



Fire Products & Solutions

Operation & Installation Manual RFP V2 Series
Rev 1

Residential Fire Panels
RFP V2 Series

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1 Introduction

1.1 Design Philosophy and the Brooks Approach

The general growing awareness of the need for early warning detection of fire, coupled with a push by legislators, has led to a wider acceptance within the community.

Brooks is a specialist fire detection company offering long experience in design, manufacture and service of commercial and residential fire detection and warning systems.

In keeping with our philosophy of innovation, flexibility, reliability and quality, Brooks now offers a complete and comprehensive range of Smoke / Heat Alarms and Residential Fire Panels (RFP).

Australian Standard AS3786:2014 and AS1603.3:2018 have established a performance standard for Smoke and Heat Alarms for Domestic/Residential applications. Not content to just offer individual products, Brooks has developed a range of residential fire alarm panels to enable fire system engineering principles, normally applied to commercial premises, to be adapted to residential situations.

The vast majority of fire fatalities - particularly residential - occur due to the inhalation of smoke and toxic fumes. A correctly designed and installed RFP system provides an effective LIFE SAFETY SYSTEM, which raises the alarm and maximises your opportunity to escape.

1.2 System Overview

The Brooks RFP V2 Series of Residential Fire Alarm Panels complete with the compatible Smoke / Heat Alarms provides an automatic fire detection and warning system designed to meet the requirements of Australian Standard AS3786-2014, AS1603.3:2018 and National Construction Code (NCC) of Australian.

An automatic Residential fire alarm system is comprised of components for automatically detecting a fire, and the initiation of local warning devices. The Residential Fire Panel (RFP) employs smoke or heat sensitive alarms with electronic interconnect signalling, to initiate both audio and visual means of fire alarm warning. It has the added important feature of supervising the zone circuitry for a fault condition. The Defect Mode output provides a means of monitoring whenever the system is placed either deliberately or accidentally into a non-standard condition. i.e. total power loss, Panel switched off, detection device line fault, ancillary outputs isolated.

Since the applications for such systems are indeed diverse, it was decided to offer a Residential Fire Panel where the necessary features for the majority of applications came standard within the one RFP. The system features and/or configuration, is user definable. This allows true flexibility of design and ease of future upgrading or modifications. The RFP system has options such as independent zone operation, independent smoke alarm operation, fire emergency override, alarm confirmation period, remote indication.

RFP Main Board DIP switch settings are master settings that take precedence over the Smoke / Heat Alarm interface card SUB1012. Each zone is limited to a maximum of 12 Smoke / Heat Alarms and ancillary equipment for control, e.g. alarm bells, security interface, panic input, fire doors, air conditioning shutdown, visual indicators, etc. Control of ancillary equipment is affected by means of relay contacts, or a DC voltage output which operates on receipt of an alarm signal.

The Residential Panel uses discrete electronics for its circuit design and is housed in a powder coated steel cabinet. This provides high reliability and ease of installation.

2 System Design

The Smoke / Heat Alarms should be installed in compliance with the requirements of the NCC; for specific technical guidance of Australian Standards AS1670.6, AS1670.1 and this manual should be used.

A properly designed early warning fire system ensures the alarm is given before the escape route becomes blocked with smoke or heat. Therefore, smoke alarms must be installed along the escape route, heat alarms would not give sufficient warning.

2.1 Smoke / Heat Alarms

2.1.1 Basic Information about your Smoke / Heat Alarm

A Smoke Alarm is an early warning device, used correctly it will detect the onset of a fire, raise the alarm and give occupants valuable time to escape prior to the evacuation path becoming unusable. In today's modern homes natural material like wood and cotton have all but been replaced by synthetics. The result is that when a fire does occur it will burn much faster and much hotter than for natural materials. It will give off visible smoke and toxic fumes at much greater levels. For this reason, Brooks has used only photoelectric Smoke Alarms in the RFS V2 system. Research indicates this technology is superior in performance to ionisation in residential applications and is the overall best and most reliable type of smoke alarm technology for use in the modern dwelling.

Heat Alarms are supplementary devices only; for those areas where Smoke Alarms would not be suitable. Heat detection occurs usually once flames are present therefore, they are not early warning. Heat alarms **must not** be the only detection used and **must be** interconnected to all smoke alarms to provide the best warning throughout the dwelling.

When using household protective devices, basic safety precautions should always be followed.

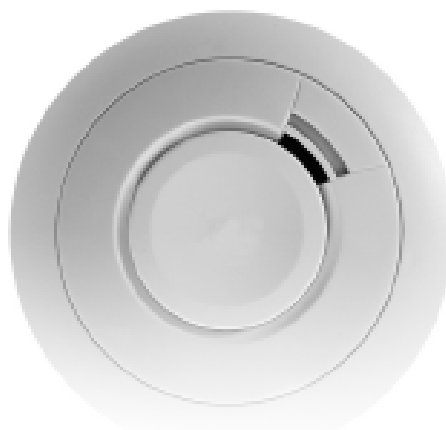
Notes:

- When the power is first connected to the Smoke / Heat Alarms, it may sound for 2-3 seconds and/or the LED may flash quickly for 10 seconds - **this is normal**.
- A Smoke / Heat Alarm does not prevent fires.
- Install correctly, in the centre of the ceiling if possible.
- Test monthly or after servicing any existing fault.
- When the panel chirps every 20 seconds, it means that either the backup battery has reached the low battery threshold (below 12V) or a wiring fault exists in one or more zones. Restore the mains power immediately or call for technical support for wiring fault.
- For the Photo-electric model EIB650iWX, if the Smoke Alarm beeps **without** the LED flashing at the same time then clean the unit as this is the automatic test feature telling you the chamber is degraded.
- Plan your escape route.
- Proper protection requires more multiple Smoke / Heat Alarm.
- If you have any doubt or query about Smoke / Heat Alarms consult the nearest Brooks Office as shown in the last page.

2.1.2 Photoelectric Model (EIB650iWX)

Photoelectric Smoke Alarms senses visible smoke particles. They respond to a sufficiently wide range of fires to be of general use, but are particularly responsive to smouldering fires and the dense smoke given off by foam filled furnishings or

overheated PVC wiring. They are less prone to nuisance alarms from cooking fumes. Furthermore, they contain no radioactive material.



However, all photoelectric Smoke Alarms are prone to nuisance alarms caused by dust or insect contamination. Mesh screens are provided and are effective in reducing insect ingress but it is impossible to make the Alarms dust or insect proof since they would then be effectively smoke proof! For this reason, it is essential that photoelectric Smoke Alarms are always kept clean. The recommended areas to install photoelectric Smoke Alarms are in bedrooms and living areas adjacent to kitchens. Refer to the EIB650IWV leaflet.

Operating Principle: Light scattering – a transmitter produces pulses of light which are detected by a receiver when smoke enters the sensing chamber.

2.1.3 Heat Model (EIB603CX)

Heat Alarms require less maintenance than photoelectric Smoke alarms. There are locations where the installation of a Smoke Alarm is not recommended, e.g. kitchens, laundries, garages, etc. Yet these areas are a potential of fires and the need for an alternative method of fire detection is, in the opinion of many fire officers and specifiers, essential in this and other vulnerable locations of residential properties.



The Heat Alarm EIB603CX provides such an alternative. Fixed temperature heat alarms are designed to trigger when the temperature reaches approximately 58°C. The heat alarm is not sensitive to smoke, but in a closed room with a vigorous fire they will tend to respond faster than a Smoke Alarm a distance away in the hallway. A Heat Alarm **MUST** be interconnected to your Smoke Alarms so that the Alarm can be heard throughout the building.

Operating Principle: Thermistor sensor - resistance value varies with temperature.

2.2 Roof Space Heat Detectors

2.2.1 Overview

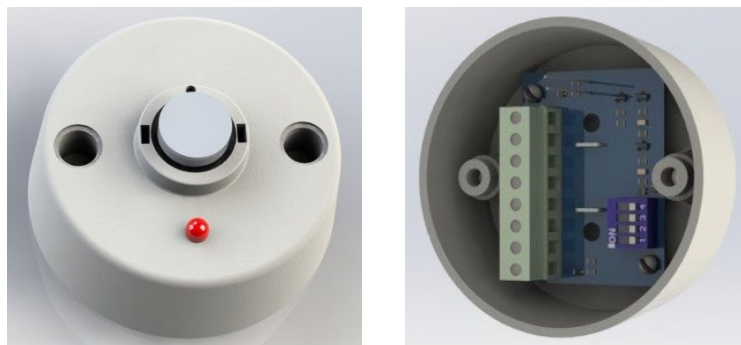


Figure 1 Roof Space Heat Detectors

Standard Smoke or Heat Alarms are not suitable for residential roof space applications where fire may occur.

Brooks has developed a solution to protect residential roof space when a residential fire panel is used. The heat detector utilises a bi-metallic heat switches to detect temperature rise in the roof space.

When the temperature in the roof space reaches the set point of the bi-metallic switch, the contact of the switch will close and connects approximately 12V (with a diode forward voltage drop) to the interconnect which activates all Smoke or Heat Alarms within RFP V2 series. Roof space detectors available for 60° C or 80° C applications.

2.2.2 Features

- Minimum current draw, refer to Table 1 below.
- Up to 10 of HS60V2 or HS80V2 can be connected to RFP V2 series.
- Minimise false alarms.
- Suitable for harsh environment e.g. roof spaces, garages, etc.
- Built-in alarm LED indication
- Support Remote Indicator Light (RIL), with selectable “Latching” and “Non-Latching” mode

2.2.3 Specifications

Table 1 Roof space heat detectors

Function	HS60V2	HS80V2
Temperature	60°C ±5°C	80°C ±5°C
Current Consumption(@12.8V)		
Quiescent	0.1 uA	0.1 uA
Alarm (without RIL)	6.7 mA	6.7 mA
Alarm (with RIL)	14 mA	14 mA
Nominal Voltage	12 V	12 V
No. of units per zone	10	10
Dot Colour	Blue	Red
Size	73mm diameter	73mm diameter

2.2.4 Connection to RFP V2

Field wiring as shown in Figure 2 below is same as the standard RFP zone wiring. The bi-metallic switch contact is connected between Interconnect and positive terminals (with protection diode and series resistor) on SUB1034 (60°) / 1035 (80°) board. When the temperature in the roof space reaches the fixed temperature value, the bi-metallic N/O contact closes, Interconnect voltage goes high and activates all the Smoke or Heat Alarms interconnected to HS60V2 or HS80V2. The red LED will turn on only when the heat switch closes. The roof space heat detector provides 12V output for Remote Indicator Light (RIL), with selectable “Latching” and “Non-Latching” mode. The RIL will be reset when key-switch on the panel is switched to “OFF” or “FIRE” position.

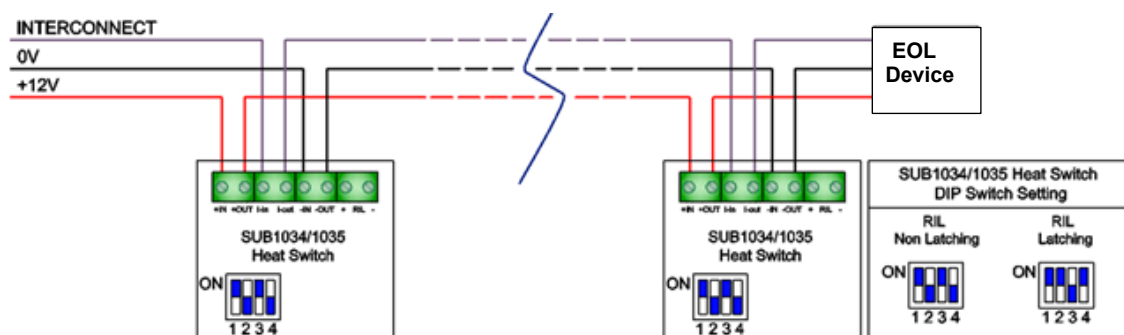


Figure 2 Connection of roof space detectors

2.3 Limitations of Smoke / Heat Alarms

Smoke / Heat Alarms have significantly helped to reduce the number of fire fatalities in Australia where they are widely installed.

