



Alarmline Linear Heat Detection

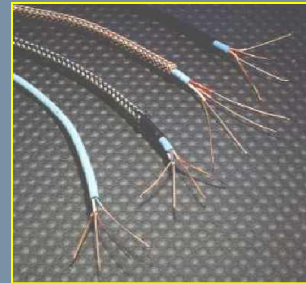
Temperature Related Risk Protection

- Data supplied by fire insurance companies indicates that most industrial fires are caused by
 - Friction heat & sparks
 - Overheating of equipment
 - Spontaneous combustion
 - Oil & oil fired equipment.

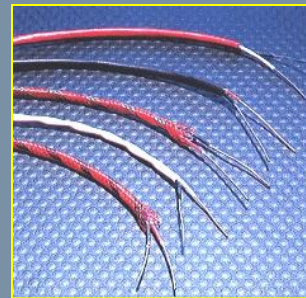
What is Linear Heat Detection?

- Continuous heat detector in the form of a cable

- Alarmline Analogue: averaging heat detector



- Alarmline Digital: fixed temperature heat detector

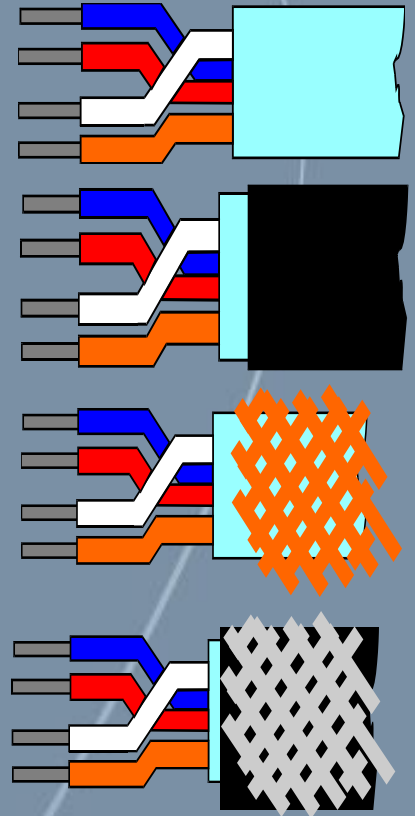


Analogue LHD Cable

- Definition:
 - Multi-conductor cable containing insulators whose resistance varies proportionately to changes in temperature
 - Re-settable provided temperature does not exceed burn-off point of PVC coating
 - Alarm level adjusted via controller.

Alarmline Analogue LHD Cables

- High resistance - standard applications
- Nylon extruded - chemical resistance
- Bronze braided - increased mechanical protection over standard high resistance cable
- Stainless Steel braided over nylon extruded cable - offshore applications.



