

## OPERATING INSTRUCTIONS FOR THE PRE- ACTION SPRINKLER RELEASE PANEL TYPE: PASRP-1A



Complies with BS EN 12845: 2019  
And the Supplementary requirements for LPC Technical Bulletin 208

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## **INTRODUCTION**

The PASRP-1A is a standalone panel intended for use with a Sprinkler Pre-Action Valve Assembly and designed to conform to BS EN 12845 together with the supplementary requirements for LPC Technical Bulletin 208. The panel has 4 input Fire zones together with an internal power supply and space for both Standby and Emergency Sealed Lead Acid Battery sets.

The fascia is equipped with high intensity LED's, System control push buttons and a Controls Key Switch. A 3 position Pre -Action Mode Key Switch together with Manual Release Lift Flap Latching Push Switch is also fitted. Concise user Operation Instructions are screen printed onto the fascia. Each control panel can be surface or flush (via flush bezel) wall mounted.

## **CONSTRUCTION**

The cabinet enclosure and front fascia are constructed from sheet steel and finished to RAL 9002 (Grey White) The main motherboards and the power supply are mounted at the rear of the enclosure. All Zone and Valve Inputs are pluggable into the main motherboard. The front panel fascia display PCB is connected to the motherboards by pluggable IDT connection cables.

All external connections are by means of screw terminals fitted to the motherboards capable of accepting cables up to 2.5mm<sup>2</sup>. Knockout cable entries are provided at the top of the panel.

## **USER WARNING**

The equipment operates from 230v AC Mains.

***Only authorised and qualified personnel should have access to the internals of the panel.***

## **PANEL OPERATION**

NOTE –all panel push button controls are normally inoperative. Insert the key provided into the “Controls On” switch and turn clockwise (key is trapped in this position). All push button switches are now operative.

### **NORMAL CONDITION**

The unit will normally be in its quiescent mode with the Green “Supply Healthy” LED together with the Valve Status LED's Normal Green LEDs illuminated.

The Pre-Action status section will also have the appropriate System Mode LEDs illuminated

### **STAGE 1 FIRE CONDITION**

In the event of any Fire alarm signal - The appropriate Fire Zone Red LEDs will illuminate, the alarm sounders will sound, the Internal Buzzer will Sound, the Alarm auxiliary contacts will operate and the appropriate Fire repeat output will switch +ve 24v

### **ALARM SILENCING**

The alarm sounders can be silenced by operating the “Alarm Silence” button momentary, the internal buzzer will pulse. Should a second zone go into Fire condition whilst the panel is its silenced mode the alarm sounders will automatically re-sound and the internal buzzer will sound. The internal buzzer can be silenced by depressing the Fault Buzzer Mute switch

### **FIRE RESET**

Once the cause of the alarm has been identified and the Pre-Action Valve assembly has been restored to normal (refer to the Pre-Action operating manual) the panel can be restored to its normal mode by operating the “Reset” button momentary.

### **STAGE 2 FIRE CONDITION**

***2<sup>nd</sup> Stage operation can be changed via internal DIP switches for Double knock (either Zones 1-2, 3-4 or any 2 from 4) or operation of any input Alarm (Single Knock). This means that when in **Automatic Mode** operation of appropriate Zone(s) in Alarm at the same time, the panel will enter the PRE- ACTION RELEASE sequence.***

### **RELEASE SEQUENCE**

The Stage 2 Alarm Sounders will pulse, the 2 Stage Beacon output will operate. The Stage 2 Alarm auxiliary contacts will operate. The Stage 2 Alarm Sounders and Beacon Outputs CANNOT BE SILENCED by depressing the Alarm Silence Switch.

An Internal Delay Timer (normally set for 40 Seconds) will count down and after the delay period has Been reached the Pre-Action Solenoid Outputs will operate. The “System Charged” LEDs will be Illuminated on the operation of the “System Charged “ Input to confirm that this has Occurred.

The Stage 2 Alarm Sounders will sound Steady When the Pre- Action Solenoid Outputs has operated.

