



FA40 OPERATION MANUAL - Issue 1.0

firealert – FA40

Residential Controlling & Indicating Equipment (RCIE)



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Fire Products & Solutions

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FA40 Operation Manual

FireAlert Smoke Alarm System Iss 1.0

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1 SYSTEM OVERVIEW

The FireAlert smoke alarm system (SAS) has been designed to meet the specific requirement of AS1670.6 Fire Detection, Warning, Control and Intercom Systems – System Design, Installation and Commissioning Part 6 Smoke alarm systems and the National Construction Code (NCC) Specifications 20 and 23 for smoke alarm systems.

FireAlert utilises a data-over-power design enabling each Zone device to identify the type of alarm connected. This identification allows the FA40 to distinguish between different alarm types - currently supporting smoke, heat, multi-sensor (smoke/heat) alarms. The FA40 user interface displays the specific alarm type that has initiated the fire alarm through dedicated indicators. This critical feature allows occupants to understand the nature and the Zone of the fire alarm, which in turn, identifies the urgency and the most appropriate exit strategy.

FireAlert provides the SAS designer with a full range of fire alarm devices (smoke, heat and multi-sensor, sprinkler, MCP etc) interfaced to Residential Control and Indicating Equipment (RCIE). This combination of RCIE and fire alarm devices provides the necessary design flexibility to enable a fit for purpose life safety solution within class 1a, class 1b boarding houses, class 2, class 3, class 4 & some class 9c residential building applications.

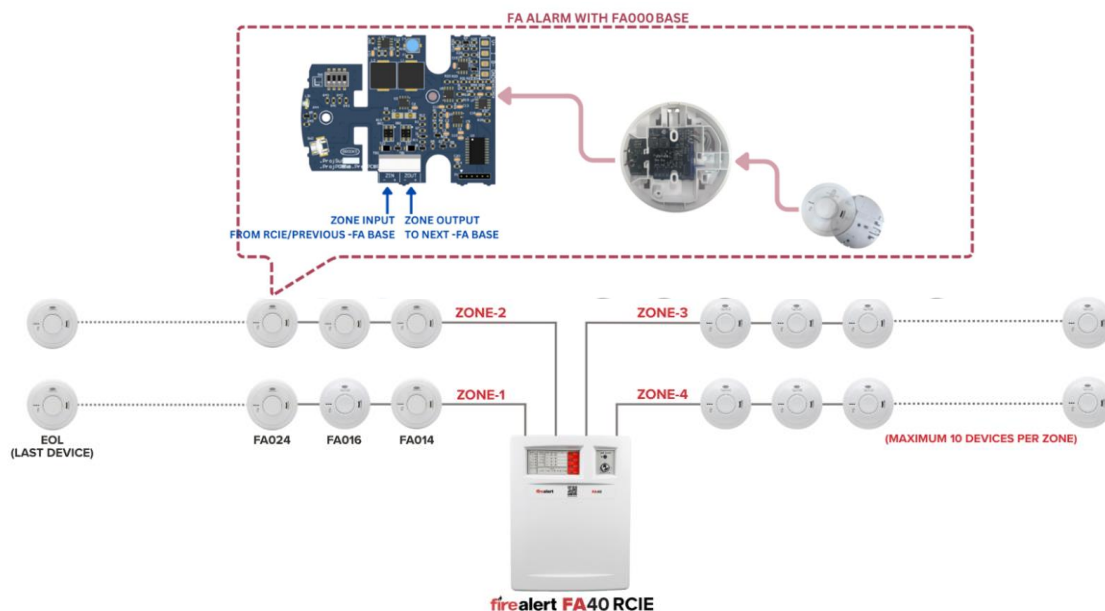


Figure 1: FireAlert Smoke Alarm System



1.1 System Features

- Four zone circuits with up to 10 devices per zone (40 devices total)
- Individual zone indicators. Identifying alarm type and zone fault status.
- Comprehensive system fault monitoring and fault indicators.
- User-friendly controls: Silence Buzzer, Locate Alarm, Silence Alarm, and Reset functions
- Two-tier access control with key switch for Access Level 1 - Public Access, Access Level 2 - Authorized user / Responsible person
- ACF (Ancillary Control Function) inhibit capability for maintenance operations
- Battery-backed operation with automatic charging and supervision
- Dedicated alarm priority outputs (Priority 1 for Heat/MCP/Sprinkler, Priority 2 for all alarm types)
- Automatic re-sound feature for new alarms.
- Easi-fit FA000 mounting base for ease of installation and servicing of alarm devices
- Supports FA016 smoke and FA014 heat
- FA IN Module supports sprinkler, heat sensors and Manual call points (MCP)



1.2 Terms & Definitions

Terms	Description
FA40	FireAlert, 4 Zone RCIE
FA000	Alarm's mounting Base for connecting FA0xx series alarms to the FA40 RCIE.
FA014	Heat alarm using a Class A1 thermistor sensor, suitable for areas with smoke or fumes.
FA016	Photoelectric smoke alarm designed to detect smouldering fires.
FA-IN	Input device supporting Sprinkler, Heat sensors, Manual Call Point (MCP)
RCIE	Residential Control and Indicating Equipment
Smoke Alarm	A device capable of detecting smoke and generating an alarm condition. <i>(FA016) At Brooks all smoke alarms are Type A, photoelectric smoke alarms</i>
Photoelectric Sensor	A sensor that detects visible products of combustion by using a light beam. Light is transmitted into the sensing chamber. When combustion products enter the sensing chamber they reflect the light to the sensor receiver, the sensor sends an alarm signal.
Heat Alarm	A device capable of detecting heat and generating an alarm condition. (FA014)
Thermistor	A type of temperature-sensitive resistor whose resistance changes significantly with temperature.
Multi-criteria Alarm (Multi)	A fire alarm device incorporating within one mechanical housing more than one fire sensor with all sensors separately monitored for the presence or absence of an output signal relating to fire development, Where the output signals from each sensor are evaluated according to predefined algorithm to determine when an alarm condition is reached. Smoke + Heat sensor combined into 1 alarm where the alarm condition is determined by a response from both the smoke and heat sensors.
Combination alarm	A fire alarm device incorporating within one mechanical housing more than one fire sensor, with each sensor independently signalling an alarm condition.
Alarm Type	Smoke (FA016), Heat (FA014)
Alarm Condition	Visual and Audible signal to indicate the presence of fire.
Fault Condition	Visual and Audible signal given as indicating the existence of an actual or incipient fault that may prevent an alarm condition or transmission of an alarm signal to interconnected devices
Smoke alarm types	Type A: Smoke alarm that does not contain radioactive materials.
	Type B: Smoke alarm containing radioactive materials.
Smoke alarm Bands (AS 3786:2023)	Band 1: Response threshold greater than 0.05 dB/m
	Band 2: Response threshold greater than 0.2 dB/m
	A1: Response threshold greater than 54°C but less than 65°C



Heat Alarm Class (AS 1603.3:2018)	<i>(Brooks FA0xx series heat alarms are class A1)</i>
	A2: Response threshold greater than 54°C but less than 70°C
	B: Response threshold greater than 69°C but less than 85°C
	C: Response threshold greater than 84°C but less than 100°C
Ancillary Control Facility	A dedicated output of the RCIE which provides for supplementary functionality when the smoke alarm system enters the alarm condition
DIP Switch	A switch used to configure device settings.
EOL Resistor	End-of-Line resistor used to supervise wiring integrity in alarm output circuits.
EOL Device	A device installed at the end of the zone a signal to residential control and indicating equipment.
Alarm zone	Area protected by one or more alarm devices which provides a common identification at the residential control and indicating equipment
Connectible device	Device for supplementary purposes, not conforming to a component standards referenced in AS1670.6, whose operation or failure will not jeopardise the performance of the smoke alarm system
Locate facility	Control facility within the FA40 RCIE used in conjunction with the zone alarm devices that enables the specific device or devices in the alarm condition to be identified

2 SYSTEM COMPONENTS

2.1 FireAlert Series Alarms (FA0xx)

Note: For more information on troubleshooting FA series alarm and what the indicators on the device themselves indicate, refer to §6.1

2.1.1 Smoke Alarm (FA016)

2.1.1.1 Overview Description

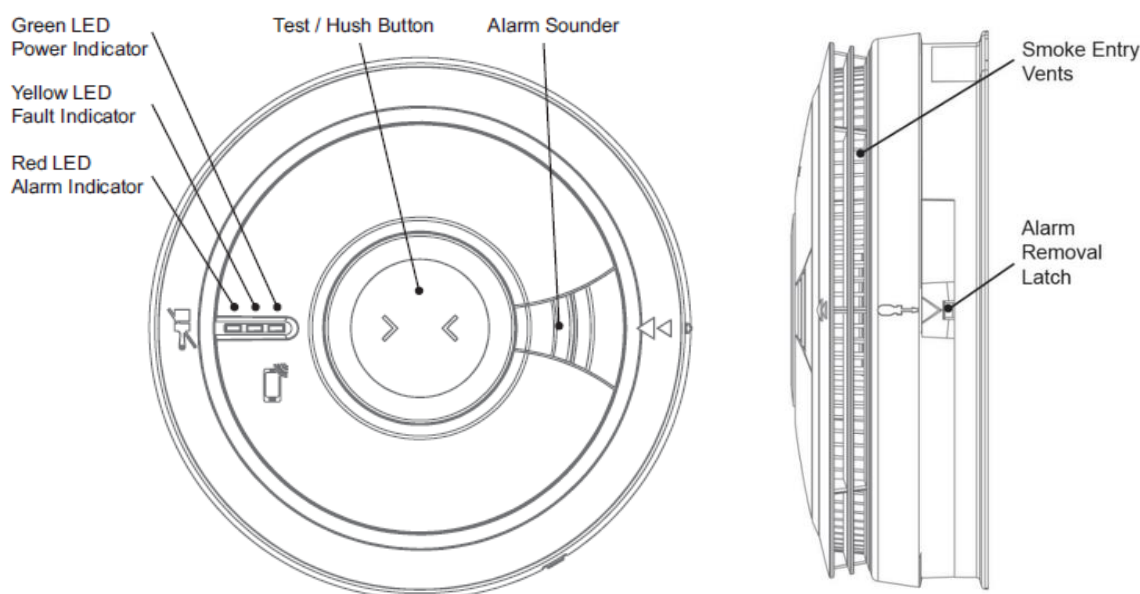


Figure 2: FA016 Smoke Alarm

The FA016 is a Photoelectric Smoke Alarm designed to detect smouldering fires. It is ideal for living rooms, in all sleeping areas, passageways, corridors, hallways and stairwells that are part of a path of travel to the exit door of the building. The smoke sensor is AS 3786:2023 Band 1. The chamber design and integrated insect screen reduces the risk of nuisance alarms; this coupled with the unique dust compensation algorithm extends the service life of the alarm.

The FA016 mounts onto the FA000 base, which draws its main and standby power from the FA40 RCIE. This in turn charges the integrated rechargeable standby battery within the FA016. In the event of power loss from the FA40 RCIE, this non removable rechargeable battery provides the FA016 with up to 6 months of operation. This non removable rechargeable battery has a 10-year service life.

The FA016 has a memory feature to identify if that alarm device has previously been in the alarm condition (through the red flashing indicator). This feature assists in identifying an alarm device prone to nuisance alarms.

The FA016 self-checks its sensor, battery voltage, and internal circuitry every 48 seconds. Any fault condition found will be indicated by a combination of yellow indicator flashes and sounder chirp at the alarm.



FA016 conforms to AS 3786:2014 Amds 1 & 2 as well as AS 3786:2023 Band 1.

2.1.1.2 Features

- **Band 1 Photoelectric Smoke Sensor:** Proven optical sensor for smouldering fires.
- **Test/Hush Button:** Tests sensors and silences alarms for 10 minutes.
- **Visual Indicators:** Green (power), Yellow (fault), Red (alarm/memory).
- **Self-Test:** Automatic periodic testing of sensors, batteries, and electronics.
- **Dust Compensation:** Automatically recalibrates the smoke sensor thereby reducing the false alarms caused by dust or contamination, thereby maximising service life.

2.1.1.3 Specifications

- **Power Supply:** 16 Vdc Power Source.
- **Battery Backup:** 10-year rechargeable lithium cells (6 months backup).
- **Alarm Sound Level:** 85dB(A) at 3 meters.
- **Operating Temperature:** -10°C to +40°C.
- **Humidity Range:** 15% to 95% RH (non-condensing).
- **Dimensions:** Ø150mm x 63mm.
- **Weight:** 350g (including packaging).
- **Approvals:** Conforms to AS 3786:2014 Amds 1 & 2 as well as AS 3786:2023 Band 1.
- **Service Life:** 10 years.

2.1.1.4 Operation

- Green indicator indicates 16 Vdc power is available; flashing green indicates backup battery mode.
- Yellow indicator and chirps indicate faults (e.g., sensor fault, low battery, end of life).
- Red indicator indicates alarm or memory of a prior fire event.
- Use the Hush button to silence nuisance alarms for 10 minutes.

Note: Within the FA40 system, if the hush button is activated directly on the alarm unit, the FA40 panel will not indicate the silence condition.

2.1.2 Heat Alarm (FA014)

2.1.2.1 Overview Description

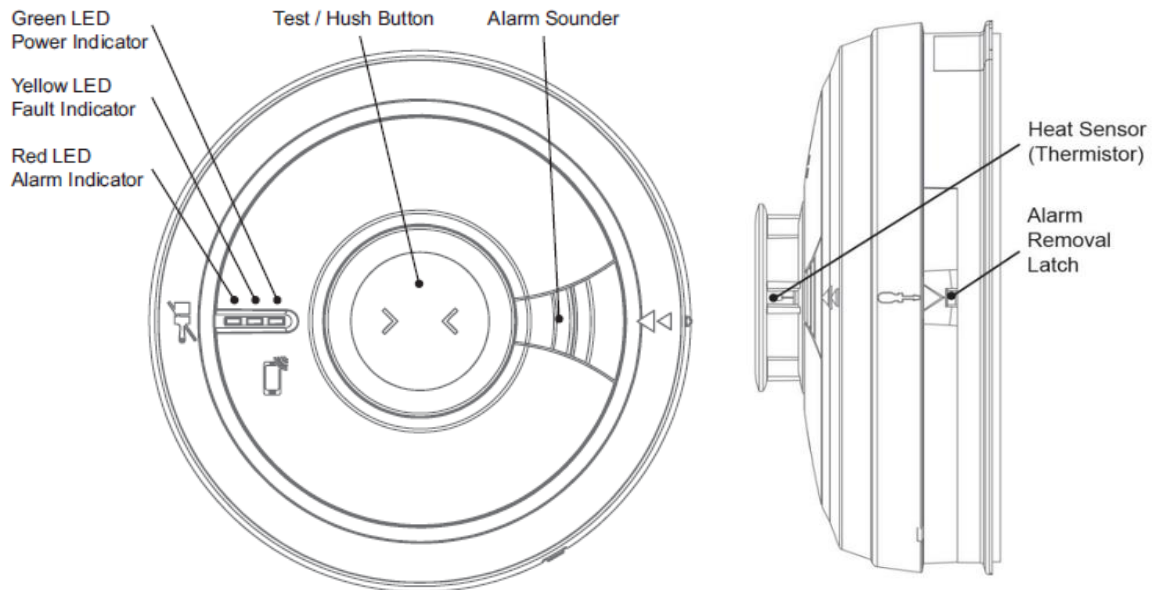


Figure 3: FA014 Heat Alarm.

The FA014 is a heat alarm incorporating a Class A1 thermistor heat sensor. FA014 detects heat and therefore is not considered to provide an early warning of fire. It is specifically designed for kitchens, garages, and areas with elevated levels of fumes, smoke, or dust are likely, where the installation of a smoke alarm may cause excessive nuisance alarms. As such the FA014 must be used as a supplementary device to the smoke alarms within FireAlert.

The FA014 mounts onto the FA000 base, which draws its main and standby power from the FA40 RCIE. This in turn charges the integrated rechargeable standby battery within the FA014. In the event of power loss from the FA40 RCIE, this non removable rechargeable battery provides the FA014 with up to 6 months of operation. This non removable rechargeable battery has a 10-year service life.

The FA014 self-checks its sensor, battery voltage and internal circuitry every 48 seconds. Any fault condition found will be indicated by a combination of yellow indicator flashes and sounder chirp at the alarm.

The FA014 has a memory feature to identify if that specific alarm device has previously been in the alarm condition (through the red flashing indicator). This feature assists in identifying an alarm device prone to nuisance alarms.

The FA014 conforms to AS 1603.3:2018.

2.1.2.2 Features

- **Heat Sensor:** Fast reacting Class A1 thermistor for detecting heat from fires.
- **Test/Hush Button:** Tests sensors and silences alarms for 10 minutes.
- **Visual Indicators:** Green (power), Yellow (fault), Red (alarm/memory).
- **Self-Test:** Automatic periodic testing of sensors, batteries, and electronics.



2.1.2.3 Specifications

- **Power Supply:** 16 Vdc power source derived from FA000 Base.
- **Battery Backup:** 10-year non removable rechargeable lithium cells (6 months backup).
- **Alarm Sound Level:** 85dB(A) at 3 meters.
- **Operating Temperature:** -10°C to +40°C.
- **Humidity Range:** 15% to 95% RH (non-condensing).
- **Dimensions:** Ø150mm x 66mm.
- **Weight:** 350g (including packaging).
- **Approvals:** Conforms to AS 1603.3:2018.
- **Service Life:** 10 years.

2.1.2.4 Operation

- Green indicator indicates 16Vdc power is available; flashing green indicates backup battery mode.
- Yellow indicator and chirps indicate faults (e.g., sensor fault, low battery, end of life).
- Red indicator indicates alarm or memory of a prior fire event.
- Use the Hush button to silence nuisance alarms for 10 minutes.

Note: Within the FA40 system, if the hush button is activated directly on the alarm unit, the FA40 panel will not indicate the silence condition.

