

FIRE DETECTORS

TYPE ED 816 & ED 832



ED 832



ED 816

A MAJOR NEW FORCE IN ECONOMIC, RELIABLE, MULTI-ZONE FIRE DETECTION CONFORMS TO IMO/SOLAS REQUIREMENTS

The 16 and 32 zone ED816 and ED832 Fire Detector Control panels are identical in function – differing only in number of zones and size of enclosure. The control units are conventional in operation and can therefore be utilised with many different detection heads of various manufacture. Economy and ease of installation are major factors which allow both new installation and retrofitting to be accomplished with a minimum of trouble. The circuitry is derived from the well known and long established four zone ED820 which has achieved an enviable reputation amongst small commercial craft. A full range of approved and compatible peripheral devices is normally available from stock.

Control Unit Front Panel Facilities

- Individual zone fire alarm indicators.
- Individual zone isolate switches and indicators
- Common fault indication
- Main and emergency power indicators
- Lamp & Alarm Test Indicator
- Delayed Alarm Indicator
- Lamp dim facility
- Zone reset switch
- Alarm accept switch

On initial alarm, the appropriate zone(s) flash but on operation of the alarm accept switch the light becomes steady and the main alarm relays reset. If, after alarm acceptance, another zone enters the alarm state, the alarms will retrigger.

Approved By:



Approved by Lloyd's Register of Shipping.



U.K.D.Tp. The Department of Transport.



BASEEFA Certified Intrinsically Safe EEx ia IIC Where Necessary



Certificate No. MO344

Quality Assurance to BASEEFA (HSE) Regulations Certificate Number: MO344

GENERAL FUNCTIONS

COMPATIBILITY

The ED816 and ED832 Fire Detection systems are multi-zone conventional control panels which will accept the standard range of smoke, heat and flame detectors operating on a nominal 24V system. The open circuit zone line voltage is 20V DC and the industry standard 470 ohm control unit resistors and 4K7 end of line resistors are used. For marine use the detection heads, alarms, call points etc. should be approved by the appropriate classification society.

CONTROL UNITS - ED816 & ED832

POWER SUPPLY:

The control unit requires a nominal 24V DC for both Main and Emergency inputs. The fully approved Power Supply Type 3, an optional extra, provides both power supply and charging facilities for the integral sealed lead acid standby batteries of maximum 24V 12AH capacity. The PSU will accept 110, 120, 220, 240 or 254V 50/60Hz mains supplies and provide up to 27.6V at 5A.

The maintained supply is used to drive the control unit, associated repeater panel and external 24V DC alarms.

POWER CONSUMPTION IN STANDBY CONDITION

ED816	300mA	All units will operate successfully over the input voltage range of 19 to 32V DC
ED816R	10mA	
ED832	600mA	
ED832R	17mA	

FAULT

To facilitate fault finding the control unit base board has individual zone indication for both open circuit and short circuit faults in addition to the front panel indicator.

ALARM OUTPUT

The alarm output functions provided, in addition to repeater drives and continuous monitoring of zone, power and alarm facilities are:-

