Prem1er EXPRO

INSTALLATION MANUAL

Contents

INTRODUCTION

THIS EXTINGUISING CONTROL PANEL IS CLASS 1 EQUIPMENT AND <u>MUST</u> 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.

ABOUT THE EXPRO

The Premier EXPRO is a 2 zone, 1 area extinguishing panel. It is designed to operate in Environmental Class A (temperature range of - 5 °C to + 40 °C)

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.
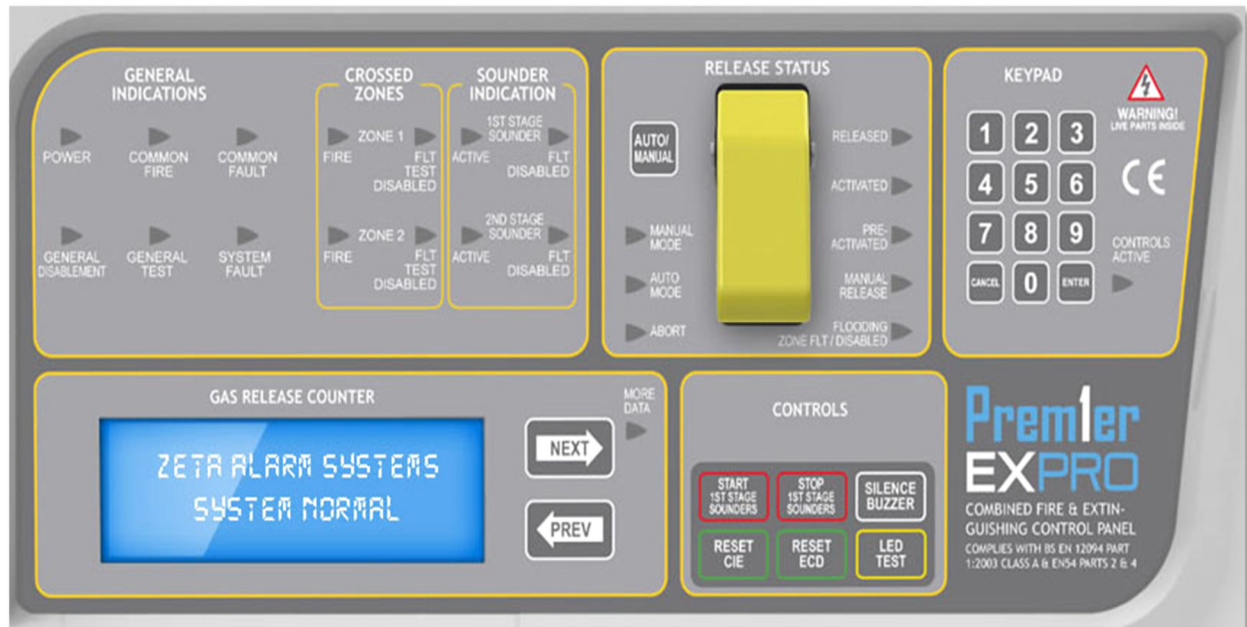
Figure 1. EXPro fascia layout

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 249 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 1st Stage Alarm	Red	Indicates when zone 1 or zone 2 is in an alarm condition
Active 2nd Stage Alarm	Red	Indicates when zone 1 or zone 2 is in an alarm condition
1st Stage FLT/TEST/DIABLED	Yellow	Indicates 1st stage status when lit
2nd 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 1st and 2nd 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 1st Stage Sounders	Used to start the 1st stage sounders
Stop 1st Stage Sounders	Used to silence the 1st 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

