

# Digital Linear Heat Detection Solution



# SHIELD<sup>®</sup>

TRUSTED WORLDWIDE





## INTRODUCTION

Competence and innovation driven by consistent market development and customer requirements have shaped the successful development of the SHIELD Brand. The extensive product range of the market leader in the field of fire protection technology contains single, individually integrable system performances. In this way, a customized overall fire protection concept can be planned and realized for every need with optimally synchronized products.

Performance is in international demand, SHIELD is among the highly accredited fire protection companies that meet rigorous British and American standards for all projects from small conventional system to multi-site networks. Certifications such as UL and FM approvals have earned SHIELD a world-renowned reputation with quality products and powerful solutions.

A strong brand is generally known to be a secure basis for close and lasting customer relationships. In accordance with this, SHIELD uses available potential in order to keep on growing in a dynamic competitive environment. And at the same time, SHIELD stands for innovative and high quality fire protection systems.

Visit our website [www.shieldglobal.com](http://www.shieldglobal.com).

You can also send us your feedback and inquiry through our user-friendly online forms.



# CERTIFICATE



This is to certify that



**Shield Fire, Safety and Security Limited**  
 Redburn House  
 2A Tonbridge Road  
 Romford  
 Essex RM3 8QE  
 United Kingdom

has implemented and maintains a **Quality Management System**.

Scope:  
 Manufacture, Assembly & Testing of Grooved and Threaded Pipe Fittings, and Valves for Fresh Water/Sea Water and Fire Fighting Equipment. The Testing and Assembly of ERW & Seamless Pipes.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

**ISO 9001 : 2015**

Certificate registration no.	20005627 QM15
Date of original certification	2014-09-09
Date of certification	2016-10-25
Valid until	2019-10-24



**DQS Inc.**



Ganesh Rao  
Managing Director

Accredited Body: DQS Inc., 1130 West Lake Cook Road, Suite 340, Buffalo Grove, IL 60089 USA  
 Administrative Office: Deutsch Quality Systems (India) Pvt. Ltd., 5th Floor, Anjaneya Techno Park,  
 147, HAL Airport Road, Kodihalli, Bangalore - 560 017 - India

In line with SHIELD policy for continuous product development, SHIELD has the right to change specifications without prior notice. Images shown in this catalogue are for illustrations purposes only.



## Digital LHD Control Module

Our Digital LHD Control Module (LH-DCM) is designed to enhance the functionality of existing or new Digital LHD systems. The Module is intended to be installed between the Digital LHD cable and a conventional or addressable fire alarm control panel.

The LH-DCM simultaneously monitors two zones of Digital LHD cable (up to 3,000 metres per zone) for an alarm or fault condition. If an overheat or fire situation triggers either zone of the Digital LHD cable, the LH-DCM automatically calculates and displays the distance along the cable, in feet and metres, to the alarm point. The two zones can operate independently of each other or in interlock/coincidence detection mode to eliminate the possibility of false alarms.

An RS-485 Modbus RTU output also allows direct connection into a PLC or other process control system.



**LH-DCM**

### Features

- Investigated to UL864 (10<sup>th</sup> Edition) Standards.
- Advanced functionality for traditional Digital LHD systems.
- Pinpoints exact location of an incident and responds immediately.
- Simultaneous monitoring of up to two zones.
- Power indicator, fault and alarm lights for each zone.
- Volt-free outputs for fault and alarm, corresponding to each zone.
- Can be connected to an industrial process control system using the two-wire RS485 Modbus RTU output.
- Built-in sounder for audible annunciation.
- Interlock/Coincidence detection eliminates the possibility of false alarms by requiring both LHD cables to trigger before transmitting an alarm.