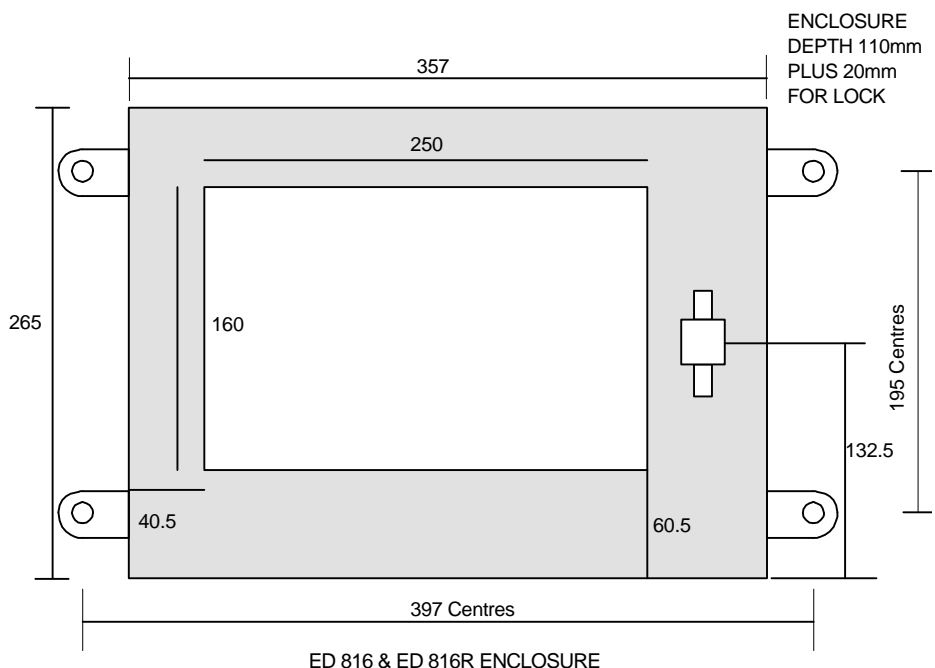
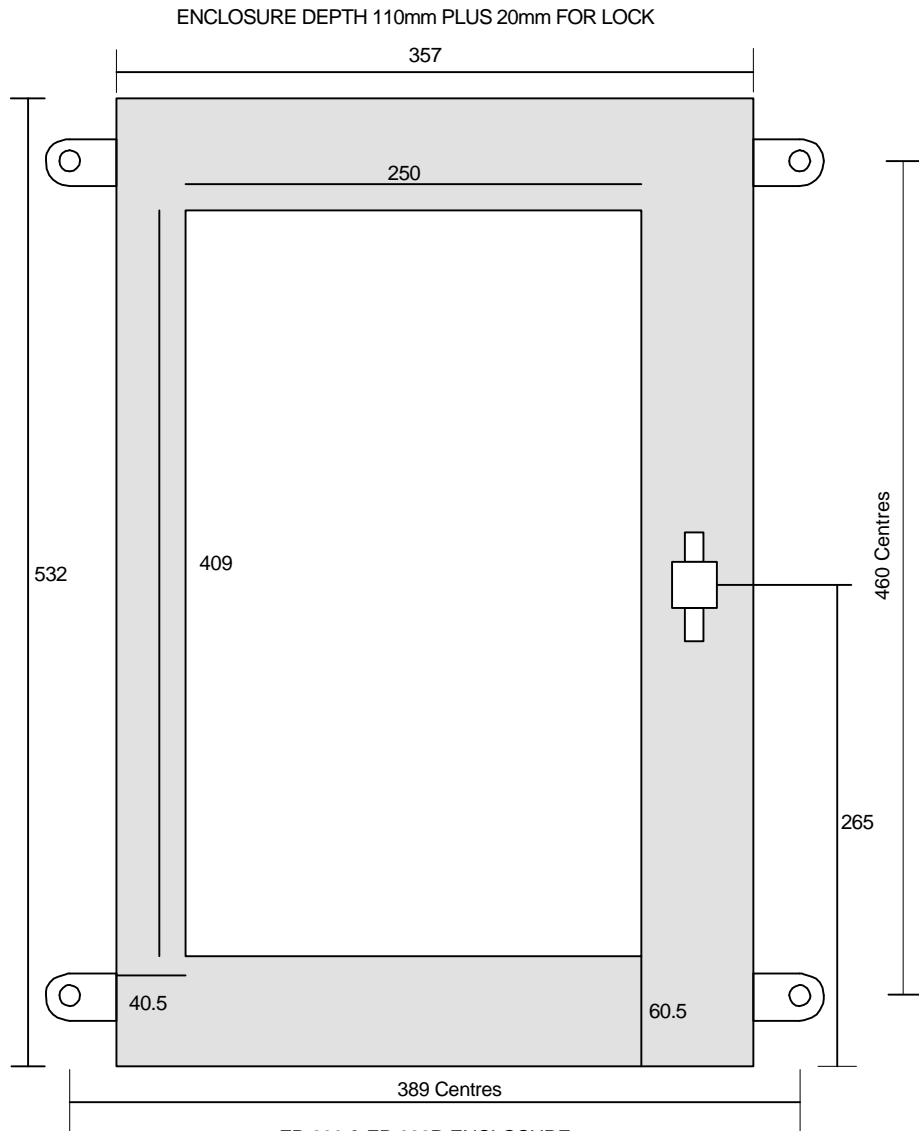
	ED816	ED832
Alarms	2 x 250V, 5A, DPCO	4 x 250V, 5A, DPCO
Delayed Alarm	2 x 250V, 5A, DPCO	2 x 250V, 5A, DPCO
Zone Fault	1 x 250V, 5A, DPCO	2 x 250V, 5A, DPCO
Main Power Failure	Switched OV in alarm	Switched OV in alarm

DIMENSIONS

All Dimensions in mm

WEIGHTS

832 Control Unit	10Kg
832 Repeater	9Kg
816 Control Unit	6Kg
816 Repeater	5Kg



REPEATER UNITS – ED816R AND ED832R

- Individual zone alarm indicators.
- Common fault indicator.
- Common zone isolate indicator.
- Main and emergency power indicators.
- Lamp dim facility.
- Lamp and alarm test. (Optional system test)
- Delayed alarm indicator.
- Local Alarm accept.