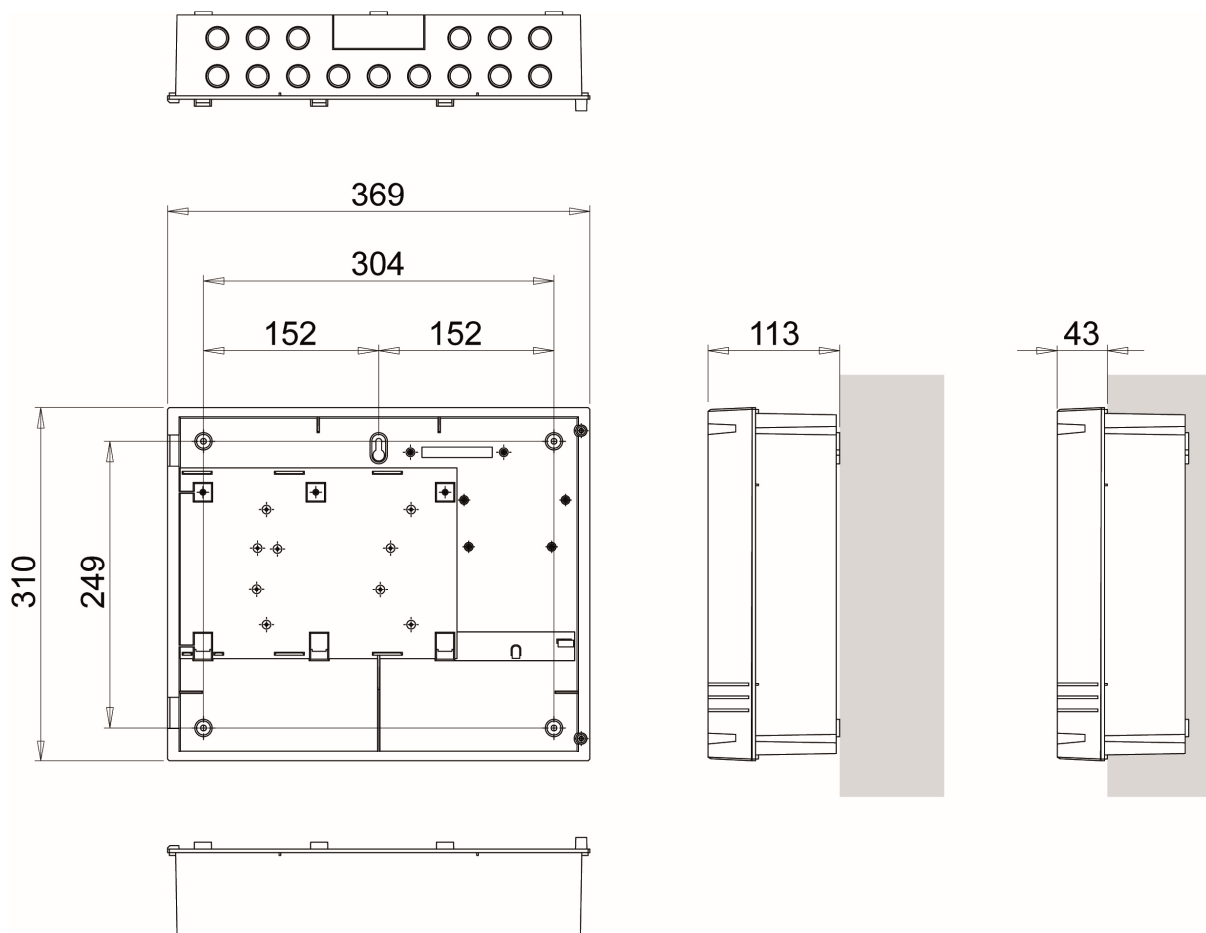Figure 2. Plan View inside enclosure without the PCB and side view for surface installation

