

## A MAJOR SAFETY SYSTEM FOR GAS, FIRE AND LEVEL DETECTION

*In constant production since 1985 the well proven ED700 system provides an economic solution to many alarm and detection problems in both industrial and marine applications. The custom build capability while maintaining full type approval with ease of both installation and maintenance, provides major savings on both installation and servicing costs. The standard alarm functions are complemented by a range of zener barriers, custom built power supplies with long battery backup times, relays and shutdown functions (ESD) individually tailored to customers needs which allow often unique solutions to long standing problems.*

*A temperature measuring thermistor, buried in an 8mm stainless steel bolt, further enhances the overall capability of a unique system from a long standing, engineering based Company.*

*Suitable for Industrial or Marine applications, either Hazardous Area or Safe Area, the Ed700 is a totally flexible system custom built to your exact requirements.*



### Features

- GAS DETECTION
- FIRE DETECTION
- LEVEL DETECTION
- LAMP MONITOR
- EARTH LEAKAGE
- WATER INGRESS
- DC POWER SUPPLIES
- P.A. & GENERAL ALARM OUTPUT
- BATTERY CHARGER
- ZONE TEST/ISOLATE
- TEMPERATURE
- CURRENT LOOP TRANSMITTER

### Approved By:



Approved by  
Lloyd's Register  
of Shipping.

U.K.D.Tp

The Department  
of Transport.  
(Maritime &  
Coastguard  
Agency)



Baseefa2001  
Certified  
Flame proof  
and/or  
Intrinsically  
Safe



Quality Assurance  
to Baseefa2001  
Regulations  
Certificate  
Number: 0344

## GENERAL

The ED700 system is based upon the standard Eurorack of 84HP in width and 3U in height. Although we can provide subracks for insertion into other systems full approval is only maintained when supplied in our approved environmental enclosure. Individual modules are described below but early contact with our design team is recommended to ensure all requirements are fully met. In particular output functions, alarm voting etc. can be accommodated easily at low cost.

### ED 710 GAS SENSOR MODULE - 1 sensor per module - 5HP wide

Note: A separate leaflet is available detailing gas sensors.

The ED710 may be used with our well proven, very long life semi-conductor sensors for general, specific, flammable and toxic gases. The ED710I allows our Ex certified Transmitters to be used, available in Intrinsically Safe or Flameproof. With a wide range of pellistors and electro-chemical cells most Toxic or Flammable gases can be detected. Double level alarms, adjustable over the full range provide the basis for shutdown and alarm outputs. Sensor wiring fault warnings are provided together with automatic alarm inhibit, if required. All alarm functions may be auto or manual reset. Continuous monitoring utilising a digital meter together with 0-5VDC outputs are provided as standard on each module. Total power consumption is generally less than 1W but depends on sensor type. When used for flammable gases under D.Tp. or Lloyd's regulations Intrinsically Safe or Flameproof systems must be used. I.S. versions will require a

### ED 721 FIRE DETECTOR MODULE - 2 zones per module - 5HP wide

The ED721 Fire Detector module utilises approved industry standard two pole detector heads of various manufacture. The economical two zone card ED721 offers all the facilities required by Classification Societies. The ED740 Control Card is required for any fire detection system and together with the ED721 provides the following:

Immediate alarm; Delayed alarm; Alarm accept; Reset; Internal Audio Fire Alarm; Open circuit and Short circuit zone fault indication; Main and emergency power supply inputs with automatic changeover incorporating audible and visual alarms; Card insertion monitoring. Each zone has its own isolate facility and lamp/alarm test switch. Major external functions, eg Sounders, Beacons, automatic extinguishers etc, are driven from the maintained supply via voltage free changeover contacts to provide complete flexibility.

### ED730 LEVEL DETECTOR MODULE – 2 zones per module - 5HP wide

The ED730 Level Monitor provides two zones per module with any number of level switches type ED735 per zone. Continuous zone wiring fault monitoring is provided with open and short circuit visual indication. External alarms are driven via DIN rail mounted relays as necessary and all the facilities provided by the ED740 Control Module.

### ED740 CONTROL MODULE – 5HP wide

Normally intended for use with ED721 and ED730 the ED740 can be used whenever Auto Power Changeover, Delayed Alarms, Card Insertion Monitoring, Fault Extension, Alarm Test, Manual Reset and Alarm Accept facilities are required.