2.2 Easi-fit FA Base (FA000)

2.2.1 Overview Description

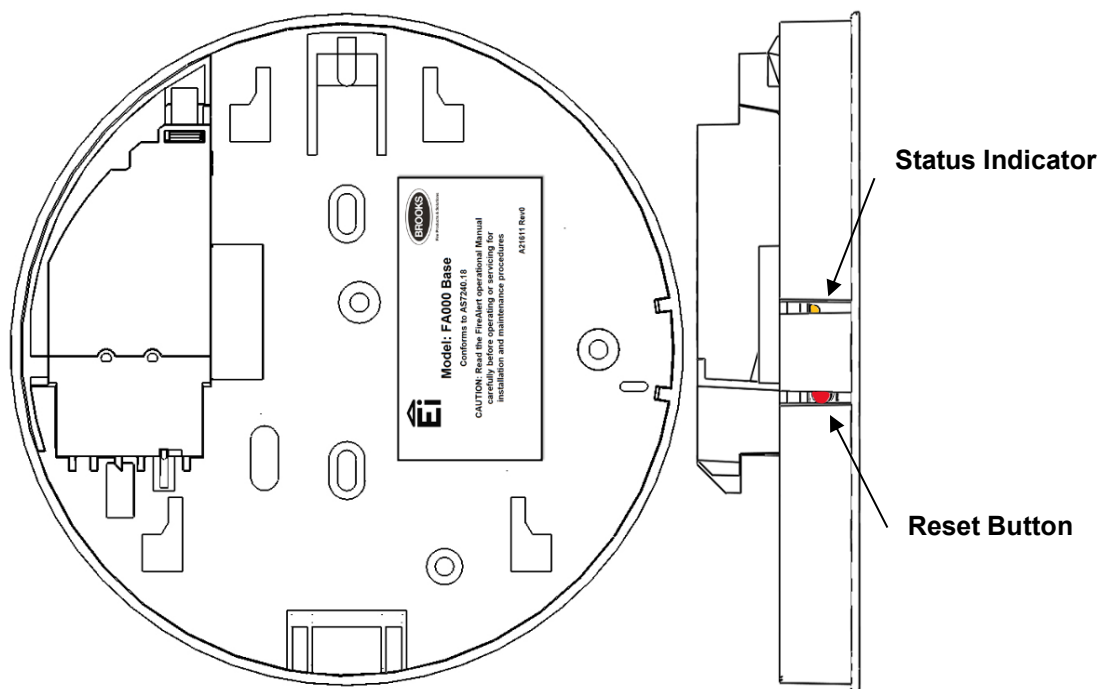


Figure 4: FA000

The Easi-fit FA000 Base has an interface card that connects FA series alarm devices to the FA40 RCIE zone circuits. DIP switches on the FA000 Base select the device type for proper identification by the FA40 RCIE. The FA40 RCIE displays device removal fault when an alarm device is removed from its FA000 Base. The FA000 Base provides terminals for all field wiring connections and includes status indicator to display operational state.

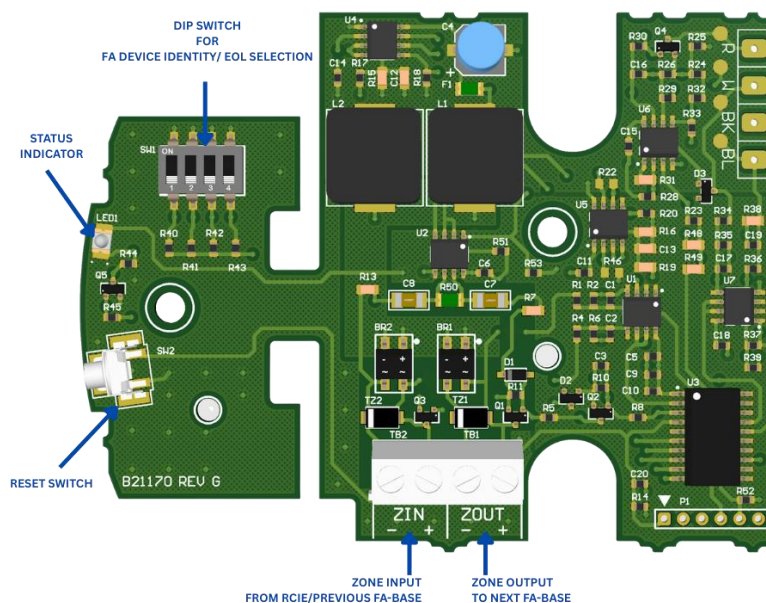


Figure 5: FA000 Base Interface Board



The status indication is observable when the alarm point is attached in its normal orientation, refer to §2.2.3 Status Indicator. A reset switch is provided for address reset or installation trouble shooting.

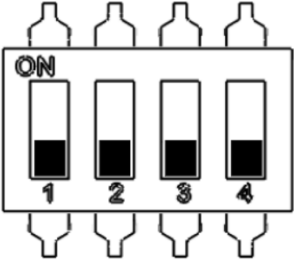
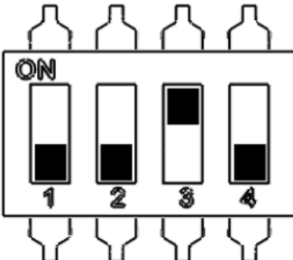
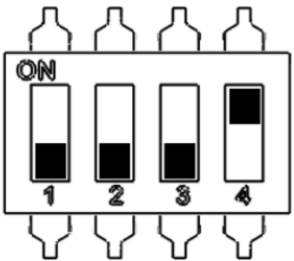
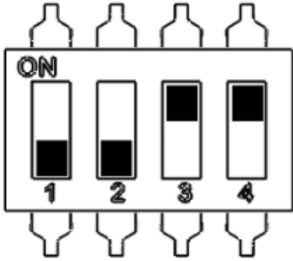
2.2.2 Alarm Type Configuration

The FA000 Base uses DIP switches to identify the alarm type connected to the FA40 RCIE. Switch 4 must be set to ON when the FA000 Base is the last device on a zone circuit (EOL).

Table 1 Dip Switch Settings of FA000 Base

Function	1	2	3	4
FA016 (Smoke)	OFF	OFF	OFF	
FA014 (Heat)	OFF	OFF	ON	
Last Device (EOL)				ON

Table 2: FA000 Base DIP Switch Combinations

FA016	FA014
	
 FA016 EOL Enabled	 FA014 EOL Enabled



2.2.3 Status Indicator

The yellow status indicator on the side of the FA000 Base is designed to signal abnormal operating conditions. Its behaviour varies depending on the nature of the fault:

Table 3: FA000 Base Fault Indicator

Condition:	Behaviour:	Description:
Unconfigured FA000 Base	ON	Indicates the device is not configured; requires attention
Internal Fault	Fast flash (4 Hz)	Hardware or checksum error detected
System/Communication Fault	Slow flash (1 Hz)	Zone error or communications issue.
Normal Operation	OFF	System functioning normally

At startup or after a short press of the reset button, the device's address is indicated by the status indicator flashing. Count the flashes to determine the address:

- **Addresses 1–5:** The Fault indicator flashes the corresponding number of times.
- **Addresses 6–10:** One long flash followed by short flashes indicates the address.
Example: Address 8 = 1 long flash + 3 short flashes.

This flashing pattern continues for 10 minutes after the FA000 Base receives power and successfully communicates with the FA40 RCIE. This gives installers sufficient time to check that each FA000 Base has successfully registered with the FA40 RCIE.

2.2.4 Reset Button

Note: The FA000 Base comes programmed as address zero from factory. During discovery, the address of the FA000 Base will be automatically programmed with an address from 1 to 10 sequential depending on position within zone.

The reset button on the side of the FA000 Base is used to either identify the address of the FA000 Base or to factory reset the FA000 Base back to default address.

To press the reset button, insert a 3mm flat head screwdriver or similar object carefully into the slot of the FA000 shown below:

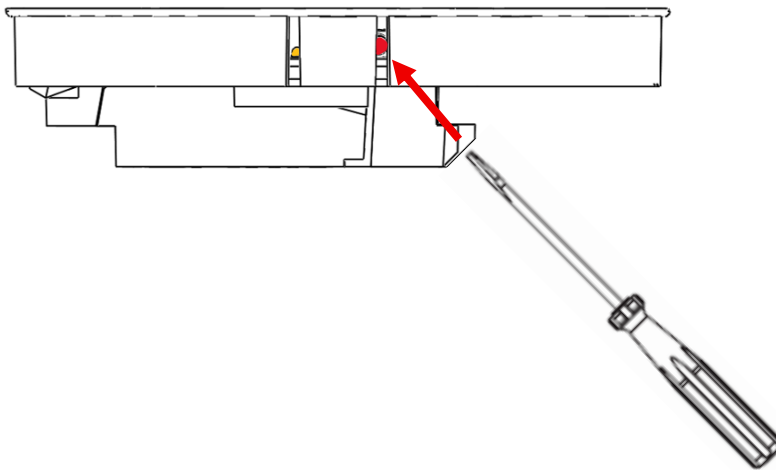


Figure 6: Pressing FA000 Base reset button.

2.2.4.1 Address identification

Pressing and holding the reset button down for >2 seconds will cause the FA000 Base to flash its assigned address.

Once the FA000 Base starts flashing its address, remove the flat head screwdriver from the reset button. The address of the FA000 Base will continue to flash for 10 minutes according to the flash pattern as described in §2.2.3

2.2.4.2 Address reset

Pressing and holding the reset button down for >5 seconds and/or until the FA000 Base status indicator turns solid yellow.

This will reset the FA000 Base address back to zero and will require a FA40 RCIE to start device discovery. Refer to §3.4.3

2.3 Residential Control and Indicating Equipment (FA40)

2.3.1 Overview Description



The FA40 RCIE is a four-zone fire alarm control panel housed in an plastic enclosure and provides four zone circuits, with each zone supporting up to 10 fire alarm devices for a system maximum of 40 devices. Communication with Zone devices occurs through the using 2 wire data-over-power technique, ensuring reliable fire detection, alarm notification, and system monitoring.

The FA40 RCIE includes a main control board with integrated zone circuits, a power supply supervision board, a 3.5-amp switch mode power supply, field wiring terminations, AC mains input termination with fuse protection, and a 24V standby battery system (2 × 12V 9Ah batteries in series). The 3.5-amp power supply sets the system's power budget. The system's power limitations are a combination of the number of devices required, any ancillary loads connected and the standby time required in the event of main power loss (see CI 3.1.4).

The system provides zone-specific alarm indication, comprehensive fault monitoring, user control functions, and common alarm/fault outputs.

The FA40 RCIE has an integral zone display on the front panel which provides all the necessary indicators for indication of alarm condition, system status and system control. Custom zone descriptions can be added to the display. Refer to §3.1.7 for installation instructions.

The enclosure provides for the mounting of a zone block diagram as per AS 1670.6 –Refer to §3.1.8 for installation instructions.

The FA40 conforms to the applicable requirements of AS 7240.2 and AS 7240.4

Note: The FA40 is a CISPR-32:2012 Class A product. In a domestic environment, this product may cause interference.

Note: The FA40 RCIE cannot be expanded in the number of zones.

**Table 4: FA40 Specifications**

Item	Specification
Mains 230Vac	230VAC, 1.3A
Battery Backup	2 x 12V 9Ah
Ambient Temperature: Operating Storage	-0°C to +40°C (indoor use only) -5°C to +50°C
Ambient Humidity (%RH)	Maximum 90, non-condensing
Cabinet Size (mm)	450 x 350 x 125 (H x W x D)
Cabinet Weight (kg)	4kg, excluding batteries. 9kg with 2 x 12V 9Ah batteries
Cabinet Material	UL 94 V-0 Fire rated plastic (Full compound ABS)
Ingress protection	IP 30
Approvals	Conforms to AS 7240.2:2018, AS 7240.4:2018

2.3.2 FA40 Main Control Board

2.3.2.1 Description

The FA40 Main Control Board performs all processing and control functions for the FA40 RCIE, it provides four zone circuits, each supporting up to 10 alarm devices (40 total system maximum). It connects to Zone devices via two-wire zone circuits, utilizing data-over-power technology for reliable communication.. All zone circuits are continuously supervised for open circuit, short circuit, and device removal faults to ensure system integrity.

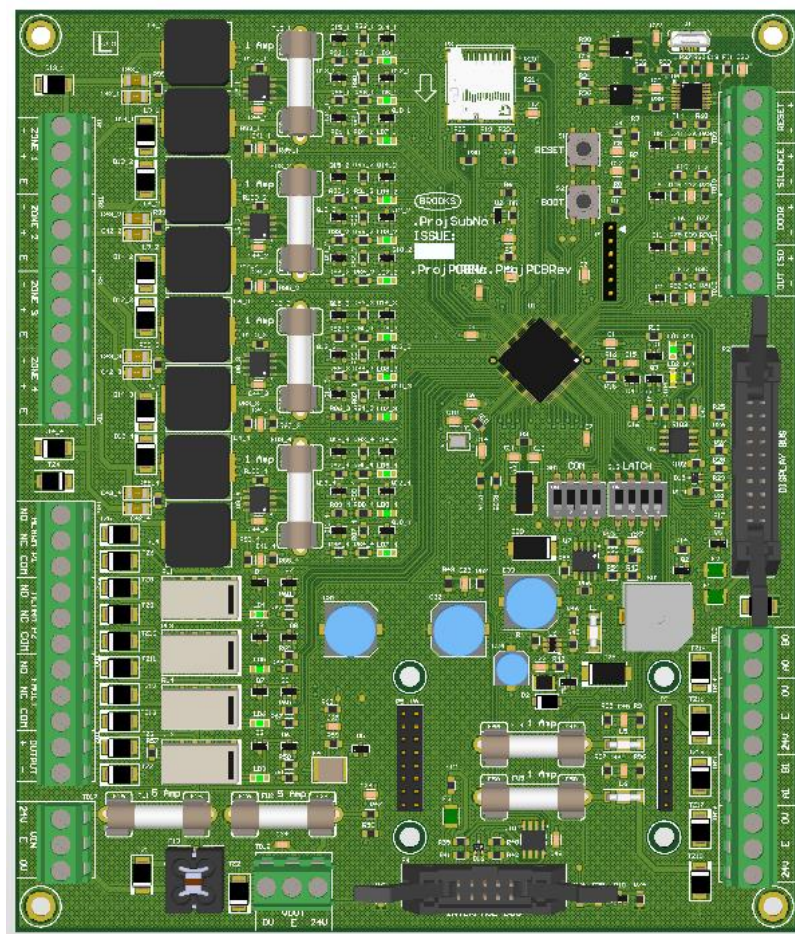


Figure 7: FA40 Main Control Board

The FA40 Main Control Board provides some level of customisation via way of DIP switches, refer to §2.3.2.5 for further information.

The FA40 Main Control Board provides a buzzer to indicate FA40 RCIE alarms and faults.

2.3.2.2 System Outputs

- Priority 1 (P1) relay - Activates for heat, MCP, or sprinkler alarms.
- Priority 2 (P2) relay - Activates for all alarm types.
- General Fault relay - Indicates any system fault condition.
- ACF Output - Supervised 24Vdc with inhibit control for maintenance §2.3.2.4

2.3.2.3 Board Connections

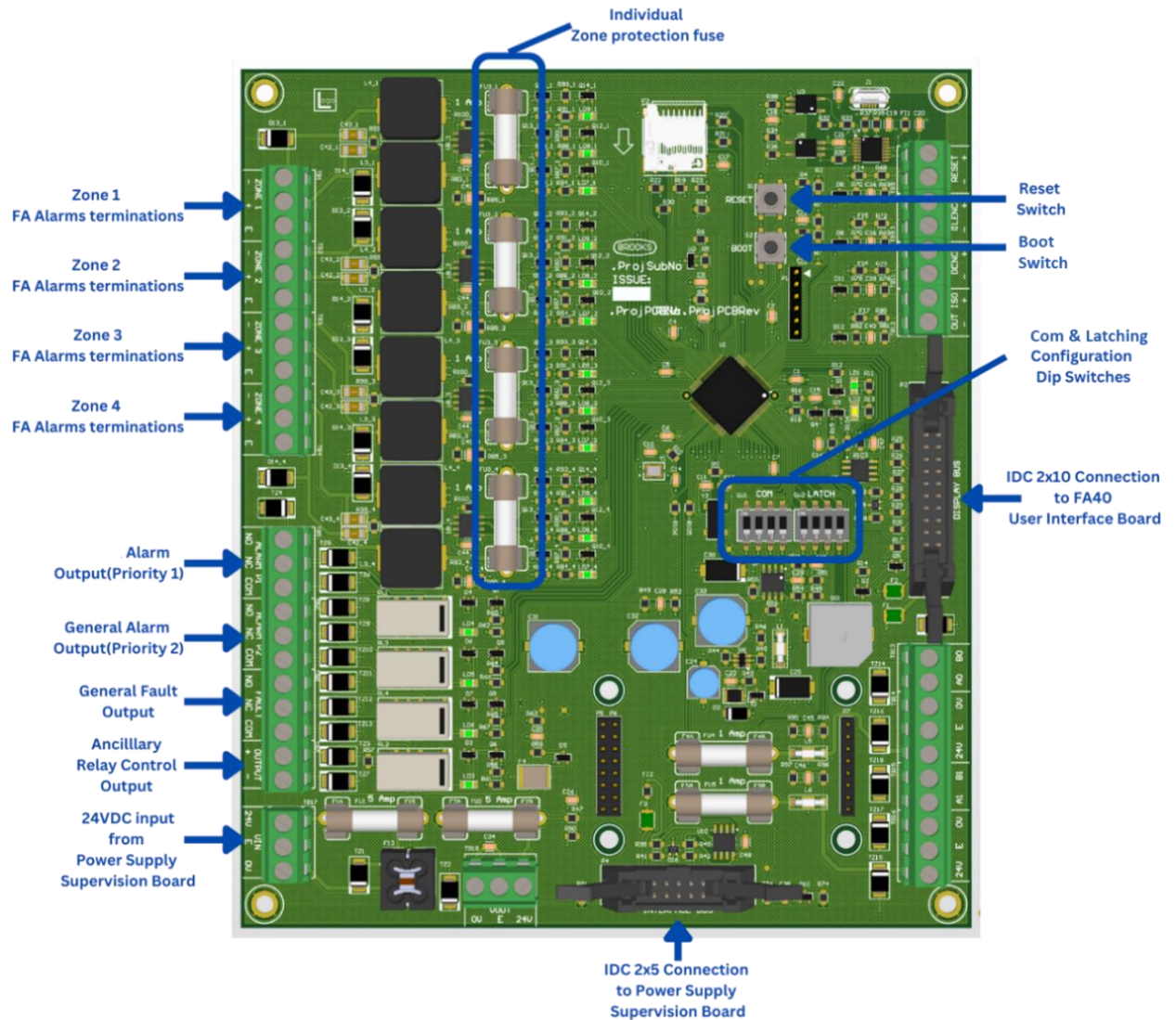


Figure 8: FA40 Main Control Board Connection



Table 5 FA40 Main Control Board Connections

Designator	Type	Label	Pin	Description
TB1	Screw Terminals	Zone 1	-	To Zone FA Devices
			+	
			E	
TB2	Screw Terminals	Zone 2	-	To Zone FA Devices
			+	
			E	
TB3	Screw Terminals	Zone 3	-	To Zone FA Devices
			+	
			E	
TB4	Screw Terminals	Zone 4	-	To Zone FA Devices
			+	
			E	
TB5	Screw Terminals	Alarm P1	NO	Priority 1 Alarm Heat/MCP/Sprinkler Dry-contact output. 24Vdc/1A.
			NC	
			COM	
TB6	Screw Terminals	Alarm P2	NO	Priority 2 Alarm All Alarm Types Dry-contact output. 24Vdc/1A.
			NC	
			COM	
TB7	Screw Terminals	Output	+	Ancillary Control Function Output +24Vdc, 550mA Maximum current output.
			-	
TB8	Screw Terminals	Fault	NO	General Fault Dry-contact output. 24Vdc/1A. Normally Energised
			NC	
			COM	
TB17	Screw Terminals	Vin	24V	24Vdc connection from Power Supply Supervision Board
			E	
			0V	
P2	IDC header 2x10	Display Bus		Power & Data Comms to FA40 User Interface
P4	IDC header 2 x 5	Interface Bus		Data Comms to Power Supply Supervision Board



2.3.2.4 Ancillary Control Facility (ACF) output

The ACF output is a supervised 24Vdc output (550mA maximum) designed to trigger ancillary devices, such as VAD's door holders, ventilation shutdowns, or alarm transmission equipment, during alarm conditions.

