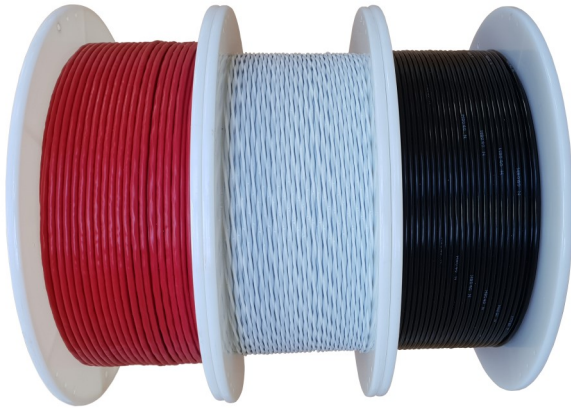


LINEAR HEAT DETECTION (LHD)

LINESENSE

Fire Detection Ltd

www.linesense.co.uk

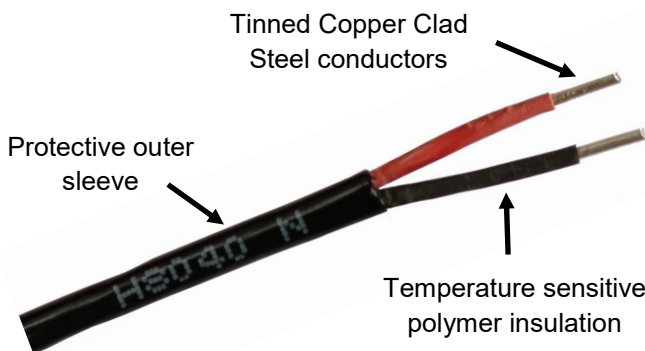


Linesense Digital Linear Heat Detection (LHD) cable is a simple and reliable product providing continuous uninterrupted detection along its length.

The sensing cable is formed from a pair of twisted steel conductors each with temperature sensitive insulation and then an overall outer sleeve. When the temperature sensitive insulation reaches its predetermined alarm temperature the two conductors short together providing the alarm signal.

The cable can be connected to any unit capable of monitoring a switched or digital alarm signal, i.e. Conventional fire panel or addressable switch monitor unit.

The design and function of each application can differ with each operator and site, requiring a flexible solution to meet individual needs. The LHD cable can be cut to length as required and with its ease of installation and low maintenance it provides a flexible cost effective solution.



Features



- Simple switch / digital alarm operation
- Continuous uninterrupted detection along the total length of the element.
- Fixed alarm temperature. Unaffected by changes in ambient temperature.
- Compatible with switch monitoring units and conventional alarm panels.
- Suitable for use in Hazardous areas using safety barriers.
- Wide range of alarm temperatures 68°C to 240°C (155°F to 464°F)
- Simple maintenance free installation.
- Small diameter and bend radius.
- FM Approved

Applications

- Conveyors / bearing protection
- Escalators, moving walkways.
- Petro-chemical storage tanks, rim seal protection
- Cable tunnel / tray protection
- Road and rail tunnels
- Road and rail motor compartments
- Electrical switch gear & transformers
- Refrigerated rooms and cold stores.
- Building fascia's, exteriors under eaves
- Motor and pump overheat detection.
- Dirty and dusty environments.

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Transport and Storage.

CAUTION: Always transport and store the LHD cable in a clean dry environment out of direct sun light and ensure temperatures do not exceed the maximum ambient rating of the cable to prevent activation.

Note: On LHD cables with low alarm temperatures, physical signs of operating may not always be obvious when inspected.

Installation.

Local authority regulations and standards should always take precedence when designing and installing safety systems.

Selecting an appropriate cable for an application should always consider the maximum ambient temperature of the environment along with any heating effect from direct sun light.

Always test the cable for short circuits before installation.

Linesense provide a selection of fixings and clips to retain the LHD cable in place. Fixings should be placed at intervals of no more than 1.2m apart. It is recommended to use metal fixings and cable ties when ever possible.

Where cable ties are used they should be used in conjunction with a silicon sleeve and not over tightened to prevent damage to the outer sleeve of the LHD, alternatively "P" clips can be used.