However, independent authorities have stated that they may be ineffective in some circumstances. There are a number of reasons for this:

- Smoke / Heat Alarms will not work if they are not connected to the RFP6 V2 series or if the power supply of the panel has failed.
- Smoke / Heat Alarms will not detect fire if sufficient smoke / heat does not reach or prevented to reach the Alarm. Smoke/Heat may be prevented from reaching the Alarm if the fire is too far away, for example, if the fire is on another floor, behind a closed door, in a chimney, in a wall cavity, or if the prevailing air draughts carry the smoke/heat away. Installing Smoke/Heat Alarms on both sides of closed doors and installing more than one Smoke/Heat Alarm as recommended in this manual very significantly improves the probability of early detection.
- Smoke / Heat Alarms which are not maintained or are tampered may not function reliably.
- Smoke / Heat Alarms may not be heard due to background noise, distance from the bedroom or closed doors.
- A Smoke / Heat Alarms may not wake a person who has taken drugs or alcohol.
- Smoke / Heat Alarms may not detect every type of fire to give sufficient early warning. They are particularly ineffective with fires caused by escaping gas, violent explosions, poor storage of flammable rags and/or liquids, (for example petrol, paint, spirits etc). Overloaded electrical circuits, arson and children playing with matches.
- Smoke / Heat Alarms do not last indefinitely. The manufacturer recommends replacement after 10 years as a precaution.

2.4 Locating Smoke / Heat Alarms

The locations are typically required to meet the Deemed to Satisfy Provisions of the NCC. However, the NCC does not provide specific guidance as to the minimising of potential nuisance alarms. There will be dwelling layouts that require further consideration to avoid locating the Alarm so that it is not triggered from everyday events such as showers or cooking. This manual as well as AS1670 parts 1 and 6 provides technical guidance with respect to installation.

2.4.1 Smoke Alarms

Sufficient smoke must enter the Smoke Alarm before it will respond. The Smoke Alarm needs to be within 7.5 metres of the fire to respond quickly. It also needs to be in a position where its alarm sounder can be heard throughout the residence, so it can wake all occupants in time for all to escape. As a minimum a Smoke Alarm should be located between the sleeping area and the most likely sources of fire (living room or kitchen for example). A single Smoke Alarm will give some protection if it is properly installed, but most residence will require two or more Smoke Alarms to ensure a reliable early warning is given. For maximum protection you should put individual Smoke Alarms in all the rooms where fire is most likely to break out, apart from kitchens, laundries and garages (see locations to avoid).

Note: Some state legislation mandates a Smoke Alarm in every room and hallway in the dwelling.

The living room is the most likely place for a fire to start at night, followed by the kitchen and then the dining room. You should also consider putting Smoke Alarms in any bedrooms where fires might occur. For instance, where there is an electrical appliance such as an electric blanket or where the occupant is a smoker. You could also consider putting Smoke Alarms in any rooms where the occupant is unable to respond very well to a fire starting in the rooms, such as an elderly, sick person or a very young child.

Refer to the Smoke Alarm EIB650IWX and the Heat Alarm EIB603CX leaflets for more details.

2.4.2 Heat Alarms

The Heat Alarm gives a fire warning when the temperature at the unit reaches approximately 58° C. It is ideal for kitchens, garages, boiler houses and other areas where there are normally high levels of fumes, smoke or dust i.e. places where Smoke Alarms cannot be installed without the risk of excessive nuisance alarms.

A Heat Alarm should only be used in a room adjoining an escape route, and must be used in conjunction with Smoke Alarms on the escape routes.

The Heat and Smoke Alarms are interconnected with RFP6 V2 to ensure the early warning will be heard, particularly by somebody sleeping. A properly designed early warning fire system ensures the alarm is given before the escape routes become blocked with smoke or heat. Therefore, there must be Smoke Alarms along the escape routes as Heat Alarms would not give sufficient warning.

However, a fire in a closed room (e.g. kitchen) adjoining the escape route, can eventually cause the corridor to become smoke-logged due to smoke leaking out from around the door before adequate warning can be given by detectors in the corridor. (Smoke leaking out from a room is often cool and slow moving so it can take a long time to rise to the ceiling, and travel to a detector which could be some distance away). A Heat Alarm in the closed room will give earlier warning of fire in that room and help overcome this problem.

This type, with consideration to the above, can be installed in kitchens, laundries, garages and boiler houses and other areas where there are normally high levels of fumes, smoke or dust i.e. places where smoke alarms cannot be installed without the risk of excessive nuisance alarms.

Important: These Smoke/Heat Alarms are designed for use in a residential type environment.

2.4.3 Checking Audibility of Smoke / Heat Alarms

With the Alarm sounding in its intended location, check that you are able to hear it in each bedroom with the door closed above the sound of your radio. The radio should be set to a reasonably loud conversation level. If you can't hear it over your radio, the chances are it would not wake you.

The Smoke / Heat Alarms are interconnectable meaning that when one Alarm within a zone senses smoke or heat, all connected Alarms will go into alarm.

Note: Options within the Smoke Alarm and Residential Fire Panel enable customising of the installation. However, the sound levels are fixed and cannot be adjusted.

2.5 Recommended Locations

For the best location and maximum protection, refer to EIB650iWX and EIB603CX manuals.

2.5.1 Locations to Avoid

Don't place your Smoke Alarm in any of the following areas:

- Kitchens, Bathrooms, shower rooms, garages or other rooms where the Smoke Alarm may be triggered by steam, condensation, normal smoke or fumes. Keep at least 6 metres away from sources of normal smoke/fumes.

Don't place **Heat Alarms** in any of the following areas:

- **Bathrooms, shower rooms** or other room where the unit may be affected by steam or condensation.

Don't place **Smoke** or **Heat Alarms** in any of the following areas:

- Places where the normal temperature can exceed 45°C or be below 5°C (e.g. attics, furnace rooms, directly above ovens or kettles etc.) as the heat/steam could cause nuisance alarms.
- Near a decorative object, door, light fitting, window moulding etc., that may prevent smoke or heat from reaching the Alarm. Heat from light fittings may prevent or delay the smoke reaching the detection chamber.
- Surfaces that are normally warmer or colder than the rest of the room (for example attic hatches, uninsulated exterior walls etc), Temperature differences might stop smoke from reaching the unit.
- Next to or directly above heaters or air conditioning vents, windows, wall vents etc. that can change the direction of airflow.
- In very high or awkward areas (e.g. over stairwells) where it may be difficult to reach the alarm (for testing, maintenance etc).
- Locate unit at least 1.5m and route wiring at least 1m away from fluorescent light fittings as electrical "noise" and/or flickering may affect the unit.
- Locate away from very dusty or dirty areas as dust build-up in the chamber can make unit too sensitive and prone to alarm. It can also block the insect screen mesh and prevent smoke from entering the chamber.
- Do not locate in insect infested areas. Small insects getting in to the chamber can cause intermittent alarms. Insects and contamination on the Heat Alarm sensor can increase its response time.
- Locate the Alarm at least 1m from dimmer controlled lights and wiring as some dimmers can cause interference.

2.6 Interconnecting Smoke/Heat Alarms

The Brooks Smoke Alarm EIB650iWX and Heat Alarm EIB603CX provide an interconnect facility to RFP V2 series. When one Smoke/Heat Alarm activates all Smoke/Heat Alarms and panel buzzer will sound, this provides not only an increased sound pressure level but also an alarm warning throughout the entire dwelling. Up to 12 Smoke / Heat Alarms model EIB650iWX, and/or EIB603CX can be interconnected to each zone in RFP V2 series.

The unit initiating the alarm can be identified by the red LED on the cover flashing every second, or by pressing the alarm locate (interlocked with Fire Mode) switch on the RFP front face plate.

Note: If obsoleted X series Alarms already exists, they can still be used provided they are not over 10 years old and are still working.

The panel is compatible with either the obsoleted smoke alarms and/or the current EIB603CX and/or EIB650iWX.

2.7 Smoke / Heat Alarm Additional Features

The new series of Smoke (EIB650iWX) and Heat (EIB603CX) Alarms have similar features to the discontinued X series Alarms in addition to some new added features:

- Remote Indicator Output (RIL) output: This enables an RIL to be located outside a door to indicate the origin of the alarm.
- Alarm can be isolated by removing the head from the base.
- Removing the head will keep all the other Alarms in the same zone in operation.
- EIB650iWX is a microprocessor-based design which allows for more features.

2.8 Nuisance Alarms

Smoke Alarms are sensitive devices that may also be triggered by other household activities like cooking or steam from showers or laundries. Remember, your Smoke Alarm can be triggered by you accidentally, this does not mean it is faulty it has simply detected something that it simulates smoke.

If there is a nuisance alarm simply press the "Locate" button and turn the key switch to "Fire" on the front display of the RFP system, this will identify the activated Alarm. Once the source of nuisance alarm is located, fan the smoke alarm to clear the smoke. If, when the Alarm goes off, there is no sign of smoke, heat or noise to indicate that there is a fire, you should get your family into a safe place, before you start investigating.

Check the house carefully in case there is a small fire smouldering somewhere.

- Check whether there is some source of smoke or fumes, for example cooking fumes being drawn past the Smoke Alarm by an extractor.
- Fan the sensing chamber vigorously with a newspaper or similar to clear and silence the alarm.
- If there are frequent nuisance/false alarms, it may be necessary to re-locate the device away from the source of the fumes. If for some reason the Alarm continues to sound (due to insect infestation or contamination build up for example), do the following:

Remove the Smoke / Heat Alarm causing nuisance alarm as shown in Figure 3 below. For EIB650iWX and/or EIB603CX, remove the head by disconnecting the

adapter board off the Alarm, panel will go into fault. Push the Sounder Silence button on the panel to stop the panel from beeping if it occurs at night while you are sleeping. Replace your alarm next earliest as soon as possible.

Note: When an Alarm is removed, all other Alarms in the zone will continue working and communicate with the RFP system.

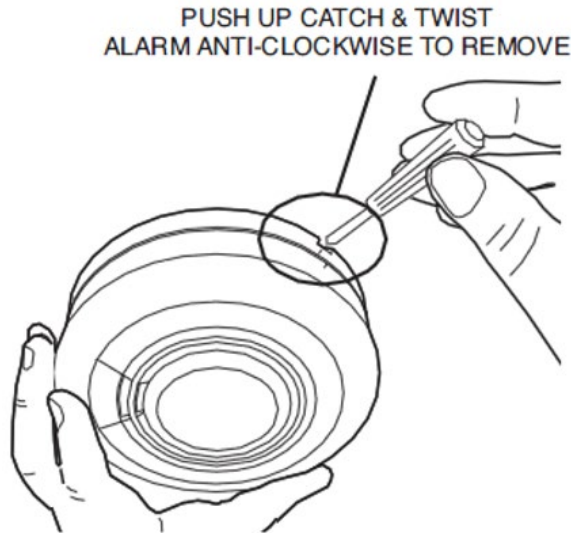


Figure 3 Removing Alarm Heads from EIB603CX or EIB650iWX

2.9 Important Safeguards

When using household protective devices, basic safety precautions should always be followed, including those listed below.

- Familiarise yourself with the RFP system operation.
- Rehearse emergency escape plans so everyone in the premises knows what to do in case the alarm sounds.
- Do not disconnect wires to stop alarm sounding. (Fanning vigorously with a newspaper or similar will remove nuisance smoke from the Smoke Alarm and stop it sounding).
- To maintain sensitivity to smoke, do not paint or cover smoke alarm in any manner; do not permit any accumulation of cobwebs, dust or grease.
- If unit has been damaged in any way or does not function properly, do not attempt a repair, return the Alarm to the nearest Brooks office.
- Smoke/Heat Alarms are intended for premises having a residential type environment.
- Smoke / Heat Alarms are not a substitute for insurance, the manufacturer is not your insurer.