### **PREVENTING THE RELEASE SEQUENCE**

It is possible to prevent the Pre Action Solenoid Outputs from being released in the following ways:-

- a) FIRE RESET – This will reset the system and if the Detectors are no longer in alarm the System will revert to its normal condition. However, if the panel reverts to its previous alarm Condition the system will re-enter the Release Sequence.
- b) MANUAL MODE – Turn the Mode Key switch to Manual Only. This will silence the Stage 2 Alarm Sounders and Inhibit the Delay Timer. The Stage 2 Alarm Auxiliaries will not Operate. The Manual Mode Green LED's will illuminate. Pre-Action Release sequence can only be started by operation of the Control Panel mounted “MANUAL RELEASE “switch or any Remote Manual Release switch connected to the system.
- c) SOLENOIDS DISABLED MODE- Turn the Mode Key switch to Disabled. Delay Timer and outputs are inhibited. The Solenoid Disabled LED's will illuminate and An internal buzzer will sound – WHICH CANNOT BE SILENCED.

## **EMERGENCY BATTERY - SYSTEM CHARGED**

Should both the Mains Supply and the Standby battery fail then the Emergency Battery will automatically Operate the Solenoid outputs immediately and will de-energise if any "Delay Off " has been set.

Should the System be in "Disabled "mode then the Solenoid outputs will not operate

## **VALVE ALARM CONDITION**

Under normal conditions the Valve green LED indicators will be illuminated, showing the valves are in their Normal position. In the event of any valve moving to its incorrect position the appropriate yellow LED will illuminate and the internal buzzer will pulse sound. The common Fault Auxiliary contacts will de-energise, the common fault Output will switch +24v together with the appropriate Valve repeat Output.

### **BUZZER SILENCING**

The internal fault buzzer can be silenced by operating the "Fault Buzzer Mute "button momentary. Should another fault occur, the buzzer will automatically resound.

### **VALVE RESET**

When the valve has returned to its correct position the panel may be reset by depressing the "RESET" button momentary

## **FAULT CONDITION**

In the event of a fault occurring within the Pre-Action system – The appropriate Yellow Fault LED will illuminate, the internal buzzer will pulse sound. Any appropriate internal LED will illuminate, the common fault auxiliary contacts will de-energise and the common Fault output will switch +ve 24v

### **BUZZER SILENCING**

The internal fault buzzer can be silenced by operating the "Fault Buzzer Mute "button momentary. Should another fault occur, the buzzer will automatically resound.

### **FAULT RESET**

The Fault condition will automatically reset when the fault has been cleared.

## **FRONT FASCIA INDICATIONS**

The following front fascia indicators are provided to give the following functions:

### **ZONAL FIRE (up to 4 Zones)**

This indicates which Zone is in Fire condition (Dual Red)

### **VALVE TAMPER (up to 2 valves)**

This indicates which Valve is in its Tamper Status (Yellow) – Healthy Green Normal

### **ZONAL/VALVE FAULT**

This indicates that there is a Line fault, or a detector has been removed in a zone (Yellow)

### **SUPPLY HEALTHY**

Under normal conditions this indicator is normally illuminated (Green)

### **SUPPLY FAULT**

In the event of the following supply faults – Main's failure, Charger failure, Battery disconnection and Auxiliary 24v DC output fuse failure the Supply Fault LED will illuminate (Yellow).

The Supply Healthy indication will extinguish.

### **SOUNDER FAULT**

Should a fault occur in any monitored Sounder circuit the Sounder Fault Led will illuminate (Yellow)

### **AUXILIARY ISOLATED**

The Auxiliary Isolated LED will illuminate to show that the Alarm Auxiliary contacts have been isolated during alarm conditions. Under this condition the internal buzzer will pulse sound. The buzzer can be silenced by operating the "Fault Buzzer Mute "button.

### **AUTOMATIC/MANUAL**

This shows that the Pre-Action system can be "CHARGED" either by Automatic Detection or by Operation of any Manual Release Switch. Dual Yellow LED's

### **MANUAL MODE**

The Pre-Action system can only be CHARGED by the operation of any Manual Release Switch Dual Green LED's

### **SOLENOIDS DISABLED**

When in System Disabled mode the Pre-Action sequence is Inhibited. This mode is normally Used when maintenance/servicing work is being carried out. An Internal Buzzer will sound in this Mode which CANNOT be silenced. Dual Yellow LED's

