

Premier Elite

FIRE ALARM CONTROL PANEL

Instruction Manual

INDEX

INDEX	2
Introduction.....	3
Mains & Battery.....	4
Connecting the mains.....	4
Connecting the batteries.....	4
Detectors & sounders.....	5
Wiring the detectors.....	5
Wiring the sounders.....	5
Display & Controls	6
Display	6
Controls.....	7
Alarm Condition & Resetting an alarm	8
What to do in the event of a fire.	8
Resetting from an alarm condition.....	8
Fault display & fault-finding	9
Fault Finding.....	9
Supply fault.....	9
Zone Fault.....	10
Sounder Circuit Fault.....	10
Battery Calculation	11
Sample Calculation	11
Specifications.....	12
Electrical Specifications.....	12
Enclosure Specifications.....	12
Fuse Ratings.....	12
Log Book	13
MAINTENANCE WORK.....	13
FALSE ALARMS.....	14
ALL OTHER EVENTS.....	15

Introduction

The Premier Elite 1 & 2 zone panels have been designed to meet the requirement of a low cost easy to use fully functional fire alarm control panel.

It is available as either a 1 zone panel, or a 2 zone panel.

Each version has 2 sounder circuits, and an alarm relay.

There is no configuration, simply connect the detectors & sounders and apply power.

The Premier Elite range also includes 4,6 and 8 zone panels. These panels are NOT covered in this manual. They have a separate manual.

The 4,6 & 8 zone panels have the option to fit a hard wired repeater, as well as having a fault output, and a sounder delay option.

Mains & Battery

Connecting the mains.

The Mains supply to the FACP is fixed wiring, using **Fire resisting** 3-core cable (Between 1 mm² and 2.5mm²) or a suitable 3-conductor system, fed from an isolating double pole switch fused spur, fused at 3A. **IT SHOULD NOT BE CONNECTED THROUGH AN RCD.** This should be secure from unauthorised operation and be marked 'FIRE ALARM: DO NOT SWITCH OFF'. The supply must be exclusive to the Fire Panel. **MAKE SURE ANY SPARE ENTRY HOLES ARE COVERED WITH THE GROMMETS PROVIDED**

Connecting the batteries

The Premier Elite requires 2 x 12 V sealed lead acid (SLA) batteries

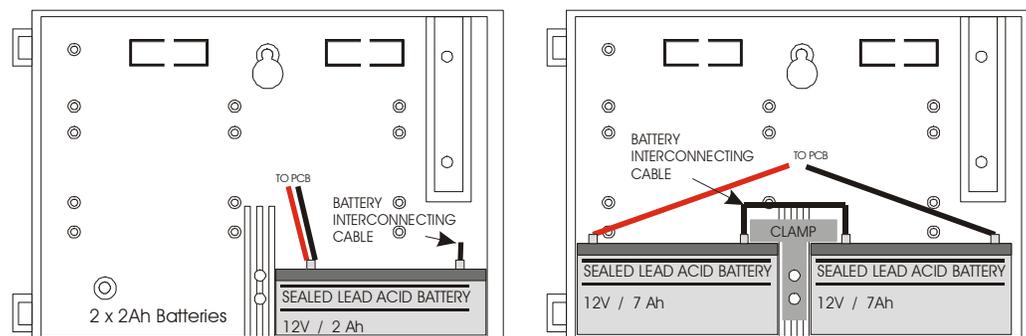
The two batteries are wired in **series**.

The **+ve** of one battery is connected to the **red** battery lead.

The **-ve** of the other battery is connected to the **black** battery lead.

The **-ve** of the first battery is connected to the **+ve** of the second battery using the link wire supplied.

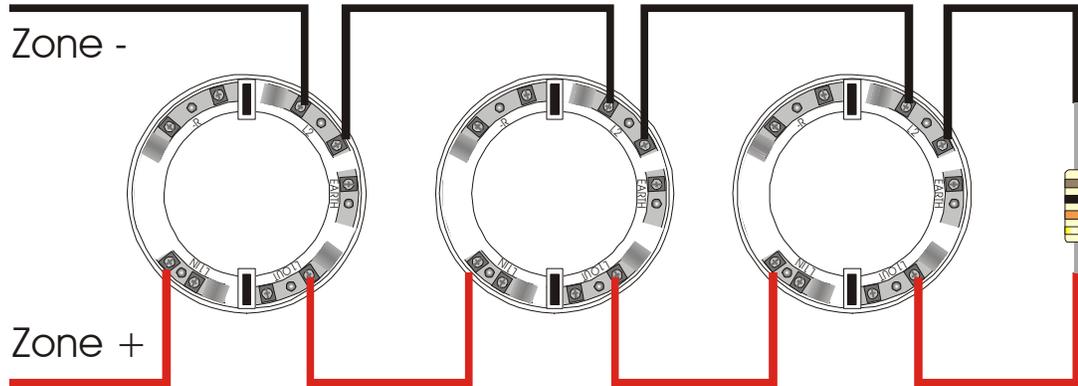
Although there are many sizes of suitable battery, the sizes we usually recommend are 12V 2Ah for standard backup, or 12V 7Ah for extended backup (72 hour or more) , and the enclosure has been designed to hold these two battery sizes.