2.10 Fire Safety

2.10.1 Planning Your Escape

Use the Smoke / Heat Alarm test button or the key switch on the inner door to familiarize occupants with the alarm sound and to practice fire drills regularly with all family members. Draw up a floor plan that will show each resident at least 2 escape routes from each room. Children tend to hide when they don't know what to do. Teach children how to escape, open windows, and use roll up fire ladders and stools without adult help. Make sure they know what to do if the alarm goes off.

2.10.2 Fire Safety Hints

- Store petrol and other flammable materials in proper containers.
- Discard oily or flammable rags.
- Always use a metal fireplace screen and have chimneys cleaned regularly.
- Replace worn or damaged sockets, switches, home wiring and cracked or frayed electrical cords and plugs.
- Do not overload electrical circuits.
- Do not overload any zone circuit, max of 12 Alarms can be connected to a zone.
- Use the recommended cables shown in Table 2 below.
- Never smoke in bed. In rooms where you do smoke, always check under cushions for smouldering cigarettes and ashes.
- Be sure all electrical appliances and tools have a recognised approval label.
- Smoke Alarms cannot protect all persons at all times. It may not protect against the three most common causes of fatal fires:
 - Smoking in bed.
 - Leaving children at home alone.
 - Cleaning with flammable liquids, such as petrol.

Further information can be obtained from Brooks Australia's Guide to Residential Fire Safety.

3 Residential Fire Panel

3.1 RFP V2 Specifications

Table 2 Specifications of RFP V2 residential panels

Feature	Specification
No. of zones	6, 12 or 18
Max. no. of Alarms	12 Alarms per zone
Enclosure	Zinc steel 1.5mm powder coated oyster RFP6 V2: 400mm H x 320mm W x 135mm D RFP12 /18: 6800mm H x 320mm W x 135mm D
Power Supply	Input: Universal 88 – 264VAC, 50W Output: 13.5-16.5 VDC adjustable, 50W (3.4A) Nominal: 14.5VDC, 13.8VDC on battery terminals
Standby Supply	12V SLA batteries 7-30 AH ¹ depending on total number of Alarms fitted
Battery low setting	12.0 VDC
Key switch Operation	“ON” System ON - Charger ON “OFF” System OFF - Charger ON “FIRE” activates all smoke/heat alarms
System Monitoring	Separate terminals for zone wiring loop in and out to every Alarm, monitored either by EOL device or DIP switch setting in the last Alarm
Fault (defect) Mode	Initiated by an abnormal system condition: * Total power loss * Ancillary outputs (common alarm) Isolated * Short / Open circuit line fault * System switched off
Fault Output	1 set changeover relay contact
Alarm Outputs	12VDC / 1 Amp maximum, non-supervised 1 set changeover relay contact
Panic Input	Non-supervised N/O contact - activates all Alarms
Sounder Silence Switch	Acknowledges panel sounder Alters tone from continuous to chirp (for battery low and zone wiring fault)
Ancillary Isolate Switch	Isolates common alarm outputs and initiate Defect Mode
Alarm Locate Switch	Silences all Smoke/Heat Alarms except those initiating the alarm.

¹ When larger battery capacity required, up to 2 x 15AH / 12V batteries can be paralleled to double the battery size.

Visual Indications	Individual zone alarm - Red Individual zone fault - Amber Ancillary isolate - Amber Locator activated ² - Amber Sounder silence - Amber Power ON - Green
Smoke/Heat Alarms options	Remote indication output set to latching or non-latching. Standalone or common alarm operation. Refer to Table 5 page 27
Panel Features DIP Switch Setting on SUB350	<ul style="list-style-type: none"> • Common or individual zone operation • Latching or non-latching alarm indication • Alarm confirmation period: 0 Sec, 30 Sec or 60 Sec • Common Alarm Output latching or non-latching
OPTIONS	
Zone Output Card SUB365	1 set C/NO/NC changeover relay contact per zone 1 set C/NO relay contact per zone
Mimic Panel (Custom built)	24 Smoke/Heat Alarm indications or 48 Smoke/Heat Alarm indications or 72 Smoke/Heat Alarm indications
Field Wiring Cables	4 Core min. 1mm ² , red Brooks BAC4C1/100 or BAC4C1/250

3.2 Familiarisation

The purpose of this section is to make you familiar with the operation and construction of the RFP V2 range of Residential Fire Panels. The basic configuration of RFP V2 is the six-zone residential panel RFP6V2 which consists of the following:

- Main control and display board SUB350, contains zone indicators, control switches and 003 key switch interface.
- Field wiring termination board SUB357
- 6 x End of line module SUB360
- Switch mode power supply 50W BAPS15V50W
- 12V Back up battery, capacity 7-15 AH, can also accommodate 2 x 7-15 AH batteries in parallel to double the battery capacity 14-30 AH housed in the small or large enclosure.

An optional zone output card (SUB365) can be fitted within the same enclosure. Optional Smoke / Heat Alarm mimic panel in a separate enclosure is also available.

3.3 Features:

- Individual Zone alarm and fault indicators
- Latching / non-latching alarm indicator (selectable)

² Pressing only the locate button will lead to no action unless preceded by fire mode key switch.

- Common alarm output confirmation (delay), 0, 30 and 50 second.
- 003 Key switch to turn the RFP ON / OFF or FIRE mode.
- Individual zone relay output when the optional zone output card SUB365 is fitted.
- Alarm locate facility to identify activated Smoke/Heat Alarm.
- Ancillary isolate control to isolate the common alarm output.

Figure 4 below shows the front view of the standard 6 zone residential fire panel RFP6 V2 and Figure 5 shows the front view of the optional 24 LED mimic display.

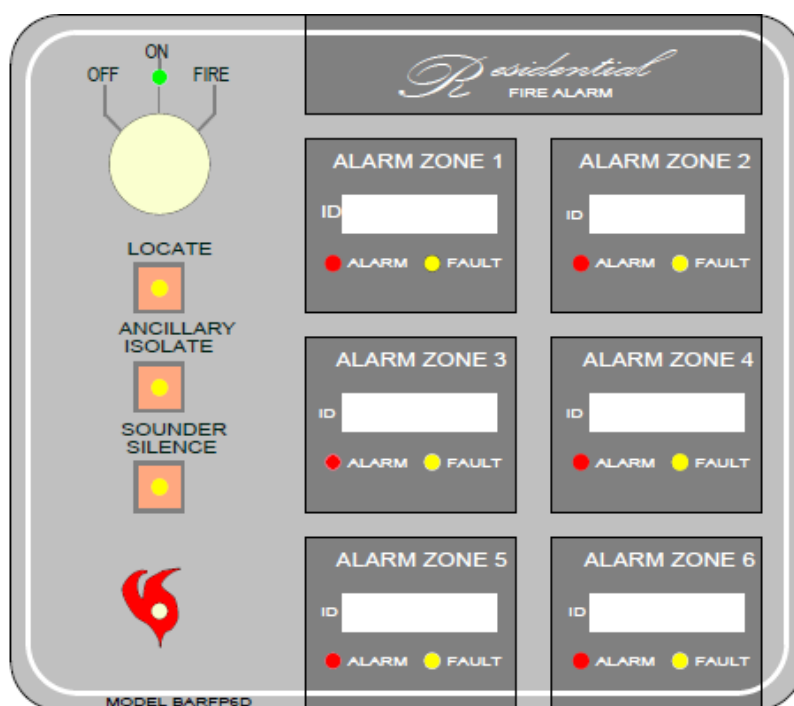


Figure 4 RFP6V2 Overlay for 6 Zones

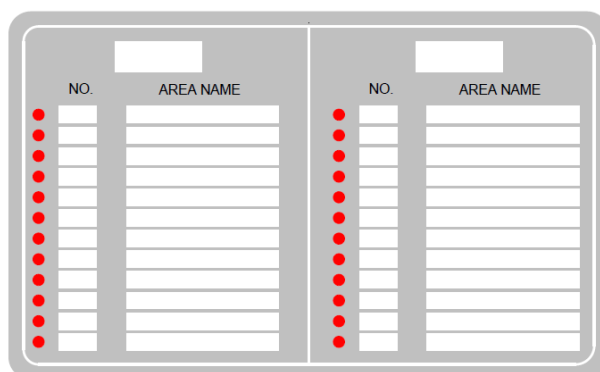


Figure 5 Standard Mimic Overlay (Optional)

The RFP12/18 V2 comprises the same components as in RFP6 V2. In addition, a slave main board SUB350S and a standard termination board SUB357 are added for every 6 zone, all housed in a larger enclosure. The front view of RFP12/18 V2 is shown in Figure 6 below.

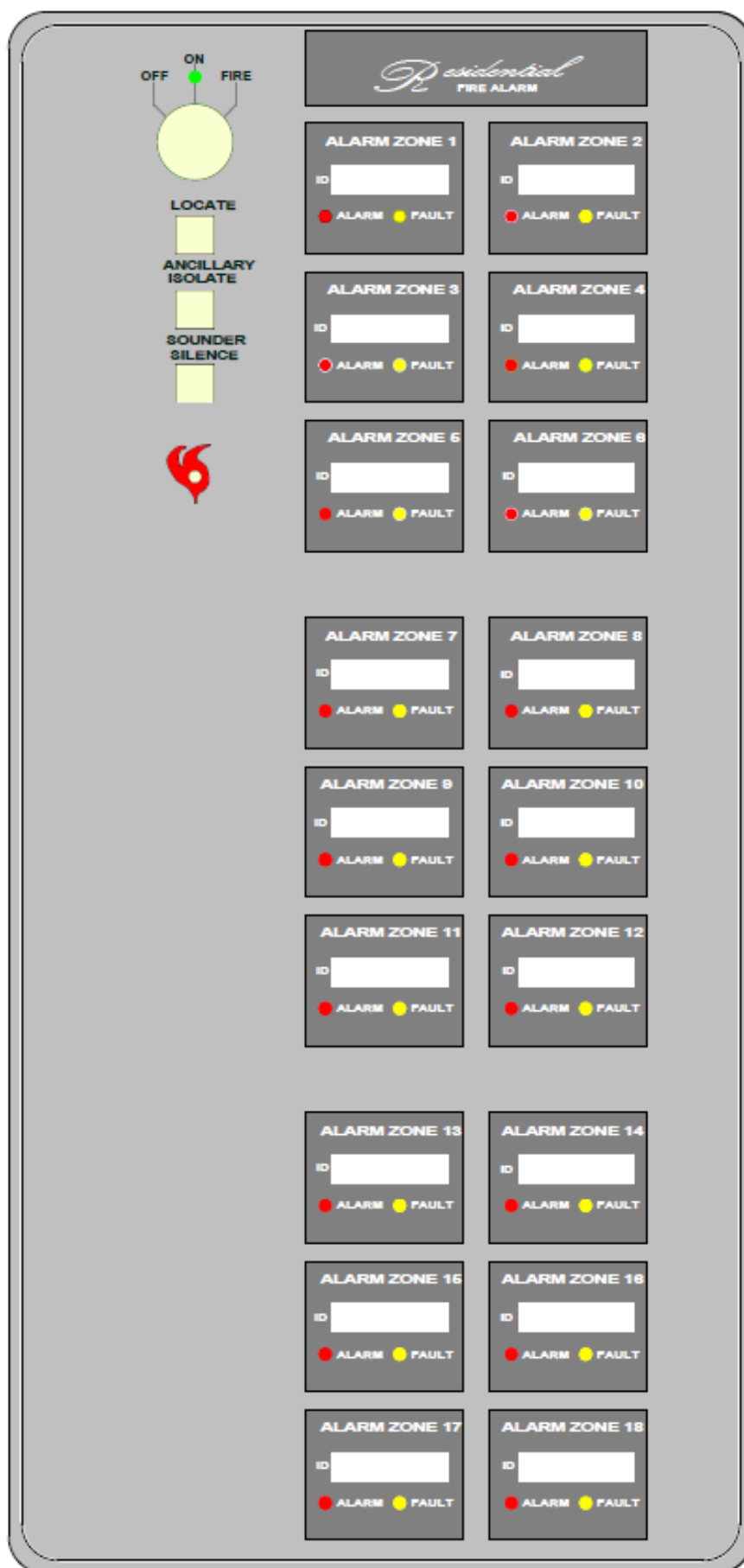


Figure 6 RFP12V2 / RFP18V2 Overlay for 12 or 18 Zone

3.3.1 Indicators of RFP V2

Table 3 Front display indicators

Descriptor	Colour	Function	Buzzer
On	Green	Steady On, mains power ok	No
Alarm	Red	Steady On: Zone 1 – 6 for RFP6 and Zone 7 – 12 for RFP12 and Zone 12 -18 for RFP18	Yes
Fault	Amber	Steady On zone 1 to zone 6	Yes

