

# Premier EXPRO



# INSTALLATION MANUAL

## Contents

INTRODUCTION.....	4
HANDLING THE PCBS .....	4
USING THIS MANUAL.....	4
ABOUT THE EXPRO.....	4
INDICATIONS & CONTROLS.....	6
INDICATIONS.....	6
CONTROLS.....	8
MOUNTING THE FIRE ALARM PANEL.....	9
PLANNING CABLE ENTRY.....	9
FIXING THE ENCLOSURE TO THE WALL.....	9
ELECTRICAL CONNECTIONS.....	10
CONNECTING TO THE MAINS.....	10
CONNECTING THE BATTERIES .....	11
DETECTORS AND SOUNDERS .....	12
WIRING THE DETECTORS.....	12
WIRING THE SOUNDERS.....	12
OTHER CONNECTIONS .....	13
FIELD MONITORING INPUTS .....	13
1 <sup>ST</sup> STAGE & 2 <sup>ND</sup> STAGE FIRE RELAYS.....	13
FAULT RELAY .....	13
BOTTLE OUTPUT.....	14
EXTERNAL EQUIPMENT RELAY .....	14
PANEL MENUS.....	15
CONFIGURING THE PANEL .....	18
ENGINEERING MENU .....	18
TIMERS .....	18
RELAYS MENU .....	20
RESET MENU .....	20
RESET LOGS.....	20
RESET TIMINGS .....	20
FACTORY RESET.....	20
SOUNDER .....	21
VERSION .....	21

CHANGE PASSWORD.....	21
LANGUAGE .....	21
PANEL OPERATION .....	22
NORMAL OPERATION .....	22
FIRE ALARM CONDITION .....	22
WHAT TO DO IN THE EVENT OF A FIRE.....	22
RESETTING FROM AN ALARM CONDITION .....	22
MANUAL EVACUATION.....	23
FIRST STAGE ALARM.....	23
SECOND STAGE ALARM .....	23
ABORT A SECOND STAGE ALARM .....	23
MANUAL MODE .....	24
RESET .....	24
FAULTS.....	24
BATTERY CALCULATION .....	25
DEVICE CURRENT CONSUMPTION .....	25
EXPRO PANEL IN VARIOUS STATES .....	25
EXPANSION BOARDS .....	25
EXTERNAL DEVICES .....	25
DETERMINING BATTERY SIZE .....	25
EXAMPLE BATTERY SIZE CALCULATION .....	26
CONNECTIONS .....	27
TERMINAL DESCRIPTION.....	27
PANEL SPECIFICATION.....	28
ENCLOSURE SPECIFICATION.....	28
ELECTRICAL SPECIFICATIONS .....	28
FUSE RATINGS.....	28
DESIGN SPECIFICATIONS.....	29
FIRE ALARM CONTROL SECTION.....	29
EXTINGUISHING CONTROL SECTION.....	29

## INTRODUCTION

**THIS EXTINGUISHING CONTROL PANEL IS CLASS 1 EQUIPMENT AND MUST BE EARTHED**

**This equipment must be installed and maintained by a qualified and technically competent person.**

## HANDLING THE PCBS

If the PCBS are to be removed to ease fitting the enclosure and cables, care must be taken to avoid damage by static.

The best method is to wear an earth strap, but touching any earth point (e.g. building plumbing) will help to discharge any static. Hold PCBs by their sides, avoiding contact with any components. Always handle PCBs by their sides and avoid touching the legs of any components. Keep the PCBs away from damp and/or dirty areas, e.g. in a small cardboard box.

## USING THIS MANUAL

This manual explains, in a step-by-step manner, the procedure for the installation of the EXPro combined fire and extinguishing control panel. For full operational and maintenance information, please refer to the document GLT.MAN-(USER MANUAL, MAINTENANCE GUIDE & LOG BOOK). It also contains a system set-up table and installation certificate that must be completed by the commissioning engineer prior to system handover.

## ABOUT THE EXPRO

The Premier EXPRO is a 2 zone, 1 area extinguishing panel.

It has 2 zones dedicated to the extinguishing section. These are known as crossed or co-incidence zones. Both circuits will need to be triggered in order to activate the extinguishing circuit. This kind of operation also referred to as “double – knock”

The Extinguishing section is designed to BS EN 12094-1:2003.

The panel has an integral Manual Release switch fitted to the front of the panel.

The panel has monitored inputs for field connections, such as manual release, abort, etc.

The panel has relay outputs for first & second stage alarms, fault, gas fired, and EXT for extract fan.

The panel has an add-on board that provides relay outputs for Auto, Manual, and Abort

The Premier EXPRO can be in any of the following conditions:-

- Quiescent condition – i.e. System Normal
- Fault condition
- Disabled condition
- Test condition
- Pre-activated condition

The Premier EXPRO will enter the pre-activated condition (first stage alarm) within 1 second of a detector on one of the crossed zones signalling an alarm

- Activated condition

The Premier EXPRO will enter the activated (second stage alarm) condition within 1 second of the second crossed zone signalling an alarm.

- Released condition

The Premier EXPRO will enter the released condition (bottle output activated) within 1 second of establishing the activated condition, or after the delay configured in the bottle output timer

**WARNING: Access to live components inside this fire alarm enclosure. Only authorised personnel should have access to the inside of the control panel.**

## INDICATIONS & CONTROLS

### INDICATIONS

Here is the fascia for the Premier EXPRO panel.