### **SYSTEM CHARGED**

This shows that Pre-Action System has been CHARGED - Dual Red LED's

### **PRE-ACTION FAULT**

In the event of the following Pre-Action System faults – Remote Mode Select, Remote Manual Release, Low Air, System Charged, Stage 2 Sounders/ Beacon & Solenoid Release Outputs the Pre -Action Fault Yellow LED will illuminate

### **LOW AIR OPERATED**

This shows that a Low Air Pressure switch has been operated – Yellow LED

### **1st STAGE**

This shows that the pre- action system is in its 1<sup>st</sup> Stage mode condition – Yellow LED

### **2nd STAGE**

This shows that the pre- action system is in its 2<sup>nd</sup> Stage mode condition – Yellow LED

## **FRONT PANEL CONTROLS**

The following front fascia controls are provided to give the following functions:

### **ALARM SILENCE**

Operating this push button will silence the Fire alarm sounders

### **LAMP TEST**

Operating this push button will test all Front LED's and the Internal Fault Buzzer

### **FAULT BUZZER MUTE**

Operating this push button will silence the internal fault buzzer.

The internal Pre-Action Mode Disabled buzzer cannot be silenced

### **AUXILIARY ISOLATE**

To Isolate the Alarm Auxiliary contacts operate the "Auxiliary Isolate" push button momentary.

To return the system to normal operate the "Auxiliary Isolate" push switch again for **about 3 seconds**.

### **SYSTEM RESET**

Operating this push button to reset the control panel to normal after a Fire condition or

Valve Tamper Alarm

### **MODE SELECT**

3 position Key Switch to select Pre-Action Mode: -           Automatic/Manual

Manual Only

Disabled

***This Key can be removed in any position***

### **MANUAL RELEASE**

To Start the Pre-Action Release sequence, Lift the Protective Flap and operate the push switch.

The Yellow Switch Indicator will illuminate. Depressing the Switch again will restore the system to Normal. The Yellow Switch indicator will extinguish.

## **INTERNAL LED INDICATORS**

There are a number of LEDs fitted to the internal PCBs to give the more detail of the status of the system

### **ZONE FAULT**

LEDs are provided for each zone to show Open or Short circuit together with detector removal\*  
(\*requires an active end of line to be fitted)

### **SOUNDER FAULT**

The two Main Common sounder circuits each have LEDs to show Open & Short circuit. Other monitored Sounder/Outputs circuits also have individual LEDs to show Open & Short circuit.

### **POWER SUPPLY FAULT**

The PSU Fault LED will illuminate to indicate a power supply fault

Extra LEDs are provided on the power supply assembly to show Charger/Standby Battery/Low Battery/  
Emergency Charger and Emergency Battery fault

### **AUXILIARY 24V OUTPUT FAULT**

The PSU Fault LED will pulse to provide indication of 24v DC Output fuse failure

### **ALARM SOUNDER/SOLENOID RELAYS**

RED LEDs to show the operation of any alarm sounder/Solenoid relay

### **ALARM AUXILIARY RELAY**

RED LEDs to show the operation of any Auxiliary relay

### **FAULT AUXILIARY RELAY**

The Green LED will be illuminated to show that the Fault auxiliary relay is energised (normal condition)

The Fault relay will de-energise on any fault and the Green LED will extinguish

### **PRE-ACTION SYSTEM FAULT**

Yellow LEDs are provided to show either Open & Short circuit for the following monitored circuits  
as detailed below -

Remote Manual Mode

Remote Manual Release

Low Air Pressure

System Charged

2<sup>nd</sup> Stage Sounder

2<sup>nd</sup> Stage Beacon

Solenoid Outputs- individual for each circuit

## **TECHNICAL SPECIFICATION**

The following information applies only to a standard control panel

### **POWER SUPPLY**

AC Supply input	.....	230v AC 50/60 HZ 150VA MAXIMUM
Nominal supply voltage	.....	24v DC
Supply rating	.....	3 amp
Power supply type	.....	Constant Voltage with current limit and thermal shutdown
Low battery cut-off	.....	18v +/- 5%

### **PANEL POWER CONSUMPTION**

Quiescent condition	.....	160mAmp (AC supply failure)
Alarm condition	.....	300mAmp (1zone in alarm)