3.3.2 Controls of RFP V2

Table 4 Front display controls

Descriptor	Function
Key Switch	<p>"ON" System ON - Charger ON</p> <p>"OFF" System OFF - Charger ON, no power to Smoke/Heat Alarms</p> <p>"FIRE" activates all Smoke / Heat Alarms</p>
Locate	Identifies active Smoke / Heat Alarm causing fire
Ancillary Isolate	Isolate common alarm outputs, sounder On
Sounder Silence	Silences all active Smoke and Heat Alarms for 10 minutes

3.4 RFP V2 Panel Mounting

The control panel (RFP) should be located in a common area inside the residence, IP enclosures are also available if the RFP required to be outside. The RFP must be secured on a wall and be wired to the 230VAC supply to the dwelling by a licensed electrician to a dedicated circuit. A mains isolate switch is provided to terminate the mains power inside the cabinet and Earth stud to ensure earthing the metal enclosure.

3.5 Zone Termination

Each Zone has separate terminals to interface the RFP to the Smoke/Heat Alarms via 3 wires to supply 12VDC and interconnection across each zone, see Figure 7, page 20. Zone power to the Alarms is protected with 1 A fuse. A forth wire will be required for common fire mode if the Smoke Alarm is set to independent. As the standard cables are supplied as a 4 core cable, the common practice is to terminate the fourth wire to each Smoke / Heat Alarm as shown in the RFP block wiring diagrams in Figure 12 page 37, Figure 13 page 38 and Figure 14 page 39.

The three wires are fully supervised by the RFP for open or short circuit fault via EOL device SUB360. A fault indicator for each zone is provided and a panel buzzer to provide audible indication. When the buzzer is silenced, a chirp every 20 second will be given.

Note: If EOL device SUB360 is not used, the last smoke / heat alarm can be set to be EOL using the DIP switch setting on the interface board SUB1012.

3.6 RFP V2 Compatible Equipment

3.6.1 New Smoke / Heat Alarms

Smoke / Heat Alarm	Part No:
Photoelectric Smoke Alarm for Residential Panels	EIB650iWX
Heat Alarm for Residential Panels	EIB603CX

3.6.1 Other Equipment

Options	Part No:
RED MCP C/W RES.+ BB RESET + BROOKS GLASS	MRCSTR
Zone Output Relay Card (Z1-Z6)	SUB365
Relay / 12V output card	SUB600
Mimic Panel 24 – 72 LED's	Custom build

Note: Limit is 2 x MRCSTRs, Any sounder, strobe or combo per zone

3.6.2 Discontinued Alarms

Smoke / Heat Alarm:	Part No.	Replacement
Brooks ionisation smoke alarm	EIPFSICX6	No Replacement
Brooks photo-electric smoke alarm	EIPFSPCX6	EIB650iWX
Brooks heat alarm	EIPFSTCX6	EIB603CX

Note: If Discontinued Smoke/Heat Alarms already exist in a building, they can still be used provided they are not over 10 years old. Do not mix new and old Alarms.

3.7 Power Supply

The primary and standby supplies are calculated to suit the system alarm and standby requirements. If the primary power supply fails, the secondary supply will provide sufficient current to maintain the system fully operational for a period determined by number of Smoke / Heat Alarms and any added options.

A battery capacity calculation of RFP V2 with all the Smoke / Heat Alarms and ancillary devices must be carried out to determine the battery size. The battery capacity must meet the requirements of AS3786. Refer to Table 6, page 36 to calculate the battery capacity.

3.7.1 Primary Power Supply / Battery Charger

The primary power supply for RFP V2 series is fully regulated switch mode power supply 15VDC / 50W. Nominal output is adjusted to 14.5VDC (13.8VDC on the battery terminals), maximum current 3.4A @ 14.5V. The power supply is capable of supplying the max. alarm current of the RFP system without relying on battery.

Note: Power supply voltage output can be adjusted (if required) to the nominal voltage using a potentiometer on the power supply PCB.

3.7.2 Standby Supply

The secondary supply is one or two 12V Sealed Lead Acid Batteries which under normal operating conditions will be continuously charged by the primary power supply. Battery capacity is dependent on the number of Smoke / Heat Alarms fitted.

Up to 2 X 15AH batteries connected in parallel can be fitted within the standard enclosure.

Note: When two batteries are used, it must be connected in parallel to increase the battery backup time. All Brooks residential panels are 12V systems.

3.8 Termination of Field Wiring

All field wiring enters the panel via knock-outs on either top or rear of the cabinet and is then terminated on the Termination Board SUB357B. An optional zone output card SUB365 may also be connected utilising the same ribbon cable between the main and termination boards.

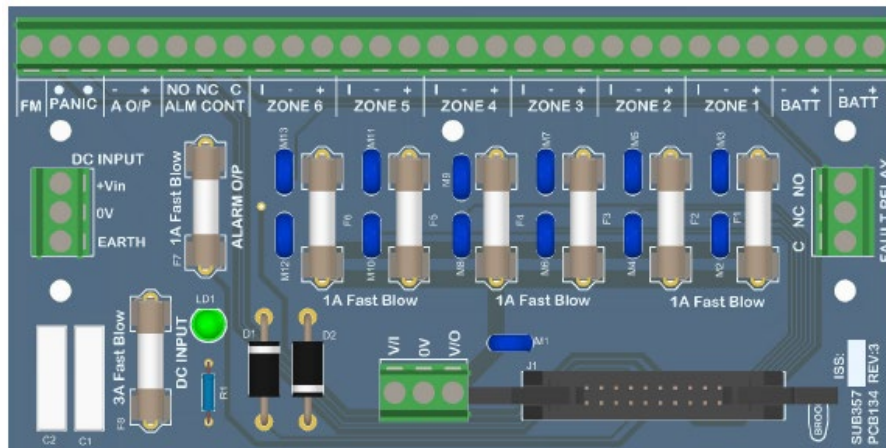


Figure 7 RFP V2 Termination Board

The PCB layout of the new SUB357B is shown in Figure 7 above. Terminals are provided to terminate two batteries, when only one battery is used, it can be terminated in any of the two battery sets provided.

3.8.1 Smoke/Heat Alarm Inputs

The termination board is clearly labelled for positive supply (+), negative supply (-) and interconnect (I) for Zone 1 to Zone 6 for RFP6. When RFP12 or RFP18 are required, same additional termination boards SUB357B are added for zone 7-12 and zone 13-18.

The RFP V2 is supplied with End-Of-Line device (EOL) SUB360 connected to every zone however, when Smoke/Heat Alarms are connected to a zone, the EOL should be moved to the last Alarm in the zone. The new EIB650iWX and EIB603CX interface board SUB1012 has built-in EOL. The built-in EOL can replace the hardwired SUB360 by setting the DIP switch position S3, refer to Table 5 Page 27 for correct DIP switch setting.

Note: EOL device SUB360 should not be used if the DIP switch is used to set the Alarm to be the last Alarm in a zone and vice versa. This will lead to a zone fault.

3.8.2 Mains Voltage Input

The 230V_{AC} mains cable terminates at the mains isolating switch located on the inside rear of the cabinet then to the switch mode power supply.

3.8.3 Battery Input

Battery Leads are already connected to the termination board to connect the lead acid battery. Ensure correct fitting of the battery, connect the Black lead to the negative terminal and the Red lead to the positive terminal. When the battery

capacity is required to increase, two batteries will be connected in parallel, use the supplied lead to interconnect the two batteries³ as shown in Figure 7 above.

3.8.4 Panic Input

This input allows for manual activation of the Residential Fire Alarm System. On operating this input, all Smoke / Heat Alarms and ancillary equipment will be activated. Activation is via a normally open dry contact, such as a manual call point or panic button. These should be mounted adjacent to the panel.

3.8.5 Common Alarm Outputs

The RFP6 has a 12-volt dc output (maximum 1 Amp) and a set of Changeover Dry Contacts. Any zone facility entering an alarm condition will activate these outputs. In supplying both Voltage and Voltage free contacts, the user has the design flexibility to control any ancillary function required.

e.g. the 12-volt output can be used to operate an external audio/visual warning device. The Changeover Dry Contacts could be used to control a magnetic door holder power supply or to signal a Remote Monitoring Station. In this way your residential fire system can be monitored on a 24-hour, 7-day basis.

3.8.6 Alarm Confirmation Period (Selectable)

The RFP common alarm outputs can be delayed to avoid nuisance alarms. Three options are available:

- No delay (standard),
- 30 second delay or
- 60 second delay.

Time delay is selected by a 4-way DIP switch mounted on the back of the main board SUB350, refer to Figure 15 page 40. This provides a means of delay to enable the occupant to remove a known false alarm, i.e. burnt toast, before a remote warning is given.

3.8.7 Defect Mode Output

The Defect (fault) Mode Output responds to a fault in the system such as loss of power, zone fault (short or open circuit), activation of the ancillary isolate switch or panel switched off. The defect mode provides a set of changeover relay contacts which can be used for either local and / or remote monitoring of a system fault.

3.9 Options

3.9.1 Mimic Panel (Optional)

An Individual Smoke / Heat Alarm indication via Mimic Panel is available for when the exact location of the actuated Smoke / Heat Alarm is required. The mimic panel is available with either 24, 48, or 72 mimic indicators (custom built). The Remote Indication output on each Smoke / Heat Alarm is wired back to the mimic panel using two wires. To minimise field wiring, RIL (0V) only can be wired to the RFP and the +12V can be common in the panel.

3.9.2 Zone Output Facility (Optional)

An optional card which allows for separate zone outputs is available when ancillary devices are required to operate on an activated zones basis only. Two sets of voltage free contacts are supplied for each zone which can be used to control equipment

³ New termination board SUB357B PCB134 Rev 3 allows for terminals to terminate two batteries.

such as bells, sirens, or flashing lights, strobes and door holders etc. The contact rating of the relays is 1A @ 12V.

3.9.3 Remote Zone Relay Board (SUB600)

The board provides a relay output clean contact and 12VDC non-supervised outputs when an alarm is activated in a specific zone.

SUB600 is mounted inside a plastic base PM100 with a cover PM110. The assembly can be mounted in any place where an output from specific zone is required. Zone cable (3 wires) is required to connect the remote zone relay board.

3.9.4 Magnetic Door Holder Power Supply

The enclosure of RFP V2 panels has space within the cabinet to mount 24Vdc / 25W switch mode power supply. This can be connected via the common alarm contact on the termination board to supply 24V in normal conditions to maintain power to the door holders.