Minimum bend radius of digital LHD is 50mm (100mm in cold store environments).

The routing of the LHD should avoid contact or close proximity with any local sources of heat eg. light fixings, steam pipes etc

Electrical.

Having a fixed alarm temperature, the operation of the digital LHD is unaffected by changes in the ambient temperature and requires no special tools or calibration.

LHD cable should always be connected as a single continuous run without "T" or "Y" branches and spurs.

It is recommended that any splices or joins are made in suitable junction boxes with cable glands or with IP rated inline connectors. This ensures good mechanical protection and hermetic damp proof joins.

Field wiring between the control room and risk area can be made in suitably approved cable and connected to the LHD in a local junction box or cabinet. The LHD can then be run around the risk area to be monitored.

By using the Linesense Digital Interface Module (DIM), the field wiring can be monitored for short circuit faults prior to the LHD.



LINEAR HEAT DETECTION (LHD)

General Area Coverage.

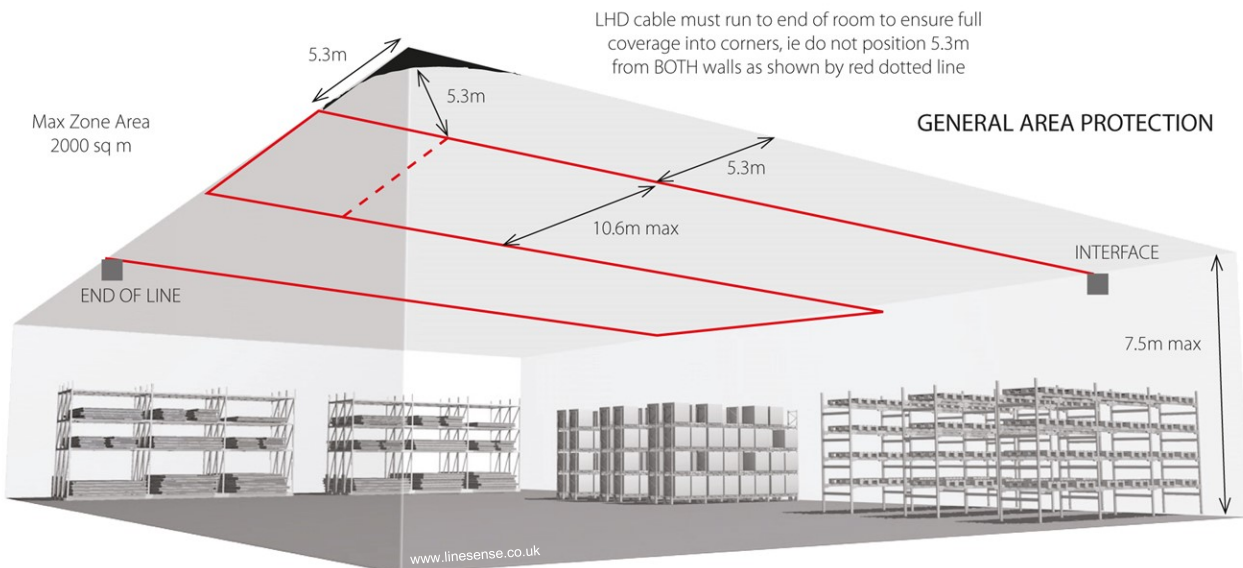
Digital linear heat detection cable provides continuous uninterrupted detection along its entire length, this permits a spacing of 10.6m between runs on a flat ceiling. The cable should run the full length of the room to ensure coverage into the corners.

Under pitched roofs an extra 1%, per degree of roof angle applies for LHD within 150mm of the apex.

Linear heat detectors should be installed no closer than 25mm and no further than 150mm from the ceiling.

Maximum zone size should not exceed 2000 square meters.

Values according to BS5839 Part 1, other codes and regulations may differ.



For ease of testing, the end of line junction box can be replaced with a key switch test unit providing both Fire and Fault testing of the system. These can be mounted at easily accessible height's and locations.