Alarmline LHD 4 Controller

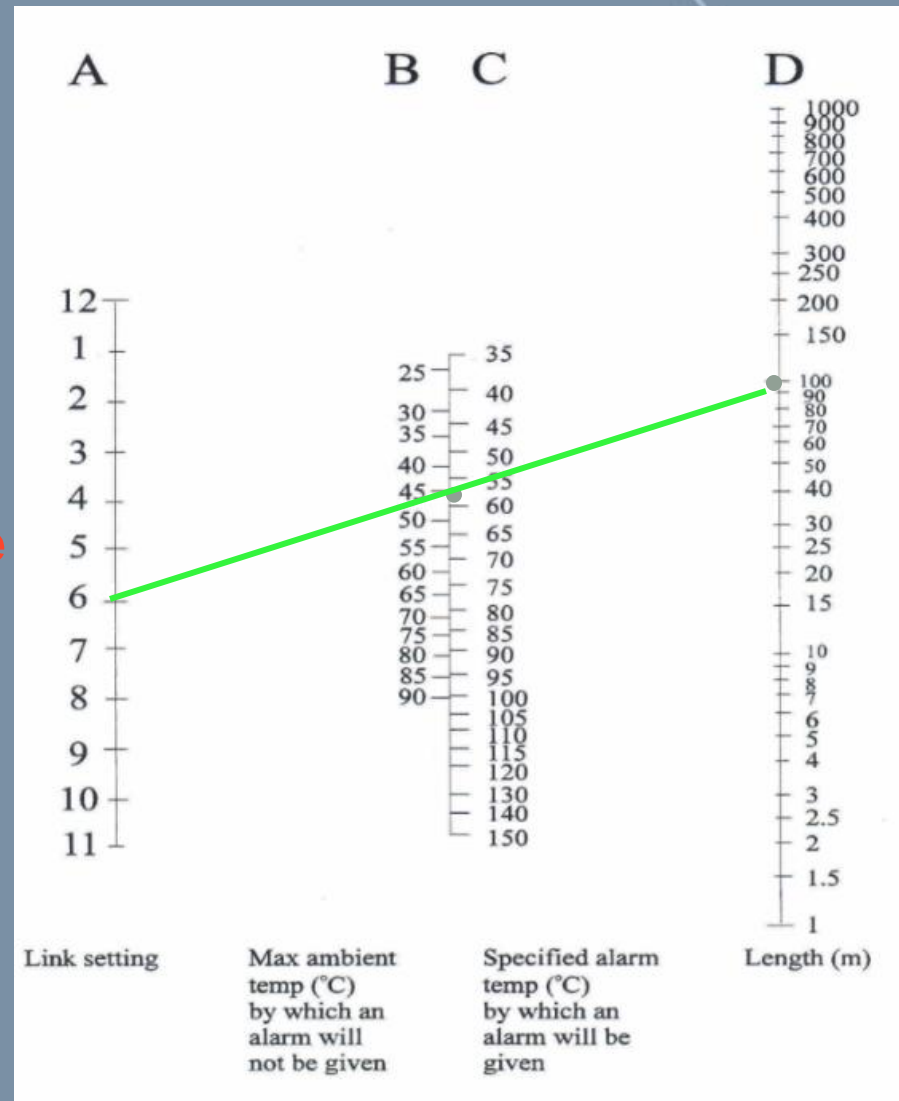


Alarmline LHD 4 Controller

- Alarm level adjusted via moveable link
- Open circuit and closed circuit fault monitoring
- Fire and fault output to conventional fire alarm panels
- Volt-free relay option for analogue addressable fire alarm panels
- Eurocard 19" rack option.