Detectors & sounders

Wiring the detectors

The Premier Elite has been designed to use a 10K resistor end of line on the detector zones.

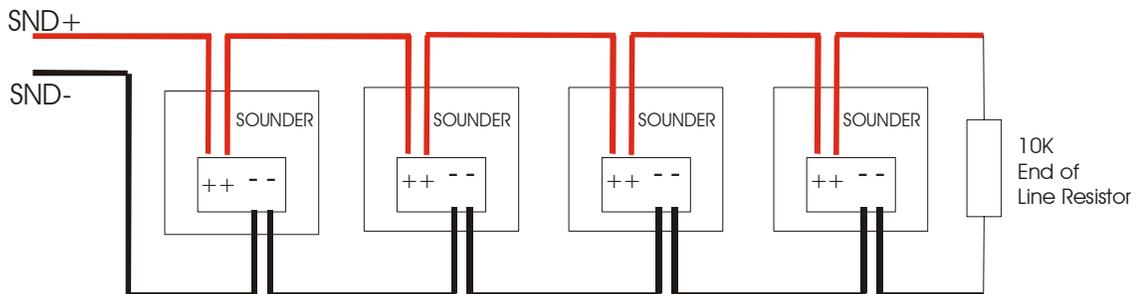


Call points should be connected to the start of the zone, so that removing a detector head will not remove power from the call points.

Also note that detector bases with a continuity diode will not be compatible with this panel. The diode should be removed to allow detector head removal indicator to work.

Wiring the sounders

The Premier Elite has 2 sounder circuits with a combined rating of 800mA. Each sounder circuit must be fitted with a 10k end of line resistor



Display & Controls

Here is the fascia for the Premier Elite.



Display

The Premier Elite has the following LED indicators:-

LED	COLOUR	MEANING
POWER	GREEN	The system has mains and/or battery backup present. The panel showing this LED only is the normal condition
GEN FIRE	RED	There is an alarm on the system.
GEN FLT	YELLOW	There is a fault on the system. Check specific LED for further information. (Note: Not available on Premier Elite 1 zone.
SUPPLY FLT	YELLOW	There is a problem with either mains supply, or battery backup
FLT	YELLOW	There is a fault on one of the sounder circuits
FIRE 1	RED	There is a fire on zone 1
FAULT 1	YELLOW	There is a fault in the wiring on zone 1, or a detector has been removed
FIRE 2	RED	There is a fire on zone 2
FAULT 2	YELLOW	There is a fault in the wiring on zone 2, or a detector has been removed

Controls

The Premier Elite has the following controls:-

BUTTON	LABEL	USE
1	START/STOP	Used to silence the sounders in an alarm, or to manually start the sounders to evacuate building
2	SILENCE FAULT TONE	Used to silence the panel's internal buzzer in a fault or alarm condition.
3	RESET	Used to return the panel to its normal condition after an ALARM condition. (Reset will not clear faults)
4	LED TEST	To check that all indicator LEDs are working. Use as part of the daily / weekly fire alarm inspection.

Note that the controls can only be used after the keyswitch has been turned to the ON position.

Alarm Condition & Resetting an alarm

The Premier Elite signals an alarm by the following:-

Turn on the General Fire LED
Turn on the Zonal Fire Indicator
Turn on internal buzzer
Start any sounders connected to the panel's sounder circuits
Activate the fire relay (if fitted)

What to do in the event of a fire.

1. Follow the building evacuation procedure, and check that everyone has left the building safely.
2. The building fire officer or responsible person should CAREFULLY enter the building, and locate the area of the alarm from the fire alarm panel.
3. Investigate to determine the cause of the alarm. Look for the detector in the zone in alarm that signalled the fire. The detector that signalled an alarm will have its RED ALARM LED on.
4. If a small fire is found, a suitably trained person could tackle this with a suitable fire extinguisher.
5. If a larger fire is found, leave the building immediately, and contact the fire brigade.
6. If no fire is found, make a note of the detector that signalled fire, and look for anything nearby that could be the cause of the activation, eg cooking, or use of a hot air gun etc.
7. Record findings in the fire alarm log book.

Resetting from an alarm condition

After the relevant action has been taken, the Premier Elite fire alarm panel can be reset by the following:-

- 1 Press Stop/Start sounder button (BUTTON 1). This will silence the external sounders.
- 2 Press Silence Fault Tone button (BUTTON 2). This will silence the panel's internal buzzer.
- 3 Press the Reset button (BUTTON 3). This will return the panel to its normal condition.