3.10 Panel Status

The status indications of the RFP will be indicated as shown in Figure 4, page 16 for RFP6 V2 and Figure 6 page 17 for RFP12V2/RFP18V2. The mimic display shown in Figure 5 page 16 indicates alarm for individual Smoke/Heat Alarm, wiring from each Alarm to the mimic panel is required as shown in Figure 14, page 39.

The status in normal, alarm, fault, etc. are shown in the next sections.

3.10.1 Normal

- All ancillaries 'OFF'
- All sounders 'OFF'
- All yellow indicators 'OFF'
- All red indicators 'OFF'
- Only power on green indicator 'ON'

Note: When RFP is first switched "ON", all zone fault LEDs will illuminate for few seconds. This is normal.

3.10.2 Zone Alarm

In the event of zone alarm, the following will occur:

- Zone alarm indicator 'ON' (Red LED);
- Panel and Smoke/Heat Alarms Sounding;
- Ancillary outputs activated.

The red indicator will show the zone in alarm and thereby the general location of the fire alarm. In case of false alarms see Troubleshooting in Chapter 7, page 33.

3.10.3 Zone Fault

The RFP6 main board constantly monitors the system status and upon detection of a fault condition, the following will occur:

- Zone fault indicator 'ON' (amber LED).
- Panel Sounder sounds continuously. (Press the Sounder Silence button, sounder will beep once every 20 second (chirp) until fault is cleared).
- Defect Mode output (relay) activated.

3.10.4 Low Battery

With the mains disconnected, the panel operates solely off the battery. When the battery reaches a pre-set low level of approximately 12.0 Vdc, the fault sounder will pulse once every 20 seconds to give an audible indication that the system is running low on capacity (all zone fault indicators must remain off). Mains must be restored as a matter of urgency.

3.10.5 Ancillary Isolate Button

Ancillary outputs (alarm) can be isolated via the ancillary isolate switch. When isolated, an amber integrated LED integrated in the switch body will be illuminated, the sounder will sound continuously and the Defect mode will be activated.

3.10.6 Alarm Locate Button

This mode enables the occupant to identify the Smoke/Heat Alarm that originated the alarm signal i.e. locate the active Alarm.

- Place the 003 key into the key switch and turn to 'Fire' position.
- Press the "Locate" button (The Locate LED backlight will be lit). Wait for 10 second, all Alarms will be silent except the active Alarm.
- Identify the activated Alarm head. (Clear the smoke from the alarm by fanning it until all the alarms silence on its own).
- Turn the key switch back to ON position.
- Press the "Locate" button to restore the system (the Locate LED backlight will be distinguished)
- System returns to normal.

Note: This panel cannot be fitted with external locators e.g. BAALOC.

3.10.7 Sounder Silence Button

Used only to silence alarm or fault sounder. For a fault condition the sounder changes from continuous tone to chirp once every 20 second. This chirp cannot be silenced and acts as a continuous audible warning to indicate that the sounder is silenced and a fault condition still exist. When the sounder silence switch is pressed, the amber indicator built in the switch body will illuminate.

4 Installation

The RFP is factory pre-wired and fully tested before delivery. After receipt of the panel, the unit should be carefully checked for any possible mechanical damage during transportation. Report any damage to your nearest Brooks supplier.

4.1 Surface Mounting Instructions

The RFP is normally surface mounted however, flush surround for different cabinet sizes are available on request. To mount the RFP:

- Locate the position where the panel is to be sited.
- Mark the position of the two mounting holes (160mm apart) and the cable cut-outs, 5 knockouts available between the two mounting holes.

Note: Power and ELV cables are to be kept segregated.

- Select the appropriate mounting hardware and prepare the two mounting holes.
- Fix the top two points, leaving approximately 6 mm of the protrusion from the wall. Mount the Panel and secure all mounting hardware.

4.2 RFP V2 Cable Terminations

4.2.1 AC Power

The 230V_{AC} input is terminated on the mains isolate switch and earth stud provided on the rear inside of the enclosure.

Note: It is recommended to use dedicated 230VAC from separate RC circuit.

4.2.2 Field Wiring

All field cabling is to be terminated on the Terminals provided on the termination board SUB357B as shown in Figure 12 page 37. The RFP is compatible with either the obsoleted Smoke / Heat Alarms and/or the current EIB650iWX and/or EIB603CX. These Alarms use 4 core cabling for the Smoke or Heat Alarms on each zone. The 4th wire is required for Fire Mode (FM) if the Smoke Alarm is set to independent operation i.e. the Smoke Alarm requires to activate only the RFP but no other Alarms on the same zone, it should be connected to FM.

In order to ensure that voltage drop is kept to a minimum and ensure that Smoke/Heat Alarms operate up to 100m runs, use low resistance cables of $\leq 19.5 \Omega/\text{km}$ maximum DC resistance at 20°C with each core at 1.0 mm². BROOKS strongly recommend using the following cable as a minimum:

- **BAC4C1/100** Metre 4 core 1mm² Red Cable
- **BAC4C1/250** 250 Metre 4 core 1mm² Red Cable

Cables should be terminated as required. Ensure all cables are neat and secured using approved plastic ties.

4.2.3 Battery

Place the Battery on the bottom of enclosure and connect leads provided.

RED - POSITIVE

BLACK- NEGATIVE

Using the mounting hardware provided, secure the front panel to the enclosure.

Note: Battery capacity calculation must be carried out. Failing to use the correct battery capacity will void the compliance to AS3786:2014.

4.3 Termination of EIB650iWX or EIB603CX Alarms

The new Smoke EIB650iWX and Heat EIB603CX Alarms are to be plugged in the interface base BAX16 which consists of SUB1012, adapter board SUB1005, ribbon cable and extended plastic base. Figure 8 below shows the complete BAX16.

Note: The smoke alarm heads will never show a battery low condition because it draws power from the panel.

The interface card will automatically detect alarm head type of either EIB650iWX or EIB603CX upon system initialisation and supply power them accordingly. EIB650iWX requires 3VDC and EIB603 requires 9VDC

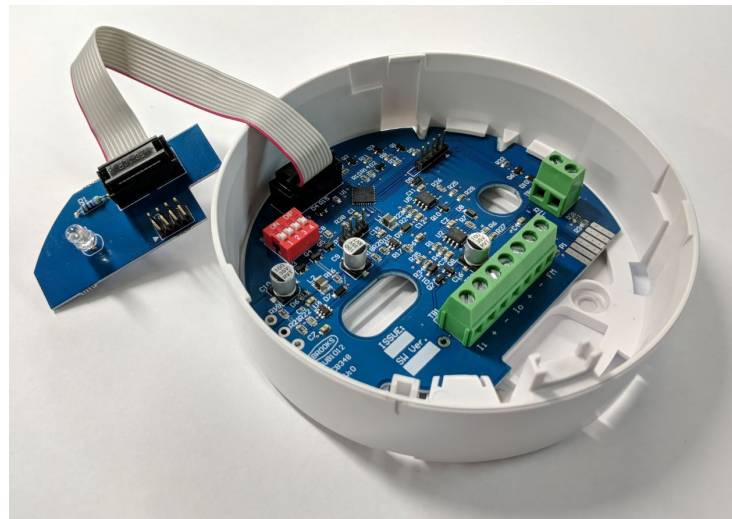


Figure 8 Interface Base BAX16

The interface card in BAX16 will automatically detect alarm head type of either EIB650iWX or EIB603CX upon system initialisation and supply the required power accordingly. EIB650iWX requires 3VDC and EIB603 requires 9VDC.

The BAX16 interface and termination board SUB1012 is shown in

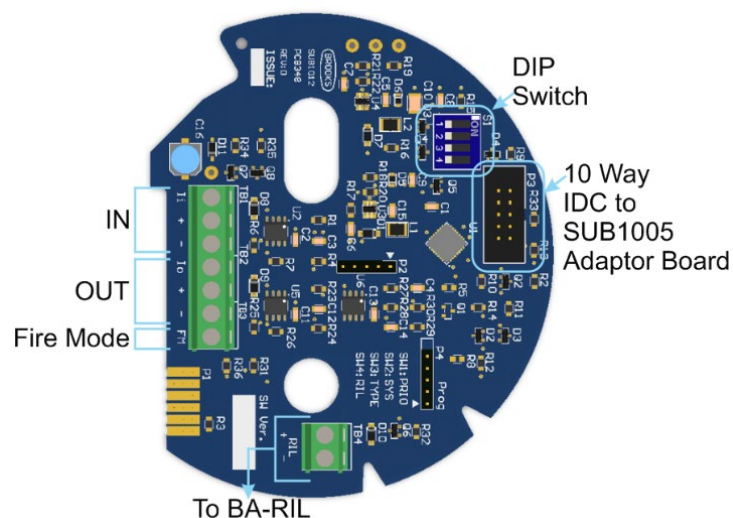


Figure 9 SUB1012 Terminals - Interface Card

To install EIB650iWX or EIB603CX, the following procedures can be used:

- 1) Before installing EIB650iWX or EIB603CX to a zone, ensure the panel is fully switched off and the panel battery is disconnected.
- 2) Mount the interface card base assembly BAX16 to the ceiling and terminate the field wiring according to the panel drawings shown in the Block Wiring Diagram in Figure 12, page 37 and Figure 13, page 38.

Note: Interconnect **IN** / **OUT** must be terminated correctly i.e. from **RFP** to **IN** and **OUT** to the **next** BAX16 and so on. If **IN** / **OUT** are swapped, a fault will be generated.

- 3) Connect the appropriate Smoke/ Heat Alarm head to BAX16 by plugging the adapter board SUB1005 into the socket in the Alarm as shown in Figure 10. Refer to Figure 9 for head removal.

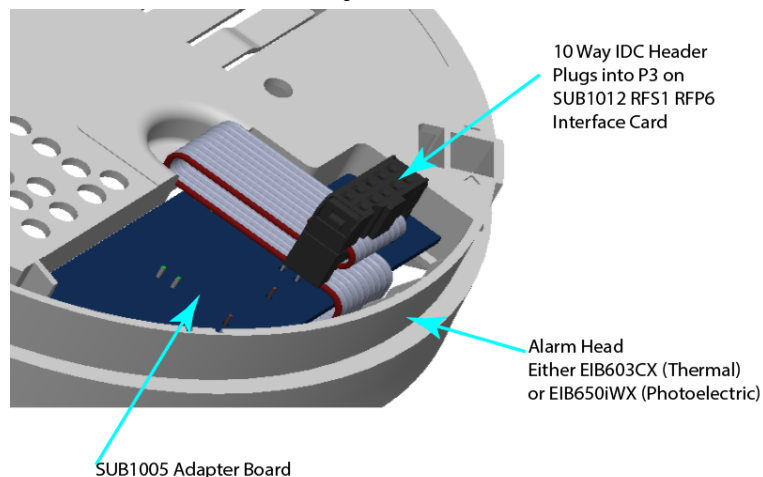


Figure 10 Ribbon cable from SUB1005

- 4) Select the DIP switch settings (see Table 5 on page 27) before powering the panel ON.
- 5) The panel should initialise and maintain in the normal state (Green LED steadily lit) if everything is connected correctly.
- 6) If the ribbon cable assembly is disconnected from an Alarm in a zone, the panel should revert into fault state (refer to respective manuals in alarm head for fault indications) and panel will chirp and also show a zone fault indication.
- 7) If ANY changes to the DIP switch settings are to be made while the panel is operating, please power down the panel first then set DIP switch. The panel will reinitialise with the new settings.