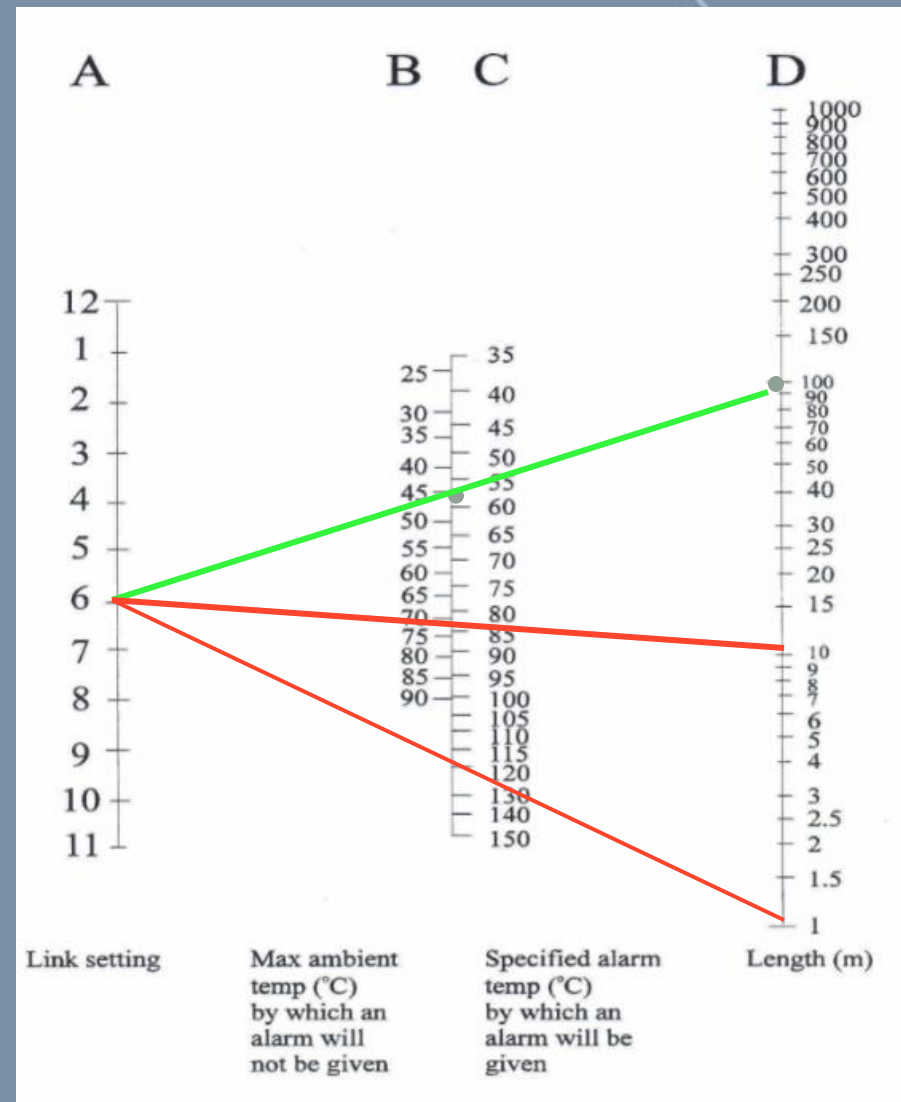
Alarmline Nomogram

- Select the sensor cable length being used (D) 100m
- Mark the Max Temperature where an alarm **must not be given** (B) 45 degrees
- Draw a line from point on “D” through point on “B” to the switch setting line (A). This is the switch setting that will not give a false alarm at the Max ambient temperature.



Alarmline Nomogram

- In the event of a hot spot occurring, it can be shown how hot this would need to be to give an alarm for a given length
- 10 metre length = 83 degrees
- 1 metre length =120 degrees.

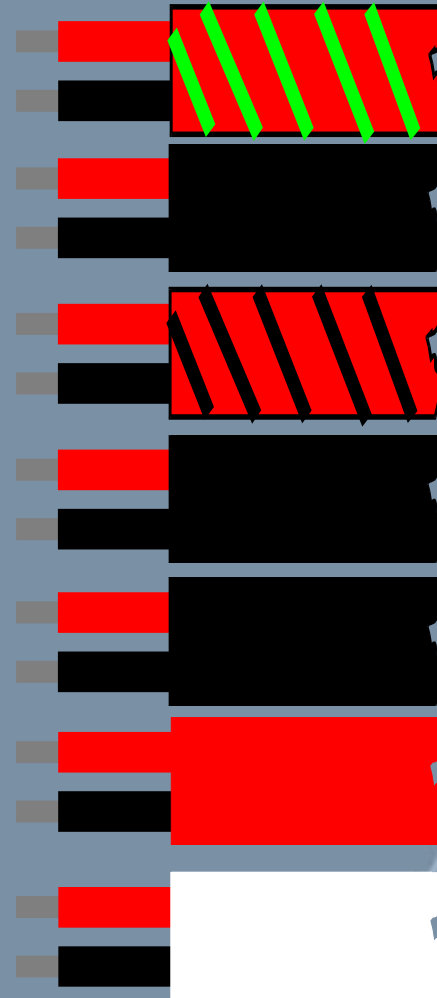


Digital LHD Cable

- Definition:
 - A cable which contains an insulator which melts at a specific temperature
 - Switch output provided once alarm temperature is reached
 - Not re-settable.

Alarmline Digital LHD Cables

- Polythene braid 70° C
- Nylon over sheath 70° C
- Polythene braid 90° C
- Nylon over sheath 90° C
- PVC 113° C
- PVC 180° C
- Fluoropolymer 238° C



Alarmline Digital Control Units

- Firebeta conventional panel with optional extinguishant release module
- Any other conventional fire alarm panel and/or extinguishant release module (retrofit).