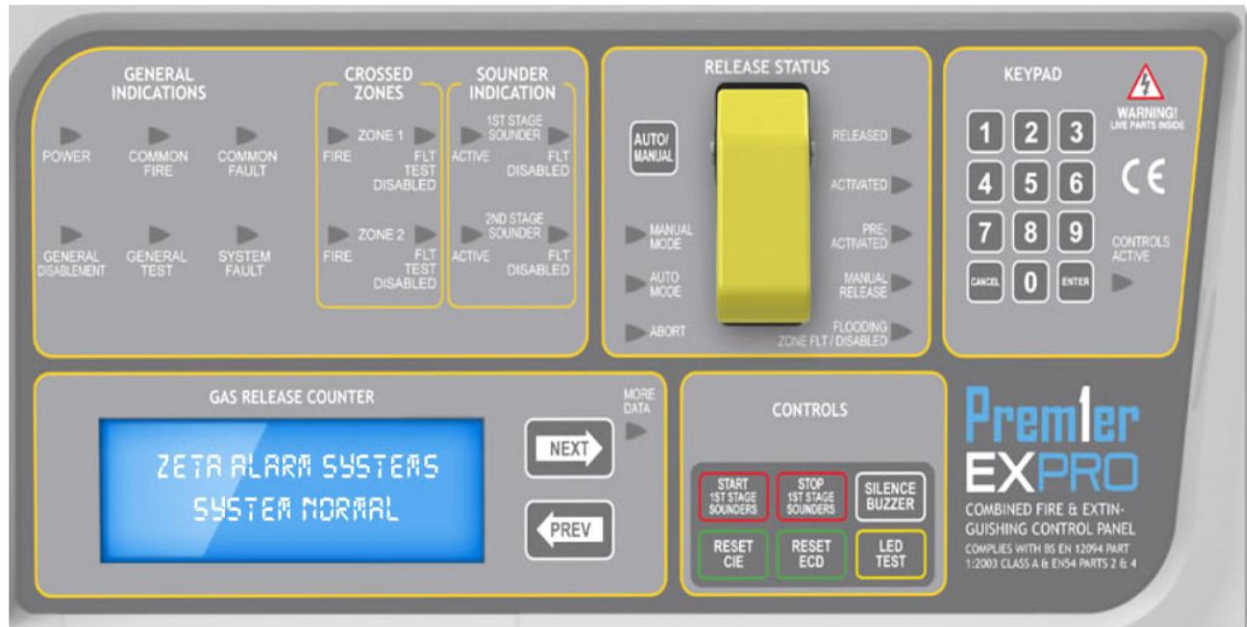


Figure 1. EXPro fascia layout

Each function has its own indication LED. There are Alarm (Active), Fault, Test & Disablement LEDs for most panel inputs and outputs. For most functions, more than one LED will light (e.g. zone 1 fire and common fire)

The second stage sounder is pulsed during the activated condition, and its sounder active LED will also pulse in time with the actual sounder output. The second stage sounder and its associated LED will switch to constantly on.

The panel also has a 20 x 4 LCD display for easy setup of the engineering functions. It also has an event log which will store up to 100 events.

The EXPRO has the following LED indicators:-

General indication LED	Colour	Function / Meaning
Power	Green	Power healthy
Common Fire	Red	Indicates when the panel is in an alarm condition
Common Fault	Yellow	Indicates when the panel is in a fault condition
General Disablement	Yellow	Indicates when an Input or Output has been disabled
General Test	Yellow	Indicates when a zone is in test
System Fault	Yellow	Indicates when there is a processor fault
Crossed Zone LED	Colour	Function / Meaning
Fire (zone 1)	Red	Indicates when zone 1 is in alarm
Fire (zone 2)	Red	Indicates when zone 1 is in alarm
FLT / Test / Disable	Yellow	Indicates when a zone has a fault or in test or disable mode
Alarm indications LED	Colour	Function / Meaning
Active 1 <sup>st</sup> Stage Alarm	Red	Indicates when zone 1 or zone 2 is in an alarm condition
Active 2 <sup>nd</sup> Stage Alarm	Red	Indicates when zone 1 or zone 2 is in an alarm condition
1 <sup>st</sup> Stage FLT/TEST/DISABLED	Yellow	Indicates 1 <sup>st</sup> stage status when lit
2 <sup>nd</sup> Stage FLT/TEST/DISABLED	Yellow	Indicates 2nd stage status when lit
Release Status	Colour	Function / Meaning
Manual Mode	Yellow	Indicates manual release mode
Auto Mode	Green	Indicates Automatic mode
Abort	Yellow	Indicates the release has been aborted
Released	Red	Indicates the gas has been released
Activated	Red	Indicates when both 1 <sup>st</sup> and 2 <sup>nd</sup> stage zones are in alarm
Pre-Activated	Red	Indicates when there is a first stage alarm
Manual Release	Red	Indicates when the Manual release switch has been activated
Flooding Zone FLT	Yellow	Indicates when there is a fault state in the flooding zone
Gas Release Counter	Colour	Function / Meaning
More Data	Yellow	Indicates when there is more than one message to be displayed on the LCD

## CONTROLS

Label	Use
Start 1 <sup>st</sup> Stage Sounders	Used to start the 1 <sup>st</sup> stage sounders
Stop 1 <sup>st</sup> Stage Sounders	Used to silence the 1 <sup>st</sup> stage sounders
Silence Buzzer	Used to silence the internal buzzer in a fault or alarm condition
Reset	Used to reset the fire detection zone
Reset CIE	Used to reset the control panel
LED Test	Used to test all panel LED's

**Note that the controls can only be used after the code has been entered and the CONTROLS ENABLED (LED) is ON.**



## MOUNTING THE FIRE ALARM PANEL

The Premier EXPRO comes with cable entry point on the top edge of the control panel. It is strongly recommend that the PCB is removed before the entry holes are drilled. With the PCB removed it also makes it easier while fixing the back box to the wall.

## PLANNING CABLE ENTRY

Fig. 2 below shows the location of the fixing holes and cable entry points.

If any knockout is removed, but subsequently not used then it should be covered up.

The 230Vac Mains cable must be fed into the enclosure via one of the cable entries at the top right corner of the back box. (Refer to "Connecting the mains").