Technical Data	
<b>Inputs*</b>	
<b>Max zone length</b>	3000m
<b>Min zone length</b>	1m
<b>End of line resistor</b>	1k ohm (Included)
<b>Short circuit current</b>	0.5mA
<b>Max voltage</b>	5V
<b>Ground fault impedance</b>	0 ohms
<b>Outputs</b>	
<b>Communications</b>	2 wire RS-485 Modbus RTU/ASCII
<b>Sounder</b>	2.4kHz 92dBa@10cm Buzzer
<b>Alarm</b>	2 volt-free relay contacts
<b>Max voltage</b>	30Vac or 42.4Vdc
<b>Max current</b>	2A
<b>Max switching power</b>	60W, 62.5V
<b>Fault</b>	2 x optoisolated phototransistor output
<b>Max voltage</b>	35Vdc
<b>Max current</b>	80mA
<b>Max power dissipation</b>	2A

\* Upto two Class B zones of Shield Digital LHD Cable

Mechanical	
<b>Dimensions (HxWxD)</b>	(180 x 120 x 60.5) mm
<b>Rating</b>	NEMA 4, 4X (IP65)
<b>Finish</b>	Light Gray with clear lid
<b>Display</b>	2 line, 16 character backlit display showing
<b>Terminal block spacing</b>	5mm Rising Clamp
<b>Terminal block wire size</b>	0.08mm <sup>2</sup> (28AWG) to 4mm <sup>2</sup> (11AWG)



## Digital LHD Cables

### Features

- UL 521 Approved.
- Up to 10,000ft (3000m) per zone.
- Detection along the entire length of sensor cable.
- Optional Nylon extrusion offering UV protection and increased durability for outdoor use.
- Optional stainless steel over-braiding for increased mechanical protection.

### Detection Temperatures

- 68°C
- 88°C
- 105°C
- 185°C

Technical Data	
<b>Construction</b>	Overall insulated, twisted pair of tri-metallic cores
<b>Insulation</b>	1kV tested protective outer coat
<b>Additional Insulation Options</b>	Nylon, Polypropylene or Stainless Steel braiding
<b>Approvals</b>	UL 521
<b>Maximum Zone Length</b>	3,000m (10,000ft)
<b>Wire Overall Diameter</b>	3.60mm to 5.08mm (0.142" to 0.200")
<b>Minimum bend radius</b>	50 mm (2")
<b>Ambient Temperature Range</b> (dependant upon action temperature)	-40°C – 125°C
<b>Max Voltage Rating</b>	30Vac, 42Vdc
<b>Resistance</b>	~100/km (29/kft) per leg
<b>Velocity of Propagation</b>	~55%
<b>Capacitance</b>	88 – 150 pF/m (26 – 45 pF/ft)
<b>Inductance</b>	540 – 1050 nH/m (165 – 320 nH/ft)

Environmental Specification	
<b>Maximum ambient temperature</b>	
<b>68°C</b>	45°C
<b>105°C, 88°C</b>	65°C
<b>185°C</b>	125°C
<b>Humidity</b>	0% to 100% RH
<b>Minimum Operating Temperature</b>	-40°C

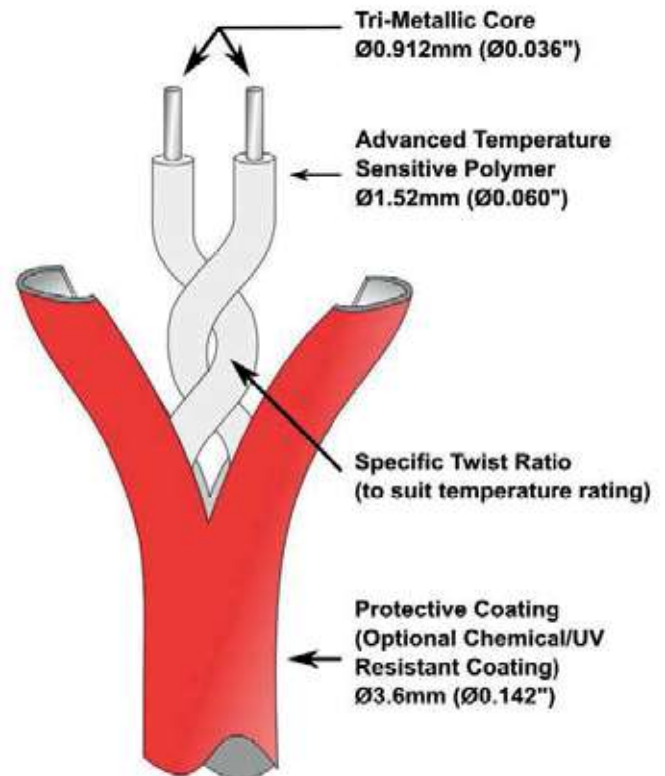


Figure 1: Fixed Temperature Linear Heat Detection Cable Construction

The Digital Linear Heat Detection Cable uses fixed temperature detection technology to provide an easy method for sensing changes in temperature levels. The cable can offer alternative overheat protection in a vast range of applications and environments, from tunnels, cable trays, warehousing to sensing changes in temperature within escalators and other applications where many risks of fire are hidden from view.