316 Stainless steel

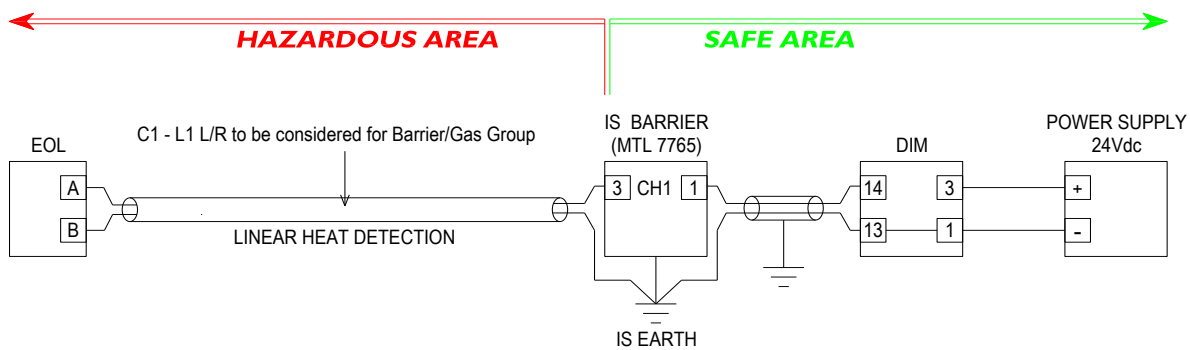


ABS

LINEAR HEAT DETECTION (LHD)

Hazardous Areas.

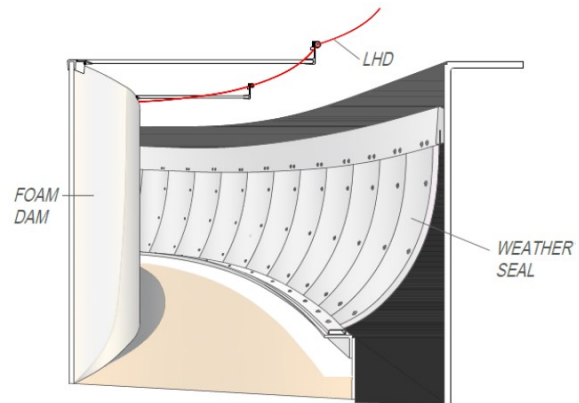
LHD cable is classified as a “simple device” and with the use of suitable Intrinsically Safe (IS) barriers, it can be installed in hazardous areas. This ensures that under fault conditions the LHD circuit has insufficient electrical energy to produce a spark initiated fire or explosion.



Typical schematic using safety barrier along with a Digital Interface Module (DIM)

Rim seal protection floating roof storage tanks.

When a failure occurs on a rim seal there is the potential for flammable vapours or product to escape. Should there then be a source of ignition then a fire may ensue. To detect the fire as early as possible LHD cable is installed at or close to the rim seal.



Electrical connection between the roof and the tank rim can be made using the ATEX approved automatic cable reeler or retractable cable.

The Automatic cable reeler is installed at the top of the tank rim and connected to a junction box on the roof. As the roof rises and falls the reeler compensates for the change and winds cable in and out as required.