## FIXING THE ENCLOSURE TO THE WALL

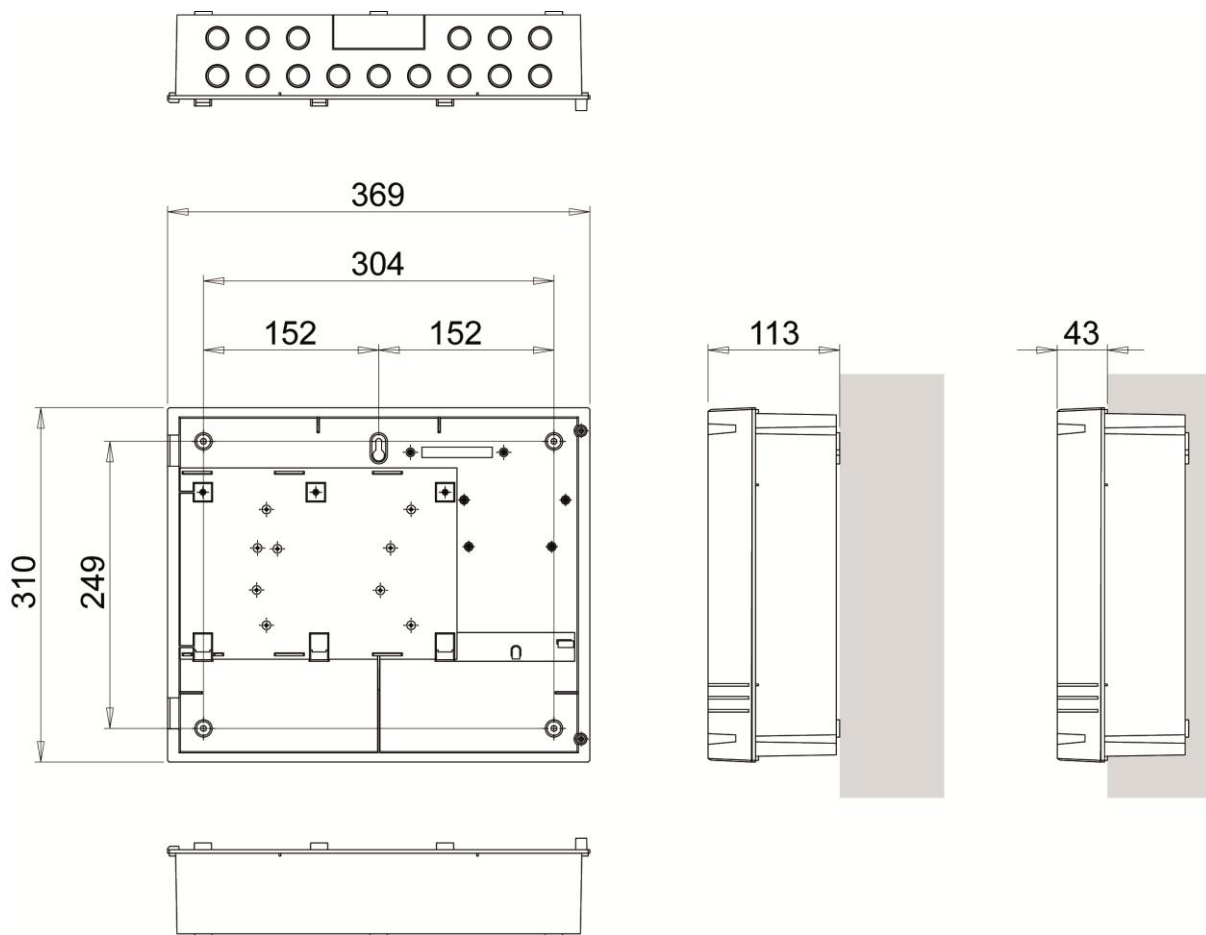


Figure 2. Plan View inside enclosure without the PCB and side view for surface installation

Check the build & condition of the wall to decide a suitable screw fixing. The mounting holes are designed for No. 8 rounded or countersunk woodscrews (or similar).

Remove any debris from the enclosure. Take care not to damage FACP during installation.

Secure the enclosure to the wall using the three mounting holes provided.

## ELECTRICAL CONNECTIONS

### CONNECTING TO THE MAINS

The mains supply to the panel is fixed wiring, using **Fire resisting** 2-core + screen cable (between 1mm<sup>2</sup> and 2.5mm<sup>2</sup>), 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".

There should be a Mains Disconnect Device (EG switch or fuse point) located near the fire alarm panel to allow a service engineer to power down the panel. It should be an isolating double pole switch with contact separation 3mm. The disconnect device should be marked "FIRE ALARM DO NOT SWITCH OFF". The supply must be exclusive to the fire panel.

The incoming mains cable should be fed through a cable gland secured to the entry hole closes to the mains termination. Inside the enclosure the mains cable should be connected to the Live (L) and Neutral (N) terminals on the power supply cage. The mains cable must not cross over the zone cables to help minimise mains interference.

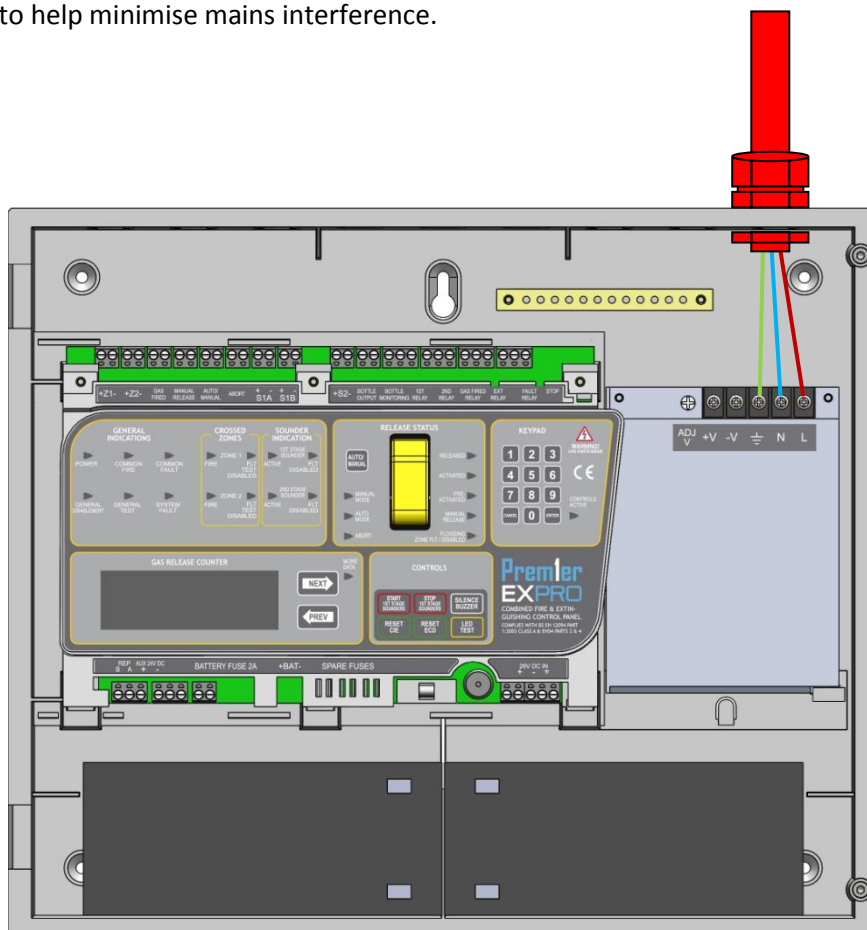


Figure 3. Wiring the mains connection

## CONNECTING THE BATTERIES

The Premier EXPRO requires 2 x 12V 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.