If the panel goes straight back into alarm, then the cause of the alarm has not been cleared. This could be a detector still exposed to smoke, or a call point still in the active position. Press Buttons 1 & 2 on the panel, then investigate for a call point, or detector that still has its RED ALARM LED on. Reset the call point, or clear the smoke. If the problem persists, contact an engineer.

Fault display & fault-finding

The Premier Elite 1 & 2 zone panels monitor for the following faults:-

Low or failed mains (Including fuses)
Low or failed battery (Including fuse)
Detection Zone open circuit wiring fault
Detection Zone short circuit wiring fault
Detection Zone detector removed.
Sounder circuit open circuit wiring fault
Sounder circuit short circuit wiring fault

The Premier Elite 2 zone panel also has a General Fault LED that will light when any fault is present.

Most of these faults will need to be checked by an engineer, but the system can be checked for a removed detector by the responsible person..

All faults in the Premier Elite are NON-LATCHING. IE they can not be reset with the reset button. They will clear automatically when the fault has been fixed.

Fault Finding

Supply fault

A power supply fault is indicative of one or more of the following faults: -

Loss of Mains power

- Check that 230V AC is present at the mains terminal block
- Check mains fuse
- Check that there is 30-34V coming from the transformer secondary
- Check charger fuse FS1.

Loss of Battery power

- Check that 2 X 12V batteries are fitted in series to give 24V backup
- Check battery fuse FS2.
- Check that battery connections are secure.
- Check that the batteries are not over 5 years old

Zone Fault

A Zone Fault is indicative of one or more of the following faults:-

Open Circuit fault.

- Check that the correct end of line resistor (10K) has been fitted
- Check that there are no breaks in the cable, and that all screw connections are secure.
- Check that no detectors have been removed from the circuit.
- Check that all detectors are correctly fitted to the base.
- As a cable check, remove zone wire from panel & measure resistance. Should read 10k end of line resistance. (If a break is found, splitting the line in half & fitting EOL will help determine which section of cable has the fault)
- As a panel check, remove cable & fit EOL at the panel. If the fault clears, the panel is working correctly.

Short Circuit Fault

- Check that the correct end of line has been fitted (10k resistor)
- Check that no equipment, other than detectors or call points has been fitted to the zone.
- Check for shorts to the cable screen.
- Check that none of the heads have become damaged (remove one at a time).
- As a panel check, remove cable & fit EOL at the panel. If the fault clears, the panel is working correctly.

Sounder Circuit Fault

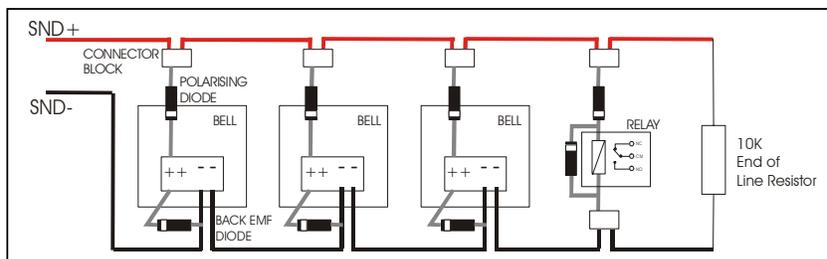
A Sounder Fault is indicative of one or more of the following faults:-

Sounder Open Circuit fault.

- Check that the correct end of line resistor (10K) has been fitted
- Check that sounder fuse FS3 is intact.
- Check that there are no breaks in the cable, and that all screw connections are secure.
- As a panel check, remove both circuits cable & fit both EOLs at the panel. If the fault clears, the panel is working correctly.

Short Circuit Fault

- Check that the correct end of line has been fitted (10k resistor)
- Check that ALL sounders, Bells etc are POLARISED, and are fitted the correct way round. (see diagram after list)
- Check for shorts to the cable screen.
- As a panel check, remove cable & fit EOL at the panel. If the fault clears, the panel is working correctly.



Note: If non-polarised alarm devices (eg some types of old mechanical bell, or a relay) are used, then a diode will have to be placed in line with the device to enable fault monitoring. They may also need a

back EMF protection diode. (symptoms: Chattering sounder relays that don't turn off).

