PROLINE
LINEAR HEAT DETECTION CABLE

Proline

Digital Linear Heat Detection Cable

Introduction

Special Application Fire Equipment Proline 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 fire 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 a single core of linear heat cable to activate an alarm at the main fire panel (see schematic).

ZI-02 Control Unit

A UL864 10th edition approved ZI-02 is available and provides additional benefits when used with the Proline Digital LHD cable. It can simultaneously monitor up to two zones of LHD cable and has separate fault and alarm outputs for each zone. A built in display shows the state of each zone, including the distance in meters and feet to the alarm point if an alarm is triggered. It also includes an RS-485 Modbus RTU output for integration with a PLC or SCADA system.

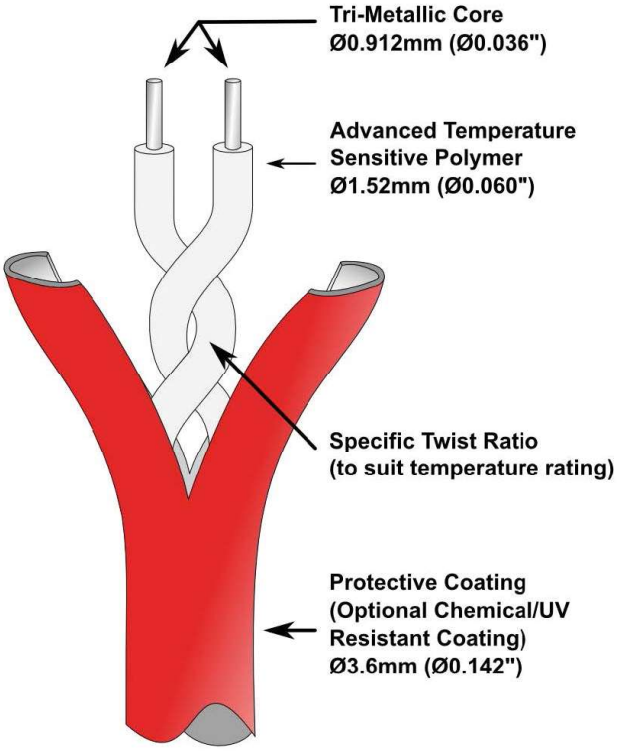

Figure 1: Proline Digital Linear Heat Detection Cable Construction

Features

- **UL 521 Approved (File No. S36573)**
- **CE Marked**
- **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 Polypropylene extrusion for increased chemical protection in caustic environments**
- **Optional stainless steel over-braiding for increased mechanical protection**

Detection Temperatures

- **68°C (155°F)**
- **78°C (172°F)**
- **88°C (190°F)**
- **105°C (221°F)**
- **185°C (365°F)**

Technical Data

Construction:	Overall insulated, twisted pair of tri-metallic cores
Insulation:	1kV tested protective outer coat
Additional Insulation Options:	Nylon, Polypropylene or Stainless Steel braiding
Approvals:	CE Marked, RoHS Compliant, UL
Maximum Zone Length:	3,000m (10,000ft)
Wire Overall Diameter:	3.60mm to 5.08mm (0.142" to 0.200")
Minimum bend radius:	50 mm (2")
Ambient Temperature Range: (dependant upon action temperature)	-40°C – 125°C (-40°F – 257°F)

Electrical

Max Voltage Rating:	30Vac, 42Vdc
Resistance:	~100Ω/km (29Ω/kft) per leg
Velocity of Propagation:	~55%
Capacitance:	88 – 150 pF/m (26 – 45 pF/ft)
Inductance:	540 – 1050 nH/m (165 – 320 nH/ft)

Technical Specifications

Electrical Specifications

Operating Voltage Range	0-30Vac, 0-42Vdc
Resistance	Approx 100Ω/km (30.4Ω/kft) per leg
Velocity of Propagation	Approx 55%
Capacitance	88 – 150pF/m
Inductance	540 – 1050nH/m

Environmental Specifications

Maximum ambient temperature	
68°C, 78°C	45°C (113°F)
105°C, 88°C	65°C (149°F)
185°C	125°C (257°F)
Humidity	0% to 100% RH
Minimum Operating Temperature	-40°C (-40°F)

Mechanical Specifications

Material	Overall insulated, twisted pair of tri-metallic cores
Colour	(additional nylon coating is always black) (additional polypropylene coating is transparent)
68°C, 78°C	Red
88°C, 105°C	White
185°C	Red
Diameter (all)	
PVC coating	3.60mm +/- 0.12mm (0.142" +/- 0.005")
...with additional Polypropylene coating	4.44mm +/- 0.12mm (0.175" +/- 0.005")
...with additional Nylon coating	4.50mm +/- 0.12mm (0.177" +/- 0.005")
...with additional Stainless Steel Braid	4.10mm +/- 0.12mm (0.161" +/- 0.005")
...with additional Nylon Coating & Stainless Steel Braid	5.08mm +/- 0.12mm (0.200" +/- 0.005")