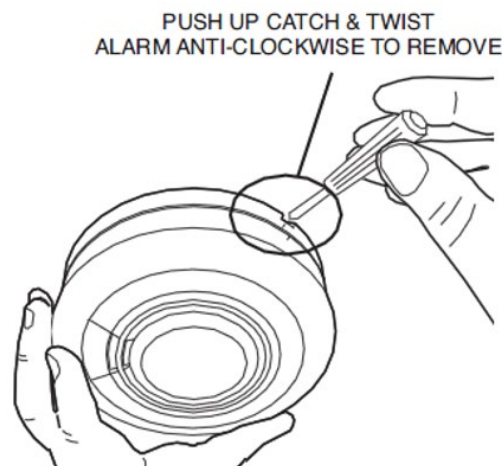


Figure 11 Removing Alarm Heads from EIB603cX and/or EIB650iWX

IMPORTANT PRECAUTION:

Do not install the actual alarm head itself in new or renovated buildings until all work is completed (including floor coverings) and the building has been fully cleaned. The wiring can be installed when appropriate. (Excessive dust and debris from building work can contaminate the smoke chamber or heat sensor and cause problems; it will also invalidate the guarantee). If it must be installed, cover it completely, particularly around the edge, with a dust cover (e.g. with the elasticated cover supplied or a plastic bag), until all cleaning is finished.

Warning: Wiring should only be installed by a properly trained technician or electrician in accordance with current wiring regulations for electrical installation. The installation must also be in accordance with the control panel instructions in this manual.

Warning: The mains circuit used to power RFP V2 must be a 24 hour circuit and be wired on a separate circuit (with no other lights or appliances) to ensure maximum reliability of the supply. Mains circuit must be connected by a licenced electrician

Warning: For safety reasons the voltage supply from the control panel must not be greater than 15V_{DC}.

Note: Applies to all Alarm models, T-Off wiring must be avoided, all terminations from one Smoke / Heat Alarm to the next one should be done at the terminal block provided in each smoke or heat alarm, refer to the block wiring diagrams in Figure 12, Figure 13 and Figure 14.

The terminal blocks on SUB1012 are uni-directional, meaning that **cables must terminate to the "IN" termination points from the previous Smoke Alarm or closest to the panel for the first alarm.** The cables are terminated to the "OUT" terminals to the next Alarm. This means the field wiring coming from the panel direction must be terminated to the incoming termination point as marked as "IN" in Figure 12 page 37 whereas the field wiring on the end of line direction must be terminated to the outgoing termination point as marked as "OUT". For further details, please refer to chapter 10 of this manual.

An RIL terminal is also provided for remote indicators.

Note: Do not interchange the order from IN to OUT, a zone fault will be generated.

RFP Main Board DIP switch settings are master settings that take precedence over the interface card SUB1012.

Table 5 DIP Switch Settings for SUB1012

DIP Switch (S1)	Description	RFP V2	
		ON (UP)	OFF (Down)
1	Panel Model Selection (RFP6)	-	✓
2	Device Priority/Common Alarm Operation	Individual	Common
3	Last Alarm in a zone	Last Alarm	Not Last
4	RIL Latch Operation	Latch	Non-Latch

Note: ✓ means that switch must be set to this position.



Note: It is essential that DIP switch 3 is set to "ON" position if SUB1012 is situated in the last position on the zone. Outgoing termination point is to be left empty.

Note: The end of line device SUB360 must be fitted in the termination board for unused zones.

Take special care to check DIP Switch 3 during installation or expanding the system. There can only be one Smoke/Heat Alarm that is set as the EOL device in each zone and it must be on the last Alarm for that zone. If this is set incorrectly, the panel will indicate with the fault LED lit on that zone.

5 Commissioning

The fire alarm installer shall ensure that all documentation, logbook, handbook (operators and installers manuals), as-installed drawings, and check list are available at the time of commissioning.

The fire alarm system installer should rectify any faults in the fire detection and alarm installation, as appropriate, where the results of the commissioning tests are outside the manufacturer's limits.

An as-installed diagram of the wiring layout of the complete installation, including the positions of the Smoke/Heat Alarms and any ancillary devices, should be provided before a final inspection is made.

5.1 Commissioning Tests

The following tests are to be performed:

5.1.1 System Configuration

1. Ensure that the Smoke/Heat Alarm locations and the RFP are appropriate for the type of site and usage.
2. Check that all Smoke or Heat Alarms used in the system are:
 - Listed in this manual
 - Compatible with the zone specification
 - Number of Smoke / Heat Alarms for each zone is not exceeded.
 - Installed in an environment for which they are suitable.
3. Check that the AC mains power supply for the system has been provided in accordance with AS3000.
4. Visually check all field wiring terminations (refer to the panel wiring instructions).
5. Ensure that only the last smoke/heat alarm is set as the EOL. Refer to Table 5 page 27 for correct DIP switch setting. If EOL device SUB360 is used for supervision, ensure it is fitted in the last Alarm **AND** the Alarm is not set to be EOL.
6. Check that the battery (or batteries) fitted in accordance of the battery capacity calculation sheet. It should be of a suitable type and capacity. (refer to Chapter 9 page 36).
7. Check that all zones have been labelled and that the alarm zone is immediately apparent from the labelling.
8. Check that as-installed drawing has been correctly marked up and that they are consistent with the installation.
9. Record the results of the commissioning test on the commissioning sheet in this Handbook.

5.1.2 Ancillary Functions

'PANIC' – (if used), Disconnect the 'Panic' input and using a multi-meter set to ohms check for an Open Circuit across the field wiring. Operate the 'Panic' device and ensure meter reads short circuit, reset the panic device if necessary and ensure it again reads open circuit. Reconnect the wiring.

'12 Volt' - Disconnect the field wiring and using a multi-meter set to ohms ensure that there is no short circuit across the field wiring inputs. (The exact field resistance will be a function of the device connected i.e., Fire Bell - 150 ohms). Reconnect the wiring.

6 Testing

This section describes the procedures to test your RFP V2 system to ensure that the system is fully functional.

Before you commence testing your RFP system, it is important to ensure that any ancillary equipment i.e. a security system, fire/smoke doors, A/C shutdown etc, are isolated by the ancillary isolate switch on the front of the panel. The switch will illuminate when it has been isolated. If you wish to test any ancillary equipment, it is recommended to notify relevant people e.g. tenants, security/fire monitoring, etc before commencing the test, as this equipment may activate.

6.1 Power Supply

Power supply voltage is pre-set at the factory to 14.5V_{DC} (13.8V_{DC} on battery terminal):

1. Turn the mains isolate switch ON to switch the mains power ON, the power on LED illuminates green. The panel sounder may sound and the zone fault LEDs illuminate yellow for few second. Only the green power ON indicator should stay illuminated green and buzzer chirp activates every 20 seconds until the battery is fitted, no other facility or indicator should function.
2. Switch off the AC supply few times to check that the system will not false alarm.
3. Connect the battery leads to the battery (or batteries), the panel sounder will stop chirping. Ensure that only the power ON LED is illuminating.

6.2 Fire Mode Test

To test the fire mode feature in RFP system, the following should be followed:

1. Activate fire mode by turning the key switch to the 'Fire' position.
 - i. No Alarm LED illuminates
 - ii. All Smoke / Heat Alarms sound
 - iii. Ancillary Outputs activate. Check operation of all ancillary equipment.

Note: Some ancillary equipment may be latching or simply require re-setting. This should be done before proceeding.

2. Return the key switch to "ON" position to restore the RFP back to normal.

6.3 Zone Alarm Test

Brooks do not recommend testing with smoke or heat as the results can be misleading unless special equipment is used.

WARNING: DO NOT TEST WITH FLAME, this will damage both the Alarm and the house.

1. Proceed to each Smoke or Heat Alarm, check that the green light on the Alarm is 'ON'.
2. Press and hold the test button on any Smoke or Heat Alarm on a zone for up to 10 sec to ensure the sensor chamber, electronics and sounder are working. A red light on the cover will flash while horn is sounding. The alarm will stop when the button is released. Verify that every Alarm in this zone is sounding and the zone alarm LED in the panel illuminates. Check also that all ancillary outputs activate.
3. If the panel is configured for common zone operation all other Alarms activate. If the panel is configured for separate zone operation only the Alarms in the zone being tested activate.

Note: If a mimic panel or RIL is connected to the Alarm being tested check that it also illuminates at this time.

4. Repeat for every other zone in the system.

Note: When the test button is pressed, all Alarms will sound but when the button released, it may take 15-30 second to silence every Alarm depending on the number of Alarms in the zone.

5. Return the panel to its normal operating condition and reset any latching indicators by switching the key switch to the "OFF" position and then back to the "ON" position.

Note: If latching ancillary devices are used these will need to be individually reset. If system has been customised, the functions selected may require additional testing. If during testing any of the above steps fail, refer to the "Troubleshooting" in Chapter 7 on page 33.

6.4 Zone Fault Test

1. Proceed to the Smoke/Heat Alarm containing the EOL (last) in zone 1. Remove the EOL device positive / interconnect wire or put S3 to OFF position (if used), check the following:
 - Zone1 fault LED illuminates
 - The panel buzzer will sound continuously.
 - Activate the sounder silence switch. The panel buzzer will chirp once every 20 seconds.
 - Defect Mode relay activate.
2. Restore the wire or S3 to ON, amber fault LED extinguishes. The Panel buzzer will be silenced and defect mode deactivates.
3. Repeat steps 1 and 2 for each zone in the system.

Note: Many options on the RFP are user selectable. Additional testing may be required if the system has been customised. Refer to system as installed details.

4. If a device is connected to the defect mode output, check that the device is activated when:
 - Power is switched "OFF"
 - Ancillary Isolate Switch is "ON"
 - Zone fault is active, Defect Mode relay contact will changeover.

6.5 As-Installed Diagrams and Installer's Statement

An as-installed diagram of the wiring layout of the complete installation, including the positions of the Smoke/Heat Alarms and zone facilities, should be provided before a final inspection is made.

6.6 Log Book

A log should be kept by the person on-site responsible for the RFP V2 system. The responsible person's name and contact details should be kept at the RFP V2 control panel. A separate section of this manual provides an example for the recording of all alarm/service/maintenance details.

6.7 Maintenance

For the continuous reliability of the system, provision should be made for regular inspection, testing and preventative maintenance of the installation. AS1851 provides guidance.

A properly designed and installed detection system offers effective life and property protection. However, for ongoing reliability the system must be maintained at its peak performance. A poorly maintained system can lead to nuisance alarms or complete system failure which will drastically lower the level of protection.

It is recommended that the owner test each Smoke/Heat Alarm every month. The panel alarm test should also be performed.

It is also recommended that each 6 months a full system test be performed by a suitably qualified servicing company. Battery and power supply voltages should be checked and adjusted, if necessary, at this time.

7 Troubleshooting

7.1 False Alarms

In the event of a "false alarm" it is imperative that the cause is determined and corrective action taken.

Condition: False Alarm - System is fully activated; Red zone Alarm LED 'ON'.

7.1.1 Frequent Nuisance Alarms Occur

1. Close kitchen/bathroom door when in use.
2. Ensure that the alarm is sited at least 6m away from sources of fumes.
3. Contamination from insects, paint or paint fumes may have occurred. Clean the Alarm as described in the Alarm booklet.
4. If the problem persists, re-sitting of the unit should be considered. Alternatively, replace with a new unit

7.1.2 Alarm Sounds for no Apparent Reason

- 1) Identify the alarm source, turn key switch to FIRE then press the LOCATE switch so that its amber LED is illuminated. The panel sounder and all the Smoke/Heat Alarms stop sounding except the Alarm which is the source of the alarm. Listen and you will be able to determine the location of the active Alarm.

Note: The RFP alarm is set to be non-latching, when the Alarm resets, the panel resets. If the RFP alarm is set to be latching, the alarm LED remains ON until it resets by turning the key switch to the OFF position.