### ZBD CERT NO. BAS99ATEX 7150, ZBPD CERT NO. BAS99ATEX 7151

The ED ZBD and ED ZBPD range of zener barriers allows many of our systems to be certified I.S. for Hazardous Area use. In particular Gas, Fire, Level, LED Indicators and apparatus agreed by Baseefa2001 to be "simple" may be certified to EEx ia IIC and hence suitable for Zones 0, 1 and 2. The barriers are certified for mains input power supplies up to 250V. Note that although environmentally tested to

### ED760 POWER SUPPLY – Backplate Mounted

The ED760 Power Supply provides 12V or 24V at 5A DC from mains inputs in the range 110/120/220/240V 50/60Hz. For low current applications the supply can be set to float charge appropriate sealed lead acid batteries which may be mounted within the enclosure. If temperatures greater than 50Deg.C are envisaged within the enclosure then external mounting is preferred. For higher current capability and particularly where rack space is at a premium the PSU Type 3, also fully approved, will provide up to 5A at 27.6VDC maximum together with space for 2 x 12V 12AH SLA batteries. Also custom built power supplies with up to 20A capability and 200Ah battery back up are available.

### DC-DC INVERTER

For insulated return systems isolation is required, either using the ED760 power supply or for DC systems suitable DC-DC Inverters are available.

### ED 780 RELAY MODULE - 5HP wide

This module is custom built to user requirements and permits selective combination alarm outputs. Alarm accept/disconnect facilities etc, may be incorporated.

### ED792 EARTH LEAKAGE MONITOR MODULE – 5HP wide

Intended for use in insulated return electrical environments where isolation from earth is vital, the ED792 continuously monitors earth leakage current from the two poles of a DC supply. The alarm trip current may be varied to suit particular installations. Visual front panel indication is provide.

### ED782 CURRENT LOOP MODULE – 5HP wide

The ED782 current loop transmitter provides four individual 4/20mA current loop transmitters per module. A wide range of DC input signal voltages may be accommodated including those which require level shifting and voltages which are not in the 5-1 ratio necessary. The output current loop has one pole connected to the system OV line. The integrity of the loop will be maintained for load resistances up to the industry standard 500ohms.

### P.A. DRIVER MODULE

The PA driver module provides either momentary or continuous action relay contacts. Enabling the Vessels PA system to signal alarm conditions.

### ED784 ZONE/ALARM TEST MODULE – 28 zones per module – 10HO wide

The ED784 allows, via rotary front panel switches, individual testing of Fire, Gas and Level Detection zones. One module will allow 28 zones to be tested.

### ED785 ZONE ISOLATE MODULE – 10 zones per module – 10HP wide

Each ED785 module allows ten zones to be isolated either individually or collectively. Front panel visual indication is given of isolated zones and in conjunction with Gas/Fire Detection modules facilitates servicing. Provision is made to extend zone isolate signals to remote repeaters where necessary. Please note the ED721 has zone isolate and test facility as standard.

### ED786 SWITCHING AND CONTROL MODULE

Allows multi-purpose switching of input/output functions.