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 1mm² and 2.5mm²), 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.
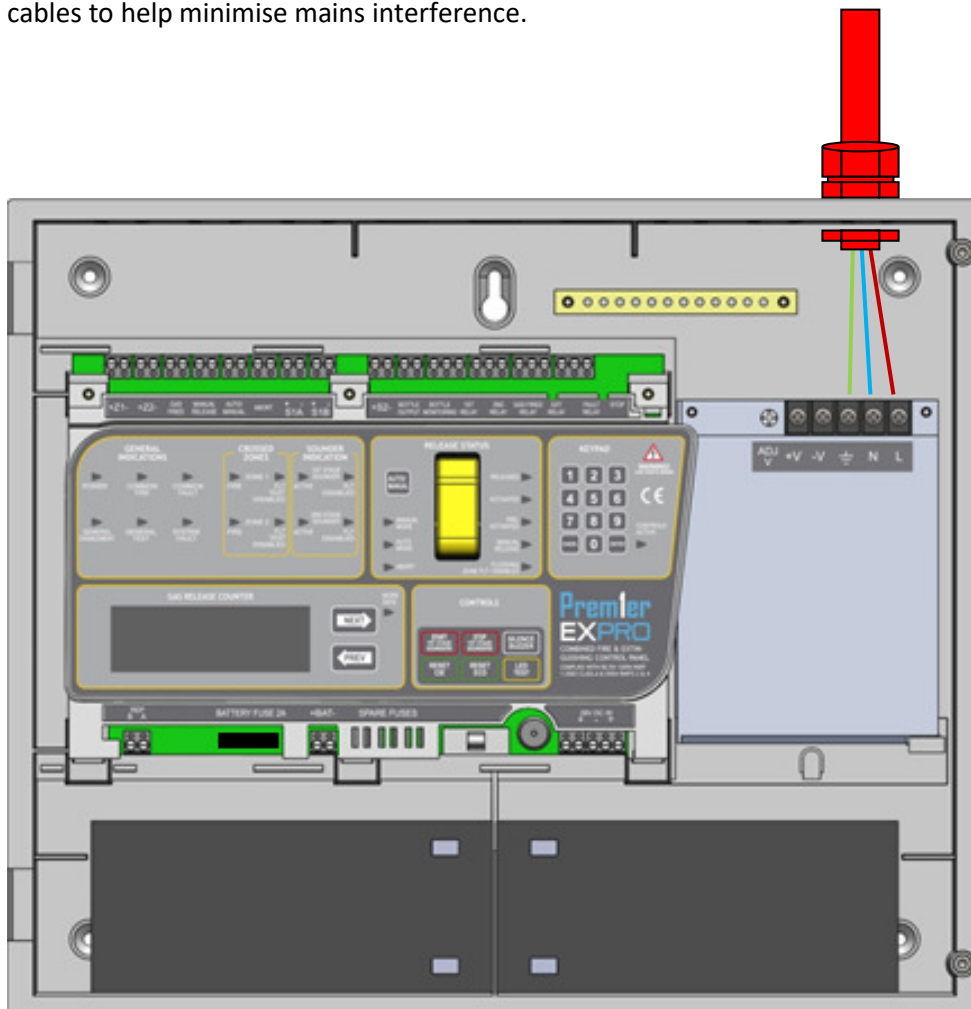
Figure 3. Wiring the mains connection

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

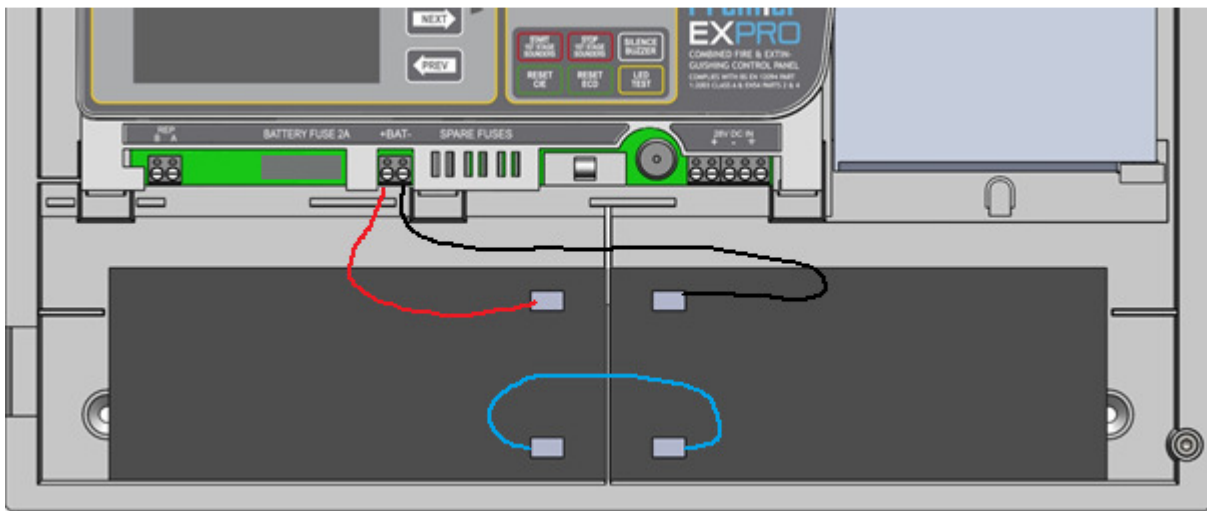The detector and sounders must be connected using fire resisting 1.5mm² 2-core + screen cable. The screen of each detector and sounder circuit must be connected to one of the terminations of the earth bar, which is bolted to the back box, above the terminations PCB.