### **MONITORED CIRCUITS**

Line output voltage	.....	20v +/- 5% Stabilised
End of line device	.....	4K7 ¼ Watt Resistor (or AEOL for Fire Zone)
Detector current	.....	1ma maximum
Fire trip current	.....	25ma
Valve/Pre-Action Trip	.....	470R ½ Watt (nominal – range 470R to 680R)
Monitoring	.....	Both for open & short circuit with internal LEDs

### **ALARM OUTPUTS**

Sounder monitoring	.....	Reverse polarity type, fully monitored for open and short circuit with internal LED's
Maximum Load – Common	.....	2.0 amps. Shared between 2 circuits each fused @ 3.15 amp
- stage 1/2	.....	1.00amp fused @ 1 amp
- Solenoid O/P	.....	1 Amp fused @ 1 amp

**NOTE: Total load not to exceed 2.75 Amps**

### **AUXILIARY OUTPUTS**

Common Alarm	.....	2 sets CHO rated @ 3 amps 50v DC
Stage 1 Alarm	.....	2 sets CHO rated @ 3 amps 50v DC
Stage 2 Alarm	.....	2 sets CHO rated @ 3 amps 50v DC
System Charged	.....	1 set CHO rated @ 3 amps 50v DC
Fault	.....	1 set CHO rated @ 1-amp 50v (failsafe - normally energised)
Zonal Fire/Valve Tamper	.....	Solid state output, switched +ve rated 100ma @ 24v
Common Fault	.....	Solid state output, switched +ve rated 100ma @ 24v
Pre-Action Status	.....	Solid state outputs, switched +VE rated 100ma @ 24v

### **24v DC AUXILIARY OUTPUT**

Maximum output	.....	0.5amp fused and monitored with internal fault LED
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### **REMOTE CONTROL INPUTS**

Alarm silence	.....	Switched +VE momentary
System Reset	.....	Switched +VE momentary
Evacuate	.....	Switched +VE

### **CABINET ENCLOSURE**

Back Box	.....	18 Gauge Sheet Steel, finished Grey White to RAL9002
Front Fascia	.....	18 Gauge Sheet Steel hinged front door with Cam Lock (2 keys provided) finished Grey white to RAL 9002 Front screen printed in Blue

### **FUSES & RATINGS**

AC Input	.....	Ceramic type 20mm x 5mm: 2 Amp HRC
Standby Battery output	.....	Glass type 20mm x 5mm: 3.16 Amp A/S
Emergency Battery output	.....	Glass type 20mm x 5mm: 3.16 Amp A/S
24v Auxiliary output	.....	Thermal fuse type rated @ 0.25 Amp
Main Sounder outputs	.....	Glass type 20mm x 5mm: 3.16 Amp A/S
2 <sup>nd</sup> Stage Sounder output	.....	Glass type 20mm x 5mm: 1.0 Amp A/S
2 <sup>nd</sup> Stage Beacon output	.....	Glass type 20mm x 5mm: 1.0 Amp A/S

## CONNECTION DETAILS

### MAIN MOTHERBOARD CONNECTIONS (L to R)

Common Auxiliary 1	.....	CHO
Common Auxiliary 2	.....	CHO
Common Sounder output 1	.....	Monitored output (reverse type)
Common Sounder output 2	.....	Monitored output (reverse type)
Remote Inputs	.....	Common +VE Reset Alarm Silence Alarm Sound
Fault Auxiliary	.....	Common & either N/O or N/C via jumper
Fault Repeat	.....	Switched +VE output
Zone 1 Fire	.....	Input +VE & 0v Zone 1 Repeat: Switched +VE
Zone 2 Fire	.....	Input +VE & 0v Zone 2 Repeat: Switched +VE
Zone 3 Fire	.....	Input +VE & 0v Zone 3 Repeat: Switched +VE
Zone 4 Fire	.....	Input +VE & 0v Zone 4 Repeat: Switched +VE
Valve 1	.....	Input +VE & 0v Valve 1 Repeat: Switched +VE
Valve 2	.....	Input +VE & 0v Valve 2 Repeat: Switched +VE