The ACF output requires a 47kΩ end-of-line (EOL) resistor connected across the positive and negative terminals at the last device. This resistor enables the FA40 RCIE to continuously monitor the circuit integrity. Without this resistor, the system will indicate an ACF output fault §4.3.

ACF output is monitored for:

- Open circuit (broken wire or missing EOL resistor)
- Short circuit (wiring fault)

When a fault is detected, the ACF Fault indicator illuminates and the FA40 Main Control Board buzzer sounds.

An ACF inhibit control is provided for allowing authorized service technicians/personnel to temporarily inhibit the operation of the ACF output during maintenance or testing. Refer to §4.2.5 for more information.

2.3.2.5 Common Alarm (COM) DIP Switches

The common alarm DIP switches are marked as COM on the FA40 Main Control Board.

When a zone's COM switch is set to ON, that zone operates in common alarm mode. In this mode, if any alarm activates in that zone, it will trigger ALL alarms across ALL zones in the system, regardless of the other zones' COM settings. This creates a General Fire Alarm from a single zone activation.

When set to OFF, the zone operates independent alarm mode - alarms in that zone will only sound the devices within that specific zone unless another zone with COM=ON is triggered.

Example: If Zone 2 COM is ON and Zone 2 detects smoke, all alarms in Zones 1, 2, 3, and 4 will activate simultaneously, providing General Fire Alarm condition.

Note: A priority 1 alarm will set off all zones as if that zone was configured for common alarm.

Note: DIP switches changes require Access Level 3. Modification of the DIP switch setting will generate a System Fault. A Main Board Reset is required to accept the updated DIP switch settings.

Table 6 “COM” DIP Switch Positions

Function	1	2	3	4
Zone 1 setup for common activation	ON	OFF	OFF	OFF
Zone 2 setup for common activation	OFF	ON	OFF	OFF
Zone 3 setup for common activation	OFF	OFF	ON	OFF
Zone 4 setup for common activation	OFF	OFF	OFF	ON



2.3.2.6 Latch Alarm DIP Switches

The latch alarm DIP switches are marked as LATCH on the FA40 Main Control Board.

When enabled on a zone, the latch alarm function latches alarm state on the FA40 RCIE. If an alarm is triggered and clears locally, the FA40 RCIE will maintain the alarm state on the Display panel and relay outputs.

Clearing Latched alarms by Display Panel Reset button. (Requires Access Level 2)

Note: DIP switches changes require Access Level 3. Modification of the DIP switch setting will generate a System Fault. A Main Board Reset is required to accept the updated DIP switch settings.

Table 7 “LATCH” DIP Switch Positions

Function	1	2	3	4
Zone 1 LATCH Alarms enabled	ON	OFF	OFF	OFF
Zone 2 LATCH Alarms enabled	OFF	ON	OFF	OFF
Zone 3 LATCH Alarms enabled	OFF	OFF	ON	OFF
Zone 4 LATCH Alarms enabled	OFF	OFF	OFF	ON

2.3.2.7 Main Control Board Fuses

The Main Control board has many fuses to protect the board from damaged due to wiring issue or connected device fault.

Investigation into the cause of blown fuse is recommended to ensure the reliable operation of the FA40 RCIE.

Note: Replacing fuses with higher current ratings may result in damage to the FA RCIE and will **NOT** be covered by warranty.

Table 8 Main Control Board Fuse Specifications.

Designator	Circuit Protected	Specification
FU1	Power Input	Fast Acting M205 Ceramic Fuse 5A.
FU2	Power Output to Zone Extension Module	Fast Acting M205 Ceramic Fuse 5A.
FU3-1, FU3-2, FU3-3, FU3-4	Individual Zone Circuit 1-4	Fast Acting M205 Ceramic Fuse 1A.
FU4	Power Output 1 to Optional Module	Fast Acting M205 Ceramic Fuse 1A.
FU5	Power Output 1 to Optional Module	Fast Acting M205 Ceramic Fuse 1A.

2.3.3 FA40 User Interface Display Board

2.3.3.1 Description

The FA40 user interface display board provides a simplified zone description and indicators for each zone status, general system status and user-friendly button to control the system. It directly communicates with the main control board via the display IDC cable displaying system status and controlling the system at proper access level. The unit incorporates a cover detection switch to monitor access and identify any tampering attempts when the system is opened without authorised access.



Figure 9: FA40 User Interface Display Board

2.3.3.2 Indicators

- Power ON (Green)
- General Fire (Red)
- General Fault (Amber)
- ACF Inhibit (Amber)
- ACF Delay (Amber – Output delay feature has been activated)
- ACF Active (Red)
- Zone Fire (each zone, Red)
- Zone Fault (each zone, Amber)
- Smoke (Red, flashing interlocked to zone alarm – identifies the zonal alarm condition has resulted from smoke detection)
- Heat (Red, interlocked to zone alarm – identifies the zonal alarm condition has resulted from Heat detection)
- MCP (Red, interlocked to zone alarm – identifies the zonal alarm condition has resulted from Manual call point activation)
- Sprinkler (Red, interlocked to zone alarm – identifies the zonal alarm condition has resulted from residential sprinkler system activation)
- ACF fault (Amber – Supervised Alarm O/P fault)
- PSU Fault (Amber)



- CPU fault (Amber)
- Earth fault (Amber)
- System Fault (Amber)

2.3.3.3 Controls with Indicators

- Silence Buzzer – mutes the integral FA40 RCIE fire/fault buzzer. Automatically resets to normal after the fault condition is cleared.
- Locate Alarm – silences all FA alarms except the Alarm(s) that have activated. Used to locate the source of the fire or contaminated Smoke / Alarm.
- Silence Alarm – silences all FA alarms
- ACF Inhibit –Inhibit Ancillary Control Facilities output at main control board.

2.3.3.4 Controls without Indicators

- Reset – Place the system into normal condition.
- 003 Key Switch –Access Level control.

2.3.3.5 Board Connection

Table 9 Connection of FA40 User Interface Board

Designator	Type	Label	Pin	Description
P1	IDC header, 2x10	TO MAIN BOARD		Connection to Main Board for Power & I2C data comms
TB1	Screw Terminals	DOOR Switch I/P	C	Door input, door open/close detection
			NO	
TB1	Screw Terminals	KEY Switch I/P	C	Access Key in, 003 Key for access level 1 & 2
			NO	

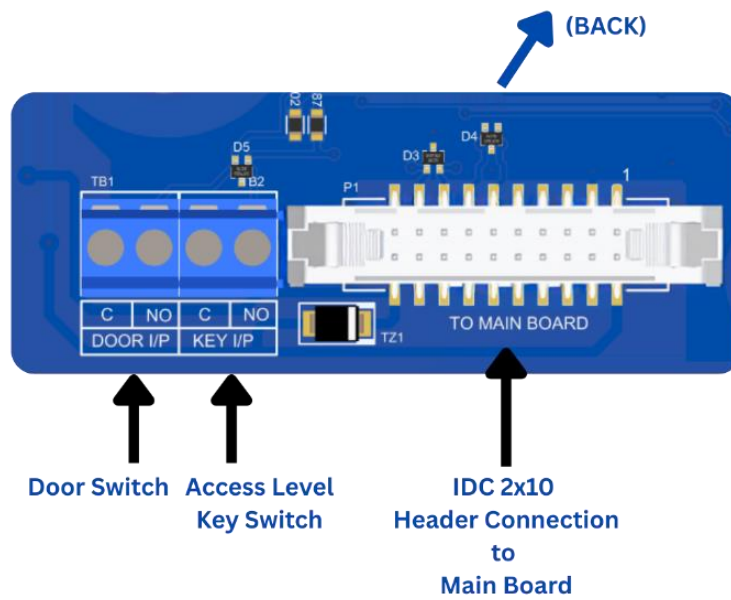


Figure 10: FA40 User Interface Board Connection

2.3.4 FA40 Power Supply Supervision Module

2.3.4.1 Description

The FA40 RCIE consists of power supply supervision module, 3.5A switch mode power supply and 2 x 12V 9Ah batteries. The power supply supervision module used in the FA40 RCIE is configured to be working only as 100W power supply with 9Ah batteries back-up via dip switch.

The power supply supervision module constantly monitors the main power source status and the standby batteries power source status. The power supply supervision module also has capability to detect the earth fault in the system and show it on the display board. The power supply supervision module will periodically test batteries to ensure they are still in their optimal operation conditions. This module will also automatically charge the connected batteries. Fault statuses are indicated on the power supply supervision module as well as the FA40 user interface.

Refer to §Table 14 Power Supply Supervision Module Charge Status Indicators and Table 15 Power Supply Supervision Module Fault Indicators.

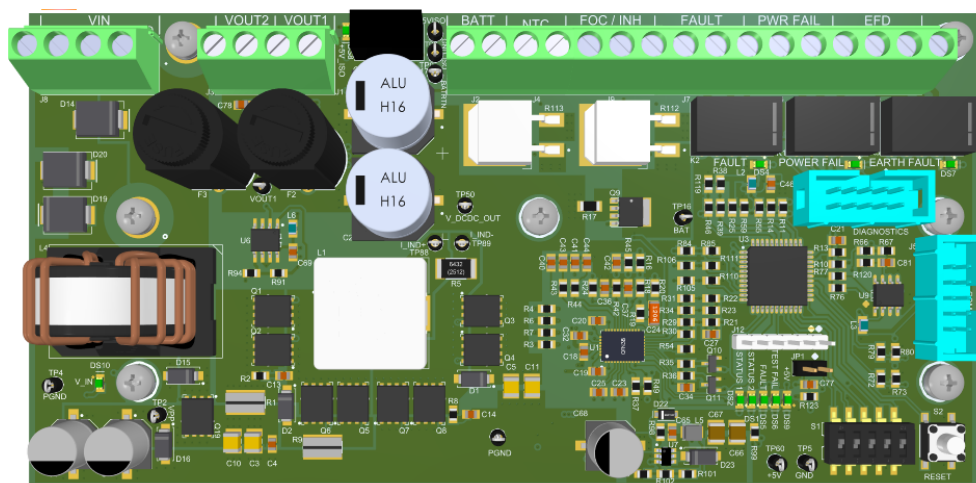


Figure 11: Power Supply Supervision Module

The power supply supervision module continuously monitors the battery charging and batteries status to detect any of the following fault conditions:

- Mains failure
- Batteries disconnected
- Batteries voltage low
- Batteries internal resistance high
- Earth leakage fault
- Fuse status for outputs 1 & 2

2.3.4.2 Features

Inputs:

- Batteries input (2 x 12V 9Ah batteries, in series).
- DC voltage input (from Switch Mode Power Supply).
- Test Inhibit Input – Disables battery tests when terminals are connected.
- Battery temperature sensor (NTC thermistor) input. NTC terminal uses NTC thermistor to monitor battery temperature and stop battery charge if temperature is too high.

**Outputs:**

- Two +24VDC outputs.
- Power Fail Fault– voltage free contact.
- General Fault – voltage free contact.
- Earth Fault – voltage free contact.
- Open collector fault output FOC(OC). The terminal is high impedance on normal state and active low when a fault occurs.
- Mains output (MO). The terminal is a current limited terminal to indicate a voltage presence on the primary power source.

Others:

- Communicate general status of power supply supervision module to main board via CA105 power supply cable.
- Selectable power supply/ battery capacity via dip switch setting (100W/ 150W & 320W)

Note: the FA40 has a maximum power output of 100W

- Periodic battery internal resistance check

2.3.4.3 Specifications

The specifications shown in the table below include absolute maximum ratings. Exceeding these limits will cause permanent damage to the module.

Table 10 Power Supply Supervision Module Specifications

Parameter	Value
Nominal Input Voltage	24V $\pm$ 10%
Nominal Output Voltage	26.5V $\pm$ 10%
Current Consumption @ Quiescent	89 mA
Max System Power	100/ 150/ 320watts
Max System Current	3.5/ 6.5/ 12A
Max Charge Current	0.8/ 1.8/ 2.8A
Recommended Battery Type	Sealed Lead Acid
Min Battery Size	7Ah
Max Battery Size	18/ 42/ 65Ah
Relay Contact rating	30Vdc, 1A, 30watts max

Note: The power supply supervision module is configured as 100W/ 9AH setting for the FA40 RCIE



2.3.4.4 DIP Switch Settings

Note: The Power supply supervision module can be configured for systems that exceed the capabilities of the FA40 system. The FA40 Power supply will be pre-configured from factory and should not be adjusted.

The FA40's power supply supervision module DIP switch configuration should be all OFF, except for the Earth Fault detection enable (DIP switch 5).

Table 11 Power Supply Supervision Module DIP switch & configurations

Function	1	2	3	4	5
PSU Selection (100W)	OFF	OFF			
PSU Selection (150W)	OFF	ON			
PSU Selection (320W)	ON	OFF			
BATT Selection (7-18AH)			OFF	OFF	
BATT Selection (18-42AH)			OFF	ON	
BATT Selection (42-65AH)			ON	OFF	
Earth Fault Detection Enable					ON

Note: Invalid DIP Switch Settings will result in showing fault on startup of the power supply supervision module the +24V output will not be enabled.

2.3.4.5 Power Supply Fuses

The Power Supply supervision module has many fuses to protect the board from damaged due to wiring issue or connected device fault.

Investigation into the cause of blown fuse is recommended to ensure the reliable operation of the Power supply supervision module.

Note: Replacing fuses with higher current ratings may result in damage to the Power Supply and will **NOT** be covered by warrantee.

Table 12 Power Supply Supervision Module Fuse Specifications

Designator	Circuit Protected	Specification
F2	Power Output-1	Fast Acting M205 Ceramic Fuse 6A.
F3	Power Output-2	Fast Acting M205 Ceramic Fuse 6A.

2.3.4.6 Board Connection

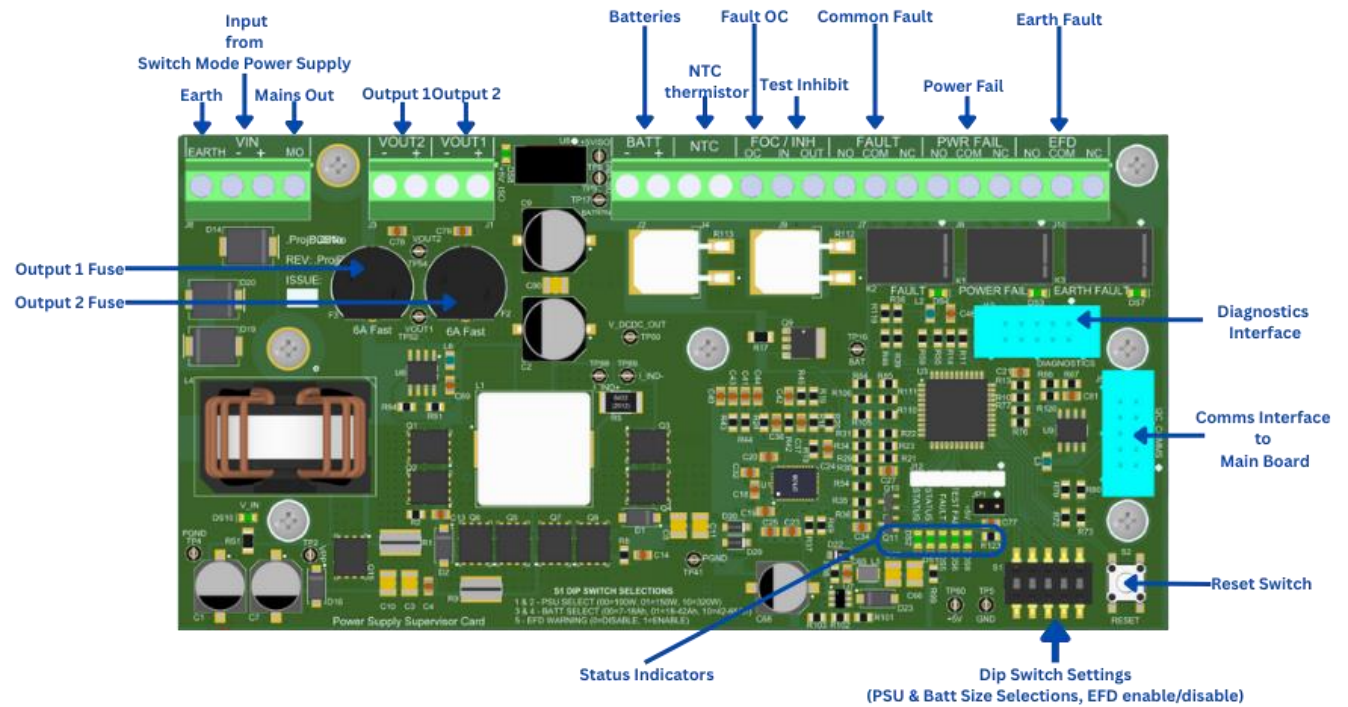


Figure 12: Power Supply Supervision Module Connections

Table 13 Connection of the Power Supply Supervision Module

Designator	Type	Label	Pin	Description
J1	Screw Terminals	VOUT1	+	Power source output 1
			-	
J2	Screw Terminals	BATT	+	Secondary power source input
			-	
J3	Screw Terminals	VOUT2	+	Power source output 2
			-	
J4	Screw Terminals	NTC	1	Battery temperature sensor input
			2	
J5	IDC header, 2x5	I2C_COMMS		I2C Connection to Main Control Board
J6	Screw Terminals	POWER FAIL	NO	Voltage free primary power source fails relay contact output. This output is normally energized.
			COM	
			NC	
J7	Screw Terminals	FAULT	NO	Voltage free common fault relay contact output
			COM	
			NC	
J8	Screw Terminals	VIN	EARTH	Earth Terminal
			-	Primary power source input.
			+	Primary power source status output.
			MO	Mains On (MO)
J9	Screw Terminals	FOC/INH	OC	Open collector fault output
			IN	Test Inhibit Input. Shorting this contact IN & OUT will inhibit the periodic battery test
			OUT	
J10	Screw Terminals	EFD	NO	Voltage free earth fault relay contact output
			COM	
			NC	
J12	Pin Header			Programming Header (Internal Use)
J13	IDC header, 2x5	DIAGNOSTICS		Diagnostics Interface (Internal Use)

Table 14 Power Supply Supervision Module Charge Status Indicators

Designator	Label	Colour	Conditions			
DS1	Status 2	Green	ON	ON	OFF	OFF
DS2	Status 1	Green	ON	OFF	ON	OFF
			Bulk Charging Stage	Absorption Charging Stage	Float Charging Stage	Not Charging

**Table 15 Power Supply Supervision Module Fault Indicators**

Designator	Label	Colour	Conditions	Description
DS3	Power Fail	Green	ON	Output Voltage is present
DS4	Fault (Relay)	Amber	ON	General fault relay is activated
DS5	Fault	Amber	ON	General fault
DS6	Test Fail	Amber	ON	Battery impedance test fail
DS7	Earth Fault	Amber	ON	Earth leakage detected
DS8	+5V_ISO	Green	ON	Output Switch 5V Bootstrap Supply is present
DS9	+5V	Green	ON	Main 5V Supply is present
DS10	Vin	Green	ON	Vin 24Vdc is present

2.4 FA-IN Module

2.4.1 Overview Description

The FA-IN FA Input Module provides supervised monitoring of fire safety field devices including sprinkler flow switches, manual call points (MCPs), and thermal heat detectors.

The FA-IN provides supervised input (clean contact) via end of line resistor.

