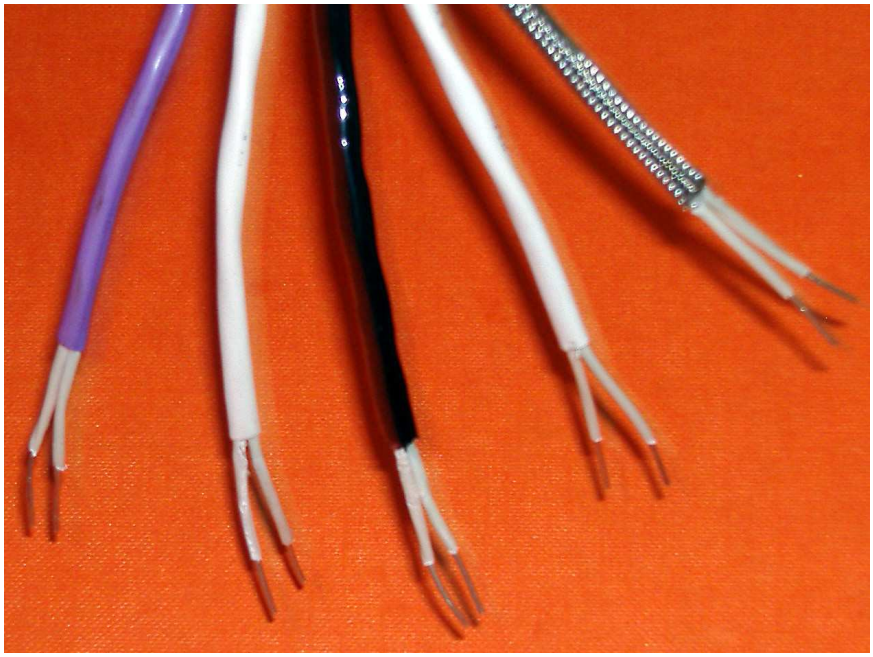
Tel: +44 (0) 8452 602 702
Fax: +44 (0) 8452 602 902
Email: proline@linedetect.com
Web: www.lineardetection.com

UK OFFICE: 1, Wheatsheaf Close, Ottershaw, Surrey. KT16 0JA. United Kingdom

PROLINE "TH" DIGITAL LINEAR HEAT SENSOR CABLES



	Maximum Ambient Temperature	Alarm Temperature
TH68	**45C/113F**	**68C/155F**
TH78	**50C/122F**	**78C/173F**
TH88	**60C/140F**	**88C/190F**
TH105	**70C/158F**	**105C/220F**

OPTIONAL EXTRUSIONS & BRAIDINGS

For specific applications an additonal corrosion resistant or increased mechanical protection may be required. ALL of the above range of Proline "TH" digital linear heat sensor cables are all available with either:

"RILSAN" extrusion: coating material (Type N)
(offers thermal stability,physical durability,)
(chemical resistance and mechanical integrity)

OR

ANNEALED 316 STAINLESS STEEL BRAID (Type B)
24/3/0.2mm 85% cover – 13mm "Lay"
(offers increased protection against mechanical damage.)

PRODUCT APPROVALS

Factory Mutual (FM) Approvals: 3025739

Underwriters Laboratories (UL): S9029

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**
- ✓ **Alarm temperature not dependant upon sensor cable length exposed**
- ✓ **Suitable for installation within a wide range of adverse environments.**
- ✓ **Maximum TH sensor cable spacings – 10.6metres/35ft – U.L. listed**
- ✓ **Optional "Distance Read" Alarm location feature available - via Proline ZI-01dedicated interface unit (of particular advantage on overheat detection = no visible flame) with RS232 serial interface.**
  2000 metres TH sensor cables per ZI-01/ZI-01RS Interface
  5000 metres TH sensor cables per ZI-03 Site Programmable Interface with sub zoning capabilities
- ✓ **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**
- ✓ **Sensor range suitable for Installation in Maximum continuous Ambient Temperatures to + 70C (+ 158F)**
- ✓ **Minimum Temperature exposure: UL tested to -30C (-22F)**
  FM Approvals and material manufacturers minimum temperature exposure specification: -40C (-40F)
- ✓ **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.) and (C-UL) Listed – File No: S9029**
- ✓ **FM Approvals 3025739**
- ✓ **Shenyang laboratories – Tested April 2006 to new Chinese Fire Standards – effective July 2006**
- ✓ **Easily site tested: flame or overheat temperature.**
- ✓ **Industrial grade corrosion protection** – Type "N"
- ✓ **Stainless Steel Braided version available** –Type "B"
- ✓ **Short Delivery leadtimes**
- ✓ **Full product traceability – by reel length supplied**