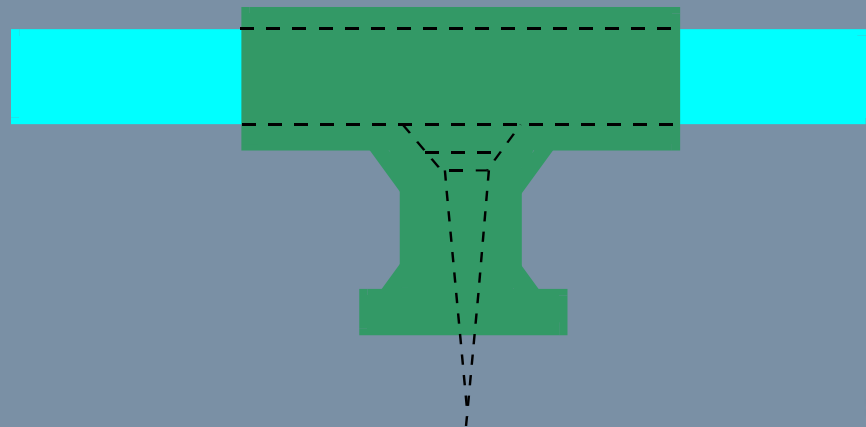
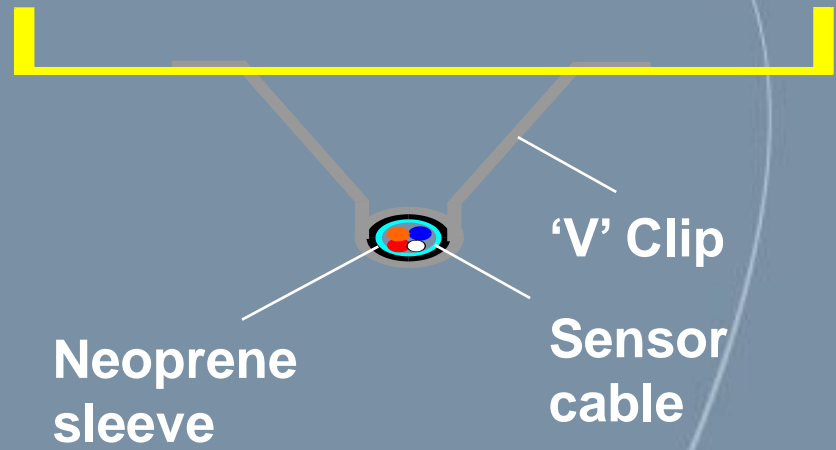
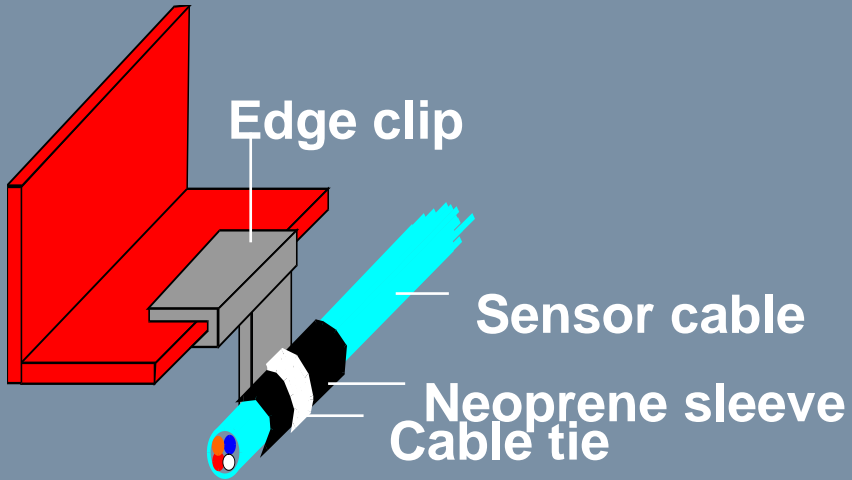
Alarmline LHD - Advantages

- Flexibility
 - Mechanically
 - Electrically
- Durability
 - Wide range of casings / braiding
 - Operating range -65° to +200° C
 - Unaffected by operating environment.

Analogue & Digital Comparison

Alarmline Analogue	Alarmline Digital
Analogue Recoverable Open & Short Circuit Fault Detection Min operating temperature -65 °C Min Alarm Temperature 35 °C Max Alarm Temperature 105 °C Max Re-coverable Alarm Temperature 150 °C Max Length 1000m	Digital Non-recoverable Open Circuit Fault Detection Min Operating Temperature -65 °C Min Alarm Temperature 61 °C Max Alarm Temperature 238 °C N/A Max Length 10,000m

Sensor Clips



Alarmline Applications

- Heavy industry
- Warehousing / storage tanks
- Conveyors and escalators
- Cable trays
- Floor & ceiling voids
- Tunnels
- Car parks.

Applications - Case Study 1

Electricity Generation

- Cable trays and risers
- Boiler fronts
- Conveyors
- Cooling towers
- Transformers.