The FA-IN provides 2 status indicators.

The FA-IN uses DIP switches to identify the alarm type connected to the FA40 RCIE.

The FA-IN is supplied in a IP65 rated enclosure.



Figure 13: FA-IN Input Module

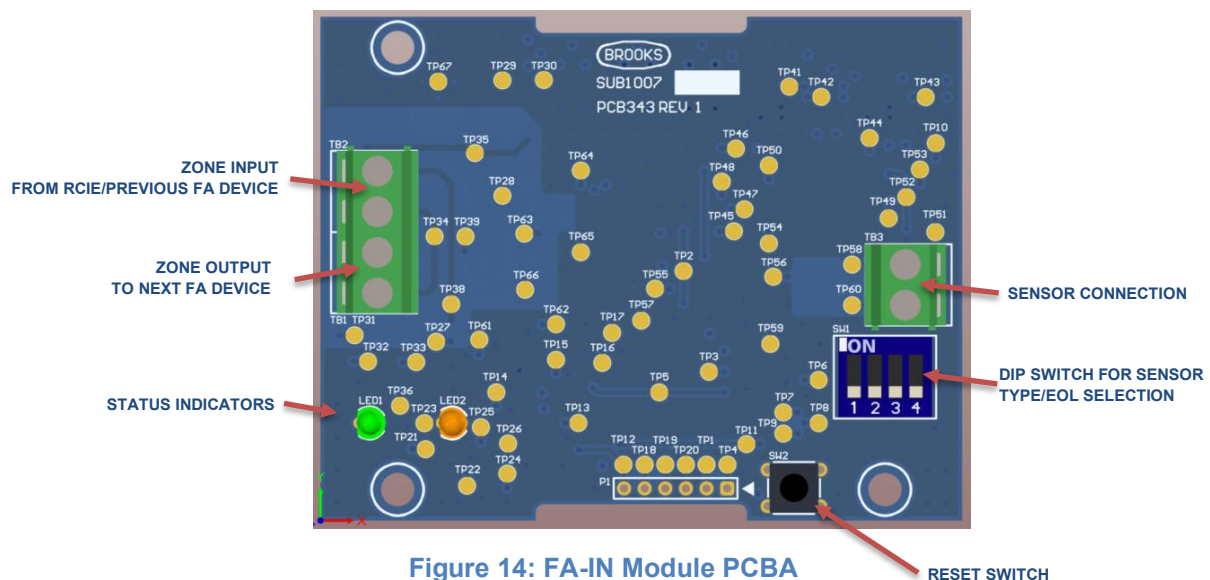


Figure 14: FA-IN Module PCBA

2.4.2 Supported Sensors

The FA-IN supports the following input sensors.

Table 16: FA-IN Supported Sensors

Model Number	Description	Maximum Devices	Maximum Cable Length
Brooks 6295	Heat Detector 60°C	Three	16m total
Brooks 6296	Heat Detector 80°C	Three	16m total
Brooks MRCSRR	Manual Call Point	Two	16m total

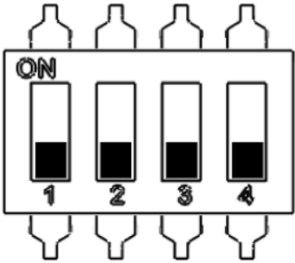
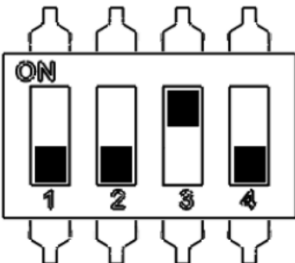
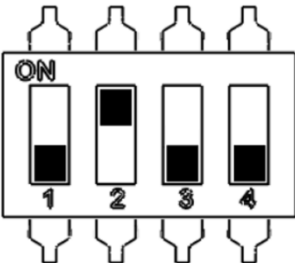
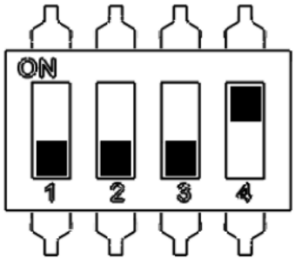
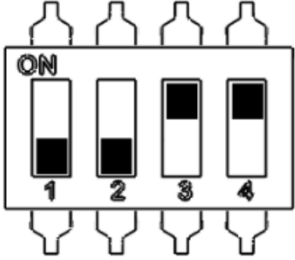
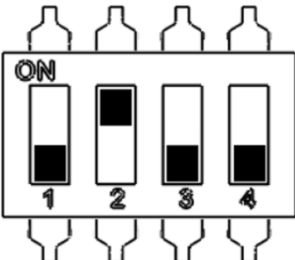
2.4.3 Sensor Type Configuration

The FA-IN Module uses DIP switches to identify the alarm type connected FA-IN. Switch 4 must be set to ON when the FA-IN Module is the last device on a zone circuit (EOL).

Table 17: FA-IN Sensor Type Configuration

Function	1	2	3	4
Manual Call Point	OFF	OFF	OFF	
Thermal Heat Detector	OFF	OFF	ON	
Sprinkler Input	OFF	ON	OFF	
Last Device (EOL)				ON

Table 18: FA-IN DIP Switch Combinations

MCP	HEAT	Sprinkler
		
 MCP EOL Enabled	 HEAT EOL Enabled	 Sprinkler EOL Enabled

2.4.4 Status Indicator

The FA-IN provides 2 status indicators to aid during installing and fault finding. This provides local indication of the status of the FA-IN module installation without the need to view the FA40 RCIE panel.

Module Condition	Description	Power Indicator	Status Indicator
Normal	Module in idle operation	Slow Flash (¼ Hz)	OFF
Display Address	Display address on bootup	Slow Flash (¼ Hz)	ADDRESS
Unconfigured FA-IN	Indicates the device is not configured; requires attention	Slow Flash (¼ Hz)	ON
Internal Fault	Hardware or checksum error detected	OFF	Fast Flash (4 Hz)
Communication Fault	Bus error or communication issue present	Slow Flash (¼ Hz)	Slow Flash (1 Hz)
Input Fault	Short circuit / open circuit detected at input port	Fast Flash (4 Hz)	OFF
Input Triggered	Alarm / input triggered condition detected at input port	Slow Flash (1 Hz)	OFF

Figure 15: FA-IN Status Indicators

At startup or after a short press of the reset button, the device's address is indicated by the status indicator flashing. Count the flashes to determine the address:

- **Addresses 1–5:** The Fault indicator flashes the corresponding number of times.
- **Addresses 6–10:** One long flash followed by short flashes indicates the address.
Example: Address 8 = 1 long flash + 3 short flashes.

This flashing pattern continues for 10 minutes after the FA-IN Module receives power and successfully communicates with the FA40 RCIE. This gives installers sufficient time to check that the FA-IN module has successfully registered with the FA40 RCIE.

2.4.5 Reset Button

Note: The FA-IN Module comes programmed as address zero from factory. During discovery, the address of the FA-IN Module will be automatically programmed with an address from 1 to 10 sequential depending on position within zone.

The reset button on the FA-IN Module is used to either identify the address of the FA-IN Module or to factory reset the FA-IN Module back to default address.

2.4.5.1 Address identification

Pressing and holding the reset button down for >2 seconds will cause the FA-IN Module to flash its assigned address.

The address of the FA-IN Module will continue to flash for 10 minutes according to the flash pattern as described in §2.4.4



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2.4.5.2 Address reset

Pressing and holding the reset button down for >5 seconds and/or until the FA-IN Module status indicator turns solid yellow.

This will reset the FA-IN Module address back to zero and will require a FA40 RCIE to start device discovery. Refer to §3.4.3

3 INSTALLATION & COMMISSIONING

3.1 FA40 RCIE Cabinet Installation:

FA40 LV fixed wiring installation and connections must be carried out by a licensed electrician.

FA40 cabinet to be installed in accordance with Australian Installation requirements as detailed in AS 1670.6

The FA40 cabinet is designed to be wall mounted.

To access the internals and for mounting of the FA40 RCIE, unscrew the front cover, via the M3 screw found at the bottom of the cabinet:

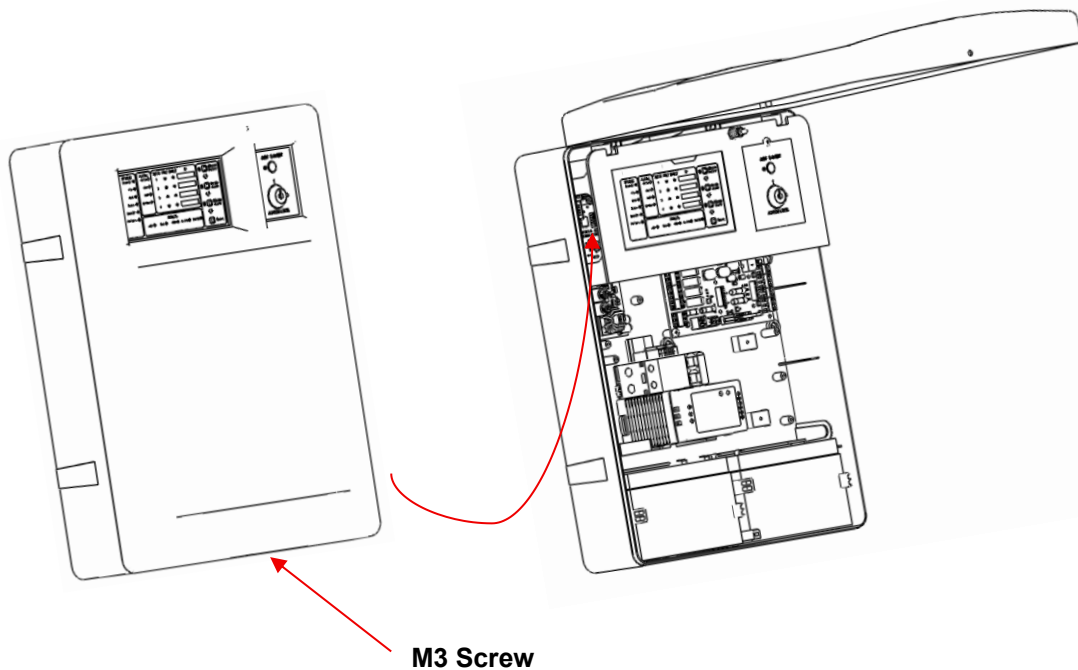


Figure 16: Access to FA40's internals.

3.1.1 Electrical Safeguards

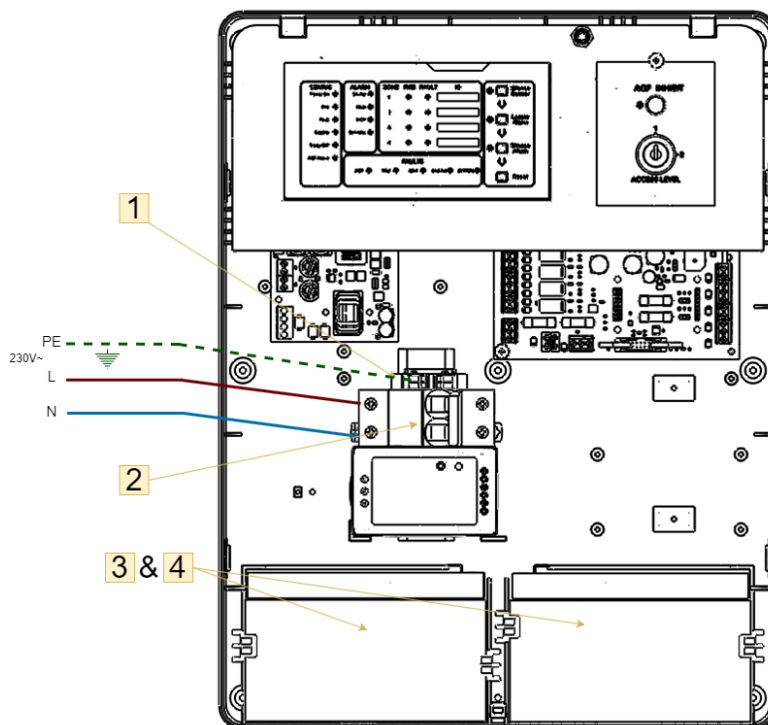


Figure 17: FA40 Electrical Safeguards

Table 19: Electrical Safeguards

Item	Description	Marking / Instructions
1	Protective earth (ground). Make sure to connect the protective earth conductor when installing the FA40.	
2	Mains power disconnects. Make sure to disconnect the equipment from the power before servicing.	
3	Make sure to disconnect Battery connection spade lugs before servicing.	
4	Risk of explosion if batteries are replaced by incorrect type. See §2.3.4	

3.1.2 Cabinet Mounting

6 Positions for fasteners are provided with OD = 4mm. The FA40 shall be mounted vertically, more than 750mm above the floor and not more than 1850mm.

>Ø4mm Screw

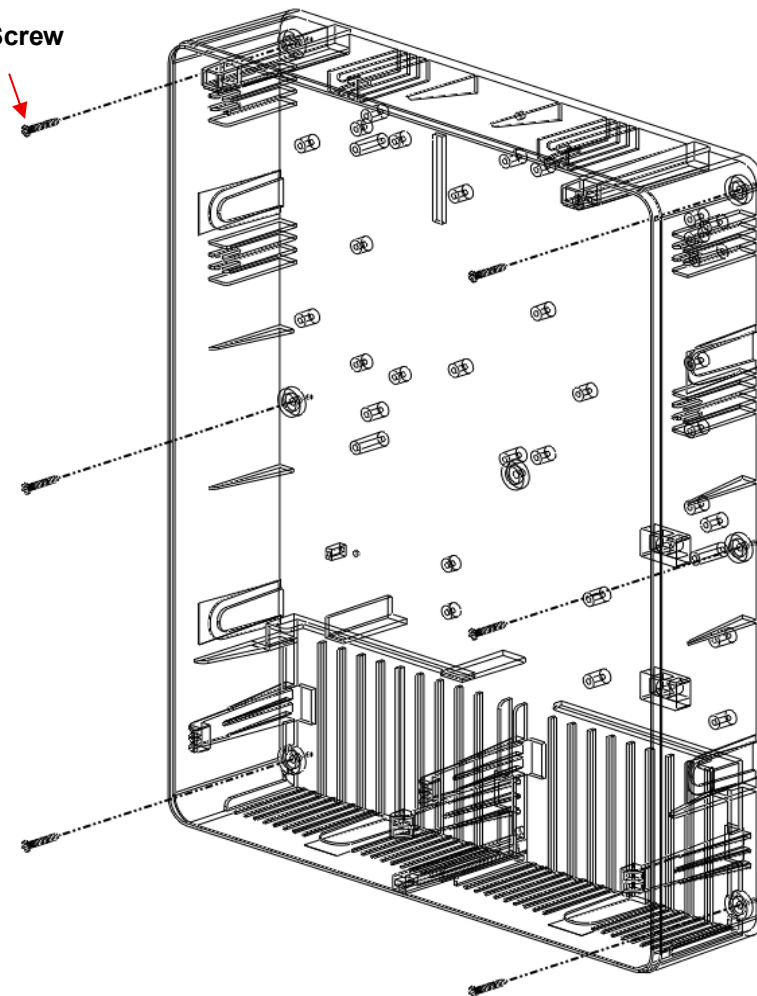


Figure 18: FA40 cabinet's mounting positions

3.1.3 Battery Mounting

The 2 x 12V 9Ah batteries can be mounted at the bottom of the FA40 in the two battery compartments shown below:

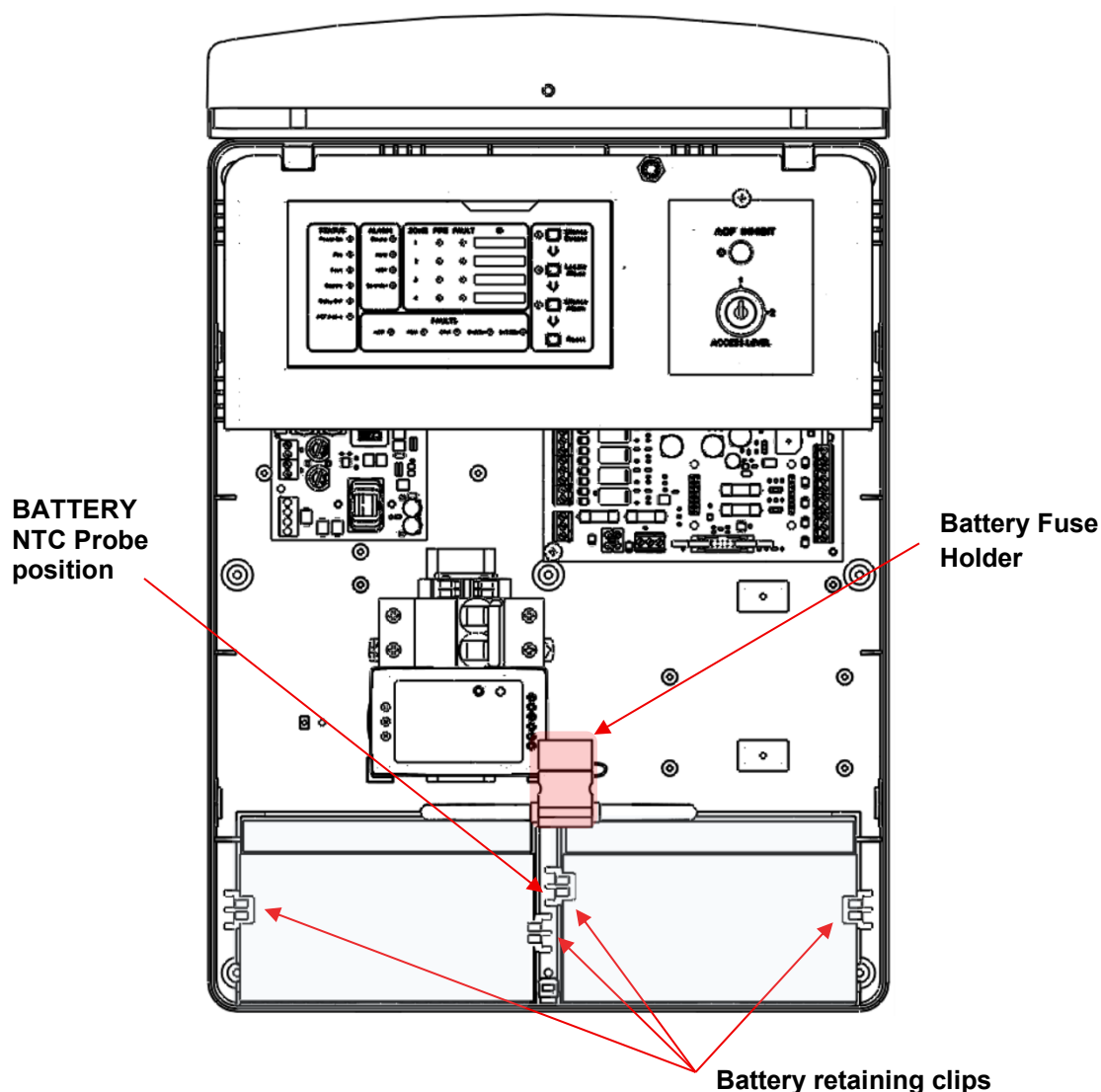


Figure 19: FA40 Battery Compartment

To install the batteries into the compartment:

- Align each battery with its lugs facing inward, toward the other battery.
- Gently push the retaining clips apart while sliding the batteries in evenly.
- Ensure both batteries are seated securely in place.
- Do not connect the battery lugs at this stage.
- Reconnect the fuse wires to the lugs once the batteries are properly positioned.
- Tuck the fuse holder inside the compartment.
- Leave the battery lugs disconnected until the FA40 unit has been powered on.
- Check the position of the battery NTC probe is secured between the two batteries.