WIRING THE DETECTORS

The detection zone on the Premier EXPRO are Co-incidence (Double Knock) zones which use a 4.7KΩ end of line resistor. Call points can NOT be connected to these zones. A maximum of 32 detectors can be fitted to a zone.
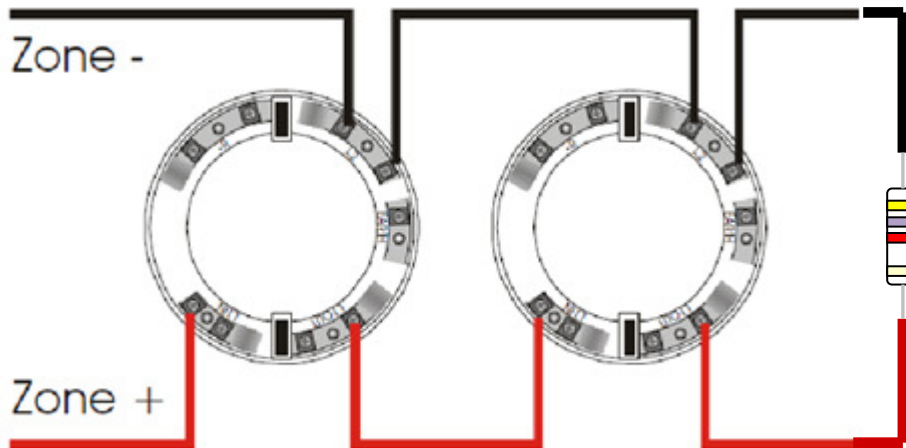
Figure 5. Wiring the detectors

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.
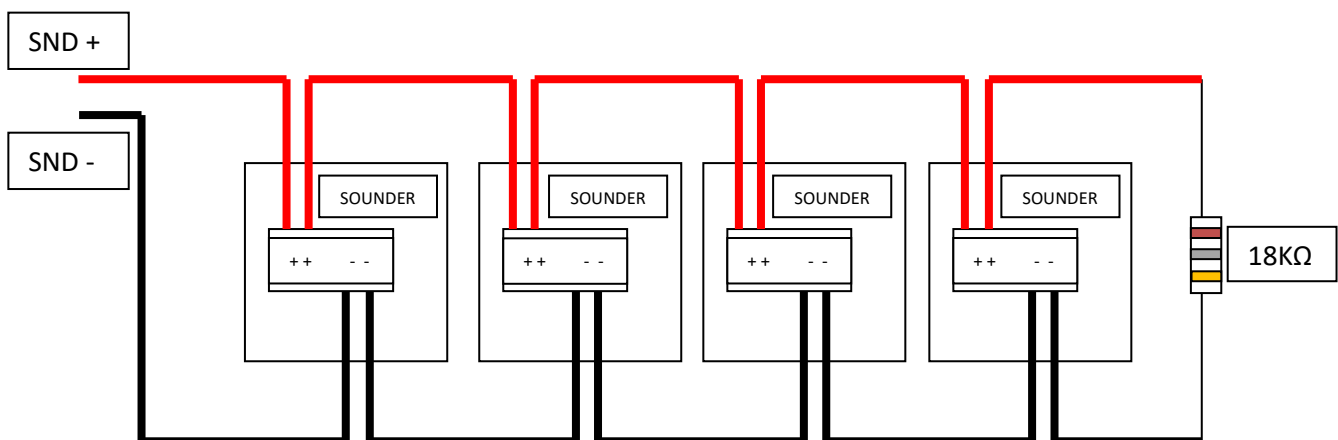
Figure 6. Wiring sounders