### PRE-ACTION MOTHERBOARD CONNECTIONS (L to R)

Manual Mode	.....	Input +VE & 0v
Manual Release	.....	Input +VE & 0v
Low Air	.....	Input +VE & 0v
System Charged	.....	Input +VE & 0v
2 <sup>nd</sup> Stage Sounder	.....	Monitored output (reverse type)
2 <sup>nd</sup> Stage Beacon	.....	Monitored output (reverse type)
Solenoid output 1	.....	Monitored output (reverse type)
Solenoid output 2	.....	Monitored output (reverse type)
Remote Status	.....	1 <sup>st</sup> Stage Manual Only mode Disabled Mode System Charged
System Charged Auxiliary	.....	1 Set CHO
1 <sup>st</sup> stage Auxiliary	.....	2 sets CHO
2 <sup>nd</sup> stage Auxiliary	.....	2 sets CHO

### POWER SUPPLY CONNECTIONS

The internal power supply requires the following connections-

- 1) 230v AC supply to the power supply mains terminals
- 2) 24v DC Standby Sealed Lead Acid Battery supply to the connection leads provided
- 3) 24v DC Emergency Sealed Lead Acid Battery supply to the connection leads provided

### PRE-ACTION MODE SETUP

The Modes of operation for the Pre-action panel are detailed below, and are set using DIP the two switches located on the Pre-Action Motherboard :-

#### **Solenoid O/P Delays**

Delay On ..... 1 ..... 20 seconds  
..... 2 ..... 40 seconds  
..... 3 ..... 60 seconds  
..... 4 ..... 90 seconds

Note : Only one DIP switch position should be ON : With NO switch position ON instant operation

Delay Off ..... 5 ..... 20 seconds  
..... 6 ..... 40 seconds  
..... 7 ..... 60 seconds  
..... 8 ..... 90 seconds

Note : Only one DIP switch position should be ON: with NO switch position ON solenoid outputs will remain on

### Mode Switch Settings

1	OFF	.....	Double Knock Zones 1 & 2
	ON	.....	Single Knock Zones 1 or 2
2	OFF	.....	Double Knock Zones 3 & 4
	ON	.....	Single Knock Zones 3 or 4
3	OFF	.....	Sequence as Mode switches 1 & 2
	ON	.....	Any 2 from 4 Double Knock
4	OFF	.....	2 <sup>nd</sup> Stage Sounders Continuous during Solenoid delay
	ON	.....	2 <sup>nd</sup> Stage Sounders Pulse during Solenoid delay
5	OFF	.....	Auxiliary relays operated when in System Disabled Mode
	ON	.....	Auxiliary relays DO NOT operate when in System Disabled Mode
6	OFF	.....	Charged LEDs/Relays operated via Charged input Signal
	ON	.....	Charged LEDs/Relays operate when Solenoid outputs operate
7	OFF	.....	Auxiliary relays operation as per Auxiliary Isolate Switch
	ON	.....	Auxiliary relays operate under "Auxiliary Isolated" condition
8	OFF	.....	No operation of Common Auxiliary relay on 2 <sup>nd</sup> stage
	ON	.....	Operation Common Auxiliary relay on 2 <sup>nd</sup> Stage

### MAIN MOTHERBOARD MODE SETUP

The Modes of operation for the Main motherboard are detailed below, and are set using the DIP switch located on the Motherboard: -

#### Mode Switch Settings

4	OFF	.....	No Common Auxiliary operation
	ON	.....	Normal Mode – Auxiliary relay operate on Alarm
5	OFF	.....	No Common Auxiliary operation
	ON	.....	Auxiliary relays operate on Alarm but de-energise on Alarm Silence

### TWIN INPUT CARD SETUP

#### Zone Isolate

Each input card has a two position Isolate slide switch

Move Slide switch position to OFF position to Isolate the Zone.

The Zone fault LED will flash and the internal Buzzer will pulse sound (Can be silenced)

#### No Common Auxiliary Operation

Odd Input – DIL Switch position 1 to ON

Even Input – DIL Switch position 2 to ON

#### Non-Latching Input

Odd Input – DIL Switch position 3 to ON

Even Input – DIL Switch position 4 to ON

#### S/C Alarm (Fault output to Pre-Action motherboard) \*\*\*

Odd Input – DIL Switch position 5 to ON

Even Input – DIL Switch position 6 to ON

#### Alarm to Fault O/P (Operates Fault condition instead of Alarm)

Odd Input – DIL Switch position 7 to ON

Even Input – DIL Switch position 8 to ON

\*\*\* On either O/C or S/C Zone fault output given to Pre-Action Motherboard as Fire Condition  
Depending upon Pre-Action Mode setup will give 2<sup>nd</sup> Stage release sequence (LPC TB 208)