Refer to §7.2 for information regarding maintenance of the batteries.

3.1.4 FA40 Battery Calculation

Battery calculation tool to be provided by your sales representative. Also available for download via the QR code located on the FA40 device.

3.1.5 Service

During service inside the FA40 cabinet, the front carriage can be removed and reinserted offset to the right side of the plastic housing:

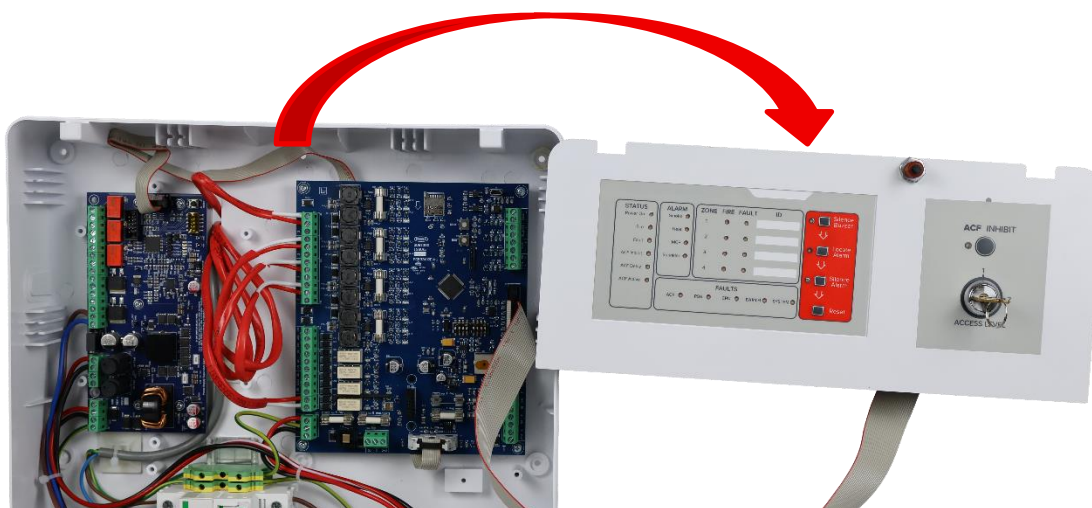


Figure 20: User interface Display board position during service work.

3.1.6 FA40 Wiring

3.1.6.1 Mains Wiring

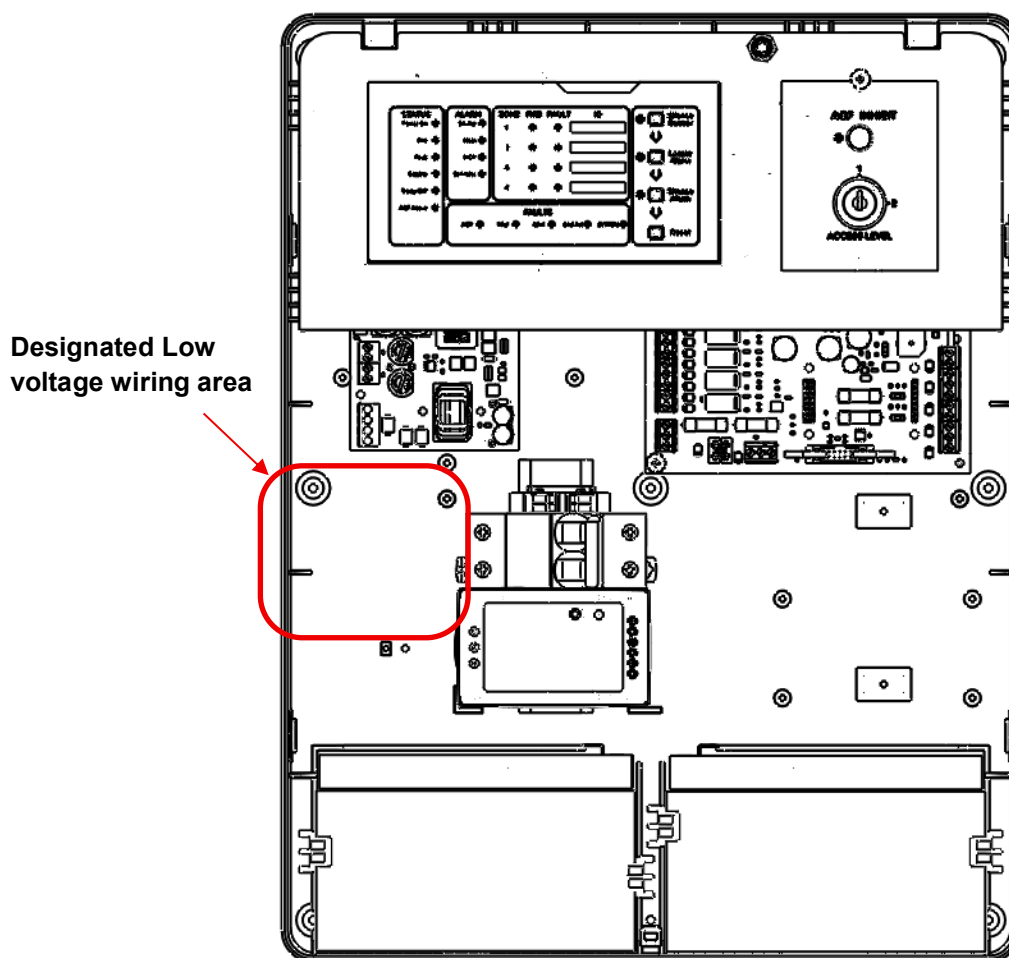


Figure 21: FA40 designated Mains voltage connection

If the low voltage wiring is recessed in the wall, cut a hole in the rear of the cabinet and bring the double insulated wiring into the FA40 cabinet as highlighted in the red area above.

If the low voltage wiring is wired along the surface of the wall, cut a hole on the left side of the FA40 cabinet and route the cable in through the highlighted red area above.

3.1.6.2 Field Wiring

Field wirings for Zones 1 – 4 and other FA40 ancillary functions:

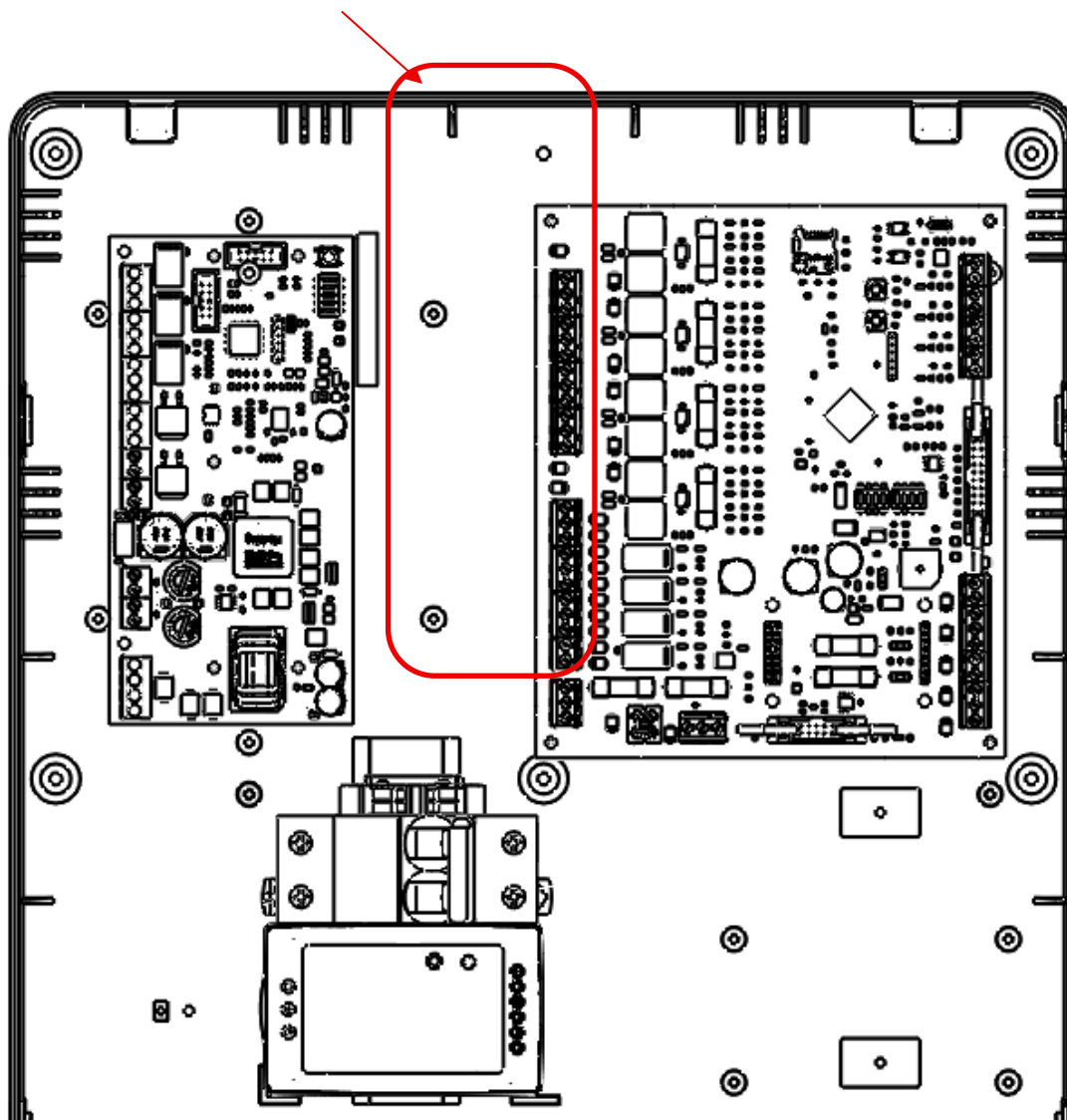


Figure 22: FA40 Zone wiring area

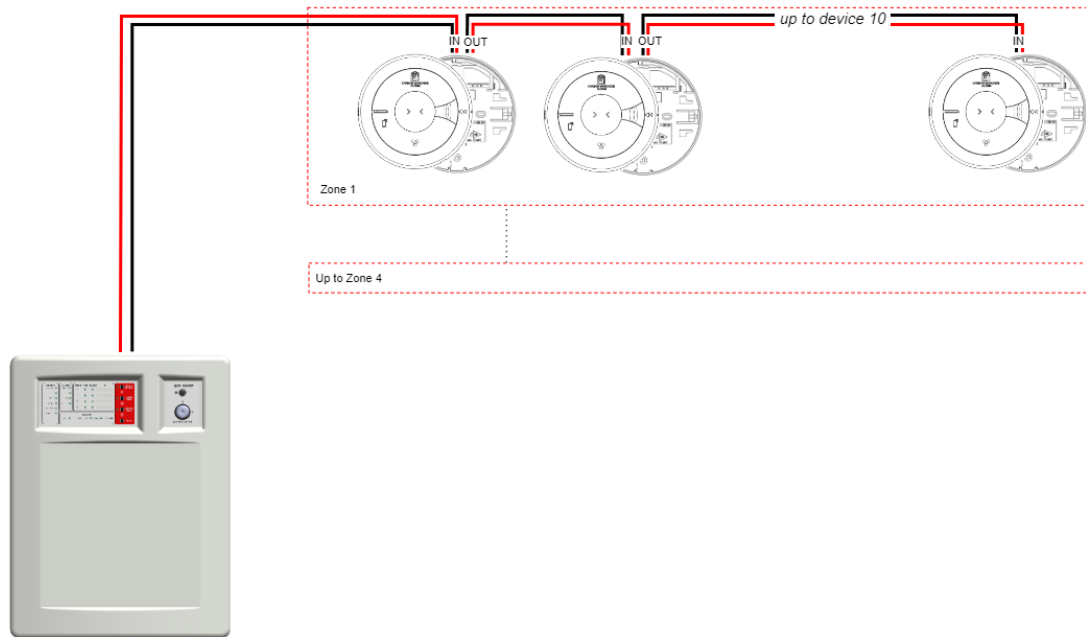
If the Zone wiring is recessed in the wall, cut a hole in the rear of the cabinet and bring the wiring into the FA40 cabinet as highlighted in the red circle above.

If the Zone wiring is wired along the surface of the wall, cut a hole on the top side of the FA40 cabinet and route the cable down through the highlighted red area above.

Note: Complete FA40 system setup §3.4.1 Initial system testing before wiring any of the zone field wiring into the panel.

Note: Ensure the ACF output is terminated with a 47kΩ EOL resistor for supervision if NO ACF device connected.

3.1.6.3 Zone Wiring



FA40 system is wired up in a daisy chain topology:

1. Remove the end of line device from the Zone terminals on the FA40 Main Board. Do not discard.
2. Wire from the FA40 Main Board Zone terminal to the first FA Device.
3. Wire first FA Device, and into the second FA Device
4. Repeat for each subsequent FA Devices, until the last FA Device on the zone.
5. Fit the end of line device into the unused terminals (ZOUT) of the last FA Device.
6. Set the EOL DIP switch on the last device to on.

Repeat the above process for each of the FA40 Zones.

Table 20: Supported FA Devices

Model Number	Description	Notes
FA000	Easi-Fit FA Base	Output Voltage is present
FA-IN	FA IN Module	Input module to support MCP, Sprinkler and Thermal Heat detectors on a Zone
FA-OUT	FA OUT Module	Output Module. Details TBA. Release 2027

A fire alarm installation is a safety installation. It is important that the cables used within the installation comply with AS 1670.6. Fire alarm cables should, when possible, be installed away from other cables to avoid disturbances. Refer AS/CA S009 Installation requirements for customer cabling (wiring rules).

Brooks recommends the use of 1.5mm² twisted pair cables with properties:

- Conductor resistance 12.5 Ω/km
- Pair capacitance 88nF/km
- Pair Inductance 0.65µH/m
- 1.5mm² twisted pair (BROOKS BAC0898)



Note: Use of wire other than that recommended by Brooks may result in zone faults and FA Devices not registering on the FA40 RCIE.

Note: The maximum length of the wiring on a Zone is 100m.

Note: The maximum FA Devices on a Zone is limited to 10.

Note: Ensure the zone wiring is a daisy chain topology. Spurs or star connections are not supported. Zones wired incorrectly will result in FA Devices NOT registering on the FA40 RCIE.

Note: Ensure Zone wiring polarity is maintained. Whilst a polarity reversal will not damage the FA40 RCIE or the FA Devices, the incorrectly wired devices will NOT register on the FA40 RCIE.

An example of zone wiring data has been provided below in Table 21: Zone wiring example:; This zone wiring data must be provided for the commissioning of the system.

For wiring instructions of the FA000 Bases, refer to §3.2.3 Zone Wiring instructions below.

Table 21: Zone wiring example:

Device Address (sequence)	Location:	Device Type:	Notes:
1	Lounge	FA016 (Smoke)	
2	Kitchen	FA014 (Heat)	
3	Ground floor hallway	FA016 (Smoke)	
4	Dining room	FA016 (Smoke)	
5	Bedroom 1	FA016 (Smoke)	
6	Bedroom 2	FA016 (Smoke)	
7	Bedroom 3	FA016 (Smoke)	
8	First floor hallway	FA016 (Smoke)	
9	Garage	FA014 (Heat)	End of line device + EOL Dip switch.
10			Not used.

3.1.7 Adding Zone Descriptions

A template has been provided for clean and legible text to be added to each of the 4 zones. Please see our website for a downloadable copy. Follow the instructions on the template FA40 Zone ID Label_Template.



Figure 23: Insertion of the Zone description Label

3.1.8 Zone block plan

Note: Refer to AS1670.6 for information on the requirements

The front cover of the FA40 RCIE includes a flat area designed for attaching the building's Zone Block Plan as required by AS1670.6.

- **Dimensions:** 260 mm (Height) × 255 mm (Width)
- This area is intended for adhesives or double side taping of the plan.
- LX955 can be purchased from Brooks and have the Zone block plan engraved into it.

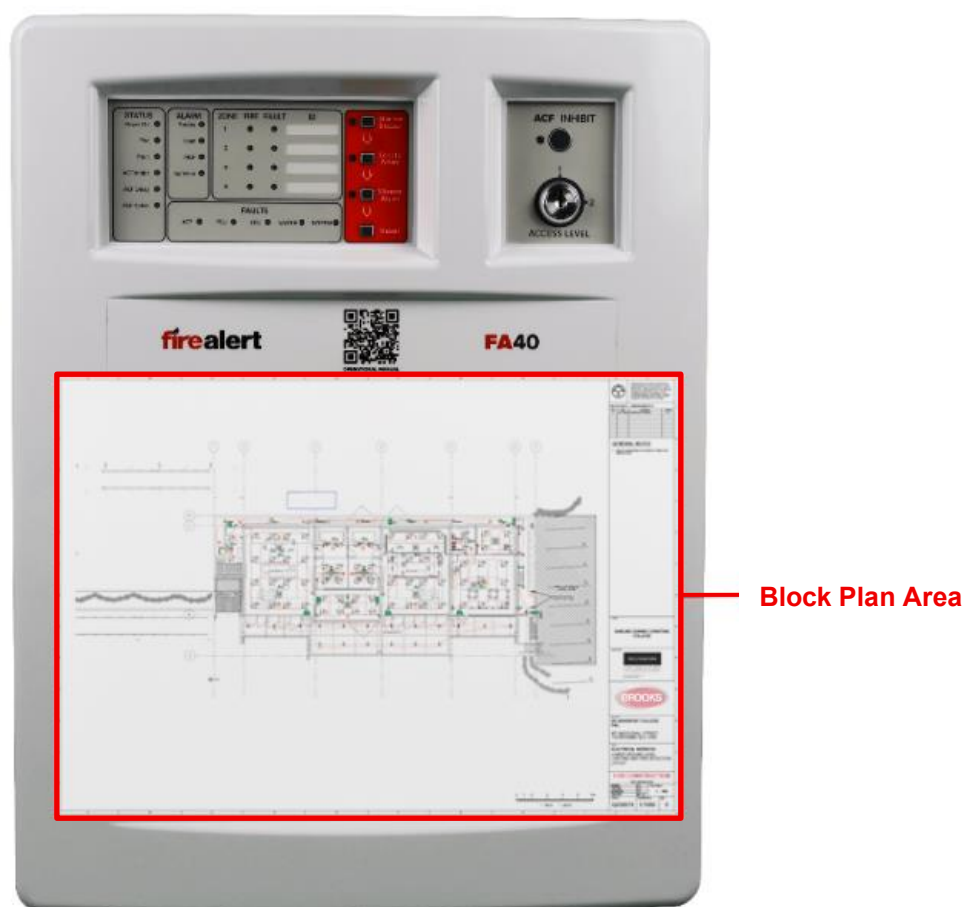


Figure 24: Zone block diagram area

3.2 FA000 Base Installation & Alarm Heads

The FA000 Base comes with dedicated mounting base plate which is designed to use with all FA series Alarm heads.