### ED790 ALARM MONITOR MODULE – 5HP wide

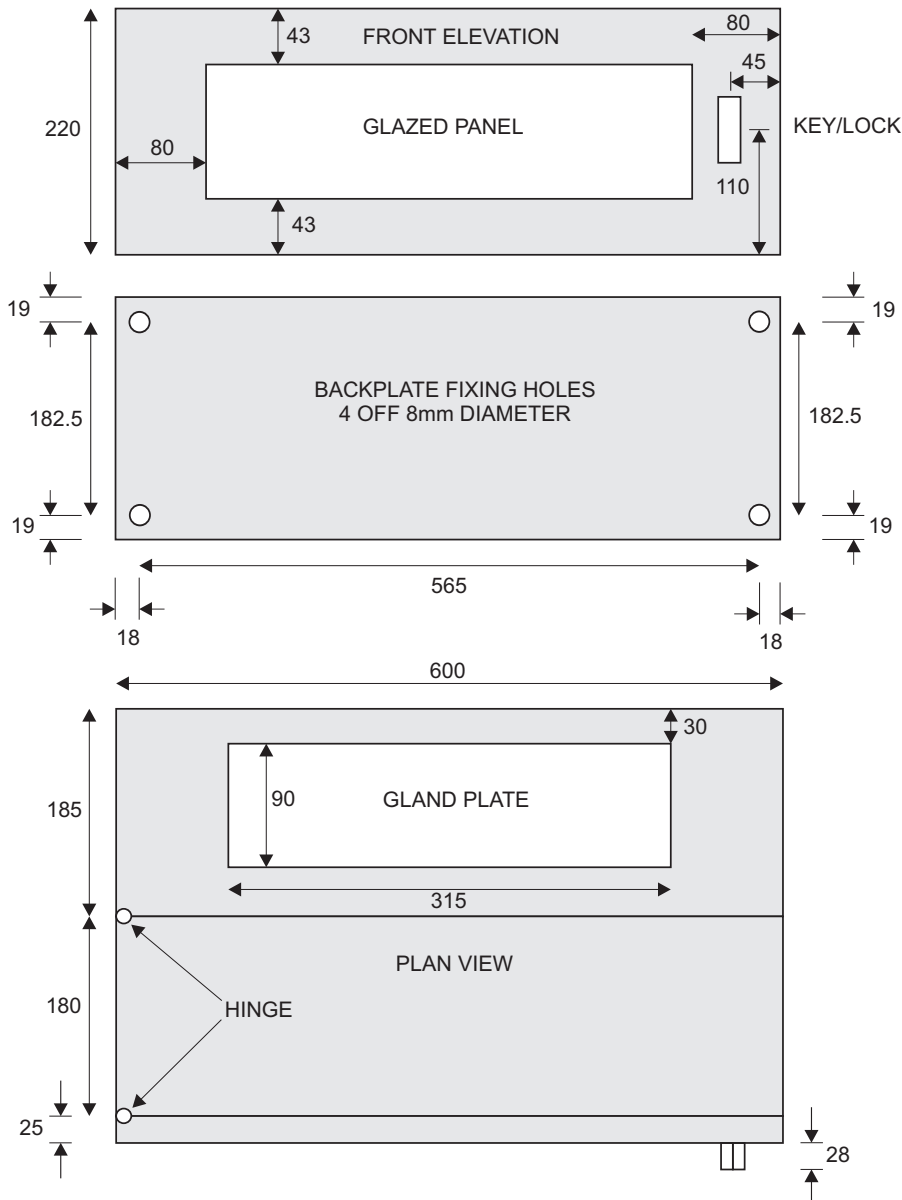
The ED790 accepts either normally closed or normally open input switches and gives visual indication and alarm

### ED791 LIGHT MONITOR MODULE – 6 lights per module – 5HP wide

Monitors six lights between 10W and 60W at 24V DC as standard. Mains AC lamp monitoring and switching is also available. Continuous green is replaced by red for fault conditions while a general alarm is extended by voltage free changeover contacts obtained with DIN rail mounted relays.

## DIMENSIONS

All dimensions in mm



## APPROVALS – Lloyd's Register of Shipping Certificate No. 87/00117(E2)

Type ED700 system has been approved by Lloyd's Register of Shipping and UK Department of Transport. (Now Maritime and Coastguard Agency). To achieve this status the system and sensors function satisfactorily when subjected to the following and when driven by appropriate Electronic Devices Ltd control units.

NB: Some tests eg "Salt Mist" only apply to control equipment and not to the sensing heads.

**INSULATION RESISTANCE:**  
 Greater than 100M ohm at 500V and greater than 10M ohm 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.

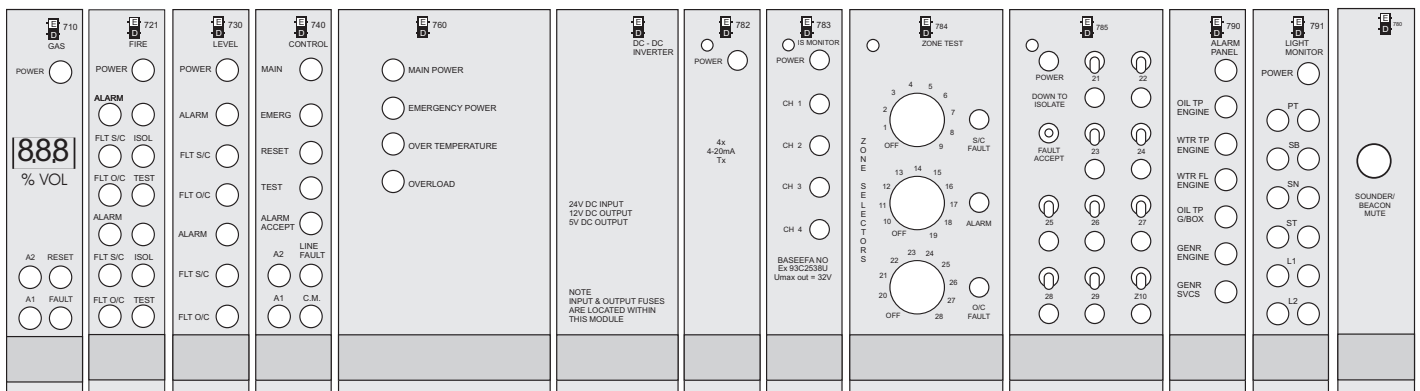
**HUMIDITY CYCLIC:**  
 20 to 55 deg C +/-2 deg C at 95% RH +/-5%