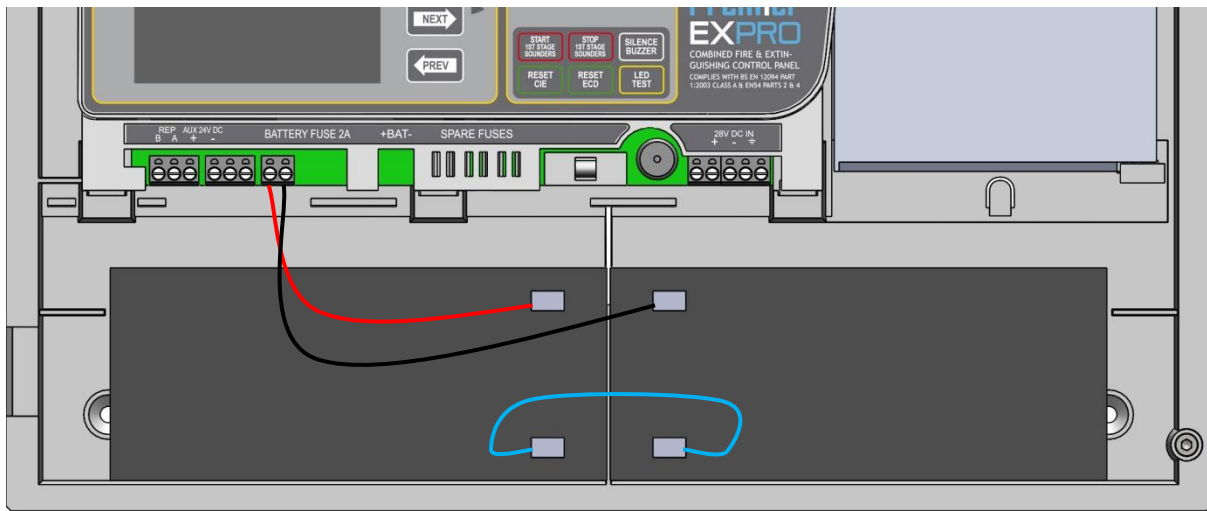


Figure 4. Wiring the battery

Although there are many sizes of suitable battery, the enclosure has been designed for 12V 7Ah. Use the battery calculation information later in this manual to work out the required standby battery size.

**CAUTION: risk of explosion if battery is replaced by an incorrect type. Dispose of batteries according to the instructions supplied, or local waste electrical equipment recycling regulations.**

## DETECTORS AND SOUNDERS

The detector and sounders must be connected using fire resisting 1.5mm<sup>2</sup> 2-core + screen cable. The screen of each detector and sounder circuit must be connected to one of the terminations of the earth bar, which is bolted to the back box, above the terminations PCB.

### WIRING THE DETECTORS

The detection zone on the Premier EXPRO are Co-occurrence (Double Knock) zones which use a 4.7KΩ end of line resistor. Up to two detectors can be connected to each zone. Call points can NOT be connected to these zones

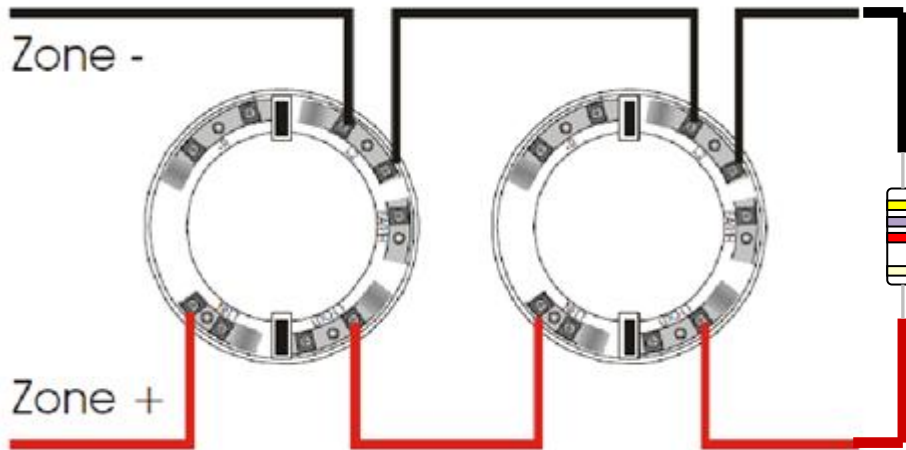


Figure 5. Wiring the detectors

### WIRING THE SOUNDERS

The Premier EXPRO has 2 first stage / fire sounder circuits, each rated at 150mA. Each sounder circuit must be fitted with 18KΩ end of line resistor. The EXPRO also has 1 x second stage sounder circuit rated at 250mA. This also uses an 18KΩ end of line resistor. This second stage sounder circuit is designed for an alarm device that gives a constant sound pattern (either sounder or bell) because it uses on/off sound patterns to indicate different gas release conditions.

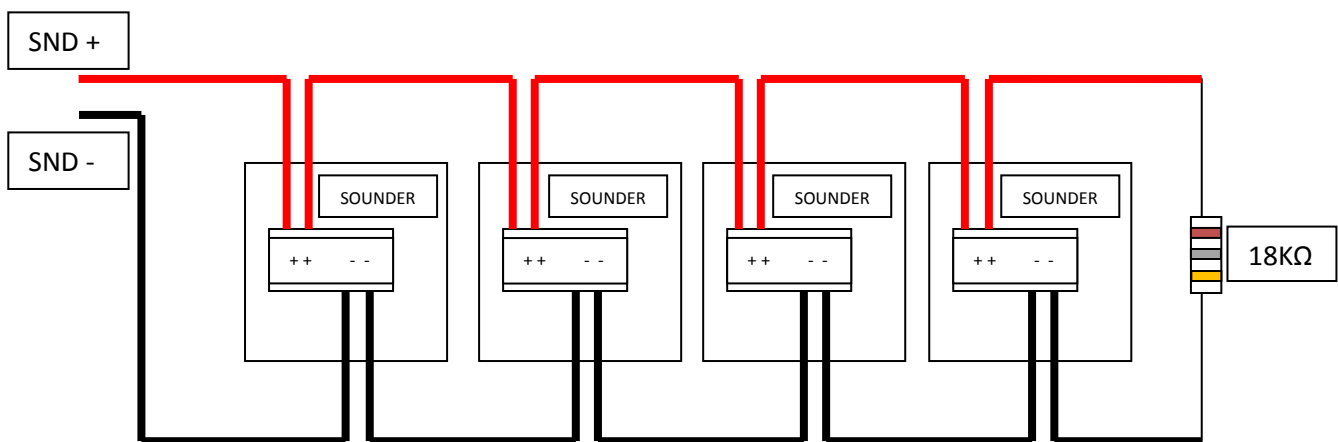


Figure 6. Wiring sounders

## OTHER CONNECTIONS

The Premier EXPRO also has the following connections:-

### FIELD MONITORING INPUTS

The EXPro has 5 field monitoring inputs:

- Gas Fired
- Manual Release
- Auto/Manual Mode
- Low Pressure
- Abort

The inputs are monitored for Open Circuit & Short Circuit. To activate the input, a load of 1K $\Omega$  must be switched between the +ve & -ve lines. If the equipment being connected has Normally Closed & Normally Open contacts, then connect the 18K $\Omega$  end of line resistor & the 1k $\Omega$  resistor as follows:-

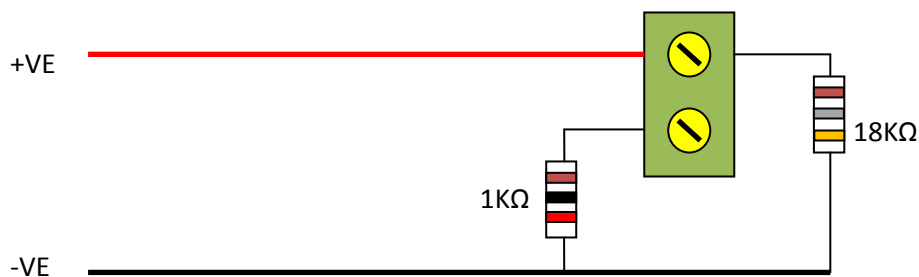


Figure 7. Wiring diagram for interfacing simple switched inputs

### 1<sup>ST</sup> STAGE & 2<sup>ND</sup> STAGE FIRE RELAYS

The Premier EXPRO has one first stage & one second stage volt free change over relay that operates on an alarm. It is rated at 1amp, SELV. The relay remains operated until the panel has been reset.

