DOCUMENT CONTROL NUMBER /

801H/811H ADDRESSABLE HEAT DETECTOR PRODUCT APPLICATION & DESIGN INFORMATION

1. INTRODUCTION

The 801H/811H heat detector forms part of the 800 Series Addressable Fire detectors. The 811H is the marine version of the 801H. The detector is intended to plug into the following:

- Minerva Universal Base
  (formerly known as an M6/900 Universal Base)
- 801IB Isolator Base
- 801RB Relay Base
- 801SB Sounder Base

The detector is designed to transmit, to a remote Minerva MX/ T2000/Minerva SOLO fire controller, digital signals which represent status of the heat element of the detector.

Software within the controller is used to interpret the returned heat values to raise an alarm or other appropriate response according to the type of detector configured in 'MX CONSYS' (refer to Publication 17A-06-X1).

The mode of detector may be:

- prEN54-5 A1R, rate-of-rise normal ambient
- prEN54-5 A2S, fixed 60°C
- prEN54-5 CR, rate-of-rise high ambient

Note: The heat detection grades are to prEN54-5.

1.1 DAY/NIGHT SWITCHING

Two modes of detector operation are selectable from the list of possible modes as follows:

- 'Normal' mode, ie night time operation in which the detector will be evaluated most of the time.
- 'Day' mode in which the detector can be switched under certain circumstances, eg during daytime when the building is occupied with people being able to detect a fire manually. Switching to the 'daytime' mode can be done either by user action (pressing the DAY/NIGHT switch on the controller), or event or time driven.

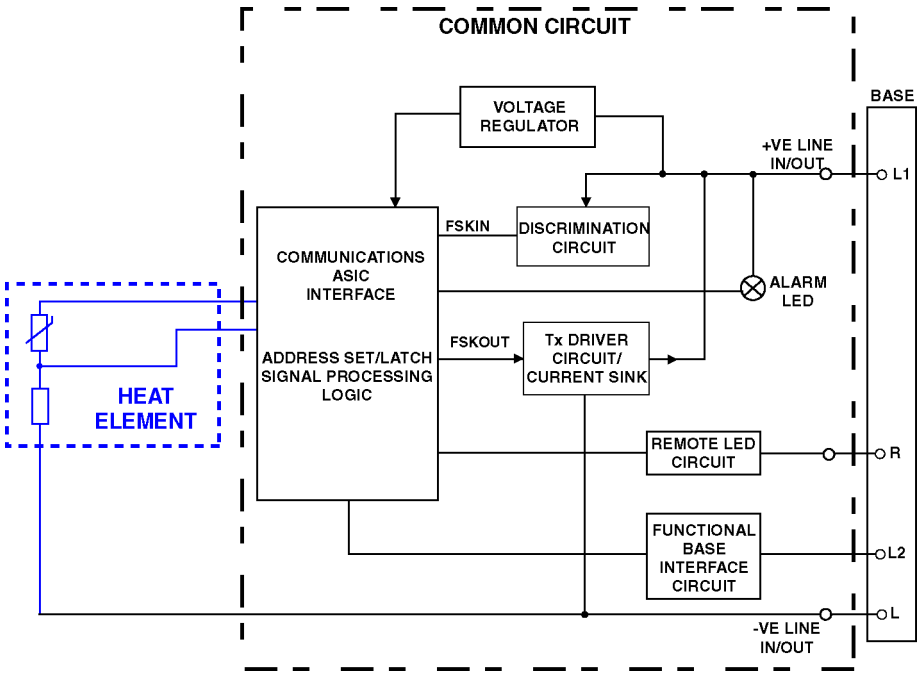

Fig. 1 Simplified Block Schematic Diagram of Detector

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2. OPERATING PRINCIPLE

The heat element of the detector uses a single thermistor to produce an output proportional to temperature. Rate of change of temperature is determined by the controller by using differences between consecutive temperature values returned to the controller.

2.1 CIRCUIT DESCRIPTION

A simplified block schematic of the circuit is given in Fig. 1.

The negative temperature coefficient thermistor produces an analogue output which is fed to an analogue input on the communications interface.

2.2 WIRING

Loop cabling is connected to base terminals L (-ve) and L1 (+ve). A drive is provided for a remote indicator connected between loop positive and terminal R. Terminal L2 (analogue output) is for use with functional sounder and relay bases.

3. MECHANICAL CONSTRUCTION

The major components of the detector are:

- Body Assembly
- Printed Circuit
- Thermistor
- Light Pipe
- Inner Cover
- Outer Cover

3.1 ASSEMBLY

The body assembly consists of a plastic moulding which has four embedded detector contacts which align with contacts in the 801B base. The moulding incorporates securing features to retain the detector in the base.

Four PCB mounted spring contacts provide electrical connection between the detector contacts and the PCB.

The light pipe is slotted into the inner cover which is then clipped to the body. Finally, the outer cover is clipped to the body.