HAZARDOUS AREA OPERATION – BASEEFA Certificate

No. Ex 93C2538U

A BASEEFA certified Interface Unit, which may include zener barriers and intrinsically safe relays, is also available. This facility enables fire zones and alarms to be made intrinsically safe. The Interface Unit is not Department of Transport (Marine Safety Agency) or Lloyd's Register of Shipping Approved but is provided in a stove enamelled, environmentally protected, steel enclosure, to IP54 protection. All Hazardous area equipment, for example, detection heads, audible alarms etc, should be certified intrinsically safe to the appropriate group, zone, temperature etc, and must be compatible with the relevant zener barriers. Attention is also drawn to the need for cable having the correct electrical parameters of capacitance, inductance and inductance to resistance ratio. These parameters will vary depending on the gas group certification required. For further information contact Electronic Devices Ltd.

APPROVALS – Lloyd's Register of Shipping Certificate No. 94/00068

The ED816, ED832, ED816R, ED832R and Type 3 Power Supply Unit are all approved by the UK Department of Transport (Marine Safety Agency) and by Lloyd's Register of Shipping to ENV1, 2 & 3 standards. A summary of the tests successfully accomplished is given below:-

INSULATION RESISTANCE:

Greater than 100 Mohm at 500V and greater than 10 Mohm after humidity, low temperature and salt mist tests (see below).

POWER SUPPLY PERMANENT:

+/- 10% voltage variation, combined with +/- 5% frequency variation.

POWER SUPPLY TRANSIENT:

+/- 20% voltage variation for 1.5 seconds and +/- 10% frequency variation for 5 seconds.

POWER SUPPLY FAILURE:

3 power interruptions with a minimum break time of 30 seconds.

INCLINATION STATIC:

22.5 deg on either side of the vertical in all planes.

INCLINATION DYNAMIC:

22.5 deg on either side of the vertical with a roll period of 10 seconds.

VIBRATION:

2-13.2 Hz at +/- 1.5mm displacement.
13-100 Hz at +/- 1.0g acceleration.
100-13 Hz at +/- 1.0g acceleration.
13.2-2 Hz at +/- 1.5mm displacement.

HUMIDITY CYCLIC:

20 to 55 deg C +/- 2 deg C at 95% RH +/- 5%.

SALT MIST:

Exposure to standard salt solution at 35 deg C, 95% RH for 28 days.

DRY HEAT:

+70 deg C.

LOW TEMPERATURE:

-25 deg C.

HIGH VOLTAGE:

2KV AC.

ELECTRO STATIC DISCHARGE:

8KV direct to enclosure.

ELECTRO MAGNETIC INTERFERENCE:

CONDUCTED LF:

10% of input voltage to the fifteenth harmonic, decreasing to 1% at the hundredth harmonic. Input supply frequency 50Hz to 10kHz.

CONDUCTED HF:

10 kHz to 50 MHz modulated 30% at 1kHz, with a carrier level of 1V.

SPATIAL RFI:

30 kHz to 500 MHz amplitude modulated 30% at 1 kHz, with an electric field strength of 10 V/m.

POWER LINE TRANSIENTS:

1 kV amplitude 50 ns width pulses with a rise time of 5 ns at a PRF of 5000 P/S. 1 kV amplitude 50 microsec width pulses with a rise time of 1.2 microsec at a PRF of 1 p/s.

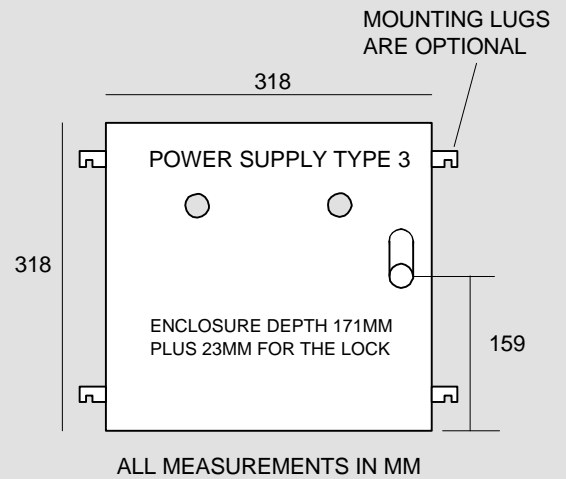
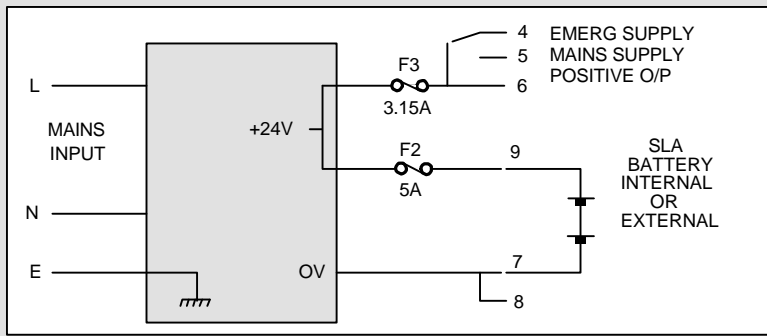
NB: Revalidation to 1994 regulations is taking place during 1999 which entails an improvement to EMC capability.

