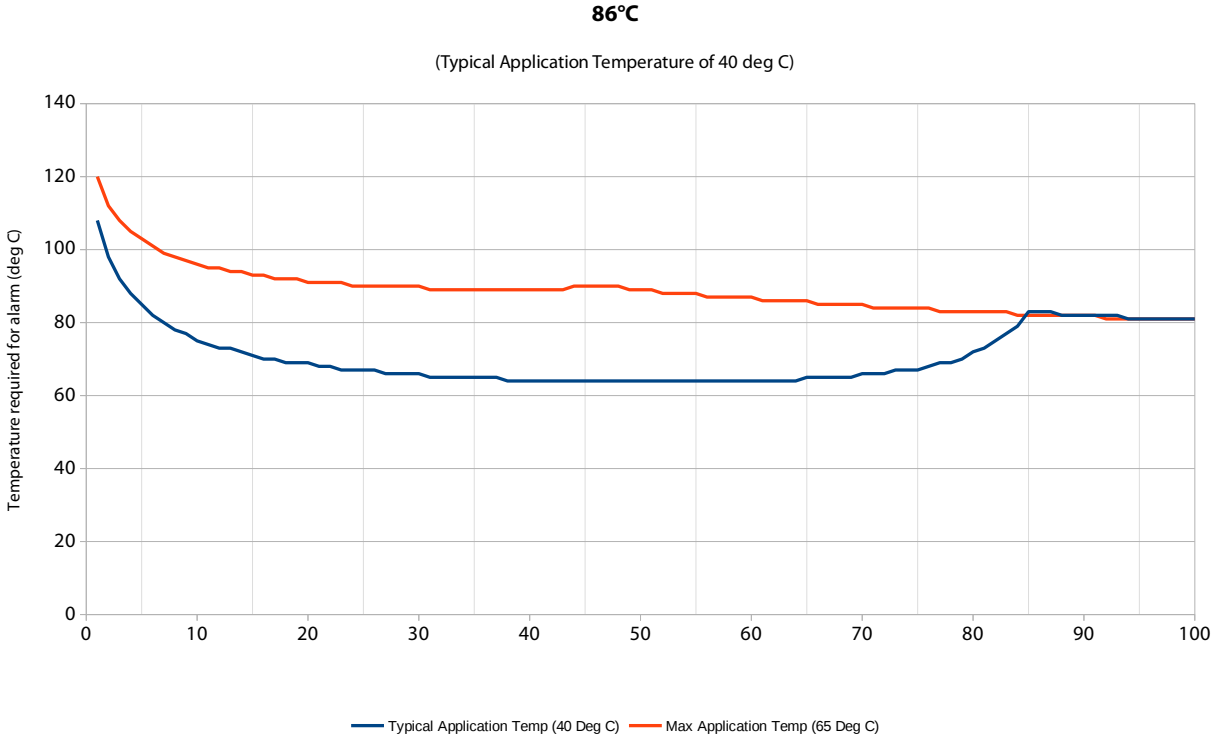


Chart A5: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in 86°C Setting

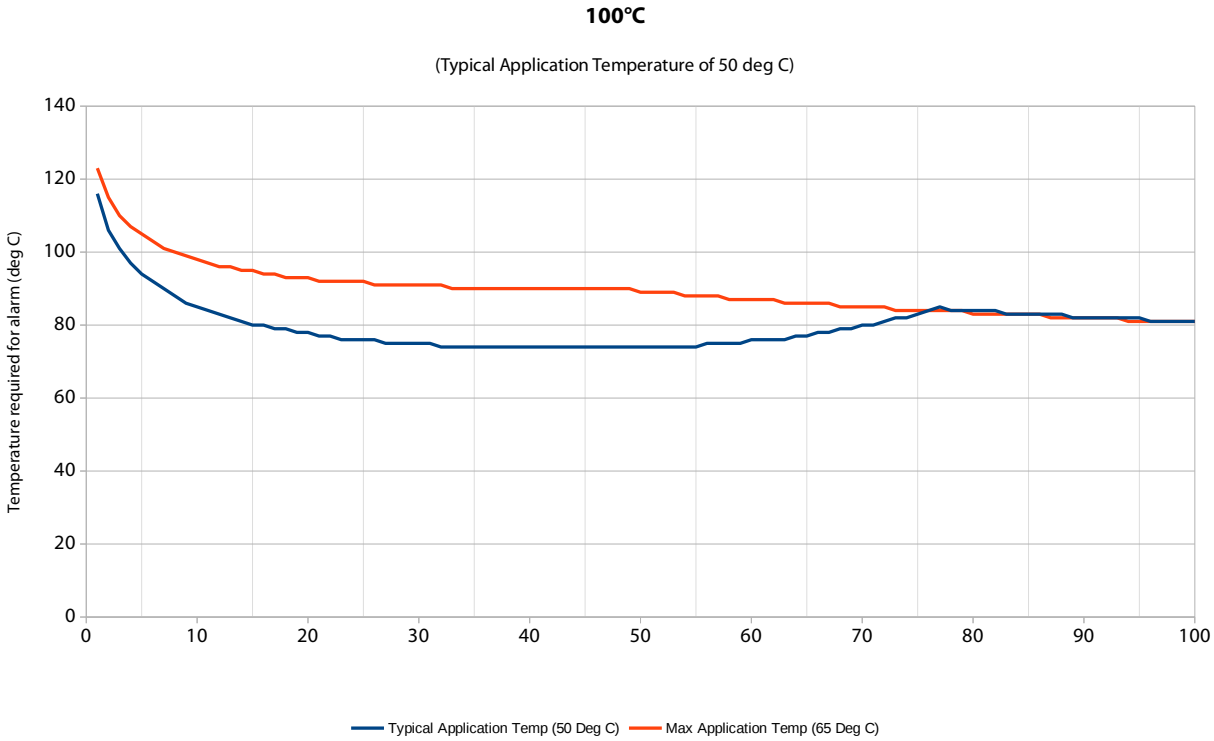


Chart A6: Expected temperature required for an alarm in relation to percentage of FyreLine Resettable LHD Cable in 100°C Setting

Back Page