Typical Applications

- **Cable Tunnel / tray protection**
- **Conveyors**
- **Power distribution apparatus: switchgear, transformers, electrical cupboards**
- **Warehouses – Bulk storage, Rack storage, Refrigerated Storage**
- **Aircraft Hangars**
- **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**
- **Point Detector or Call Point zone wiring (increasing detection capability without any major increase in cost)**
- **Computer rooms & Call Centres**
- **Listed Buildings – Museums , Palaces etc**

Introduction

"DIGITAL" Linear Heat Detection has a long established record of effective protection of life and capital investment throughout an increasing number of International markets. Repeatedly illustrating 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 : **pre-combustion**!

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 (extruded around BOTH the sensor cables inner tinplated copper coated steel conductors) softens, allowing the signaling cores/ conductors - that are twisted together to form a spring like pressure between them- to move into contact with each other producing an ***alarm*** signal. A mechanical tension is constantly and uniformly maintained along the entire length of the detector.
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 severe local environments. **For applications where a high risk of chemical corrosion or mechanical abrasion has been identified, an industrial "nylon" or stainless steel braided version of the sensor cable can be supplied.**

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".

The specified alarm temperature rating of the "TH" sensor cable is NOT dependant upon a minimum length of sensor cable being exposed to the overheat/fire condition. System calibration is also not necessary to compensate for changes in local ambient temperatures or differing zone lengths of installed sensor cable.
The PROLINE TH range of linear heat sensor cables are currently manufactured in a choice of four (4) 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).

PROLINE TH Sensor Cable - Electrical , Mechanical and Shipping

- **External Diameter : 3.5mm (0.138in)**
- **Dielectric Voltage Withstand : 500Vdc- UL tested**
- **Conductors : Tinplated copper coated steel (x 2 per sensor cable) – 0.912mm (0.036in) (19AWG) diameter**
- **Electrical Rating: 30VAC (42.2Vdc) , 10A**
- **Conductor Resistance: 100 ohms/km maximum PER CONDUCTOR**
- **Inner Extrusion: "Hybrid" temperature sensitive polymer – 0.294mm (0.011in) per conductor.**
- **External Extrusion / Insulation : Colour coded Class 43 PVC based polymer – Lead & Cadmium FREE**
- **UTS- tensile strength :1700 minimum (N/mm2) tested to BS EN 60811-1**
- **Minimum sensor cable bend radius : recommended- 100mm**
- **Gross Shipping Weight per 1000m reel – 26.6kgs (59lbs).**
- **Single 1000m reel: 480mms (18.9 inches) diameter**

WARNING: Linear Heat Sensor Cables must NEVER be connected directly to electrical mains supplies

Installation

The **PROLINE** "DIGITAL" TH Linear Heat Sensor cable is frequently used as an integral part of a monitored detection circuit of an approved Central Fire System Control Panel. ***Connections can be made directly to the Central Panel or panel supplied ZMU or similar device to achieve dedicated address. OR via one of the Proline supplied type ZI-01,ZI-01RS or ZI-03 dedicated interface units – all supplied c/w accurate "Distance read" indication.***

Installation of linear heat sensor cable is recommended at -10C or above. Continuous operation at -30C/-22F has been UL tested. FM Approvals and extrusion material manufacturing specification for minimum temperature operation = -40C / -40F.

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.

Linear Heat detection is increasingly specified for a diverse range of Industrial, Commercial, Marine and even Domestic applications.

For space/open area risk applications, the heat sensor cable may be installed at ceiling level or on side walls within 500mm (20 inches) of the ceiling. The Linear heat sensor 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, as this may result in the removal of the sensor cable for such work without its subsequent replacement.

On smooth ceilings, the distance between detector runs shall not exceed the U.L. listed 10.6metres/35ft recommended spacing. FM Approvals spacings are 9.0m/30ft for TH68, TH78 and TH88 OR 7.5m/25ft for TH105. 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 linear heat sensor cable 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.

Edited version. 07.06

Registered Office – KingsWorthy House , Court Road , KingsWorthy , Winchester , Hampshire . SO 23 7QA U. K.
Registered in England – Number 4421495 V.A.T. Registration Number – GB 799 9244 45