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Conveyors

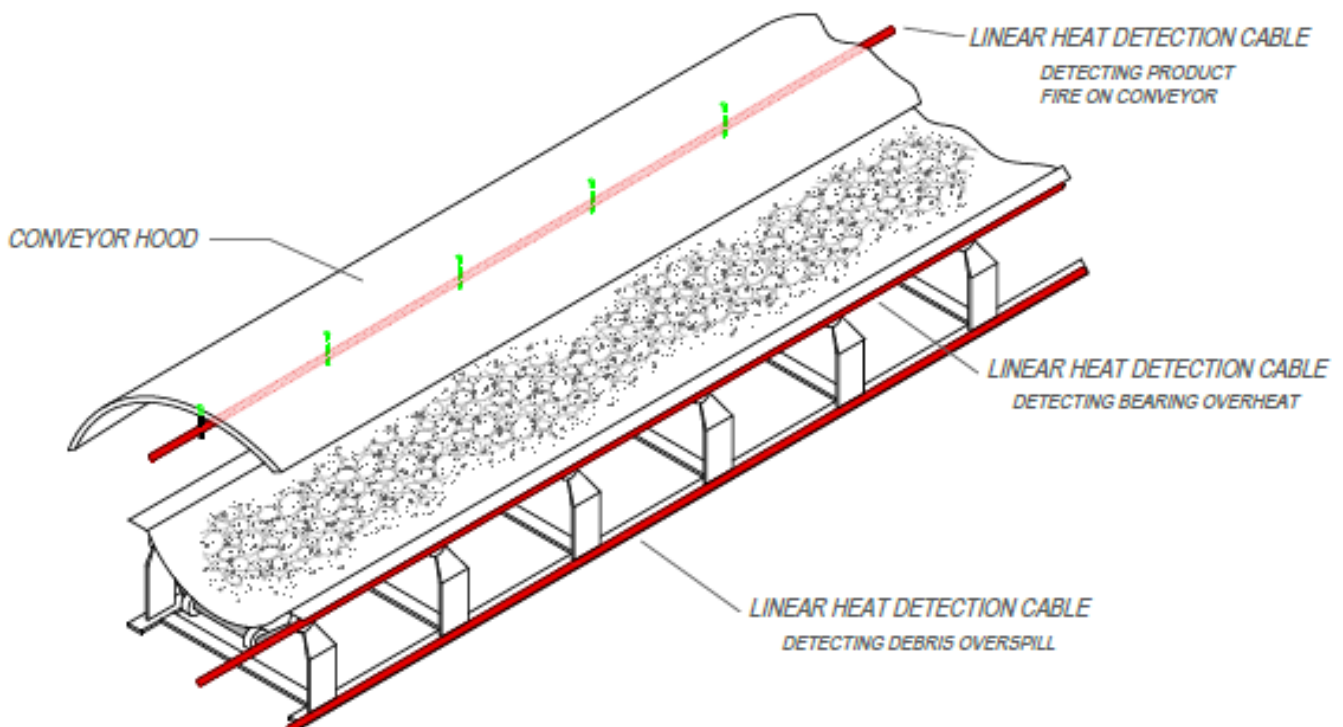
The layout and makeup of the conveyors will determine how the LHD is installed and configured. System design should consider:

- LHD cable to be installed close to the bearings of the pulleys and idlers to detect overheating.
- LHD cable to be installed above the conveyor belt to detect any fires on the static belt.
- A length of LHD is also recommended below each side of the conveyor to detect spillage fires.

With the distances that some conveyors transport material reaching many kilometres in length, LHD offers a flexible cost effective solution no matter the size and type of environment.

The fire detection capability can be enhanced when the LHD is used in conjunction with the Digital Location Interface (DLI). Conveyors can be many kilometres long, so identifying where a fire is located helps speed up decisions.

The DLI has the ability to monitor up to 2,000m or 10,000m of LHD (depending on the unit selected) for both Fire and Fault conditions, when activated it identifies the location of the alarm. The distance in meters is displayed on the 3½ digit LCD and allows for appropriate action to be taken.



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H8040N 68°C



Alarm temperature : 68°C (155°F) Nominal
Max amb temperature : 45°C (113°F)
Min operating temperature : -40°C (-40°F)
Min installation temperature : -15°C (5°F)
Pt No. 51100-068

H8045N 85°C



Alarm temperature : 85°C (185°F) Nominal
Max amb temperature : 45°C (113°F)
Min operating temperature : -40°C (-40°F)
Min installation temperature : -15°C (5°F)
Pt No. 51100-085

H8028 105°C



Alarm temperature : 105°C (221°F) Nominal
Max amb temperature : 70°C (158°F)
Min operating temperature : -30°C (-22°F)
Min installation temperature : -0°C (32°F)
Pt No. 51100-105

H8069 180°C



Alarm temperature : 180°C (356°F) Nominal
Max amb temperature : 105°C (221°F)
Min operating temperature : -40°C (-40°F)
Min installation temperature : -0°C (32°F)
Pt No. 51100-176

H9650 240°C



Alarm temperature : 240°C (464°F) Nominal
Max amb temperature : 200°C (392°F)
Min operating temperature : -50°C (-58°F)
Min installation temperature : -20°C (-4°F)
Pt No. 51100-240