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 1KΩ must be switched between the +ve & -ve lines. If the equipment being connected has Normally Closed & Normally Open contacts, then connect the 18KΩ end of line resistor & the 1kΩ resistor as follows:-
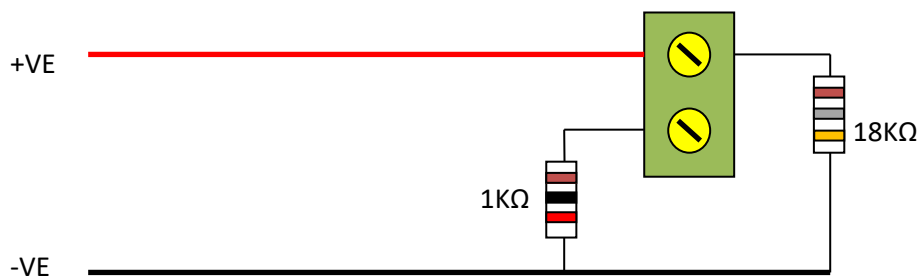
Figure 7. Wiring diagram for interfacing simple switched inputs

1ST STAGE & 2ND 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.
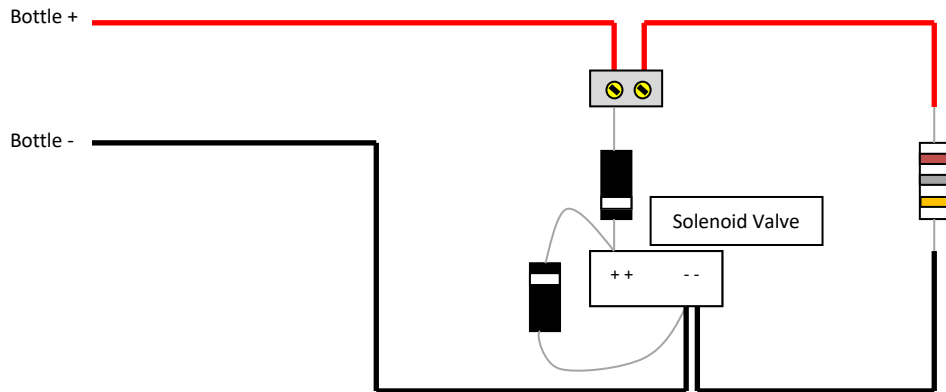
Figure 8. Wiring diagram for the solenoid valve (Bottle output)

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 the time preset through the timers menu (default 2.5 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: 3 V
```

The voltage is an internal reference, not the actual voltage measured on the terminals. Expected values are:-

Connection	Quiescent	Open Circuit	Short Circuit	Alarm / Active
Detector Zone	3V	0V	30V	15V (560R Trigger)
Monitored Input	3V	0V	30V	20V (1K Trigger)
Sounder	16V	23V	9V	0V
Bottle Output	21V	32V	0V	32V

Logs: The Log can store up to 249 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
```
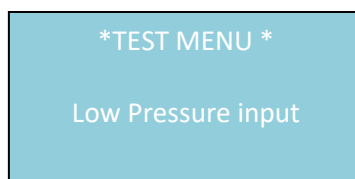
Use the **NEXT** and **PREV** button to cycle through items that can be disabled, pressing **OK** toggles the item between the enabled/disabled states:

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 Activated condition if the second stage sounder is disabled.
Bottle Output	Disables the bottle output. The panel will not enter the Activated condition if the bottle output is disabled.
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.

*TEST MENU *

Low Pressure input

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.

```
*** Zone In Test ***

Zone 1
Time Left: 15:00
```
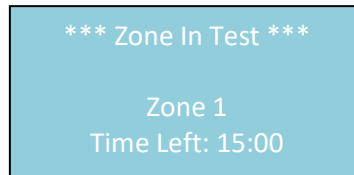
The panel will automatically exit from a test condition after 15 minutes. The test condition can be manually exited from the test menu.