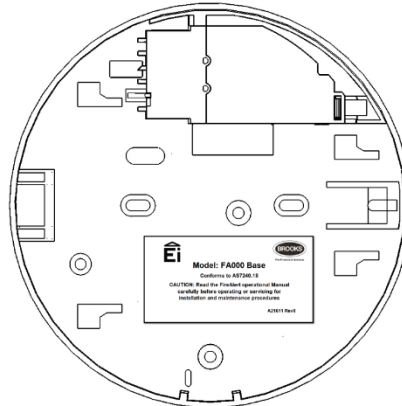


Figure 25: FA000 Mounting Base Plastic

3.2.1 Location

The locations for the any of the FA series alarms must comply with AS 1670.6, the building code of Australian, State and Territory legislation as applicable and instructions detailed in this manual.

3.2.1.1 Smoke and Heat alarms

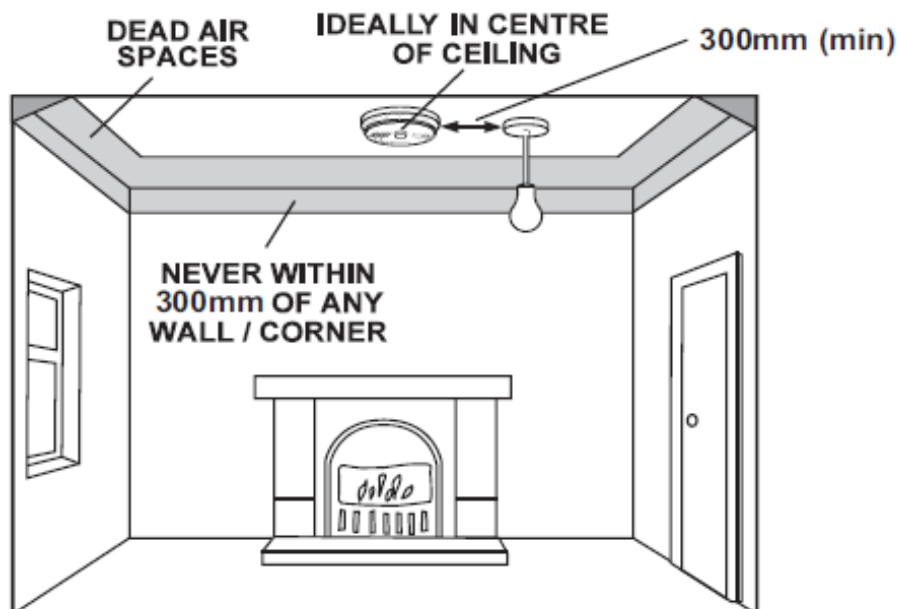


Figure 26: Smoke Alarm locations inside a room

Hot air rises and smoke spreads out, so a central ceiling position is the preferred location. The air is “dead” and does not move in the corners, Therefore Alarms must be mounted away from corners.

3.2.1.2 Locations to avoid (refer to AS1670.6 clause §3.2.3.7)

These locations can interfere with alarm performance or cause false alarms:

- Bathrooms, shower rooms, or damp/humid areas (due to steam or condensation)
- Very high or awkward areas (hard to access for testing or maintenance)
- Directly above sinks, cookers
- Near heaters, air conditioning vents, doors, windows, extractor fans, or wall vents (due to draughts or airflow changes)
- Where temperature may drop below -10°C or rise above 40°C
- In enclosed spaces (e.g. cupboards)
- Where the alarm may be obstructed (e.g. by curtains or furniture)
- In dusty or dirty areas (can block sensors or screens)
- Near paint, thinners, solvent fumes, or air fresheners
- Near dimmer-controlled lights or wiring (at least 1m away)
- Near fluorescent light fittings (at least 1.5m away; wiring at least 1m away)
- Open air spaces such as under crofts
- Damp or humid areas
- Surfaces with temperature differences (e.g. attic hatches)

Specific areas to avoid are:

- Insect infested areas. Small insects getting into the optical smoke sensor can cause intermittent false alarms. Insects and contamination on the heat sensor can increase its response time.
- Very dusty or dirty areas as dust build-up on the optical smoke sensor can impair performance. It can block the insect screen mesh and prevent smoke from entering the sensor. Dust build up can also increase the response time of the heat sensor.

3.2.2 Mounting

Mount the FA000 base in a suitable location as described above in §3.2.1 Location.

Fit the FA000:

- At least 300mm away from walls
- At least 300mm from any light fitting or decorative object which might obstruct smoke/ heat entering the alarm.

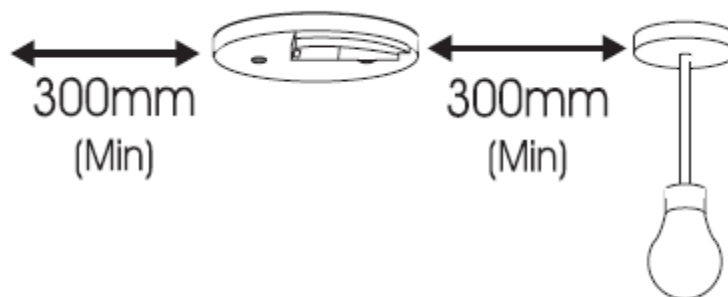
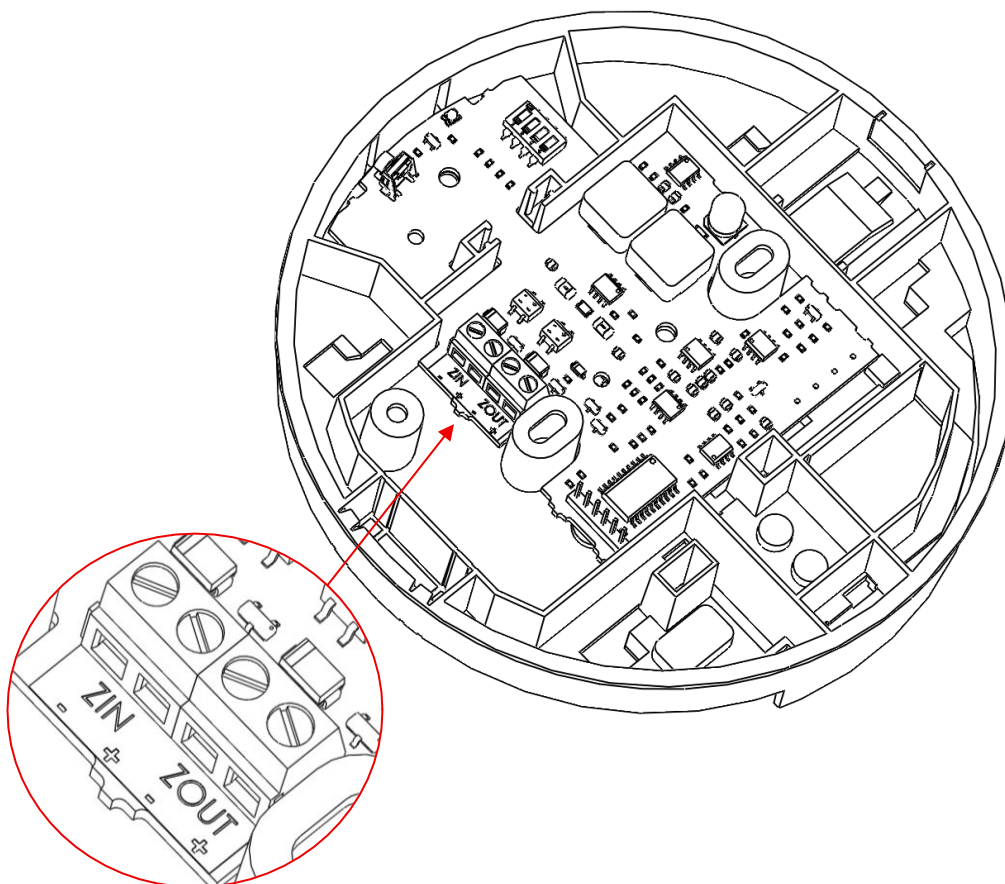


Figure 27: Minimum mounting distance from other objects

3.2.3 Zone Wiring instructions

Once a suitable location has been found you can continue with wiring up the FA000 Base.

Note: Before connecting the interface card to the zone, ensure the panel is fully switched off, and the panel batteries are disconnected.



ZIN = Input connection from the previous FA Device or from one of the FA40's zone outputs. (Ensure polarity is correct).

ZOUT = Output connection to the next FA Device.

Refer to §2.2.2 Alarm Type Configuration to set FA000 Base DIP switches to match the required Alarm type fitted.

DIP Switch 4 must be set to ON when the FA000 is the last device on a zone circuit (EOL).

Fit the end of line device into the unused terminals (ZOUT) of the last FA000 Base

3.2.3.1 Cable Properties/Selection

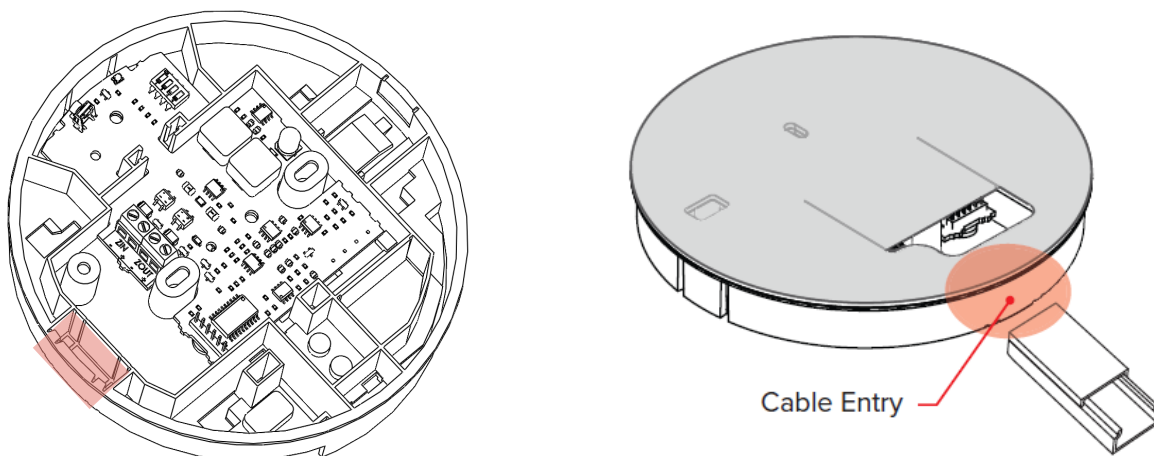
Refer §3.1.6.3 Zone Wiring for details on Zone cabling and wiring requirements.

3.2.3.2 Wiring from within the ceiling

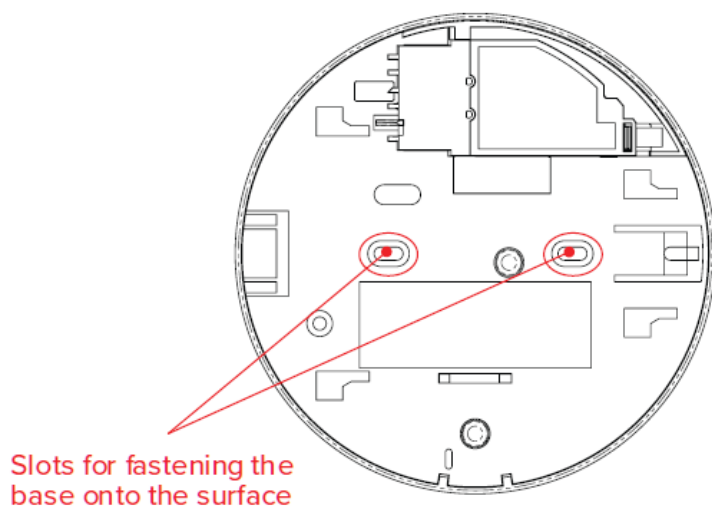
If the wires are recessed within the ceiling, cut a small hole within the ceiling and bring the wires in through the opening flap of foam on the rear of the FA000 Base.

3.2.3.3 Wiring along the surface of the ceiling (Surface ducting)

If the wires are being brought along the surface of the ceiling. The FA000 Base has a removable section as shown in the figure below, in red:



With the section removed cables can be routed in from the side:



3.2.3.4 Mounting

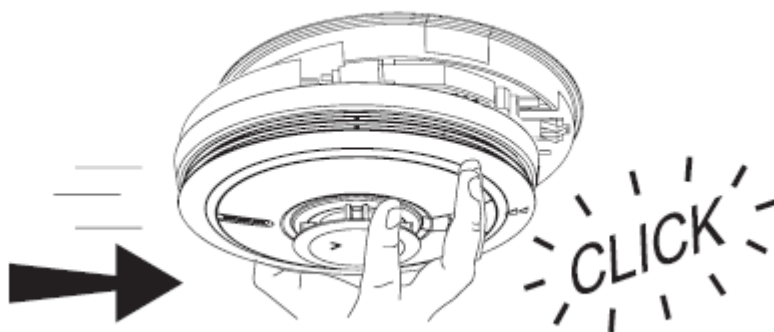
Two slots have been provided on the FA000 Base to accommodate up to No. 6 wood screws for attaching the FA000 Base.

3.2.4 Connecting FA Alarms to the FA000 Base

Note: Before connecting the FA Alarm to the FA000 base, ensure the DIP switches have been correctly configured to suit the type of alarm to be installed. Refer to §2.2.2 Alarm Type Configuration, for an explanation.

Once the FA000 Base has been installed, and wired up into the system, slide the alarm onto the base until you hear a click.

Slide on the Alarm



When the FA40 system is powered on you can confirm the head is operational by the illumination of its green indicator as well as pressing the test/hush button on the FA alarm itself.

3.2.5 Removing FA Alarms from the FA000 Base

Note: Disconnect power from the FA40 panel before removing FA alarms:

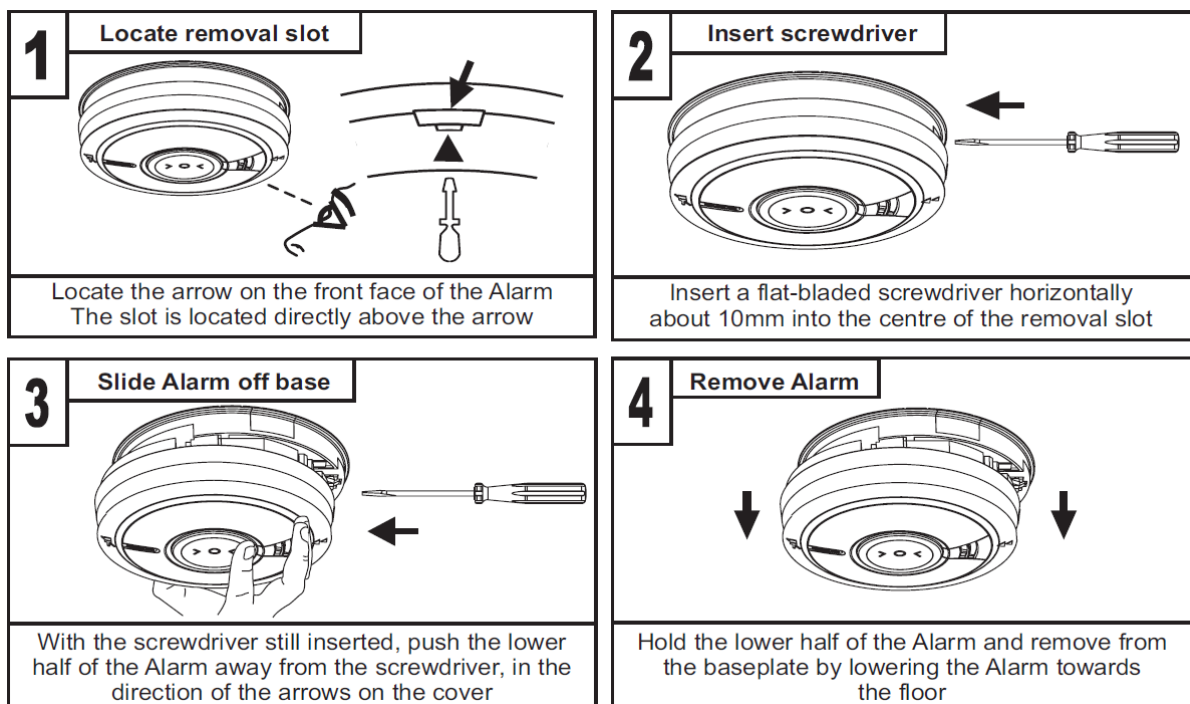


Figure 28: FA Alarms removal procedure

3.3 FA-IN FA Input Module Installation

The FA-IN FA Input Module provides supervised monitoring of fire safety field devices including sprinkler flow switches, manual call points (MCPs), and thermal detectors.



Figure 29: FA-IN

3.3.1 Location

The FA-IN Input module should be located within 2 metres of the first connected input device.

3.3.2 Mounting

Mount the FA-IN FA Input Module enclosure provides 2 mounting holes at 73mm spacing. Recommend mounting screws is 5mm.

Carefully remove the mounting screw caps and replace when FA-IN is mounted to maintain IP Rating.

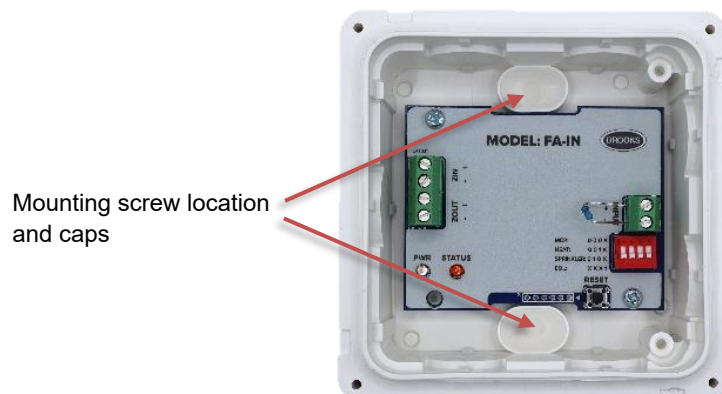


Figure 30: FA-IN Mounting Details

3.3.3 Zone Wiring instructions

Once a suitable location has been found you can continue with wiring up the Zone connections to the FA-IN Module.

Note: Before connecting the interface card to the zone, ensure the panel is fully switched off, and the panel batteries are disconnected.

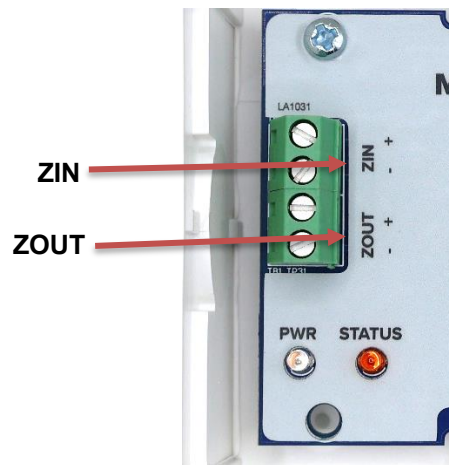


Figure 31: FA-IN Zone Connections

ZIN = Input connection from the previous FA Device or from one of the FA40's zone outputs. (Ensure polarity is correct).

ZOUT = Output connection to the next FA Device.

Refer to §2.4.3 Sensor Type Configuration to set FA-IN Module DIP switches to match the required sensor type fitted.