**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.

## TYPICAL MODULE PANEL LAYOUTS



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 10Hz.

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.

## RESEARCH DESIGN DEVELOPMENT MANUFACTURE SERVICE COMPANY PROFILE

Centrally located in Worcestershire in the shadow of the Malvern Hills, Electronic Devices Ltd is ideally positioned for rapid delivery to all corners of the UK and via Birmingham International Airport to Europe and the World.

Our Engineering based Company, established twenty five years ago to satisfy specific high reliability GAS DETECTION requirements, has since expanded into FIRE DETECTION, ESD and HAZARDOUS AREA Equipment, particularly for applications where robustness and operator safety combined with economy is paramount.

Pioneers of the application of general purpose semi-conductor sensors, our knowledge of where and how to exploit their advantages is probably unsurpassed. We are now in a unique position to supply electro- chemical cells, pellistors or semi-conductor sensors in Flameproof and Intrinsically Safe format to the highest safety coding. Circuitry techniques evolved and proved over many years enable us to satisfy high specification applications while maintaining competitive solutions to safety legislation problems

The majority of our staff have grown with us allowing in depth support to ensure client satisfaction. Inspection of our customer base reassures potential end users of our

status as leading designers, manufacturers and suppliers, all in-house, of high quality GAS, FIRE and HAZARDOUS AREA equipment.

Major approvals held are LLOYD'S REGISTER OF SHIPPING, UK DEPARTMENT OF TRANSPORT (MCA), AND BASEEFA, all to the highest standards.

Meeting Baseefa2001 Quality Assurance standards, an enhanced version of ISO 9001:2000 series, our highly motivated, owner-led workforce assures our valued, regular customers of the satisfaction of installing high quality, reliable British safety equipment.

## A SMALL SELECTION OF OUR CLIENTS INCLUDE:

Albert Annett & Sons  
Alexander Noble & Son  
Anglia Gas Services  
ARCO Qatar  
Baker Hughes Inteq  
BP - Shell Oil  
Challenger Marine  
Chevron Oil  
Craig Group Ship Repairing  
David Abels Boatbuilders  
Dean & Dyball Marine Ltd  
Dubai Drydocks  
Electronics Marine Ltd  
Emirates Naval Forces  
ENSCO Offshore  
Essex Automatic Controls  
Global Marine Safety (Singapore) Pte. Ltd.  
Harry Carr Ltd  
Hepworth shipyard  
Hussman Refrigeration Ltd  
Jus-Rol  
Land & Sea Electronics  
LEC Marine  
MacKay Boat Builders  
Maersk  
Malakoff & Wm Moore  
Mansel Offshore  
Marine Drilling (Pride International)  
Marine Electronic Services  
Marinetech  
Milford Dry Dock Co Ltd  
Kidde Thorne Fire Protection  
Noble Drilling Company  
North Sea Marine Electrics  
Northern Ireland Fish Producers  
Northern Marine Electrics  
Occidental Petroleum  
Polar Cold Refrigeration  
Putford Enterprises Ltd  
Seaboard Offshore  
Seabulk Offshore  
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Seascot Shipt trading Ltd  
Star Frost Systems Ltd  
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Suffolk Marine Ltd  
TCW Services Controls Ltd  
The Humber Elect Eng Co  
Trinity House Pilotage  
Thenamaris (Ship Management) Ltd  
Tyne Dock Engineering Ltd  
Unistores SL  
Unitor Ship Services  
Uniscan  
Viking Standby Ltd  
Watt Marine Ltd  
Wear Dockyard Ltd  
Wood Group Fire Protection Ltd

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