Fig. 2 801H Heat Detector & Base

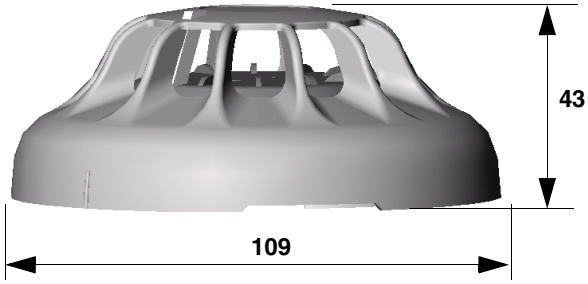

Fig. 3 Overall Dimensions of 800H detector

4. TECHNICAL SPECIFICATION

4.1 MECHANICAL

Dimensions

The overall dimensions are shown in Fig. 3 (less base).

Materials

Body, cover, and closure:	FR110 'BAYBLEND' flame retardant.

Weight

Detector:	0.081kg
Detector + Base:	0.145kg

4.2 ENVIRONMENTAL

Temperature

Storage: -40°C to +80°C
Operating long-term: -25°C to +70°C
short-term: to +90°C

Relative Humidity: 95% (non-condensing)

Shock:
Vibration: prEN54 Pt. 5
Impact:

Corrosion: prEN54 Pt. 5

The detectors comply with Lloyd's Register Test Specification Number 1 (1996). Environmental Category ENV5.

4.3 ELECTROMAGNETIC COMPATIBILITY

The detector complies with the following:

Product family standard EN50130-4 in respect of Conducted Disturbances, Radiated Immunity, Electrostatic Discharge, Fast Transients and Slow High Energy

EN50081-1 for Emissions

4.4 ELECTRICAL CHARACTERISTICS

The following characteristics (Table 1) apply at 25°C and nominal supply voltage of 37.5V unless otherwise specified.

Characteristic	Min.	Typ.	Max.	Unit
Loop Voltage	20.0	-	40	V
Quiescent Current	-	245	275	µA
Alarm Current*		3	3.3	mA

Table 1: Electrical Characteristics

* No remote indicator fitted

4.5 PERFORMANCE CHARACTERISTICS

4.5.1 GENERAL

The performance of heat detectors is defined by the harmonised European standard prEN54-5.

It must be remembered that the alarm threshold for the 801H will be set in the control unit. With the range of Minerva MX Addressable Controllers the 801H is able to provide response characteristics complying with the following types:

prEN54-5 A1R

prEN54-5 A2S

prEN54-5 CR

5. DETECTOR IDENTIFICATION

The detector is identified by the logo label colouring as shown in Fig. 4.

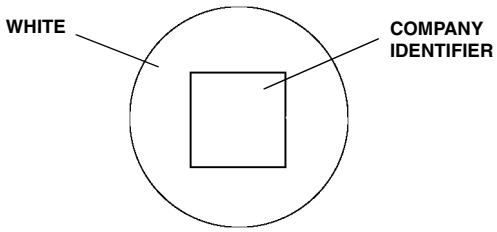

Fig. 4 Detector Identification

6. DETECTOR ADDRESS

The loop address of the detector is held in internal E^2PROM which is programmed either from the controller or by a Field Address Programmer.

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7. ADDRESS FLAG

Refer to Fig. 5. The address flag is used to identify the address and zone of the detector. The address flags are supplied in one of two packs (address 1 - 127 or 128 - 255, with a different colour for each loop) and are ordered separately from the detector. The address flag is fitted to the bottom of the detector. When the detector is fitted to the base and turned until fully located' the address flag is then transferred to the base. If the detector is removed from the base, the address flag remains with the base.

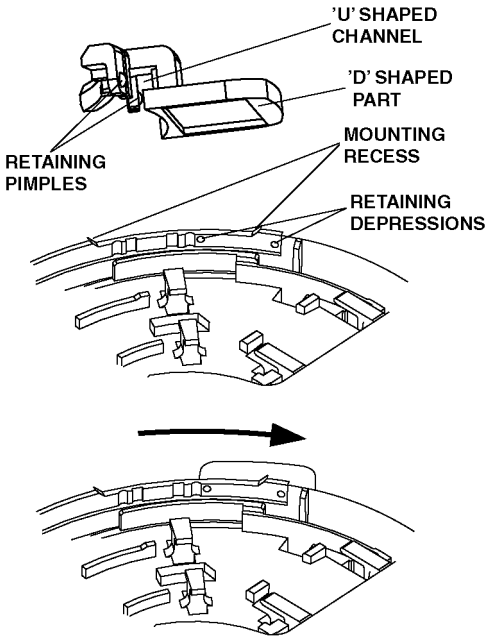

Fig. 5 Fitting Address Flag Carrier

8. ORDERING INFORMATION

801H Heat detector:	516.800.502
811H Heat detector:	516.800.509
Minerva Universal Base:	517.050.001
Address Flag Labels - Loop A (White)	516.800.931
Address Flag Labels - Loop B (Yellow)	516.800.932
Address Flag Labels - Loop C (Purple)	516.800.933
Address Flag Labels - Loop D (Green)	516.800.934

JM/cb

23rd May 2001