### FAULT RELAY

The Premier EXPRO has one volt free change over relay that operates on any fault condition. The relay is normally energised, so that it gives a signal in the event of total power failure (mains & battery backup). It is rated at 1amp, SELV. The relay remains operated until the fault has been cleared.

## BOTTLE OUTPUT

The bottle output on the Premier EXPRO is used to drive a gas release solenoid. It is fused @ 1amp.

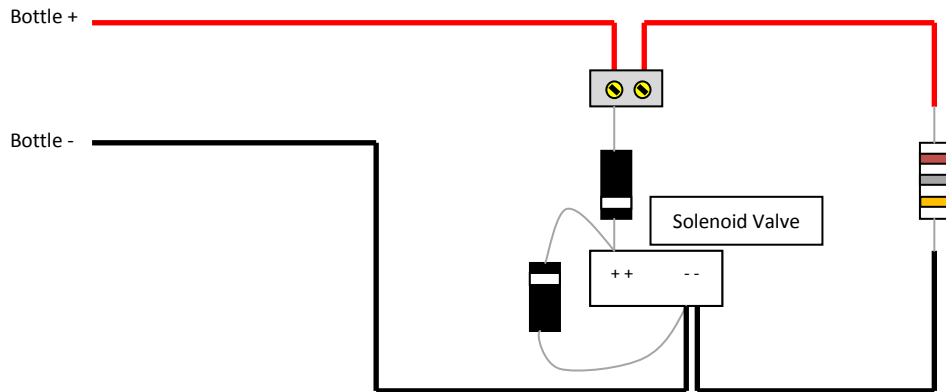


Figure 8. Wiring diagram for the solenoid valve (Bottle output)

## EXTERNAL EQUIPMENT RELAY

The Premier EXPRO has one volt free change over relay that operates AFTER the reset inhibit counter has finished. It remains active for 3 minutes, or until the reset button is pressed. It is rated at 1amp, SELV. This would normally be used for a ventilation fan.

## PANEL MENUS

To access the panel requires the user code to be entered (the default code is 2222). Once the Controls Active LED is on you will now be able to start and stop the first stage sounders, reset, silence the inter buzzer and access the relays configuration menu.

Press enter and you will then see a list of menu options:

1. Zone
2. Logs
3. Disable
4. Test
5. Engineer
6. Relays
7. Change Time

**Zone:** This menu allows the user /engineer to view the following information:

```
*** Zone Viewing ***
Zone 1
Normal
Voltage Lvl: 17.3v
```

**Logs:** The Log can store up to 100 events

```
*** LOG ***
12:00 05/02
Man. Release Active
01/95
```

**Disable:** Allows the user/engineer to disable each of the inputs and outputs on the panel

```
*DISABLEMENT MENU*
Low Pressure input
ENABLED
```

Use the **NEXT** and **PREV** button to cycle through items that can be disabled, pressing **OK** toggles the item between the enabled/disabled states:

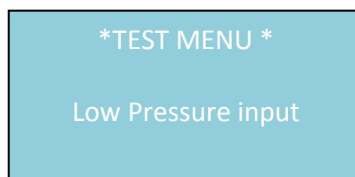
Zone 1	Prevents the panel from responding to an alarm in zone 1
Zone 2	Prevents the panel from responding to an alarm in zone 2
Gas Fired input	Prevents the panel from responding to the gas fired signal
Manual release	Prevents the panel from responding to a manual release

Auto Manual	Prevents the external switching between auto and manual mode. Switching between auto and manual mode can still be done from the panel.
Abort Input	Disables the Abort input. The panel will not enter the alarm condition if the abort input is disabled.
Low Pressure Input	Prevents the panel from responding to a low pressure signal.
Sounder 1A	Disables sounder 1A
Sounder 1B	Disables sounder 1B
Sounder 2	Disables the second stage sounder. The panel will not enter the alarm condition if the second stage sounder is disabled.
Bottle Output	Disables the bottle output. The panel will not enter the
External Fan	Disables the output to the external fan

When an item is disabled the GENERAL DISABLEMENT LED will light, along with the corresponding FLT/TEST/DISABLED LED.

Press CANCEL to exit out of the disablement menu, the item will remain disabled until it is manually re-enabled.

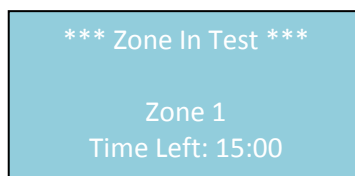
**Test:** Allows the user/engineer to put an input or output into test mode.



Use the **NEXT** and **PREV** button to cycle through items that can be placed in test mode, pressing **OK** puts the input into test mode.

When an input or output is in test mode the panel will indicate if it has been activated, but is prevented from entering the normal sequence of events (such as activating sounders or bottle output) associated with that input.

**Note:** Only one input/output can be programmed in test mode at any one time.



The panel will automatically exit from a test condition after 15 minutes. The test condition can be manually exited from the test menu.



**Change Time:** Allows the user / engineer to set the system clock.

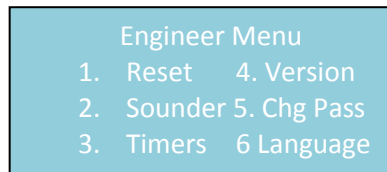


## CONFIGURING THE PANEL

The Premier EXPRO has been designed to be easy to set up. Zones 1 & 2 are configured as a double knock pair, so do not need to be configured as such.

### ENGINEERING MENU

Accesses the engineering menu, the engineering menu requires the engineers' password to be entered (default 1111). The CONTROLS ACTIVE LED will flash when access has been granted.