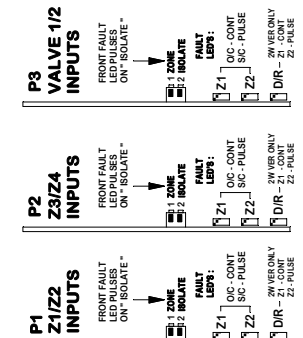
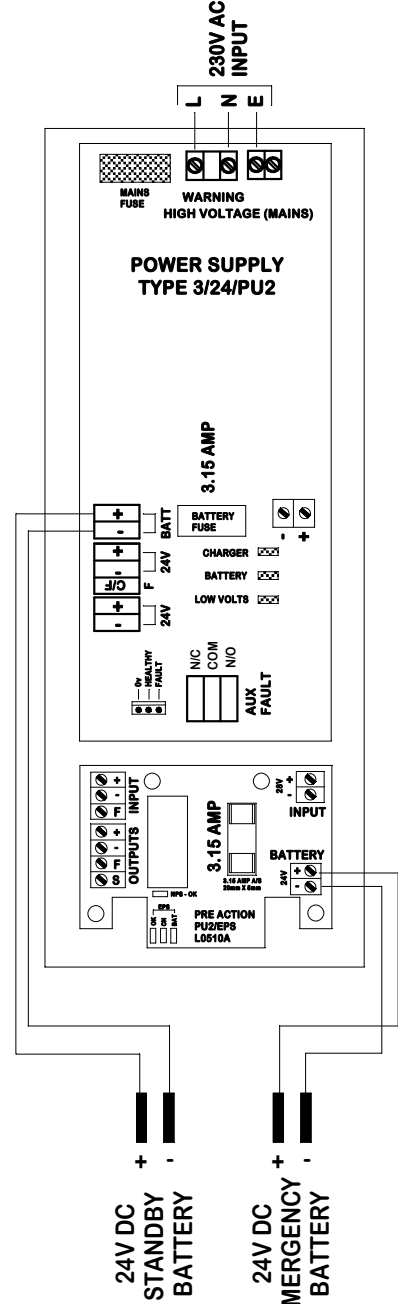
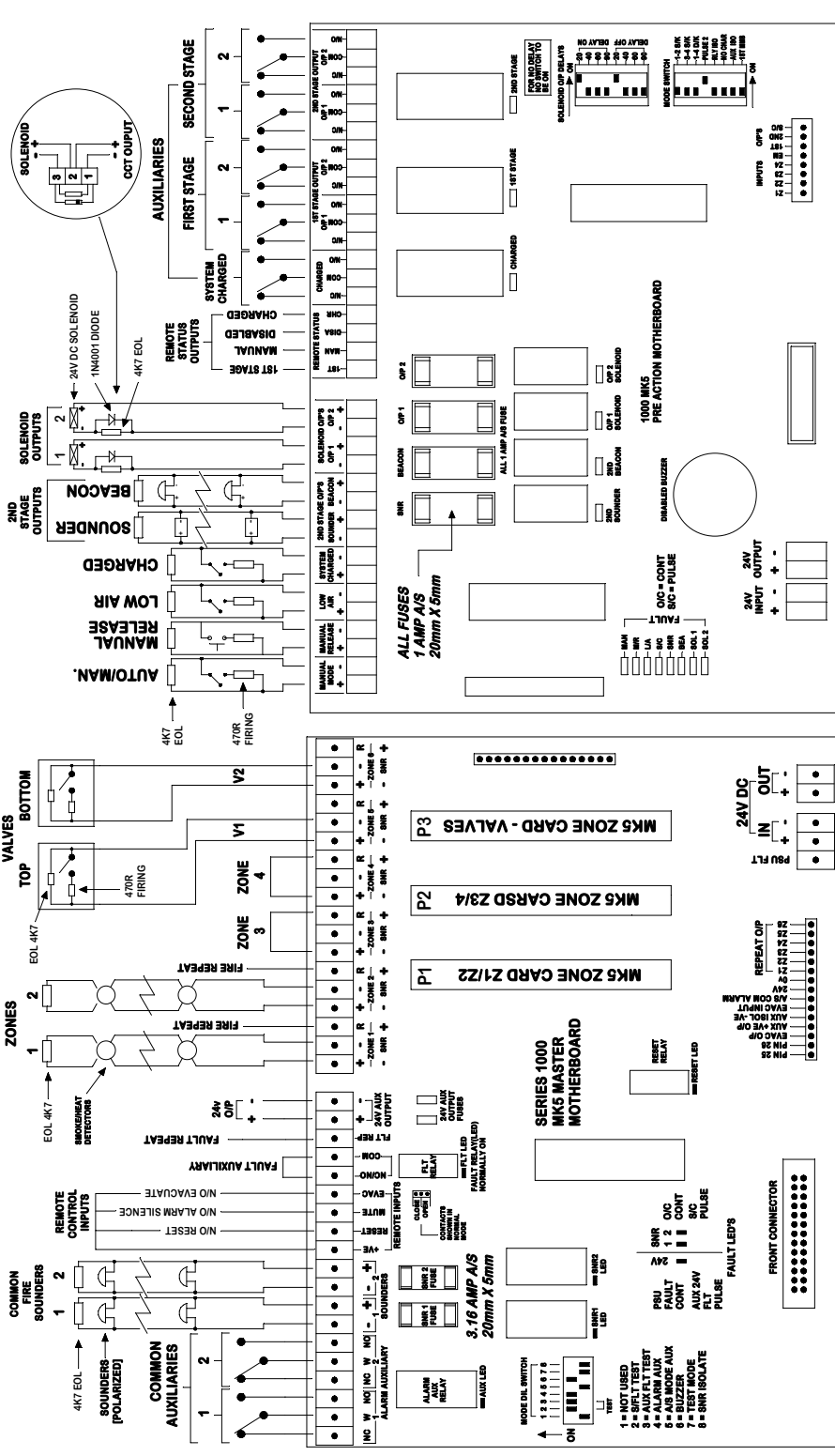
### ENGINEER'S FACILITES