DIP Switch 4 must be set to ON when the FA-IN module is the last device on a zone circuit (EOL).

Fit the end of line device into the unused terminals (ZOUT) of the last FA-IN Module

3.3.3.1 Cable Properties/Selection

Refer §3.1.6.3 Zone Wiring for details on Zone cabling and wiring requirements.

3.3.3.2 Cable connections

The FA-IN enclosure provides several cable gland options.

M20 Cable glands can be fitted to interconnect with conduit installations.

The glands can also be pierced and the cable passed through.

Note: Check all cable and gland connections to ensure required IP rating is maintained.

3.3.4 Device Wiring

Ensure the wire/cable chosen is suitable for the required device

Follow the cable connection instructions §3.3.3.2

Note: Ensure the EOL resistor 4.7k ohm is fitted at the last connected sensor.



3.4 FA40 System Setup

Once the cabinet is mounted and secured in place with the outer cover, the following power up procedures must be followed.

Note: Do not terminate any zone wiring until the FA40 Initial system testing has been performed.

- Insert the 003 Key and turn to **ACCESS LEVEL 2**.

Note: Opening the FA40 RCIE cover, without **ACCESS LEVEL 2** will activate **SYSTEM FAULT**. Refer to §4.2.6 & §4.3 for details on access levels and fault conditions.

- Ensure the Mains isolator is in the **OFF** position before connecting the incoming mains power into the isolator.
- Switch **ON** the mains power using the isolator inside the cabinet.
- Connect the batteries to the designated battery leads. **ENSURE BATTERY POLARITY.**
- The FA40 will startup and each zone fault will begin flashing as it checks and initializes each zone, once complete, §3.3.1 Initial system testing can be followed below.

3.4.1 Initial system testing

Before connecting zone wiring, perform the following checks to verify system functionality:

- Ensure only the green **POWER ON** indicator is illuminated with the 003 Key Switch set to **ACCESS LEVEL 2**. – (NORMAL OPERATION)
- Press and hold the **RESET** control, then release. All display indicators should illuminate.
- Switch **OFF** the incoming mains isolator. The **PSU FAULT** indicator should illuminate steadily, the **GENERAL FAULT** indicator should flash, and the internal buzzer will sound. The **SILENCE BUZZER** control indicator will flash, indicating the function is available. Press **SILENCE BUZZER** to mute the buzzer; the indicator will become steady state.
- Switch back ON the incoming mains isolator. The system should return to normal operation and all faults clear.
- Disconnect the batteries, within 30 seconds, The **PSU FAULT** indicator should illuminate steadily, the **GENERAL FAULT** indicator should flash, and the internal buzzer will sound. The **SILENCE BUZZER** control indicator will flash, indicating the function is available. Press **SILENCE BUZZER** to mute the buzzer; the indicator will become steady state.
- Re-connect the battery, within 30 seconds, The system should return to normal operation and all faults clear.
- Press the **ACF INHIBIT** control. The corresponding control indicator should illuminate, confirming that the ACF output is inhibited. Additionally, the **ACF Inhibit** indicator under the general status column should also be illuminated.
- Press the **ACF INHIBIT** control again, the system should return to normal operation.
- Disconnect the batteries and switch OFF the incoming mains isolator.
- The system is ready for field wiring and alarm devices setup, refer to §3.4.2 below.

3.4.2 Zone Devices Set-up

Note: Care needs to be taken to set the system up correctly the first time. If an issue arises during the initial auto addressing sequence, manually resetting devices back to base address 0 will be required (factory reset §).

The FA Devices come programmed with a base address zero. Devices are assigned zone address during Zone Discovery.

3.4.2.1 Alarm Device Configuration

The FA series alarms are mounted onto the Easi-fit FA000 Base, which facilitates communication with the FA40 RCIE. The FA000 Base includes an interface card that connects each alarm to the corresponding FA40 zone circuit. These bases draw primary power from the FA40 RCIE zone circuit, which also charges FA alarms integrated non-removable standby batteries.

The FA000 Base uses DIP switches to identify the type of FA alarm device connected to the FA40 RCIE.

Note: The last device in the zone must have dip switch 4 set to **ON**.

If the EOL switch is not set correctly, either by not setting it, having more than one set on a zone or not setting it in the correct position within the zone, A zone fault will be displayed immediately after startup.

Refer to §2.2.2 Alarm Type Configuration for configuring the FA000 base to match the alarm's head type correctly. If the DIP switches are not configured properly the panel will not respond correctly.

3.4.2.2 End of Line Devices

From factory the FA40, comes with 4 x SUB1055 End of line devices pre-installed in each of the FA40 zone outputs:

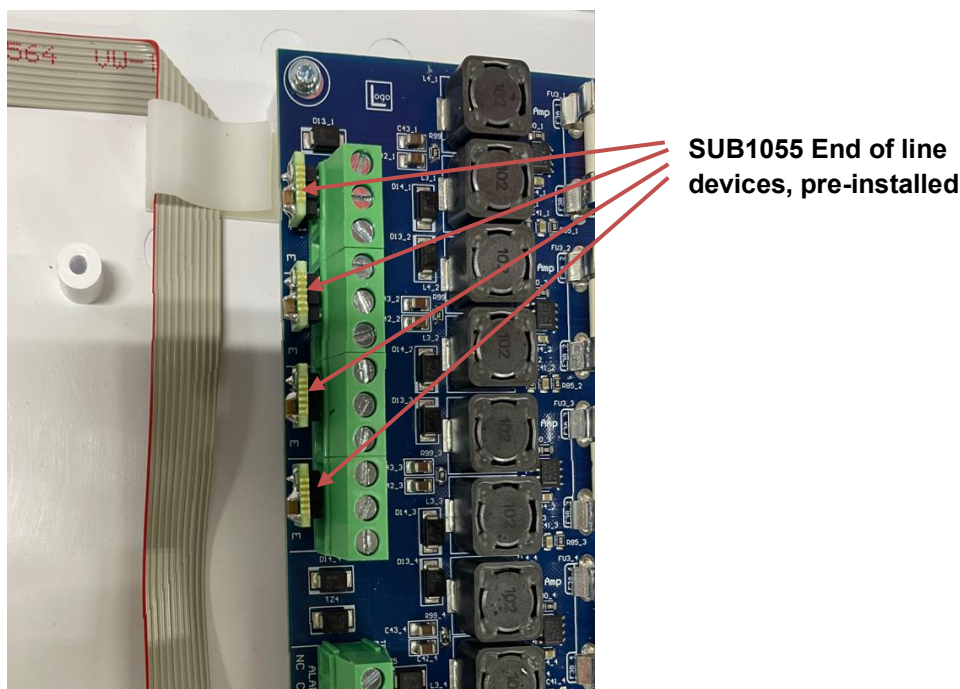


Figure 32: 4 x End of line devices (SUB1055) inserted into each FA40 Zone

When FA alarms devices are connected into a particular zone, remove the end of line devices from that zone and insert it into the ZOUT of the last device on the Zone, remembering to also enable the EOL switch on that device. Example below shows the EOL switch and EOL device being connected to an FA000 base.

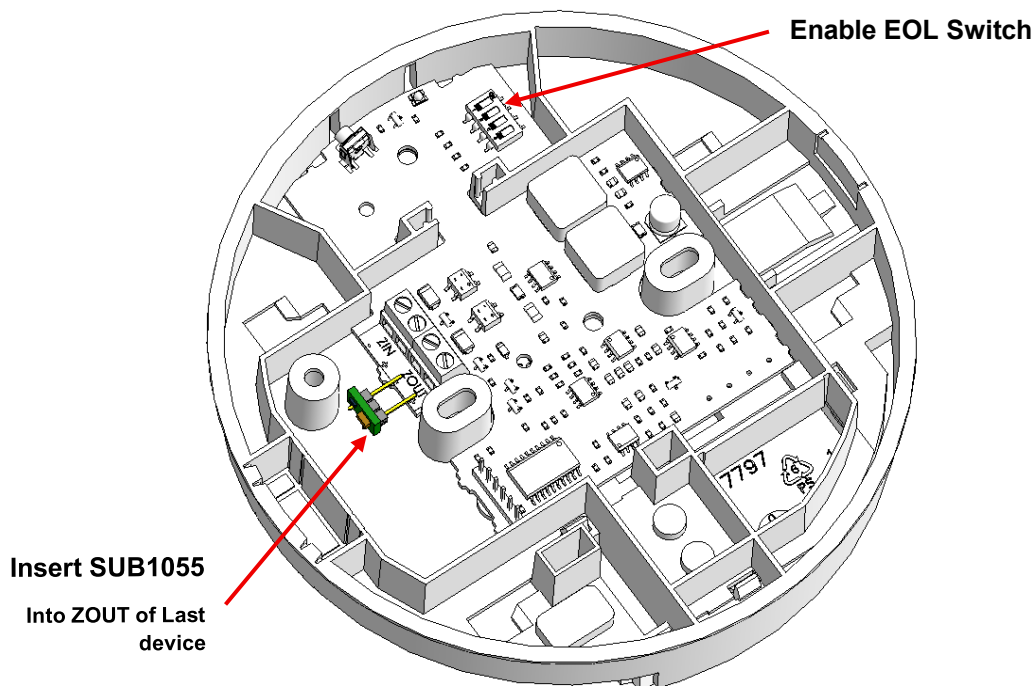


Figure 33: End of line device (SUB1055) – FA EOL Device.

3.4.3 Zone Discovery

The FA40 RCIE provides device discovery to automatically detect new devices installed on the Zone and repairs Zone address conflicts.

Zone discovery requires the FA40 RCIE to be in **Access Level 3**, Access Level key set to position 2 and the front cover removed. Any other access level will rediscover the devices on the Zone but will NOT add any new devices to the Zone or repair any conflicting zone addresses.

In initiate Zone Discovery, press and hold (1 second) the **BOOT** button the FA40 Main Board. The FA40 Display will need to be removed to gain access to the BOOT button.

When discovery is initiated, the FA40 searches each of the Zone checking for Zone devices.

- Existing addressed devices are noted
- New devices (address of 0) are allocated a temporary address.
- Address conflicts are solved by assigning conflicting devices temporary addresses.
- Reassign temporary addresses to valid address.
- Checking EOL status of each device and confirm EOL is enabled on the last device on the Zone.

Whilst in discovery, the Zone fault indicators of the Display Panel flash. When a discovery is completed on a Zone the Zone fault turns off if there are no Zone faults.

3.4.3.1 Zone Discovery Trouble shooting

If after Zone Discovery has completed and a Zone is displaying a Zone fault the following should be investigated.

EOL not set on the last device:

EOL is used during Zone Discovery to determine that all devices have been detected.

Not detecting EOL could be due to the following conditions:

- EOL not set on the last device
 - Check last device has EOL set correctly.
- EOL is set, but NOT on the last device
 - Check EOL on all devices on the Zone.
- EOL is set on more than 1 device
 - Check EOL on all devices on the Zone.
- Wiring fault preventing the last device being discovered.

Zone Wiring Faults:

As stated in §3.1.6.3 Zone Wiring the polarity of the zone wiring is critical for an error free installation.

Wiring faults can be located along the zone by following the zone wiring and confirming the operation the Zone devices.

When a device is successfully discovered, its status indicator will be flashing the assigned zone address for 10 minutes.

Finding zone wiring errors:

- Follow the zone wiring, confirming each device is flashing its status indicator.
- If the status indicator is off:
 - short press the device reset button
 - the status indicator should start flashing the assigned address.
- If the status remains off:
 - check the power to the device (24Vdc on the wiring terminals)
- If the status indicator is continually ON:
 - the device has not been assigned an address.
 - The device is getting power, but during zone discovery the address could not be assigned.
 - Check the polarity of the wiring between this device and previous device.

If care is taken in ensuring the Zone wiring instruction from §3.1.6.3 Zone Wiring is followed and the device EOL is set correctly, the Zone Discovery will be successful.

3.4.3.2 Adding Devices to a Zone

If a Zone needs expanding or extending, follow the hints for successful discovery:

Where possible, add new devices to the end of the Zone (Extending a zone):

- Remove the end of line from the last device on the Zone
- Add new devices to the end of the Zone
- Fit the end of line to the last device.
- Ensure EOL DIP switches are set correctly.
- Initiate Zone Discovery again.
- Update the Zone Block Plan.

If new devices need to be inserted into a Zone (Expanding a Zone):

- Insert the devices where needed.
- **DO NOT CREATE SPUR OR STAR CONNECTIONS.** Maintain daisy chain wiring.
- Initiate Zone Discovery again.
- Update the Zone Block Plan.

Note: The device addresses may not be consecutive along the Zone.

3.4.3.3 Reusing addressed devices

If an already addressed device is required to be added into a Zone, several problems may occur:

- Duplicated device address
- Gaps in Zone address

Zone discovery will resolve duplicated addresses but may not resolve gaps in Zone addresses.

The FA40 RCIE will operate correctly, the gap in addresses may cause confusion during installation and operation.

Note: Recommend the device address be manually reset before initiating Zone discovery

3.4.3.4 Manual Address Reset

Devices on the Zone can have their address reset back to 0 manually by pressing and holding the device reset button, until the device status indicator is continually on.

If resulting device addresses from Zone Discovery is unsuitable:

- Starting at the last device on the Zone
- Reset the device address.
- Move down the zone, towards the FA40 RCIE, reset the address of all devices on the zone.
- Initiate Zone Discovery again.
- Update the Zone Block Plan.

3.4.4 FA40 Zone reconfiguration guidance

The following examples and guidance are provided for handling different zone reconfigurations scenarios. If the guidance is not followed, the system may not function as required.

The following is an example of a zone circuit that could need to be configured.

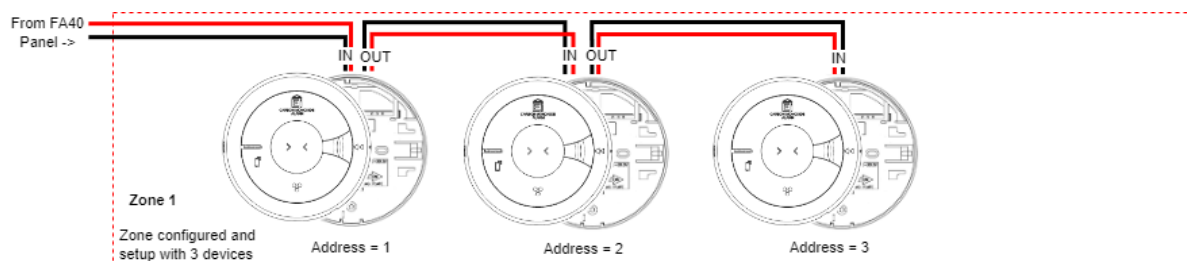
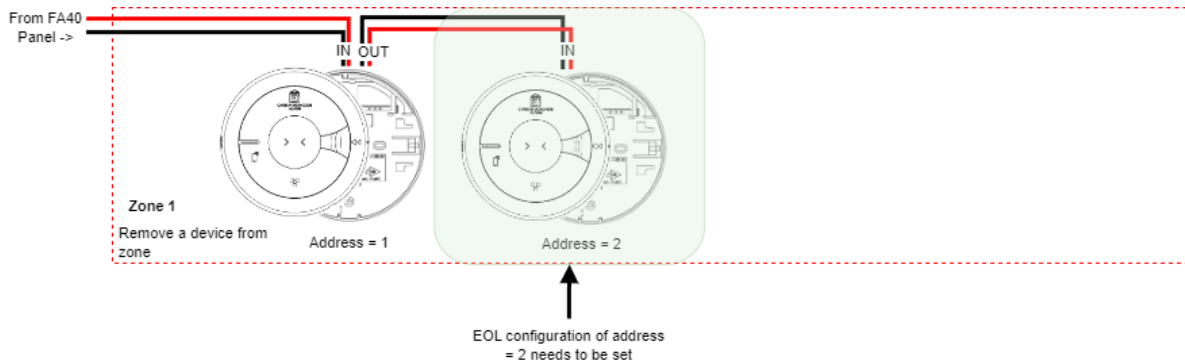


Figure 34: Zone 1 Reconfiguration Guidance

Depending on whether you want to remove, append or insert a device into the zone, follow the specific instructions below:

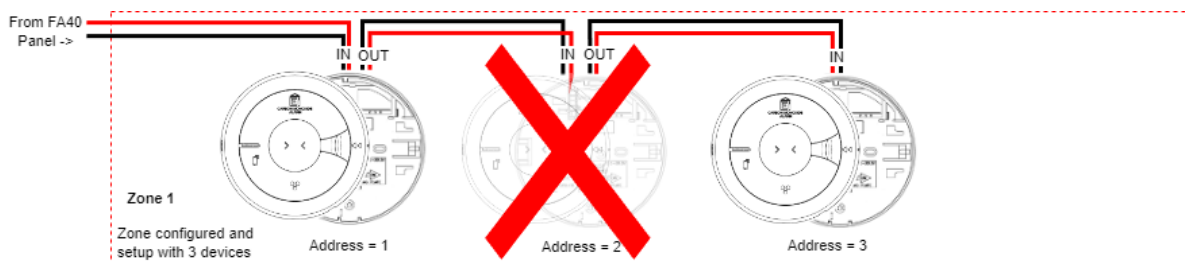
3.4.4.1 Removing the end device from the zone



Using Figure 34: Zone 1 Reconfiguration Guidance as reference, if a device on the end of the zone was removed, for example device address 3 is removed.

- On device 2, Set EOL DIP switch
- Move the end of line device to device 2
- Initiate Zone Discovery.
- Update the Zone Block Plan.

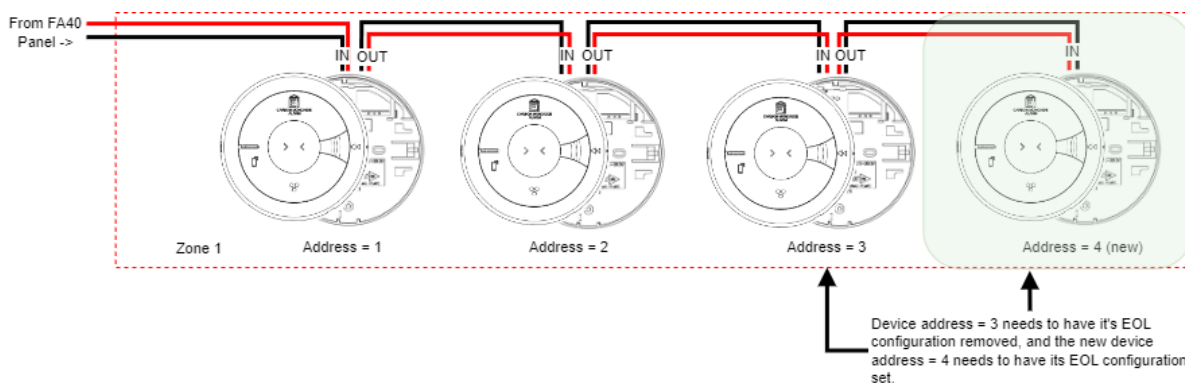
3.4.4.2 Removing a device from the middle of the zone



Using Figure 34: Zone 1 Reconfiguration Guidance as reference, if a device is removed from the middle of the zone circuit.

- Initiate Zone Discovery. The FA40 RCIE will rediscover the Zone removing the device.
- If device address is required to be sequential, follow the manual address reset procedure in 3.4.3.4
- Update the Zone Block Plan.