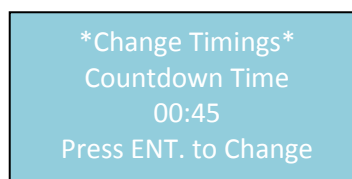


### TIMERS

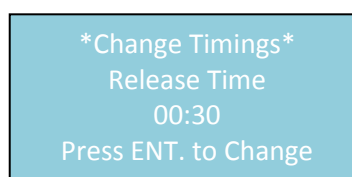
There are 5 timers to set:

- Countdown Timer
- Release Timer
- Reset Inhibit Timer
- EXT. Fan Delay Timer
- Fan Timer

**The Countdown Timer** is the delay between the receipt of a second stage alarm, and the gas being released. It can be set from 0 to 60 seconds in 1 second increments. To setup the countdown time enter the engineers menu by selecting option 5. Then select option 3, and press next to view the countdown time, now press enter to edit the time. Using the keypad enter the time required and press enter to save the new time. **The default setting is 30 seconds**

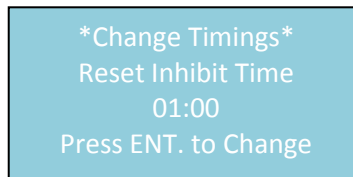


**The Release Timer** determines how long the bottle output remains active. The bottle output will then shut off because it is no longer needed. This will prevent unnecessary power drain. It can be set from 10 to 300 seconds in 1 second increments. To set the release time enter engineers menu option 5, Then as for the countdown timer select option 3 timers and press the next key until the Release timer option is shown. Press enter to set the release time using the keypad and then press enter to save the new time.



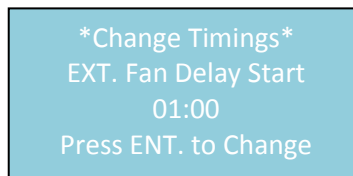
The release timer can be set such that it does not automatically timeout by changing the release time to 99:99 (the display will change to 100:39). An unlimited release must be manually reset by using the external abort input or by resetting the panel (Reset CIE) after the reset inhibit timeout.

**The Reset Inhibit Timer** prevents the panel being reset immediately after a release. This prevents a panel from being reset, so that the system can be investigated by the responsible person to determine the cause of the release. It can be set from 0 to 30 minutes. To set the reset inhibit timer press enter option 5, Then as for the countdown timer select option 3 timers and press the next key until the Reset inhibit timer option is shown. Press enter to set the Reset inhibit time using the keypad and then press enter to save the new time.



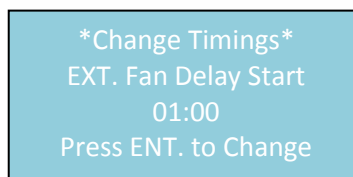
\*Change Timings\*  
Reset Inhibit Time  
01:00  
Press ENT. to Change

**Ext. Fan Delay Timer** delays the start of the extract fan, so that it will not start the extraction while the extinguishing sequence is active. To set the Ext Fan Delay Timer



\*Change Timings\*  
EXT. Fan Delay Start  
01:00  
Press ENT. to Change

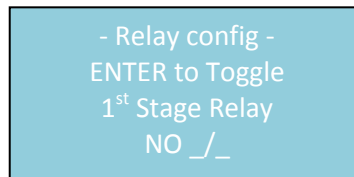
**Fan Time** is the time the fan will run for once it has been started. The timer is set in the same way as the other timers.



\*Change Timings\*  
EXT. Fan Delay Start  
01:00  
Press ENT. to Change

## RELAYS MENU

The relays menu allows the user/engineer to set the normal condition of the output relays.



The relay outputs can be set between normally open (NO, default) and normally closed (NC).

The on-board relays that can be configured in this manner are 1<sup>st</sup> stage relay, 2<sup>nd</sup> stage relay, Gas Fired relay, and External Fan.

The relays for the external add-on cards (where available) can also be configured: Reset, Auto mode, Manual mode, Gas fired, Abort, 1<sup>st</sup> stage, 2<sup>nd</sup> stage, and Extractor fan

The panel must be powered to hold a relay output in the normally closed (NC) position, the installation engineer must therefore consider if it is acceptable for an output to be activated (switched to the normally open condition) in the event of the panel experiencing a total power failure.

## RESET MENU

### RESET LOGS

This option allows the engineer to reset the event logs. To do this select option 1, you will then see the following options:

1. Yes
2. No
3. Factory Reset

By pressing option 1, the event log will be deleted. The following message will be displayed on the LCD, "ALL EVENTS DELETED".

If option 2 is selected then the display will revert back to the Engineers Menu.

### RESET TIMINGS

This option will reset all panel timers back to the factory defaults.

### FACTORY RESET

Pressing option 3 will reset the panel back to factory default, and the following message will be displayed on the LCD "BACK TO FACTORY".

### SOUNDER

The EXPRO has two sounder sequences, Standard and Brazilian. In most instances the Standard sounder sequence should be used, the Brazilian option is provided to comply with local Brazilian regulations.

#### Standard

1 <sup>st</sup> stage	1 <sup>st</sup> stage sounders on
2 <sup>nd</sup> Stage	1 <sup>st</sup> stage sounders on, 2 <sup>nd</sup> stage sounders pulsed
Release condition	1 <sup>st</sup> and 2 <sup>nd</sup> stage sounders on

#### Brazilian

1 <sup>st</sup> stage alarm	1 <sup>st</sup> stage sounders on
2 <sup>nd</sup> stage alarm	1 <sup>st</sup> and 2 <sup>nd</sup> stage sounders on
Release condition	1 <sup>st</sup> and 2 <sup>nd</sup> stage sounders on

### VERSION

This menu display's the current software in the panel

### CHANGE PASSWORD

In this menu the engineer is able to change the current passwords (User or Engineer). To change the passwords:

1. Access Level 2. By pressing option 1 you will be asked to enter the new password and then press enter. Enter the new password again and press enter. Access level 2 has now been changed.
2. Access Level 3. Follow the same steps as for access level 1.

### LANGUAGE

This option allows the current language to be changed. Please contact the manufacture for available options.

## PANEL OPERATION

### NORMAL OPERATION

With the controls inactive, under normal conditions the system will be silent and the green "POWER LED" illuminated. The LCD will display "SYSTEM NORMAL"

The system may either be in "Automatic" or "Manual" mode of operation. This will be evident by the illumination of either the "Automatic" or "Manual" LED. In Manual Mode, the bottle output will not be activated automatically. It must be started manually by pressing a manual release call point.

### FIRE ALARM CONDITION

The Premier EXPro 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 First Stage (fire) relay. (Note that the first stage repeater output will not activate. This only operates on an alarm from one of the crossed zones)

### 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 suitably trained 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 EXPro fire alarm panel can be reset by the following:-

1. Gain user access to the panel by entering the password (default 2222)
2. Press Start/Stop 1<sup>st</sup> Stage Sounder button, this will silence the external sounders.
3. Press Silence Buzzer button. This will silence the panel's internal buzzer.
4. Press the Reset button. 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. 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.