- 2) Check for cocking fumes, steam etc. from the kitchen or bathroom. Paint and other fumes can cause nuisance alarms. dust, steam, insect spray, cooking fumes, gas heater etc, or it may be a faulty unit. Fan the Smoke Alarm vigorously with a newspaper or cloth to try to clear smoke from inside the sensing chamber. If the Smoke Alarm silences, return to panel, turn the key switch "OFF"; wait for approximately 10 seconds, then turn the system back ON.
- 3) Vacuum the Smoke Alarm head thoroughly.
- 4) If it continues to sound, turn the Panel key switch to "OFF" position.
- 5) Remove the Smoke Alarm head then unplug the adapter board. If a replacement cannot be acquired immediately, continue with step 6.
- 6) Turn the Panel key switch to "ON" position, the panel will indicate a fault. This is due to missing a smoke alarm head.
- 7) When a replacement is available, turn the Panel key switch to "OFF" position, plug-in the adapter board into the new Alarm and mount the head to its base.
- 8) Turn the Panel key switch to "ON" position, the zone fault will clear and the panel should now restore to normal condition i.e. only the Green LED "ON" should be lit.

Note: EIB650iWX and/or EIB603CX are not serviceable, if suspected to be faulty or contaminated, they have to be replaced.

7.2 Faults

A fault is present when the sounder in the panel pulses at intervals of 20 seconds (chirps) or sounds continuously and zone fault LED is illuminating.



7.2.1 Line Fault

If a zone fault LED is lit and the sounder is sounding continuously, then an Open Circuit or Short Circuit (+Ve to -Ve) has occurred. If a Short Circuit has occurred, then the fuse on the zone would have been blown. If a short occurs between +Ve and Interconnect, the zone activates an alarm, this will not be indicated on the panel as a fault. If a short occurs between the -Ve and Interconnect, the panel will activate locate mode, this also will not be indicated on the panel as a fault.

If an Open Circuit has occurred while the fuse is intact, the field wiring should be disconnected and metered to locate the source of the open circuit.

There should only be one Smoke/Heat Alarm that is set as the EOL device in each zone and it must be on the last Alarm for that zone (either by EOL device or DIP switch setting). If this is set incorrectly, the panel will indicate a fault on that zone and the panel buzzer will sound in short intervals. Refer to Table 5, page 27 for correct DIP switch setting.

7.2.2 Low Battery

If the 'Power On' LED is unlit, no red or amber LED is lit and the Sounder Silence switch is not activated, a low battery fault will be indicated by chirps with an interval of about 20 seconds. This may be caused by the 230Vac Mains being off. Mains power should be restored as a matter of urgency.

If the 230Vac Mains has not been off, call the service technician responsible immediately.

7.2.3 Connection Fault

The connection from RFP V2 to all Alarms must be wired as shown in Figure 12, Figure 13, and Figure 14.

If interconnect "IN" and interconnect "OUT" are reversed in any Alarm in a zone, a zone fault will be shown for this zone.

8 Spare Parts

To obtain any of the spare parts shown below or equipment service, please contact your nearest Brooks office shown in the end of the manual

8.1 Main Panel

Stock No.	Description
SUB350A	RFP6 V2 Main & Display Board
SUB351A	RFP6 Expansion Board (for RFP12 / RFP18)
SUB357B	RFP V2 Termination Board
SUB360B	RFP6 End of Line Board
SUB365A	Zone Output Card
SUB600	RFP6 Zone Relay Board
SK150	003 Key Switch
SW165	Mains Isolate Switch
CA115	Ribbon Cable & Connectors
FU155	Fuse Fast Blow 1.5Amp
FU160	Fuse Fast Blow 1Amp
BAPS15V50W	Power Supply
Lead Acid Battery	BBAT12V6.5 BBAT12V15 BBAT12V17

8.1.1 Smoke / Heat Alarms

STOCK No.	Description
EIB650iWX	Photo Electric Smoke Alarm Head
EIB603CX	Heat Alarm Head
HS60V2	Roof Space Heat Detector (switch) 60°
HS80V2	Roof Space Heat Detector (switch) 80°
BAX16	Smoke / Heat Alarm deep base C/W interface card

9 Battery Capacity Calculation

The required battery capacity can be calculated using the active battery calculation spread sheet. By selecting the RFP model, no. of smoke/heat alarms and adding any ancillaries, the spread sheet will automatically calculate the battery capacity required to maintain the system for 72 hours in standby condition followed by 4 minutes in alarm as required by AS3786.

Table 6 Battery capacity calculation

RFP V2 Series Battery Calculations		Rev	2	Date	22-Jul-19	
Project:						
System Components	Stock Number	No. of Units	Quiescent Current I_Q		Alarm Current I_A	
			mA	Total mA	mA	Total mA
6 Zone Residential Fire Panel	RFP6V2	1	17.0	17.0	64.0	64.0
12 Zone Residential Fire Panel	RFP12V2	0	18.0	0.0	80.0	0.0
18 Zone Residential Fire Panel	RFP18V2	0	20.0	0.0	95.0	0.0
Photoelectric Smoke Alarm	EIB650IW	1	4.5	4.5	30.0	30.0
Heat Alarm	EIB603CX	1	6.0	6.0	50.0	50.0
Roof Space Heat Detector 60°	HS60V2	1	0.0	0.0	6.7	6.7
Roof Space Heat Detector 80°	HS60V2	1	0.0	0.0	6.7	6.7
Zone tripping card (6 relays)	SUB365A	0	35.0	0.0	125.0	0.0
Max. 12 Smoke or Heat Alarm per zone						
Total no. of Alarms		4				
Ancillary Output			0.0		0.0	
External Strobe Output			0.0		0.0	
VAD			0.0		0.0	
Others			0.0		0.0	
Total current consumption. (mA)			27.5		157.4	
Standby Time (hours)		72				
Alarm Time (minutes)		4				
Battery Requirement (in AH)		2.501233				
Nearest Standard Battery Size (Ah)		7				
Use 7 AH Battery						
Note: Only yellow cells can be edited						

Manual calculation of battery capacity can also be calculated as follow:

Total Quiescent Current I_Q = _____ mA Standby time T₁ = 72 Hrs

Total Alarm Current I_A = _____ mA Alarm time T₂ = 4 minutes.

$$\text{Battery Capacity (Ah)} = \frac{[(I_Q \times T_1) + 2(I_A \times T_2) / 60] \times 1.25}{1000}$$