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

Digital linear heat detection cable is comprised of a pair of twisted low resistance, tri-metallic conductors, sheathed in advanced temperature sensitive polymers. When the cable reaches the required temperature the two twisted cores will fuse together, with a fire triggering resistor attached to the input interface and single core of linear heat cable to activate an alarm at the main fire panel.





### Applications

Shield LHD solution provide a combination of advanced polymer & digital technology to initiate an alarm along its length. These chemically engineered polymer structure breaks down at specific fixed temperatures & provide the exact location of the alarm through the digital control module. The extra durable UV resistant nylon outer jacket with wide range of installation accessories makes Shield LHD proper for outdoor & harsh industrial environments.



Tunnels



Floating Roof Tanks



Car Parks



Cable Trays



Escalators



Conveyor Belts



## Ordering Informations

### LHD Cables & Control Module

Description	Part No
Digital LHD 68°C, PVC - UL Listed	LH-P068
Digital LHD 88°C, PVC - UL Listed	LH-P088
Digital LHD 105°C, PVC - UL Listed	LH-P105
Digital LHD 185°C, Nylon outer sheath - UL Listed	LH-N185
Digital LHD 68°C, Nylon outer sheath - UL Listed	LH-N068
Digital LHD 88°C, Nylon outer sheath - UL Listed	LH-N088
Digital LHD 105°C, Nylon outer sheath - UL Listed	LH-N105
Digital Digital LHD 68°C, Stainless steel outer braid	LH-S068
Digital LHD 88°C, Stainless steel outer braid	LH-S088
Digital LHD 105°C, Stainless steel outer braid	LH-S105
Digital LHD 185°C, Stainless steel outer braid	LH-S185
Digital Control Module - UL Listed	LH-DCM
LHD Junction/EOL Box Polycarbonate w/5 DIN Rail mounted terminals & 2 cable glands	LH-1343
One or two zone digital LHD end-of-line box with test facility	LH-EOL

### LHD Cables Accessories

Description	Part No
Pipe Clip Zintec inc Silicone pad (Pack of 100)	LH-1326
Pipe Clip Stainless Steel inc Silicone pad (Pack of 100)	LH-1327
Distance Extension Piece Zintec inc Silicone pad (Pack of 100)	LH-1170
Distance Extension Piece Stainless Steel inc Silicone pad (Pack of 100)	LH-1171
Standard L-Clip (50mm) Zintec inc Silicone pad (Pack of 100)	LH-1166
Standard L-Clip (50mm) Stainless Steel inc Silicone pad (Pack of 100)	LH-1167
Dual Height L-clip (100mm) Zintec inc Silicone pad (Pack of 100)	LH-1164
Dual Height L-clip (100mm) Stainless Steel inc Silicone pad (Pack of 100)	LH-1165
LHD L-Bracket 200mm Zintec inc Silicone pad (Pack of 100)	LH-1168
L-Bracket 200mm Stainless Steel inc Silicone pad (Pack of 100)	LH-1169
Channel Bracket Zintec inc Silicone pad (Pack of 100)	LH-1172
Channel Bracket Stainless Steel inc Silicone pad (Pack of 100)	LH-1173
V-clip for cable trays Spring Stainless Steel inc Silicone pad (Pack of 100)	LH-1174
Beam Clip 2-3mm (Pack of 100)	LH-1344
Beam Clip 3-8mm (Pack of 100)	LH-1178
Beam Clip 8-14mm (Pack of 100)	LH-1328
Beam Clip 14-20mm (Pack of 100)	LH-1179
110°C constant rated indoor/outdoor tie wrap (Pack of 100)	LH-1175
170°C constant rated indoor tie wrap (Pack of 100)	LH-1176
High Temperature Stainless Steel Indoor/Outdoor tie wrap (Pack of 100)	LH-1177
Stainless Steel Tie Wrap Hand Tool	LH-1342



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