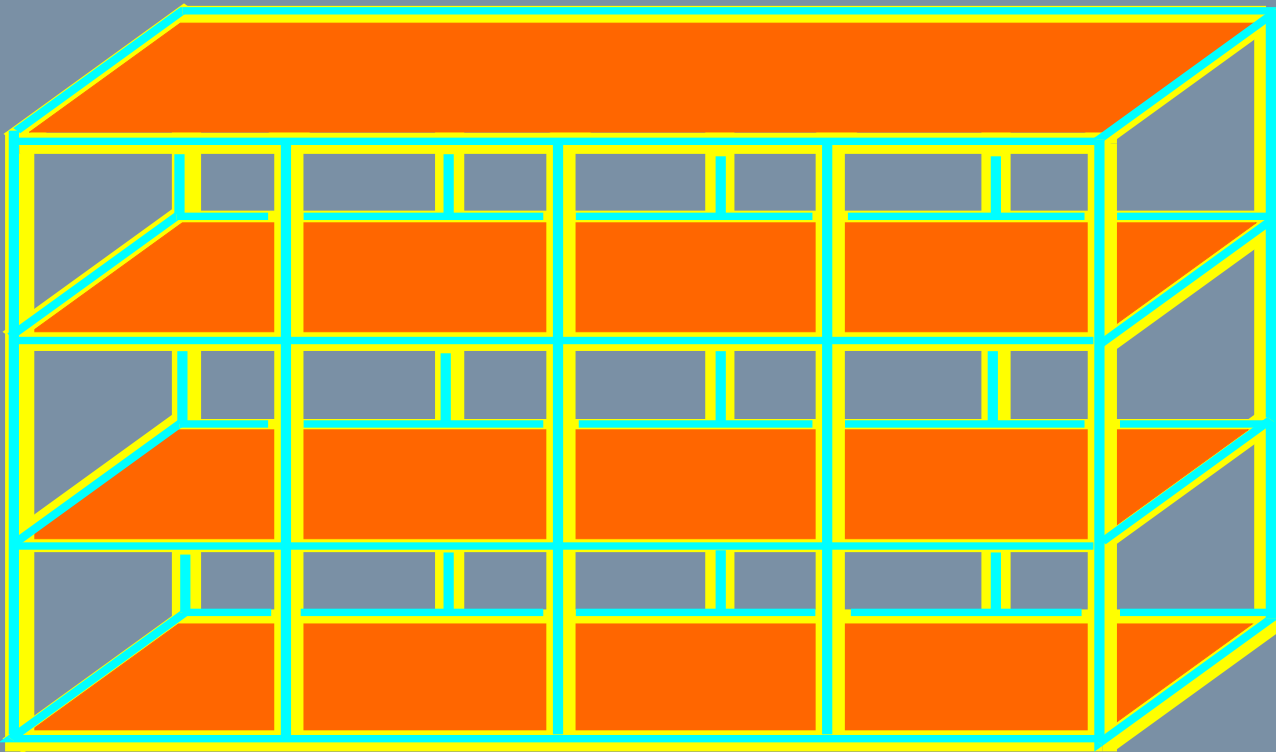
Applications - Case Study 2

Warehousing & Bulk Storage

- Alarmline Digital cable with conventional control unit or
- Alarmline Analogue high resistance / Nylon extruded cable with LHD 4 controller
- Fixing clips as required
 - “T” Clips
 - Edge connectors
 - Cable tray fixings.



