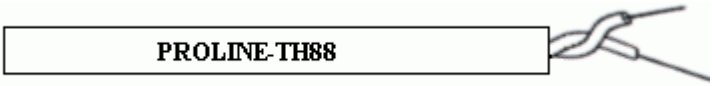
Email: helpinfo@lineardetection.com Website: www.lineardetection.com

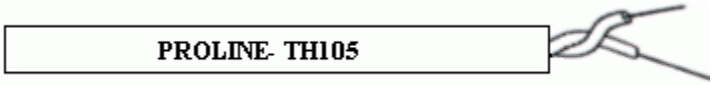
"PROLINE"

Linear Heat Detector (LHD)

Maximum Ambient to: 45C / 113F Alarm Temperature: 68C / 155F



Maximum Ambient to: 60C / 140F Alarm Temperature: 88C / 190F



Maximum Ambient to: 85C / 185F Alarm Temperature: 105C / 220F

Recommended minimum ambient temperature: continuous exposure is -40c/-40F

Product Features & Benefits

- ✓ Line Detection Coverage of risk with point detector sensitivity
- ✓ Cable and Detector combined
- ✓ Range of Alarm temperatures to meet different application /risk requirements
- ✓ Specified Alarm Temperature tolerances = +/- 4C = +/- 7F
- ✓ Detection at *EXACT* point of risk
- ✓ Alarm Response times: LESS than 8 (eight) seconds - tested to UL 1581 clause 1090 flame tests
- ✓ Meets UL 1581 1090.1 and 1090.2- propagation and self extinguishing requirements
- ✓ All sensor cables tested in accordance with IEC 60811-1-4
- ✓ Suitable for installation within a wide range of adverse environments.
- ✓ Optional "Alarm Point " location feature available - via Proline supplied dedicated interface unit (of particular advantage on overheat detection = no visible flame)
- ✓ Alarm temperature not dependant upon sensor cable length exposed
- ✓ Multiple alarm temperatures per single zone - if required - by series connection of different alarm temperature rated sensor cables
- ✓ No site calibration required to compensate for changes in ambient temperatures or sensor cable length
- ✓ Corrosion and Abrasion resistant outer extrusion
- ✓ Sensor range suitable for Installation within Ambient Temperatures from -40C (-40F) to + 85C (+ 185F)
- ✓ Sensor cables do NOT incorporate "Mylar" tape in manufacture – results in improved flame & moisture resistance and installation time.
- ✓ Total zone length replacement unnecessary after alarm
- ✓ Compatible with *ALL* Central Fire Alarm Control Panels (direct connection or via dedicated interface)
- ✓ Hazardous area installation
- ✓ Standard jointing / termination methods used
- ✓ Underwriters Laboratory (U.L.) Listing – submitted February 2005 (project ID allocated by UL)
- ✓ Factory Mutual (F.M.) approval applied for.
- ✓ Easily site tested: flame or overheat temperature.
- ✓ Positive price advantage over competitive products
- ✓ Minimum 50,000m of each sensor cable held as continuous stock
- ✓ Full product traceability – by reel length supplied.

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Introduction

"DIGITAL" Linear Heat Detection has a long and proven record of effective protection of life and capital investment throughout an increasing number of International markets. Repeatedly illustrating to end user and specifier alike, its ability to operate within areas of limited access and surveillance and within environmental conditions that would render other forms of detection , inoperable or subject to high levels of costly maintenance or false alarms.

Installation of the temperature sensitive cable at "point of risk" (not the most convenient roof or ceiling height adopted by point type detectors) offers end users, a Fire PREVENTION potential on a large number of Industrial Fire risks – by locally detecting and signaling an abnormal overheat condition. Allowing action to be taken by site personnel to rectify the situation prior to such overheat temperature reaching combustion levels!

For an explanation and comparison between the features and benefits of the different linear detection system operating concepts, please visit our website - www.lineardetection.com ("Newsheets" section – Newsheet 5).

Description

The PROLINE "DIGITAL" TH linear heat detection adopts a 3.5 mm (0.138in) external diameter single pair (two conductors) heat sensitive cable as the basis for its overheat/fire detection system. At a pre-selected temperature, the thermal sensitive polymer that is extruded around BOTH the sensor cables inner tinplated copper coated steel conductors – twisted together to form a spring like pressure between them – softens, allowing the signaling cores/ conductors to move into contact with each other –producing an ***alarm*** signal.

If conductor continuity is broken – with inner insulation maintained (i.e. non alarm state), an open circuit ***fault*** condition will be signaled.

An outer extrusion of corrosion and abrasion resistant polymer maintains the conductor twisting over the full length of sensor cable installed and allows for its installation in external weather conditions and its application within more sever local environments.

The Proline TH sensor cable range outer extrusion is colour coded for ease of alarm temperature rating identification – in strict accordance with Industrial standards including UL 521 "Heat Detectors for Fire Protective Signaling Systems".

As a range of "digital linear heat sensor cables the specified alarm temperature ratings are NOT dependant upon a minimum length of sensor cable being exposed to the overheat/fire condition. Nor is system calibration required to compensate for changes in local ambient temperatures or alterations to zone lengths of sensor cable installed.

The PROLINE TH range of linear heat sensor cables are currently manufactured in a choice of three (3) temperature ratings to allow for variations in individual project maximum ambient and/or alarm temperature requirements. The authority having jurisdiction should always be contacted to confirm suitability of specified alarm temperature rating. It is advisable to allow a minimum of +11C/+20F between maximum normal ambient and minimum alarm temperature in order to avoid any potential false alarm conditions. (Information origin – UL521 section 53.7).

