

ANALOGUE LINEAR HEAT DETECTING CABLE

Installation and Commissioning

System Description To use Patol Analogue Linear Heat Detection Cable various system components are required. Each length of LHDC used acts as a heat detector when combined with an LHDC Monitor/Controller and an End-of-Line Terminator, where the LHDC is the sensor. The Monitor/Controller can interface to a fire alarm panel or process control system employed at site.

With Analogue LHDC, consideration must be given to the ambient temperature in the area in which the LHDC will be installed. This will determine the maximum length of LHDC that can be installed in any single zone. For more detailed information, please refer to the Analogue Linear Heat Detecting Cable Data Sheet.

If the installation is within an environment that is classified as a hazardous area then a suitable shunt diode safety barrier must be employed to provide an intrinsically safe installation. For further details please refer to the application note entitled "The use of LHDC in Hazardous Areas by means of Intrinsically Safe Barriers".

Installation The LHDC should be installed in a manner that complies with the recommendations provided in the "Guidelines for Routing of Linear Heat Detection Cable" application note. This is to ensure a reliable and easy maintenance installation is achieved.

Patol supply a range of mounting clips and brackets that are suitable for most applications. Please refer to the relevant drawing for information on each particular mounting clip/bracket. It is of particular importance that LHDC is not fixed to any material that can act as a heat sink as this will impair its sensitivity. Therefore, neoprene sleeves should be used around the LHDC when it is in contact with metal clips and brackets.

As Analogue LHDC is a high impedance system care must be taken, at all enclosure cable entry points, to ensure protection against the ingress of dirt or moisture is maintained.

The LHDC Monitor/Controller can easily connect to a fire alarm panel or process control system. For details on connections please refer to the relevant Monitor/Controller data sheet.

Commissioning Commissioning of a Patol analogue LHDC system is a simple operation that will give many years of reliable operation when performed correctly. The only tools required are a high impedance voltmeter and a small screwdriver to adjust the potentiometers on the fascia. For information relating to jumper link settings on LHDC Monitors/Controllers, please refer to the relevant data sheet.

Using the graphs in the Analogue LHDC data sheet find the trip level voltage that suits the required alarm detection level and also meets the requirements of the LHDC zone length and maximum ambient temperature for the zone.

Care must be taken to avoid undesired alarms or trigger/release of interconnected extinguishant during commissioning of the LHDC system, which could occur whilst making alarm level adjustments.

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Zero Level Adjustment

1. Connect the End-of-Line Terminator directly to the LHDC Monitor/Controller so that the LHDC is out of circuit.
2. Connect the voltmeter probes between the "COMMON" or "COM" terminal and the "LHDC ADJUST" terminal. This may alternatively be labelled "LHDC" or "ANALOGUE".
3. Adjust the "LHDC ADJUST" (or "LHDC" or "ANALOGUE") potentiometer until the voltmeter reads 0v.
4. Operate the "Fire Test" pushbutton and note whether the voltmeter indicates a positive or negative voltage swing. Operate the "Reset" pushbutton to return to the normal condition.

Setting Single Alarm/Trip Level

5. All Alarm/Trip level adjustments must be set to the same polarity as indicated by the "Fire Test" operation in step 4.
6. Connect the voltmeter between the "COMMON" or "COM" terminal and the "TRIP", "A1" or "A1 TRIP SET" terminal as appropriate.
7. Adjust the "TRIP" ("A1" or "A1 TRIP SET") potentiometer to the required trip level determined from the Analogue LHDC data sheet.
8. If the Monitor/Controller is capable of a two level alarm, connect the voltmeter between the "COM" and "A2" or "A2 TRIP SET" terminals and adjust until the reading is a little closer to 0v than that adjusted for with the "A1" (or "A1 TRIP SET") potentiometer.

Setting Dual Alarm/Trip Levels (using the Pre-Alarm feature)

5. All Alarm/Trip level adjustments must be set to the same polarity as indicated by the "Fire Test" operation in step 4.
6. Connect the voltmeter between the "COM" terminal and the "A1" or "A1 TRIP SET" terminal as appropriate.
7. Adjust the "A1" (or "A1 TRIP SET") potentiometer to the required pre-alarm trip level determined from the Analogue LHDC data sheet.
8. Connect the voltmeter between the "COM" terminal and the "A2" or "A2 TRIP SET" terminal as appropriate.
9. Adjust the "A2" (or "A2 TRIP SET") potentiometer to the required alarm trip level determined from the Analogue LHDC data sheet.

System Start-up

10. Re-connect the LHDC to the circuit.
11. After switch on, allow the system to settle for a period of at least 2 hours.
12. Ensure the LHDC monitor/Controller is in a normal state with no faults or alarms indicated.
13. If reassurance is desired, measure the voltage between the "COMMON" (or "COM") terminal and the "LHDC ADJUST" (or "LHDC" or "ANALOGUE") terminal. The voltage indicated should be appropriate for the zone length and actual ambient temperature according to the graph in the Analogue LHDC data sheet.
14. Ensure the LHDC Monitor/Controller correctly indicates a Fire Alarm when the "Fire Test" pushbutton is operated and that it returns to the normal condition once reset.
15. All alarm and extinguishing functions may now be enabled.