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

```
SET UP TIME

12:00
```
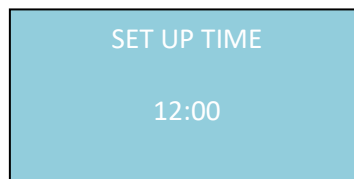
CONFIGURING THE PANEL

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.

```
        Engineer Menu
   1.   Reset    4. Version
   2.   Sounder 5. Chg Pass
   3.   Timers   6 Resound
```
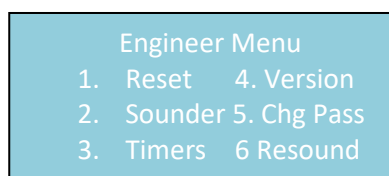
TIMERS

There are 5 timers to set:

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

The Diagram below shows how the Start & stop times are related
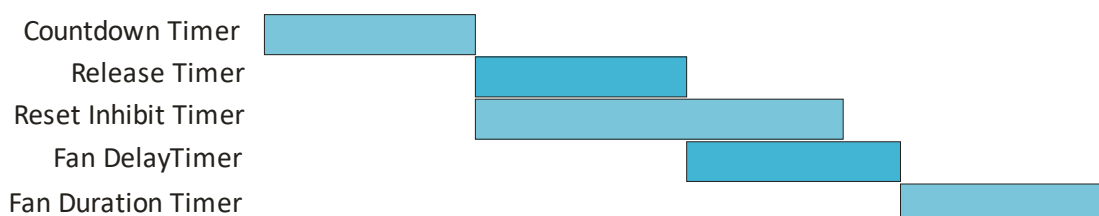
The Countdown Timer is the delay between the receipt of a second stage alarm, and the gas being released. It can be set from 0 to 60 seconds in 1 second increments. To setup the countdown time enter the engineers menu by selecting option 5. Then select option 3, and press next to view the countdown time, 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**

```
       *Change Timings*
        Countdown Time
            00:45
      Press ENT. to Change
```
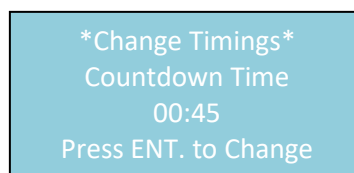
The Release Timer determines how long the bottle output remains active. The bottle output will then shut off because it is no longer needed. This will prevent unnecessary power drain. It can be set from 10 to 300 seconds in 1 second increments. To set the release time enter engineers menu

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.

```
        *Change Timings*
         Release Time
            00:30
       Press ENT. to Change
```

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*
           Fan Time
            02:30
       Press ENT. to Change
```

RELAYS MENU

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

```
- Relay config -
ENTER to Toggle
1st Stage Relay
NO _/_
```
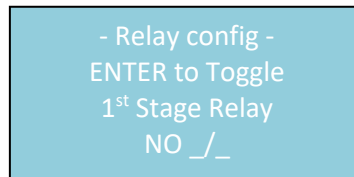
The relay outputs can be set between normally open (NO, default) and normally closed (NC).

The on-board relays that can be configured in this manner are 1st stage relay, 2nd 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, 1st stage, 2nd 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
1st stage	1st stage sounders on
2nd Stage	1st stage sounders on, 2nd stage sounders pulsed
Release condition	1st and 2nd stage sounders on

Brazilian
1st stage alarm	1st stage sounders on
2nd stage alarm	1st and 2nd stage sounders on
Release condition	1st and 2nd 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.

RESOUND

This option allows the installer to select whether silenced first stage sounders will resound if there is a second alarm.

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, e.g. 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 1st 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 1st 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 START/STOP 1st 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.