## MANUAL EVACUATION

The first stage sounders can be started by activating the controls and pressing the START/STOP 1<sup>st</sup> Stage Sounder Button. The first stage relay is NOT operated by this action. The common fire & first stage sounder active LEDs will light.

## FIRST STAGE ALARM

On detection of a "FIRE" in either Zone 1 or Zone 2, the zone fire LED will be illuminated and the internal buzzer will be on. The first stage LED and first stage sounder will be on. The first stage relay output will be active. The first stage repeat output will also be active.

To silence the sounder, activate the controls, and press S TART/STOP 1<sup>st</sup> Stage Sounder Button. The panel's internal tone and fire LEDs will remain active until the cause of the alarm has been removed, and the panel has been reset

A first stage alarm can be silenced & reset when the panel is in automatic or manual mode.

## SECOND STAGE ALARM

As soon as a "FIRE" is detected in the second Zone, the second stage alarm is initiated.

The second stage sounder will be pulsed on for 1 second, then off for 1 second. This will be repeated as the timer counts down. The two-zone alarm LEDs will be illuminated as well as first stage alarm, second stage alarm and Activated LEDs.

The second stage cannot be silenced and after a delay period, (user programmable) the extinguishing output will be initiated releasing the extinguishing agent, and the second stage sounder will now be on constantly.

This will be followed by the "GAS FIRED" indication, indicating that the extinguishing agent has been released.

Once the second stage alarm has been initiated, it is advisable to evacuate and Seal the protected area prior to the release of the extinguishing agent. Operation of the "Manual Release" call point will initiate the second stage alarm. Lift the flap and push the switch up to activate.

A second stage alarm can only be silenced & reset when the panel is in manual mode.

## ABORT A SECOND STAGE ALARM

If the abort input is used, the panel will abort the gas release, and the panel will need to be reset. Note that after the pre-release timer has finished, and the bottle output has activated, the abort input will have no effect.

## MANUAL MODE

In this mode operation, Zone Fire and Fault alarms are still in operation, and first & second stage sounders will operate, but the bottle output to the extinguishing agent will not operate.

## RESET

To reset panel from a first stage alarm condition, activate the controls and press START/STOP SOUNDERS, followed by SILENCE BUZZER, then RESET.

If the panel enters the second stage alarm (while in automatic mode), the panel cannot be reset until the bottle output has operated, and the reset inhibit timer has ended.

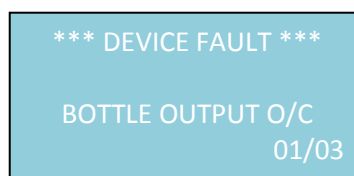
The panel can NOT be reset from a fault condition. All faults are non latching, so when a fault clears from the panel it will be automatically cleared from the display.

In the event of an alarm in the peripheral fire zones & crossed extinguishing zones simultaneously, the reset button can be used to reset the peripheral zones, but won't have an effect on the extinguishing zones until the reset inhibit timer has ended.

## FAULTS

When a fault is detected the relevant LED will illuminate and the buzzer will sound. The LCD will display details of the fault(s) and show each detected fault in turn. Enable the controls and press the Silence Buzzer button to silence the panel.

Press the NEXT and PREV buttons to manually cycle through the list of faults, the display will show the number of faults in the lower right corner.





## BATTERY CALCULATION

### DEVICE CURRENT CONSUMPTION

#### EXPRO PANEL IN VARIOUS STATES

State	Current Consumption
Mains fail, Buzzer silenced	52mA
Mains fail, Buzzer active	57mA
Mains failed, 1 <sup>st</sup> Stage Alarm	110mA
Mains failed, 2 <sup>nd</sup> Stage Alarm	150mA
Bottle released, Gas fired	167mA

#### EXPANSION BOARDS

Option	Current Consumption
For each activated relay	12mA
3-relay expansion board (Standard)	40mA Max
8-relay expansion board (Optional)	100mA Max

#### EXTERNAL DEVICES

Item	Quiescent	Alarm
Optical	100uA	35mA
Heat	50uA	35mA
Maxitone Sounder	0mA	25mA

### DETERMINING BATTERY SIZE

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

$$\text{Minimum battery Size} = 1.25 \times [(T_{\text{ALM}} \times I_{\text{ALM}}) + (T_{\text{SBY}} \times I_{\text{SBY}}) + (T_{\text{BOT}} \times I_{\text{BOT}})]$$

Where:

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

$I_{\text{ALM}}$  = Total alarm current in amps for all devices connected to the alarm circuits

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

$I_{\text{SBY}}$  = Quiescent current in amps of control panel in fault condition [because of mains failure].

$T_{\text{BOT}}$  = Minimum time in hours required for the bottle output

$I_{\text{BOT}}$  = Total current drawn by equipment connected to the bottle output

## EXAMPLE BATTERY SIZE CALCULATION

Consider a system consisting of:

- 4x 1<sup>st</sup> stage alarm Maxitone sounders
- 4x 2<sup>nd</sup> stage alarm Maxitone sounders
  
- The system requires a 48hour standby time
- The first stage alarm sounds for a minimum of 30 minutes
- The bottle output activates 1A for 5 minutes

$$\begin{aligned} I_{\text{SBY}} &= 57\text{mA} \\ &= 0.057\text{A} \end{aligned}$$

$$T_{\text{SBY}} = 48\text{h}$$

$$\begin{aligned} I_{\text{ALM}} &= \text{Premier EXPro Alm} + 8\text{x Maxitone Sounder} + 1 \text{ detector in alarm} \\ &= 110\text{mA} + (8 \times 25\text{mA}) + 40\text{mA} \\ &= 0.110\text{A} + 0.2\text{A} + 0.04\text{A} \\ &= 0.35\text{A} \end{aligned}$$

$$T_{\text{ALM}} = 0.5\text{h}$$

$$I_{\text{BOT}} = 1\text{A}$$

$$T_{\text{BOT}} = 0.084\text{h (5 minutes)}$$

$$\begin{aligned} \text{Battery size} &= 1.25 \times [(I_{\text{Q}} \times T_{\text{Q}}) + (I_{\text{ALM}} \times T_{\text{ALM}}) + (I_{\text{BOT}} \times T_{\text{BOT}})] \\ &= 1.25 \times [(0.057 \times 48) + (0.35 \times 0.5) + (0.084 \times 1)] \\ &= 1.25 \times [2.736 + 0.175 + 0.042] \\ &= 1.25 \times 2.953 \\ &= \mathbf{3.69\text{Ah}} \end{aligned}$$