POWER SUPPLY

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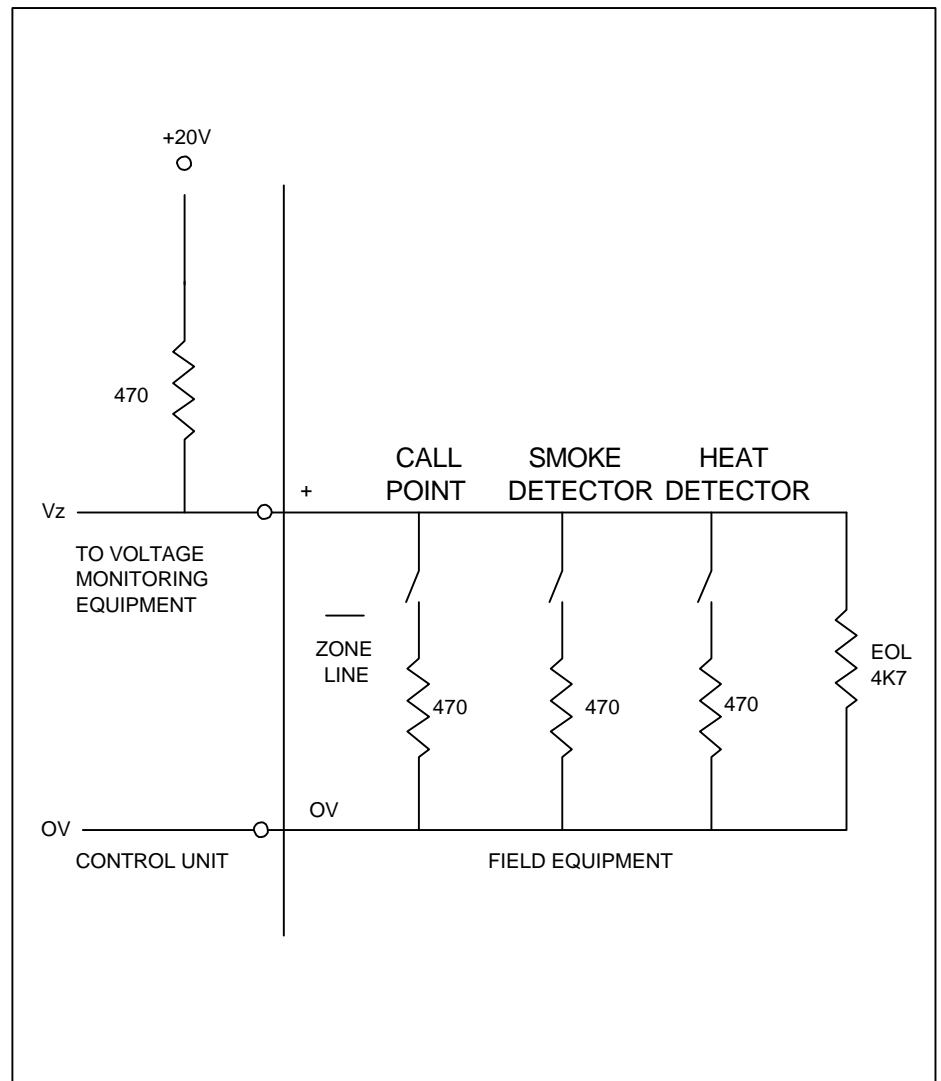


POWER SUPPLY



CONVENTIONAL FIRE DETECTION - PRINCIPLE OF OPERATION

The diagram below shows the essential principle of the conventional ED 816/832 Fire Detection System. The Zone line completes a potential divider chain across a stabilised 20V supply. The internal 470 ohm resistor mounted in the control unit is the top half of the divider and in normal operation the end of line 4.7Kohm resistor completes the potential divider so that V_z is at $10/11$ of $20V = 18.2V$. Any detector placed across the line will be electrically equivalent to a normally open switch with a series 470ohm resistor. If any of the detecting elements operates, the voltage V_z will drop to just below half of the supply which initiates an alarm via the voltage monitoring equipment in the control unit. If the zone line goes open circuit, V_z becomes 20V and an open circuit alarm is given. If the zone line becomes short circuited, V_z drops to 0V and a short circuit alarm is given.



Also available in this range of Fire Detectors are the following models:
ED 320, ED 820 + ED 700 Multi functional system