Battery Calculation

Here are the current consumption of the Premier Elite panels in various conditions:-

Control Panel Model	Mains Fail, buzzer sounding	Mains Fail, buzzer silenced	Mains fail, panel in alarm
Premier Elite 1 Zone	48mA	28mA	113mA
Premier Elite 2 Zone	66mA	46mA	99mA

Sample Calculation

A Premier Elite 2 zone panel has the following items connected:-

Zone 1: 2 x MCP, 4 x Optical, 2 x heat detector

Zone 2: 1 x MCP, 7 x Optical, 1 x heat detector

Sounder CCT 1: 2 x Maxitone sounder

Sounder CCT 2: 4 x Maxitone sounder

ITEM	QUIESCENT	ALARM
PREMIER ELITE 2	66mA	99mA
MCP	0mA	40mA
OPTICAL	100uA	40mA
HEAT	50uA	40mA
MAXITONE SOUNDER	0mA	25mA

To calculate the required battery backup required, we use the equation:-

$$\text{Battery Size (Standby time in Amp Hours)} = 1.25 \times [(T_{\text{ALM}} \times I_{\text{ALM}}) + (T_{\text{SBY}} \times I_{\text{SBY}})]$$

Where:

T_{ALM} = Maximum time in hours required for the alarm [$\frac{1}{2}$ hour is most common time]

I_{ALM} = Total Alarm Current in amps for all alarm devices connected to the alarm circuits

T_{SBY} = Standby time in hours for the system after mains failure [normally 24, 48 or 72 hr]

I_{SBY} = Quiescent current in amps of control panel in fault condition [because of mains failure] **PLUS** all detection zones.

$$I_{\text{ALM}} = \text{PREMIER ELITE ALM} + 6 \times \text{MAXITONE ALARM} + 1 \times \text{DETECTOR ALM} + 3 \times \text{MCP QU} + 10 \times \text{OPT QU} + 3 \times \text{HT QU}$$

$$\begin{aligned} &= 0.099 + 6 \times 0.025 + 1 \times 0.040 + 3 \times 0 + 10 \times 0.0001 + 3 \times 0.00005 \\ &= 0.099 + 0.15 + 0.04 + 0 + 0.0010 + 0.00015 \\ &= 0.29015 \text{ Amps} \end{aligned}$$

$$I_{\text{SBY}} = \text{PREMIER ELITE QU} + 6 \times \text{MAXITONE QU} + 3 \times \text{MCP QU} + 11 \times \text{OPT QU} + 3 \times \text{HT QU}$$

$$\begin{aligned} &= 0.066 + 6 \times 0 + 3 \times 0 + 11 \times 0.0001 + 3 \times 0.00005 \\ &= 0.066 + 0 + 0 + 0.0011 + 0.00015 \\ &= 0.06725 \end{aligned}$$

Therefore:-

$$\begin{aligned} \text{Battery size} &= 1.25 \times ((0.5 \times 0.29015) + (24 \times 0.06725)) \\ &= 1.25 \times (0.145075 + 1.614) \\ &= 1.25 \times 1.759075 \\ &= 2.19884 \text{ Ah} \end{aligned}$$

So 2.2 Ah batteries will be suitable for this installation.

Specifications

Electrical Specifications

ELECTRICAL DESCRIPTION	VALUE
MAINS VOLTAGE	230V AC +/- 10% @ 50/60 Hz
BATTERY VOLTAGE	24V DC (2 X 12V SLA BATTERY)
CHARGER SIZE	1 AMP
ZONE VOLTAGE (NO EOL FITTED)	21V DC NOMINAL (20 - 22.5V)
SOUNDER ALARM OUTPUTS	2 x 400mA @ 24V DC (Nominal)
AUXILIARY FIRE OUTPUT	1 x RELAY SELV (1A MAX)
NUMBER OF ZONES	1 or 2
MAXIMUM ZONE CAPACITY	20 DEVICES PER ZONE
ZONE END OF LINE DEVICE	10 K RESISTOR
SOUNDER END OF LINE DEVICE	10 K RESISTOR
CHARGER VOLTAGE	27.6V DC (NO BATTERY CONNECTED)
MAINS FAILED CURRENT (BUZZER ON)	48mA (1 ZONE) / 66mA (2 ZONE)
MAINS FAILED CURRENT (BUZZER OFF)	28mA (1 ZONE) / 46mA (2 ZONE)

Enclosure Specifications

DESCRIPTION	VALUE
ENCLOSURE SIZE	355 x 275 x 100 mm
TOP CABLE ENTRIES	12 x 19mm DIA GROMMETED ENTRIES
BOTTOM CABLE ENTRIES	2 x 19mm KNOCKOUT ENTRIES
REAR CABLE ENTRIES	2 SNAP OUTS, 60 x 20mm

Fuse Ratings

FUSE NO	DESCRIPTION	RATING
FS1	Charger Fuse	1.6A time delay 5 x 20mm glass
FS2	Battery Fuse	1.6A time delay 5 x 20mm glass
FS3	Sounder circuit)	800mA time delay 5 x 20mm glass
INLET FUSE	Mains Protection Fuse	2A Quick Blow HBC 5 x 20mm ceramic