```
*** DEVICE FAULT ***

BOTTLE OUTPUT O/C
                01/03
```
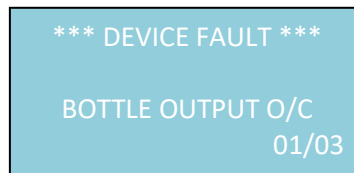
ACCESS LEVELS

Access level	Accessed by	Access method	Functions accessed
1	General public	Default state	View panel LED test Manual release
2	Responsible person	User level password (default: 2222)	Start/stop sounders Silence buzzer Reset panel Disable sections of the system Put the panel into test mode Set the default relay states View logs
3a	Installer/engineer	Engineer level password (default: 1111)	Reset logs and/or panel configuration Set sounder locale Set timers Check software version Change passwords Change language
3b	Installer/engineer	Open enclosure	Connect wiring during install Battery check during maintenance Reset system fault
4	Authorised service engineer	Open enclosure and use of appropriate programming tool	Update firmware

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, 1st Stage Alarm	110mA
Mains failed, 2nd 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:-

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

T_{ALM} = Minimum time in hours required for the alarm [½ hour is most common time]

I_{ALM} = Total alarm current in amps for all 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].

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

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

EXAMPLE BATTERY SIZE CALCULATION

Consider a system consisting of:

- 4x 1st stage alarm Maxitone sounders
- 4x 2nd 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

I_{SBY}	= 57mA
	= 0.057A
T_{SBY}	= 48h
I_{ALM}	= Premier EXPro Alm + 8x Maxitone Sounder + 1 detector in alarm
	= 110mA + (8 x 25mA) + 40mA
	= 0.110A + 0.2A + 0.04A
	= 0.35A
T_{ALM}	= 0.5h
I_{BOT}	= 1A
T_{BOT}	= 0.084h (5 minutes)
Battery size	**= 1.25 x [(I_Q x T_Q) + (I_{ALM} x T_{ALM}) + (I_{BOT} x T_{BOT})]**
	= 1.25 x [(0.057 x 48) + (0.35 x 0.5) + (0.084 x 1)]
	= 1.25 x [2.736 + 0.175 + 0.042]
	= 1.25 x 2.953
	= 3.69Ah

7.2Ah batteries would be suitable for this installation

CONNECTIONS

The following figures show the connections for the EXPro

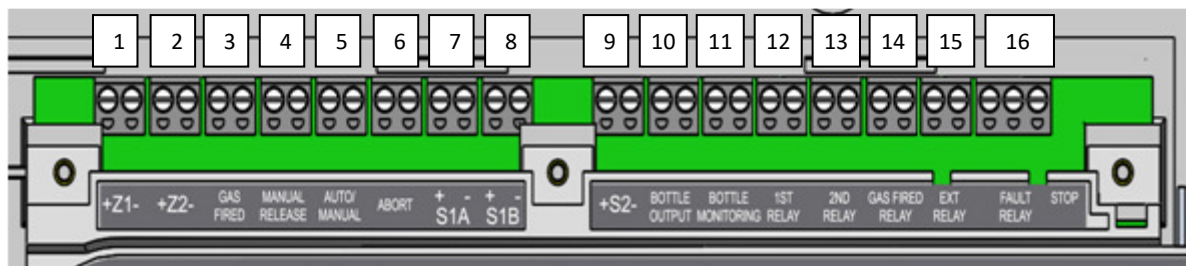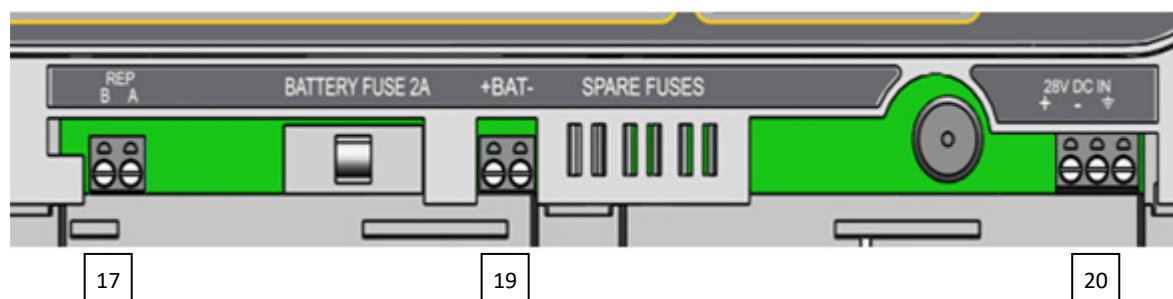Figure 9. Top connections

Figure 10. Bottom connections

TERMINAL DESCRIPTION

Conn	Label	Description	Compatible Equipment
1	Zone 1	First Crossed Zone	Conventional Smoke/Heat Detector
2	Zone 2	Second Crossed Zone	Conventional Smoke/Heat Detector
3	Gas Fired	Gas Fired Input (from bottle)	Contact from Bottle Assy. 18k EOL. 1K trigger resistor.
4	Manual Release	Manual Release Input (to manual release MCP/SWITCH)	Manual Release Call point. 18k EOL. 1K trigger resistor.
5	Auto / Manual	Automatic / Manual Mode Input	Door lock contact or separate switch. 18k EOL. 1K trigger resistor.
6	Abort	Abort Input	Abort Call point or switch. 18k EOL. 1K trigger resistor.
7	S1A	First Stage Sounder Circuit A	Conventional sounder/flasher/bell 29.5V nominal, 150mA max