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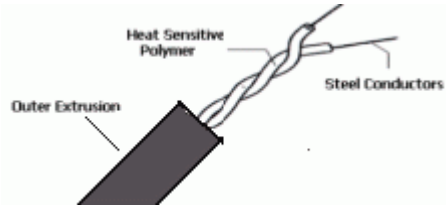
PROLINE – "Digital" TH Sensor Cable Construction.



PROLINE TH Sensor Cable - Electrical and Mechanical

- **External Diameter : 3.5mm (0.138in)**
- **Dielectric strength : 5kva on line spark test withstand**
- **Conductors : Tinplated copper coated steel (x 2 per sensor cable) – 0.912mm (0.036in)**
- **Conductor Resistance: 90 ohms / km (88.1ohms min / 92.1 ohms max)**
- **Inner Extrusion: "Hybrid" temperature sensitive polymer – 0.294mm (0.011in) per conductor.**
- **External Extrusion / Insulation : Colour coded Class 43 PVC based polymer**
- **UTS- tensile strength :1700 minimum (N/mm2) tested to BS EN 60811-1**
- **Minimum sensor cable bend radius : recommended- 100mm**
- **WARNING:Linear Heat Sensor Cables must NEVER be connected directly to electrical mains supplies**
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Installation

The **PROLINE** "DIGITAL" TH Linear Heat Sensor cable is a temperature sensitive detector and is normally used as an integral part of a monitored detection circuit of an approved Central Fire System Control Panel. Either connected directly to the Panel or via a Proline supplied dedicated interface unit – with multiple output signaling arrangements and "alarm point location" option. (see seperate interface data sheet for full details and wiring connection) .

Installation of linear heat sensor cable is recommended at -10C or above. Continuous operation at -40C/-40F has been tested and is manufacturer approved.

The Detector must be installed in continuous runs without " tees or spurs" in accordance with applicable sections of NFPA 70 National Electrical Code, NFPA 72 National Fire Alarm Code, or other applicable International standards .

"Traditional" applications for Linear Heat Detection have included the protection of cable trays, conveyors, rack storage warehouses and petro-chemical storage tanks. However, the features and benefits of this "local detection" concept have now been widely recognized for some years- with specifications for its protection of multi storey car parks , road / rail tunnels , ceiling / floor voids , electrical cupboards, listed buildings etc now as "traditional" as the risks for which the concept was originally developed and designed !

For the more commercial applications, **PROLINE** recommends the following product manufacturer guidelines:-

The heat sensor cable may be installed at ceiling level or on side walls within 500mm / 20 inches of the ceiling, to protect areas within buildings (area protection). The Detector has the additional benefit of being suitable for installation close to the hazard in order to provide a rapid response (proximity or special application protection). Care must always be taken to ensure the sensor cable presents no physical obstruction to routine maintenance or repair of the protected risk. Failure to consider this may result in the removal of the sensor for such work without its subsequent replacement.

On smooth ceilings, the distance between detector runs shall not exceed the recommended spacing (normally 7.5m/25ft). There shall be a detector run within a distance of one-half the listed spacing, measured at a right angle, from all walls, or partitions extending to within 18 inches (460mm) of the ceiling.

When linear detection systems are used to activate automatic extinguishing systems, special spacing guidelines may also be applicable to the specific hazard protected.

Professional fire engineering judgment must be applied in determining final detector location and spacing on all installations.

In general, the use of linear heat detection in any initiating device circuit is limited to coverage of a specific hazard or area. Copper wire, of an approved type, 1.5mm sq: minimum shall be installed from any "remotely" installed interface unit or control panel to the hazard area where it is then connected to the beginning of the heat sensitive linear detection portion of the circuit. Each sensor cable portion of the initiating circuit shall begin and terminate at each end of the protected risk area in an approved junction box or end-of-line termination box (complete with open circuit fault monitoring resistor – value appropriate for control panel or interface unit to which heat sensor cable is connected).

Installation Accessories

PROLINE PROTECTION SYSTEMS LTD offers an assortment of heat sensor cable fixing devices for ALL product applications. In order to guarantee product warranties and to ensure uninterrupted operation of the linear heat detection system only fixings manufactured or recommended by **PROLINE PROTECTION SYSTEMS LTD** should be used.

Full details are available upon request.

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Typical Applications

- Cable Tunnel / tray protection
- Conveyors
- Power distribution apparatus: switchgear, transformers, electrical cupboards
- Warehouses – Bulk and Rack storage
- Refrigerated Storage
- Aircraft Hangars
- Cooling towers
- Road / Rail Tunnels
- Rail Stations (under platform edge, electrical cupboards, escalators etc)
- Rolling Stock (Rail)
- Multi-storey Car Parks
- Escalators
- Elevators / Lifts
- Fuel Storage Tanks , pumps and pipelines
- Off shore Rigs
- On + Off Road Vehicle Engine Bays (combine harvesters, earth movers, HGV's etc)
- Marine Leisure Craft – Fuel Lines
- Container ship holds
- Commercial shipping – car decks
- Call Point zone wiring (increasing detection capability without any major increase in cost)
- Point detector zone wiring
- Bridges, piers, marine vessels
- Computer rooms
- Call Centres
- Listed Buildings – Museums , Palaces etc
- Domestic buildings (example - roof space protection)

The information provided on this data sheet is accurate at time of going to print. In the interest of improving quality and design Proline Protection Systems Ltd reserve the right to amend specifications without prior notice.

PROLINE PROTECTION SYSTEMS LTD

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