The following facilitates should only be used by Commission and Service Engineer's

#### Main Motherboard - Mode Switch Settings

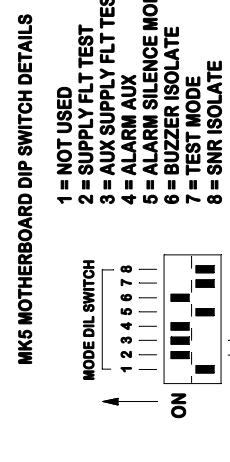
2	OFF	.....	Supply fault test mode
	ON	.....	Normal Mode
3	OFF	.....	Auxiliary supply fault test mode
	ON	.....	Normal Mode
6	OFF	.....	Main Internal Buzzer Isolated
	ON	.....	Normal Mode
7	OFF	.....	Normal Mode
	ON	.....	Auto Reset Test Mode – Resets after 1 second after Alarm
			When in Test mode Front Sounder fault LED will flash & internal buzzer will fast pulse
8	OFF	.....	Normal Mode
	ON	.....	Main Sounders Isolated
			When in Test mode Front Sounder fault LED will flash & internal Buzzer will fast pulse



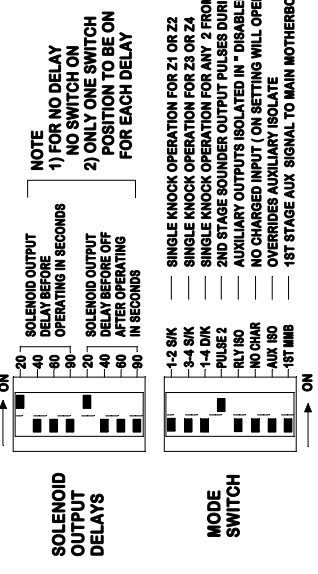


NOTE:  
WITH S/C ALM "ON" ON EITHER  
AN O/C OR S/C FAULT OUTPUT  
GIVEN TO PRE-ACTION  
MOTHERBOARD AS FIRE CONDITION  
REF: SEE LPC TB 208

### PLUG-IN CARD DETAILS



### PRE ACTION MOTHERBOARD DIP SWITCH DETAILS



**PASRP-1A**  
INTERNAL LAYOUT & CONNECTION DETAILS  
DRG REF : PASRP- MANUAL SCHEMATIC