7.2Ah batteries would be suitable for this installation

## CONNECTIONS

The following figures show the connections for the EXPro

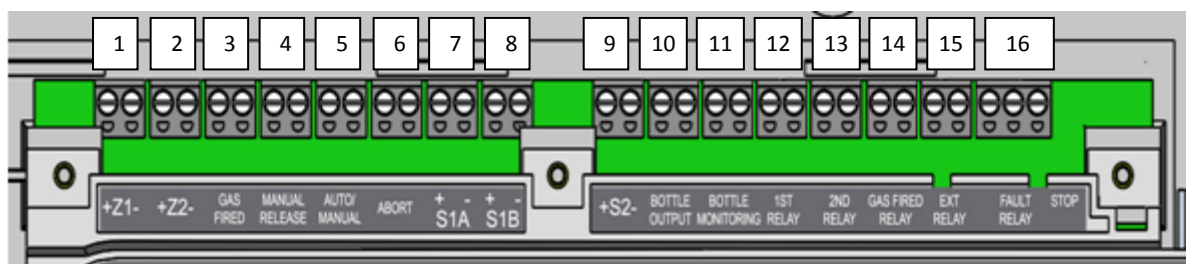


Figure 9. Top connections

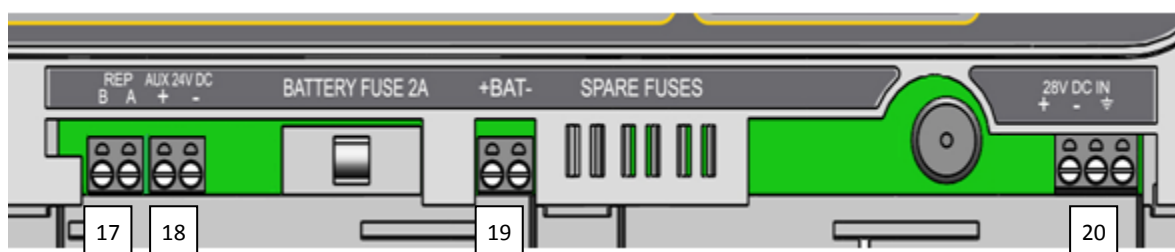


Figure 10. Bottom connections

## TERMINAL DESCRIPTION

Connection	Label	Description
1	Zone 1	First Crossed Zone
2	Zone 2	Second Crossed Zone
3	Gas Fired	Gas Fired Input (from bottle)
4	Manual Release	Manual Release Input (to manual release MCP/SWITCH)
5	Auto / Manual	Automatic / Manual Mode Input
6	Abort	Abort Input
7	S1A	First Stage Sounder Circuit A
8	S1B	First Stage Sounder Circuit B
9	S2	Second Stage Sounder Circuit
10	Bottle Output	To Bottle Solenoid
11	Bottle Monitoring	Low Pressure Input
12	1 <sup>st</sup> Stage Relay	First Stage Relay Contacts
13	2 <sup>nd</sup> Stage Relay	Second Stage Relay Contacts
14	Gas Fired Relay	Gas Released Confirmation Relay
15	EXT Relay	External Equipment Relay
16	Fault Relay	Fault Relay Normally Energised
17	REP B A	RS485 Connection
18	AUX 24VDC	Auxiliary 24VDC output (200mA)
19	+BAT-	Battery
20	24VDC IN	24V DC Main Power

## PANEL SPECIFICATION

### ENCLOSURE SPECIFICATION

Description	Value
Enclosure Size (L x W x D mm)	310 x 369 x 113
Top Cable Entries	20

### ELECTRICAL SPECIFICATIONS

Electrical Description	Value
Mains Voltage	230 / 115 VAC +10% -15% 50-60Hz
Battery Voltage	2 x 12V SLA (27.6VDC @ 20°C) (3.4Ah – 7Ah)
Power Supply	Non-Integral (Switch Mode) DC output: Vmax = 31.5V, Vmin = 17.0V Imax A: 2.5A
CIE DC Input Voltage	21.5V-31.5V DC ( 29.9V DC Nominal)
Charger Voltage	27.6V
Charger Capacity	3.4Ah to 7.2Ah
Battery Deep Discharge Protection	Battery Shutdown at <19.5V
Number of Zones	2 Crossed Zones
Maximum devices per zone	2
1 <sup>st</sup> Stage Sounder Alarm Outputs	2x 150mA @ 29.5V DC (Nominal)
2 <sup>nd</sup> Stage Sounder Alarm Outputs	1x 250mA @ 29.5V DC (Nominal)
Bottle Output	1x 1A @ 29.5V DC (Nominal)
1 <sup>st</sup> Stage Relay Output	1 x Volt Free Relay SELV, 1A Max
2 <sup>nd</sup> Stage Relay Output	1 x Volt Free Relay SELV, 1A Max
Gas Fired Relay Output	1 x Volt Free Relay SELV, 1A Max
Ext Relay Output	1 x Volt Free Relay SELV, 1A Max
Aux Output	1x 200mA @ 29.5V DC (Nominal)

### FUSE RATINGS

Fuse	Description	Rating
Battery	Battery Protection Fuse	2A fast blow, glass 250V

For continued protection, please ensure that any fuses that need to be replaced are replaced with fuses of the correct rating.

## DESIGN SPECIFICATIONS

The Premier EXPro is a combined extinguishing control panel & fire alarm control panel.

The Fire Alarm control Section has been designed in accordance with EN54-2:1998 A1 + A2 - Fire Detection & Fire Alarm Systems – Control & Indicating Equipment

The Extinguishing control section has been designed in accordance with BSEN12094-1:2003 – Fixed Fire fighting Systems – Components for Gas Extinguishing Systems – Requirements and Test Methods for Electrical Automatic Control & Delay Devices

The Power Supply Section has been designed in accordance with EN54-4:1998 A1 + A2 - Fire Detection & Fire Alarm Systems – Power Supply Equipment

### FIRE ALARM CONTROL SECTION.

As well as meeting the requirements of EN54-2:1998 A1 + A2, the Premier EXPro also has the following options with requirements:-

Clause 7.8 Output to fire alarm devices (Option with requirements)

Clause 10 Test Condition (Option with requirements)

### EXTINGUISHING CONTROL SECTION.

As well as meeting the requirements of BSEN12094-1:2003 the Premier EX8 also has the following options with requirements:-

Clause 4.17 Delay of extinguishing signal (Option with requirements)

Clause 4.18 Signal representing the flow of extinguishing agent (Option with requirements)

Clause 4.21 Control of flooding time (Option with requirements)

Clause 4.23 Manual Only Mode (Option with requirements)

Clause 4.26 Triggering of equipment outside the system (Option with requirements)

Clause 4.27 Emergency Abort Device (Option with requirements)

Clause 4.30 Activation of alarm devices with different signals (Option with requirements)

The extinguishing control section also has the following ancillary functions not required by the

Standard:-

- Serial repeater output
- Automatic mode relay
- Manual only mode relay
- Abort relay
- First Stage Alarm Relay (common with fire alarm section)
- Second stage alarm relay
- Gas Fired Relay