8	S1B	First Stage Sounder Circuit B	Conventional sounder/flasher/bell 29.5V nominal, 150mA max
9	S2	Second Stage Sounder Circuit	Conventional sounder/flasher/bell 29.5V nominal, 150mA max
10	Bottle Output	To Bottle Solenoid	Bottle solenoid 29.5V nominal, 1A Max.
11	Bottle Monitoring	Low Pressure Input	Contact from Bottle Assy. 18k EOL. 1K trigger resistor.
12	1st Stage Relay	First Stage Relay Contacts	SELV, 1A Max
13	2nd Stage Relay	Second Stage Relay Contacts	SELV, 1A Max
14	Gas Fired Relay	Gas Released Confirmation Relay	SELV, 1A Max
15	EXT Relay	External Equipment Relay	SELV, 1A Max
16	Fault Relay	Fault Relay Normally Energised	SELV, 1A Max
17	REP B A	RS485 Connection	EX Pro Repeater
18	Not Used	-	-
19	+BAT-	Battery	1 x 12V SLA batteries in series 7.2Ah Max
20	24VDC IN	24V DC Main Power	Internal Connection to PSU cage

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	Minimum	Nominal	Maximum
Mains Voltage	-15%	230 / 115 VAC 50-60Hz	+10%
Battery Voltage		2 x 12V SLA	
Battery Size	3.4Ah		7.2Ah
Power Supply Type		Non-Integral (Switch Mode)	
PSU Output Voltage	17.0V	29.5V	31.5V
Imax A			21mA
Imax B			1.51A
Imin		14mA	
Switching Frequency		100kHz	
Output Voltage Ripple			700mV
Max current draw by PSE			2mA
Max Battery Internal Resistance RiMAX			2.8 Ω
CIE DC Input Voltage	21.5V DC	29.5V DC	31.5V DC
Charger Voltage		27.6VDC @ 20°C	
Charger Capacity	3.4Ah		7.2Ah
Battery Deep Discharge Protection		Battery Shutdown at <20.3V @ battery terminals	
Number of Zones		2 Crossed Zones	
Maximum devices per zone			32
1st Stage Sounder Alarm Outputs	2x 150mA @ 19.8V DC	2x 150mA @ 29.5V DC	2x 150mA @ 31.5V DC
2nd Stage Sounder Alarm Outputs	1x 250mA @ 19.8V DC	1x 250mA @ 29.5V DC	1x 250mA @ 31.5V DC
Bottle Output	1x 1A @ 19.8V DC	1x 1A @ 29.5V DC	1x 1A @ 31.5V DC
1st Stage Relay Output			1 x Volt Free Relay SELV, 1A Max
2nd 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

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 EX Pro 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

Manual Modification History

Do Not Print this Page when creating PDF Of the manual

Issue	Date	Changes
1.0	19/8/2013	First release of manual
1.1	14/10/2013	Corrected wrong reference to user manual. Added set time instructions. Added Access level info.
1.2	16/7/2014	Added Environment Class A. Corrected event log to 249 entries. Added Resound alarm info. Added Timer Diagram. Added Max & Min info to spec table. Added Compatible Eqpt to terminal list. Reworded SND2 Disablement description. Added Zone voltage description (menu item). Corrected IMAX A to 2.0A. Added IMAX B = IMAX A
1.3	06/07/2015	Added Imin Added Switching Frequency Added maximum ripple voltage
1.4	3/9/2015	Removed AUX 24V connection
1.5	21/10/2015	Corrected IMIN, IMAXA & IMAX B. Added PSU drain current, Added RIMAX Added Max 32 detectors per zone
1.6	24/8/2016	Corrected wrong information in wiring section. (Mentioned only 2 detectors can be connected per zone. Should be 32)
1.7	5/7/2021	Updated IMAXA and IMAXB values (BSI request)