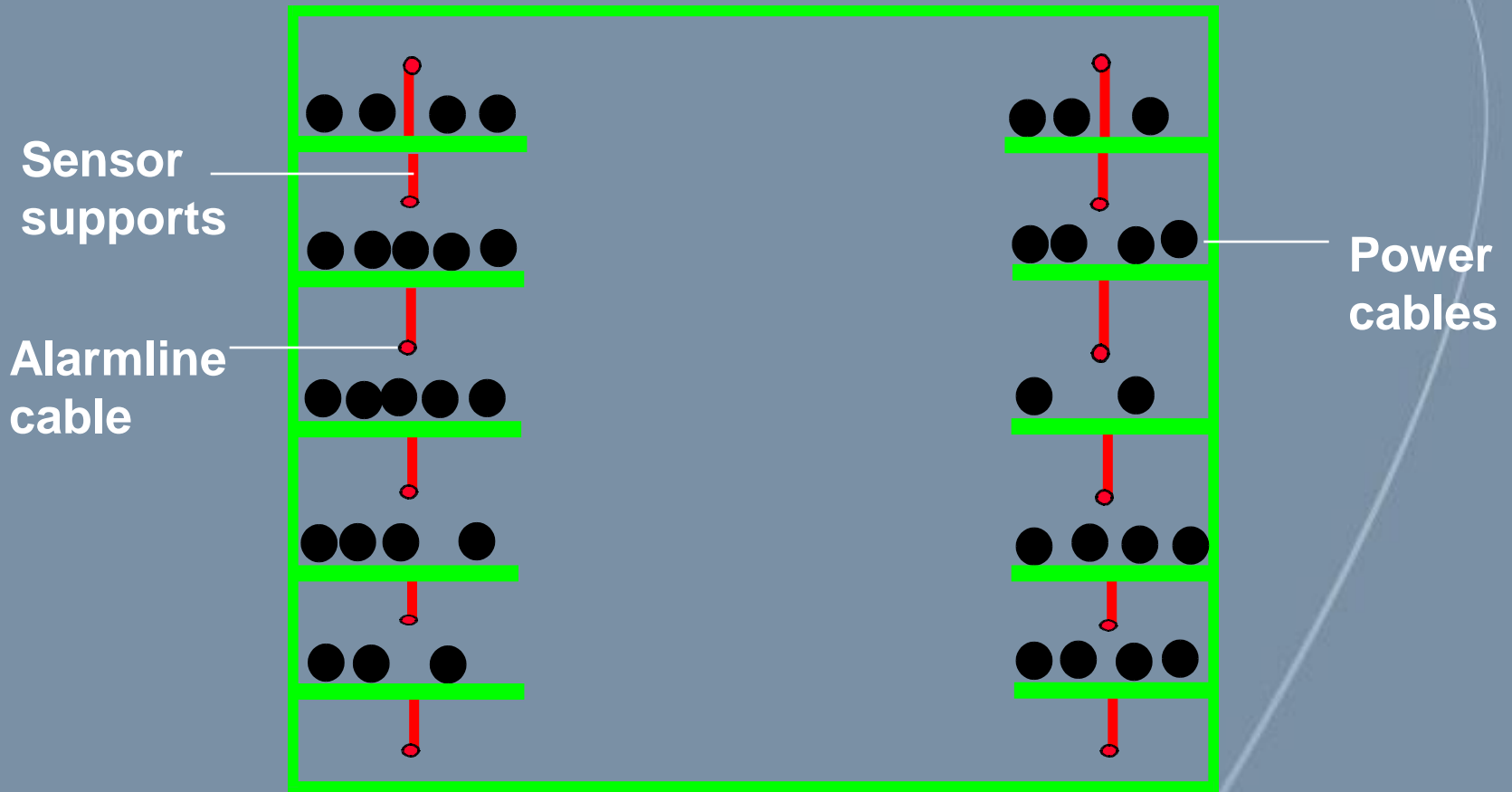
Racking



Alarmline Cable



Cable Trays



Traywork width 600mm maximum

Applications - Case Study 3

- Conveyors and Escalators

- Alarmline Analogue bronze braided cable
- Sensor Pads - Bronze Braided
- Alarmline LHD 4 Control Unit
- Alarmline Digital Cable - Conventional Control Unit
- Clips & Brackets to suit site requirements.



Networking Capabilities

By use of RS485 network using ModBus™ protocol

communications, it is possible to connect 7 (max) slave 1 – 4

zone units to form a network. Maximum number of zones

capable to be networked is 32.

Colour Graphics

Each unit provides, as standard, an RS485 output to a colour graphics package by means use of a PC to provide graphical information of the monitored zones.



Colour graphics package: Standard features

- Site overview with providing dynamic location of each zone
- Dynamic cable location of alarm condition
- Visual indication of zonal status (Alarm, Fault & Isolate)
- Capable of importing electronic drawing files (e.g. bmp or jpg), providing visual graphic of the area covered

Colour graphics package: Standard features cont

- Event location available in distance from the start of the zone (feet or metres) by mouse or touch screen
- Text allocation for length of sensor cable
- Selectable historical event log (date, time or type)

Colour graphics package: Standard features cont

- Historical Event Log archiving capabilities
- Multiple page options for large configurations
- Optional touch screen feature

Applications

- Tunnels (road, rail, etc.)
- Power generation (cable tunnels, cable trays, etc.)
- Car parks
- Warehousing
- Petrochemical installations