10 Block Wiring Diagrams

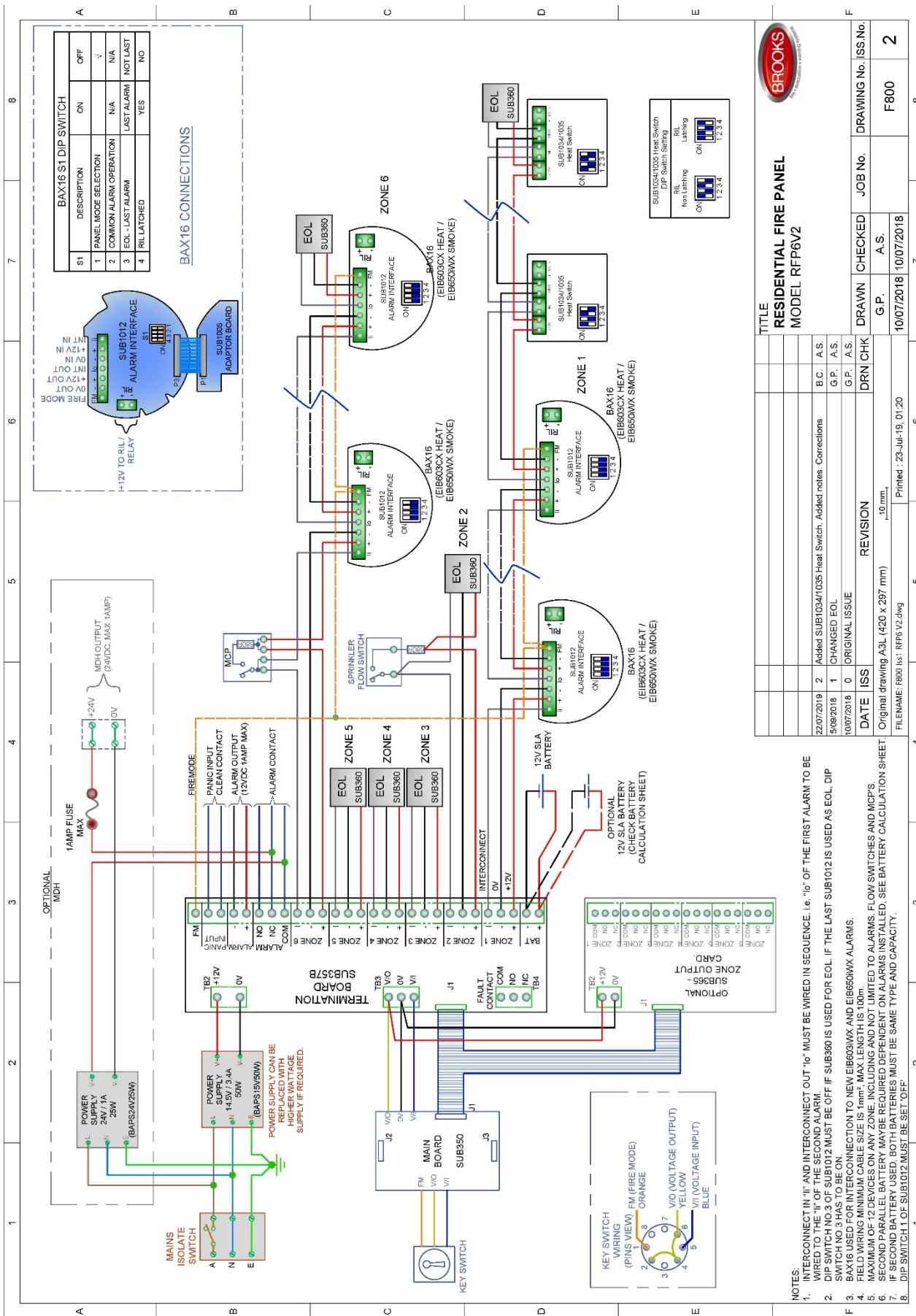


Figure 12 F800 Iss1 RFPV2

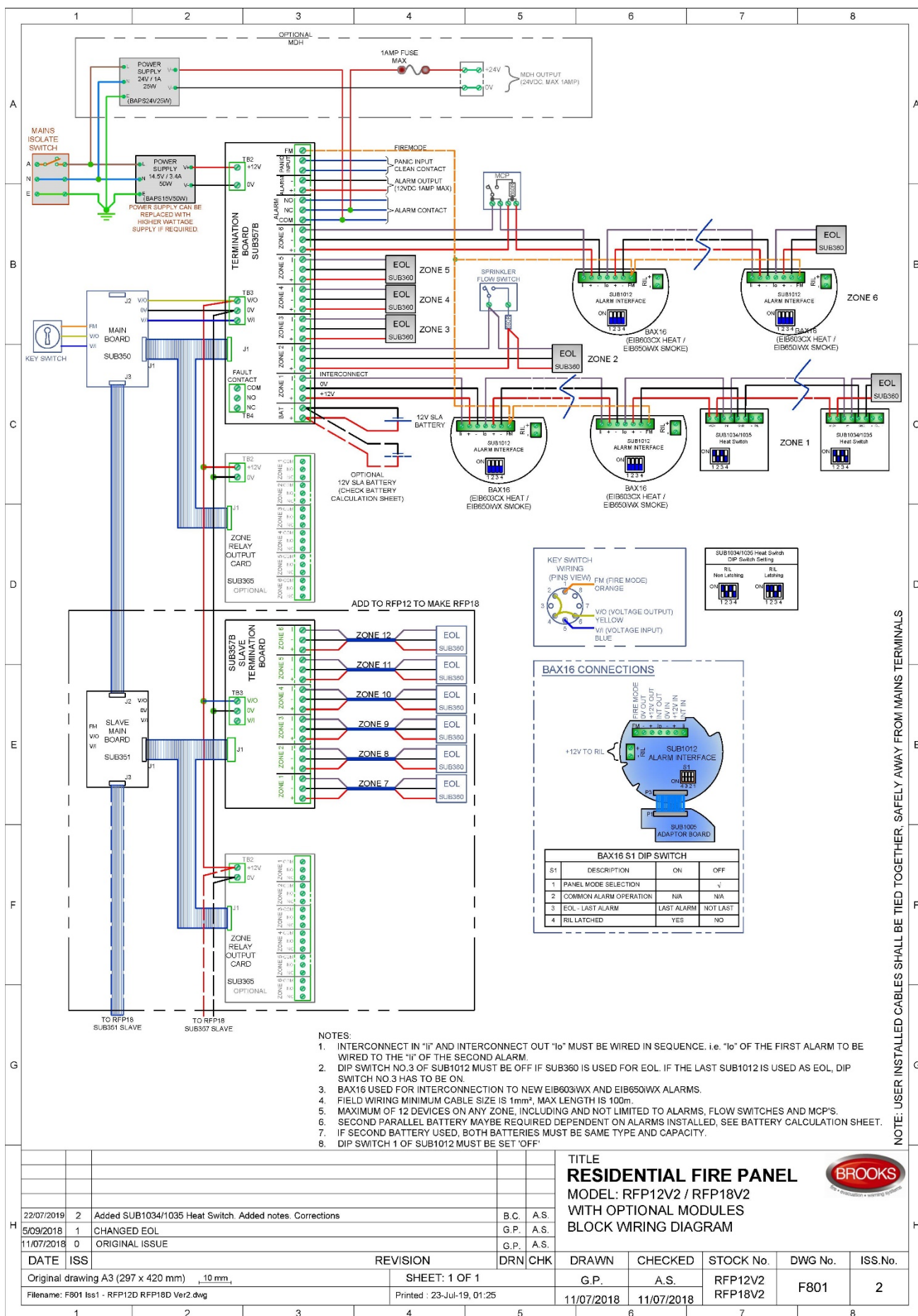


Figure 13 F801 Iss1 – RFP12V2 / RFP18V2

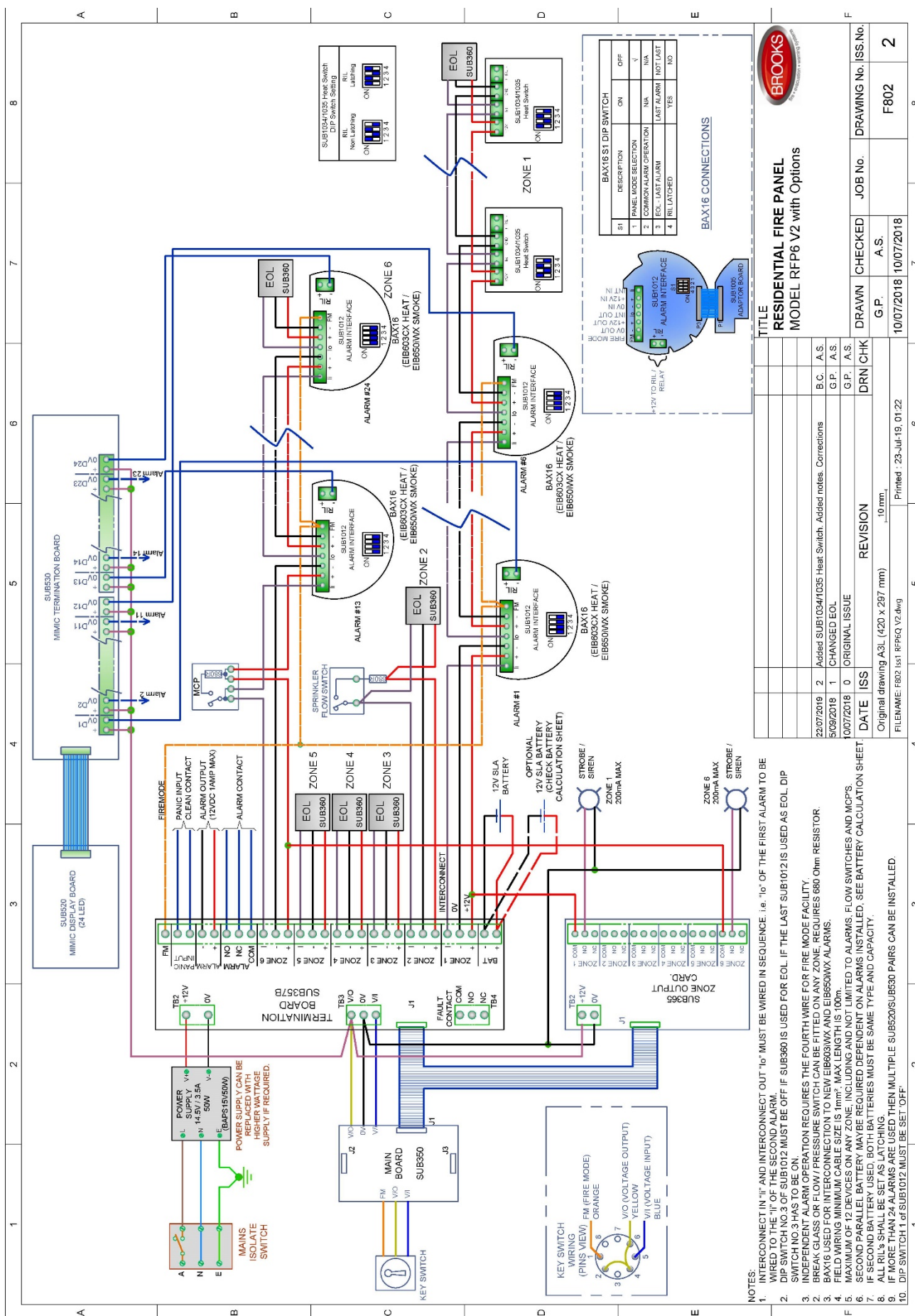


Figure 14 F802 - RFP V2 with Options

1	2	3	4	5	6	7	8	9	10
RFP6 MAIN BOARD SWITCH SETTING									
COMMON ALARM									
INDEPENDENT ALARM									
LATCHING ALARM									
NON LATCHING ALARM									
ALARM TIME DELAY									
COMMON ALARM OUTPUT									
NOTES :									
1) EACH ZONE CAN BE SET WITH DIFFERENT COMBINATIONS									
2) FACTORY SET UP COMMON ALARM, LATCHING ZONE ALARM, 0SEC TIME DELAY FOR ALL ZONES & NONLATCHING									
TITLE									
DIP SWITCH SETTING FOR RFP6/18 MAIN BOARD									
BROOKS AUSTRALIA									
DRAWN: A.S. 1/10/96									
CHECKED: A.S. 1/10/96									
DRAWING No. F499									
ISSUE No. 2									



11 Commissioning Checklists

LOCAL FIRE ALARM SYSTEM

Installer's Statement

Page 1 of 2

1. Building Name

2. Address

3. Is the system monitored? YES/NO If YES, by whom:

4. Name of nearest Fire Brigade Station Phone:

5. Type of Panel: RFP – 6 / 12 / 18 Serial No.:

6. Number of smoke alarms connected:

7. Describe any ancillary equipment installed and connected to the Residential Fire Panel.

8. Main Supply Voltage

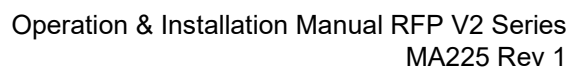
9. Battery Type and Capacity

10. Nominal Battery Voltage

11. Maintenance Agreement held by

12. Has Log Book been supplied YES/NO

13. Have as-installed drawings been supplied YES/NO



Page 2 of 2

Additional Comments

[illegible]



TEST REPORT

SYSTEM CONFIGURATION

As installed Diagrams Correct/Incorrect

Log Book Details Correct/Incorrect

SMOKE ALARMS

Layout Correct/Incorrect

Number Correct/Incorrect

Type Selection Correct/Incorrect

HEAT ALARMS

Layout Correct/Incorrect

Number Correct/Incorrect

Type Selection Correct/Incorrect

Ancillary Devices

Layout Correct/Incorrect

Number Correct/Incorrect

Type Selection Correct/Incorrect

Panel Position _____

IF INCORRECT, COMMENT:

CONTROL PANEL

Alarm Test Correct/Incorrect

Fault Test Correct/Incorrect

Battery Voltage Correct/Incorrect

Mains Connection Correct/Incorrect

Field Wiring Termination Correct/Incorrect



IF INCORRECT, COMMENT

FIELD DEVICES

End of Line Fault Test	Correct/Incorrect
Smoke Alarms All Operational	Correct/Incorrect
Manual Call Points All Operational	Correct/Incorrect
Ancillary Equipment All Operational	Correct/Incorrect

IF INCORRECT, COMMENT:



INFORMATIVE EXAMPLE
RESIDENTIAL FIRE PANEL

LOG BOOK REPORT

MONTH/YEAR: _____

INSPECTION, TESTING AND MAINTENANCE PROCEDURES

Building Name _____

Address _____

Note: Give details of all unsatisfactory items in report section. Refer to owner's manual for commissioning test report.



Place a tick in box where item is
satisfactory



Place a cross in box where item is
unsatisfactory

SIX MONTHLY CHECKS

SIX MONTHLY CHECKS

All RFP equipment clean and operative

☐

Visual inspection of all Smoke/Heat
Alarms

☐

Battery condition and terminals

☐

Correct operation of all ancillary control
devices

☐

Indicator lights correct operation

☐

Operation of manual call points

☐

Correct initiation of each Smoke/Heat
Alarm

☐

Spare glasses for manual call points

☐

Fault annunciation operative

☐

All controls returned to normal condition

☐

REPORT:

SERVICE
PERSON:

Witnessed by:

Print Name

Print Name

Signature

Signature

Date:

Date:

12 Product Guarantee

Brooks Australia Pty Ltd guarantees the RFP V2 control panel for a period of either fifteen (15) months from the date of purchase or twelve (12) months from the date of installation, whichever is the lesser. Brooks Australia Pty Ltd. Guarantees the Smoke/Heat Alarms for five years from date of purchase. If a product has any defect due to faulty workmanship or material it will upon return to Brooks be repaired or replaced free of charge.

If the control panel or any Smoke/Heat Alarm should become defective within the guarantee period, it must be returned to Brooks Australia, with proof of purchase, carefully packaged, with the problem clearly stated. Brooks shall at its discretion repair or replace the faulty unit. If returning the complete product all accessories and documentation **MUST** be returned.

This guarantee only applies to normal conditions of use and service, and does not cover damage caused to the product or its components as a resulting from accident, neglect, misuse, unauthorized dismantling, or contamination howsoever caused, incorrect installation, careless handling or where repairs have been made or attempted by others. Onsite warranty repairs are not part of this guarantee. This guarantee excludes incidental and consequential damage. This guarantee does not cover costs associated with the removal and/or installation of alarms.

No other guarantees written or verbal are authorised to be made on behalf of Brooks. All other conditions and warranties whether expressed or implied are, to the extent permitted by law, hereby excluded.

As Brooks has no control over the system's design, installation to the relevant Australian Standard or maintenance, the Company and its agents take no responsibility for any damage, financial loss or injury caused to any equipment, property or persons resulting from the use of the Residential Fire Panels.

Do not interfere with the Alarm or attempt to tamper with it. This will invalidate the guarantee, but more importantly may expose the user to shock or fire hazards. This guarantee is in addition to your statutory rights as a consumer.



13 Revision History

Issue	Date	Description	Written By	Checked By
0	30/7/2018	Combine RFP 6 & RFP12-18 operation and installation manuals and replace old smoke alarms with EIB603CX and EIB650iWX.	E. Thein / Harry Ng	A. Shenouda
1	18/07/19	Update interface board software to V1.1 to correct delay in alarm in EIB603C and to V1.2 to include the new heat detectors. Update drawings to reflect the mods.	A.S. /H.N.	A.S.

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For the cost of local call.



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