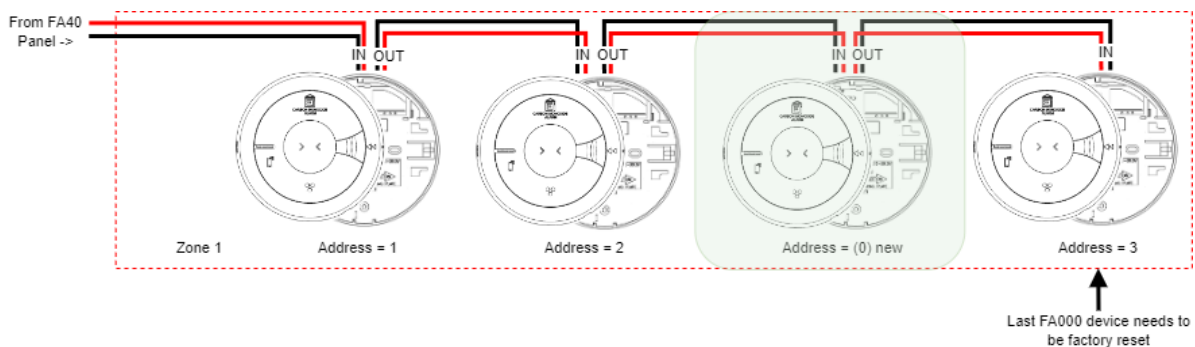
3.4.4.3 Adding a device to the end of the zone



Using Figure 34: Zone 1 Reconfiguration Guidance as reference, if an additional device is added at the end of the zone circuit.

- Set EOL DIP switch on the last device.
- Clear the EOL DIP switch on previously last device
- The end of line device was removed to expend the Zone wiring
- Ensure the end of line device is fitted to the unused terminals of the last device.
- Initiate Zone Discovery.
- Update the Zone Block Plan.

3.4.4.4 Inserting a device into the middle of the zone



When required to insert a device into the middle of a zone, consider if the device addresses is required to be sequential.

- Initiate Zone Discovery. The FA40 RCIE will rediscover the new zone device, assigning the next available address.
- If device address is required to be sequential, follow the manual address reset procedure in 3.4.3.4
- Update the Zone Block Plan.



4 FA40 Operation

4.1 Alarm Type

In the event of a fire, the alarm may be triggered by smoke alarms, heat alarms, manual call points, sprinkler alarm switch activation or dedicated input modules. Each alarm type is clearly displayed on the FA40 RCIE display.

When a fire alarm is activated within a zone, the corresponding zone indicator and alarm type will be displayed. This feature of the FA40 display helps occupants quickly identify the nature, location, and urgency of the alarm, supporting an appropriate evacuation response.

Alarm priorities are classified as follows:

4.1.1 Priority 1 (P1)

Includes heat alarms, manual call points, and sprinkler alarms. Activation of any P1 alarm will immediately trigger all zones into a General Building Alarm condition throughout the building or dwelling. All associated alarm points will be active.

4.1.2 Priority 2 (P2)

Smoke Alarms. Depending on the setting of the Common Alarm DIP switches (2.3.4.4) (Independent or common alarm), the activation of P2 Alarm will trigger either a General Building Alarm condition or a zone-specific alarm condition.

4.2 FA40 Controls

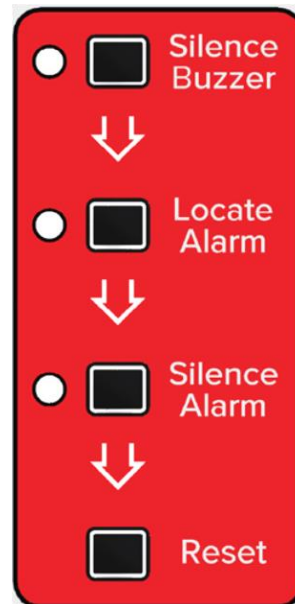


Figure 35: FA40 Alarm Condition Controls

In the fire alarm condition, the four controls within the red area enable the management of the FireAlarm system during an active fire event. Except for the “**silence buzzer**” control, all other controls are only available at Access Level Two.

To ensure a consistency of response these controls are interlocked and must be pressed in sequence. The indicator associated with each control illuminates in sequence to guide the user through the correct response procedure. Each control only becoming active when it is preceded by the correct operation of the previous control.

For example, when the FA40 enters the alarm condition the “**Silence Buzzer**” indicator flashes guiding the user to select this control. Once pressed the silence buzzer indicator goes steady state and the “**Locate alarm**” indicator flashes, again guiding the user to select this control. This in turn is followed by the “**Silence alarms**” control.

§4.2.1 - §4.2.4 below, explain the functions of each control in more detail.

4.2.1 Silence Buzzer

The integrated buzzer in the FA40 RCIE will sound for any fire alarms, or any faults that occur within the system to attract the user to the FA40 RCIE.

Press the Silence Buzzer control to silence this buzzer. When the control is pressed, the buzzer will be muted, and the Silence Buzzer indicator state will change from flashing to steady.

In case of a new alarm condition or new fault condition, both the Buzzer and Silence Buzzer indicator will automatically resume sounding and flashing again.

After the buzzer has been silenced during fault conditions, the buzzer and the Silence Buzzer indicator will return to normal automatically when these faults are cleared.

4.2.2 Locate Alarm

The Locate Alarm function becomes available while the FA40 is in an alarm condition. Depending on zone configurations (see §2.3.2.5), alarms will sound accordingly.



During an alarm, after pressing the Silence Buzzer button, the Locate Alarm indicator will begin flashing. This indicates the system is ready to activate the Locate Alarm control.

Locate Alarm control helps identify the source of the alarm by silencing all alarm devices except those that triggered the active alarm condition. This allows the user to quickly identify the area of fire origin and thereby assists in determining the fire response required.

When pressed the Locate Alarm indicator will remain flashing, indicating that button is still available for use. This allows the Locate Alarm to be cancelled, allowing the re-sounding of all alarm devices.

Note: Once the source alarm(s) is identified, it is necessary to carry out proper investigation before you Silence all the alarms.

4.2.3 Silence Alarm

The Silence Alarm control is used to silence all audible alarm outputs. This control must only be used when the cause of the alarm has been investigated, and it has been determined there is no actual fire event.

This control effectively stops the occupant warning and hence the evaluation of the building or dwelling. When pressed, all alarms will be silenced. The source alarm(s) and FA40 RCIE will enter into 10 minutes silence period by showing steady ON Silence Alarm indicator at the FA40 RCIE.

The general fire indicator, Alarm Type indicator and the respective Zone fire indicator will remain on throughout this silence period. If no additional alarms are detected, and the 10-minute period expires, the system will automatically return to normal operation.

When pressed, both the Locate and Silence Alarm indicators are steady on.

4.2.4 Reset

The Reset control has several uses.

- Cancelling Silence Alarms, enabling occupant warning.
- Clearing Latched Alarms.
- Clearing System faults.

Note: The RESET control at FA40 RCIE does not cancel the 10-minute silence period of previously silenced FA alarms.

4.2.4.1 FA40 Display Panel Indicator test

When the reset button is pressed and held for a short period, all indicators on the display will turn on. This test can be performed at any time while Access Level 2 is granted.

4.2.5 ACF Inhibit

The ACF Inhibit control only becomes available when Access Level 2 is gained.

The ACF Inhibit indicator will flash indicating the button is active. When pressed, the ACF output will not function. Refer to §5.1.5 for an explanation on the function test.

After inhibiting the ACF output, you can restore this function by pressing the ACF inhibit control again.

Note: Always restore the ACF output after maintenance to ensure proper system operation.

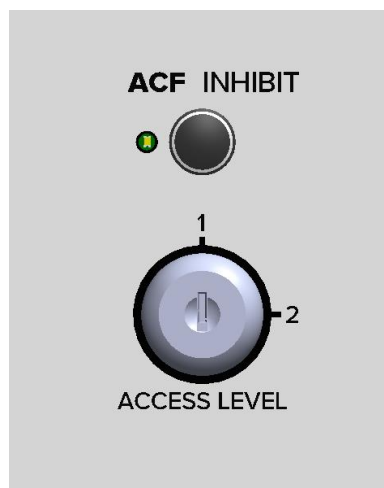


Figure 36: Access level and ACF Inhibit Control

4.2.6 Access Level

FA40 RCIE has 4 user levels as defined per AS 7240.2

User Level	User Level name/type	Required action/equipment	Access to
1	None	None	View indications and Silence Buzzer
2	Service/Emergency personnel	003 Key Required	FA40 Controls
3	Trained and authorised service personal	As per 2 + Unscrew cover of the FA40 and remove.	Internal components of FA40
4	Systems Engineer	USB micro-B and Programmer	Reconfiguring Firmware

Note: A 003-fire services key is required to gain access to level 2 onwards



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Table 22: System Controls vs Access level

Controls	Function	Access Level Required
SILENCE BUZZER	Stop FA40 RCIE internal buzzer	Level 1 (Basic)
LOCATE ALARM	Identify alarm source	Level 2 (Full)
SILENCE ALARM	Silence all FA Alarms	Level 2 (Full)
RESET	Clear all alarms and reset devices	Level 2 (Full)
KEY SWITCH	Toggle access level 1 & 2	Physical 003 key
ACF INHIBIT	To inhibit Ancillary Control Output	Level 2 (Full)

4.3 Faults

In case of a fault condition, the following will happen in the FA40 RCIE:

- The internal buzzer will sound
- The general fault output will be activated
- The general fault indicator will flash
- The respective fault indicator will flash

The buzzer can be silenced during fault conditions. But any new faults occurrences will resound the buzzer after being silenced.

Below follows a list of all faults and its description.

Table 23 List of all faults and their descriptions of FA40 RCIE

PSU fault
• Incoming Mains is disconnected. • Backup batteries are disconnected. • Battery Charger voltage low/high • Backup batteries voltage low/high • Backup batteries internal resistance is high.
System fault
• Communication failure between the FA40 Main Control Board and the Display Board. • Communication failure between the FA40 Main Control Board and the Power Supply. • DIP Switch settings changed. • FA40 RCIE cover is removed without Access Level 2
CPU fault
• FA40 Main Controller Board memory integratory test fault. • Display Board memory integratory test fault. • Power Supply memory integratory test fault.
Earth fault
• Earth fault is detected in the FA40 RCIE. Check all cables (for damage, etc.) connected to the FA40 RCIE.
Ancillary Control Facilities fault
This fault represents the ancillary control O/P circuit supervision fault at main control module. • Open circuit/ short circuit, • Missing End-Of-Line device.
Zone faults
This fault represents the respective zone circuit supervision fault. • Zone fuses blown • Zone wiring open circuit/ short circuit • FA alarm head removed • Missing or incorrectly placed End-Of-Line (EOL)



5 Functional Testing

5.1 General

Before commencing testing your FireAlert Smoke Alarm System, it is important to ensure that the equipment interfaced to the system has been isolated using the suitable isolate facility either in the panel or on the equipment itself. It is also important to notify occupants and the monitoring centre.

5.1.1 Pre-Testing

A visual inspection should be performed of the system to ensure no physical damage, loose wires, or components inside the enclosure.

- ☐ Enclosure visual check
- ☐ All boards firmly mounted
- ☐ All Configuration DIP Switches correctly set
- ☐ FA Alarms wiring correctly terminated to main boards zone circuits
- ☐ All 230V_{AC} mains cables correctly terminated
- ☐ All ribbon Cables firmly secured
- ☐ EOL configuration are correctly set on all of the last devices in a zone
- ☐ Manuals and instructions supplied
- ☐ Ensure Key switch in the access level 2 position
- ☐ Turn ON the mains isolating switch
- ☐ Power on Indicator illuminates
- ☐ Connect batteries
- ☐ Ensure all indicators are 'OFF' except Power on indicator
- ☐ Ensure no Smoke / Heat Alarm is sounding
- ☐ Check charger output voltage 28.5V DC

5.1.2 Zone Alarm Test

Check that the green power indicator is 'ON' on all FA Alarms within the zone. If it is off, check the zone circuit, fuses, wiring and FA40 RCIE etc.



Ensure the FA40 RCIE in normal mode and only "Power On" (Green) indicator is on.

Press the test button of any FA Alarms within the specific zone for up to 10 seconds and ensure that the Alarm sounds and releases. Pressing the test button simulates the effect of smoke and/or heat and FA40 RCIE goes into alarm mode.

- General Fire indicator will flash
- The respective Zone Fire indicator will flash
- The alarms type such as Smoke/Heat/MCP or Sprinkler indicator will flash based on the device activated/tested
- All the FA Alarms connected to FA40 RCIE zones will sound. If common alarm DIP Switch setting for the respective zone is selected at the main control board, the whole system will sound.
- Priority 1 (P1) Relay - voltage free contact changes based on Alarm type (Heat/ MCP & Sprinkler)
- Priority 2 (P2) Relay - voltage free contact changes for all alarm types.
- Ancillary Control Function Output - supervised 24Vdc will be activated. The status of Alarm Output will be indicated by ACF Active indicator illuminated at the front of FA40 RCIE.
- Built-in FA40 RCIE buzzer will sound
- Release test button and FA40 RCIE and all other FA Alarms resume back to normal.

Repeat **Zone Alarm Test** for rest of the zones.

5.1.3 Zone Fault Test

Zone Fault Test can be performed by doing any of the following;

- Remove a FA Alarm head from the base
- Create open circuit across the zone
- Remove zone line fuse at the main control board.

The FA40 RCIE will response as follows;

- General Fault indicator will flash
- The respective Zone Fault indicator will flash
- Built-in FA40 RCIE buzzer will sound
- General Fault – voltage free contact changes over

Press Silence Buzzer button at FA40 RCIE, the buzzer stops sounding and Silence Buzzer indicator will be steady on. Reinstating FA Alarm head or zone circuit or zone line fuse will bring the FA40 RCIE back to normal mode.

Repeat **Zone Fault Test** for rest of the zones.

5.1.4 Power Supply Test

The FA40 RCIE constantly monitors the mains power source, standby battery/charger voltage and initiates a PSU fault if the voltage of the charger or standby batteries are abnormal.

Switch off the mains 230VAC input to FA40 RCIE,

- PSU Fault indicator will flash
- General Fault indicator will flash
- Built-in FA40 RCIE buzzer will sound with Silence Buzzer indicator flashing
- General Fault – voltage free contact changes over



Press Silence Buzzer button at FA40 RCIE, the buzzer stops sounding and Silence Buzzer indicator will be steady. Turn ON the mains 230VAC input and the FA40 RCIE will be back to normal mode.

Disconnect the back-up batteries termination to FA40 RCIE.

- PSU Fault indicator will flash
- General Fault indicator will flash
- Built-in FA40 RCIE buzzer will sound with Silence Buzzer indicator flashing
- General Fault – voltage free contact changes over

Press Silence Buzzer button at FA40 RCIE, the buzzer stops sounding and Silence Buzzer indicator will be steady. Reconnect the back-up batteries termination, and the FA40 RCIE will be back to normal mode.

5.1.5 ACF Inhibit Function Test:

FA40 RCIE has only one inhibit function. Access level 2 is required. This feature is essential for system testing and maintenance operations.

Turn 003 Key to Access Level 2 position. Press ACF Inhibit button at FA40 RCIE.

- General Disable indicator will illuminate
- The ACF Inhibit indicator will illuminate
- ACF Output- supervised 24Vdc will be isolated from any FA Alarms activation of FA40 RCIE Zones

Conduct Zone Alarm Test at any one of the zones and check to ensure the ACF Output is not activated.

Press again ACF Inhibit button at FA40 RCIE to normalise. The system will be back to normal.

5.1.6 Fire Mode Test:

- Press the test button on the Alarm head.
- the tested FA alarm head will sound.

At FA40 RCIE;

- General Fire indicator will flash
- The respective Zone Fire indicator will flash twice per second.
- The alarms type such as Smoke/ Heat/MCP or Sprinkler indicator will flash based on the device activated/tested at the field
- All the FA Alarms connected to FA40 RCIE will sound (if Common Dip Switch setting for tested zone is selected at the main control board)
- Priority 1 (P1) Alarm - voltage free contact changes based on Alarm type (Heat/ MCP & Sprinkler)
- Priority 2 (P2) Alarm - voltage free contact changes over for all alarm types
- Ancillary Control Function Output – supervised 24Vdc will be activated. The status of output will be indicated by ACF Active indicator illuminated at the front of FA40 RCIE
- Built-in FA40 RCIE buzzer will sound with Silence Buzzer Indicator flash

Turn 003 key into access level 2, press Silence Buzzer to mute the FA40 RCIE buzzer.

- Silence buzzer indicator will be steady ON followed by Locate Alarm indicator flashes
- Press Locate Alarm button at FA40 RCIE



- All other FA Alarms will stop sounding, except the alarm(s) devices in the alarm condition, and Locate Alarm indicator will be steady ON followed by Silence Alarm indicator flashes.

In case of real time operation, after the source alarm(s) is located, investigation on the premises is necessary. If there is a fire, immediately evacuate the premises and call the fire brigade.

If false alarms occur,

Press Silence Alarm button at FA40 RCIE;

- All FA Alarms stop sounding.
- The source alarm(s) device and FA40 RCIE will enter into 10 minutes silence period by showing steady ON Silence Alarm indicator at FA40 RCIE.
- The general fire indicator, Alarm type indicator and the respective Zone fire indicator will remain flash through this silence period.

6 Trouble Shooting

6.1 FA Alarms

The FA alarms can communicate their status and history through various indicator flashes and chirps/beeps.

6.1.1 FA Alarm Head Indicator Summary

Table 24: FA Alarm Head Indicator & Sound patterns

Normal Mode					
Mode	Action	Green Indicator (power)	Yellow Indicator (fault)	Red Indicator (alarm)	Sound
Power up	Slide onto mounting plate	 x 1	 x 1	 x 1	-
Standby	-	 x 1	-	-	-
Testing	Press and hold test button	* 	-	-	
In alarm mode					
Detecting fire	-		-		
Activated via interconnect	-		-	-	
Pressing silence button on Alarm detecting fire	-		-		 X 10mins

* With the test button held the green indicator will flicker/pulse every second

 = Indicator on solid
  = Indicator Flashing



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Table 25: Memory Mode indicator and Sound patterns

Status	Action	Red Indicator (alarm)	Sound
0-24h	-	 x2 every 48 sec	-
>24h +	Press and hold test button	 x 2 every 8 sec	
To erase the memory	Keep test button pressed for >20s		Sounds until test button is released

Table 26: Fault Mode and Memory Indicator.

What you hear / see				What it means	What to do
Green Indicator (power)	Yellow Indicator (fault)	Red Indicator (alarm)	Chirps		
 x 1 every 48 sec	-	-	-	Lost power from FA000	Reconnect Power, Check FA000 base for fault indication
-	 x 1 every 48 sec	-		No Power, running off battery backup	Reconnect power
	 x 1 every 48 sec	-		Low battery backup	Replace Alarm
	 x 2 every 48 sec	-	 x2	Sensor fault	Replace Alarm
	 x 3 every 48 sec	-	 x3	End of Life	Replace Alarm
	 x 4 every 48 sec	-	 x4	Max Dust compensation has been reached	Clean alarm §7.1
	Flashes as per fault type	-	-	Fault chirps have been silenced indicator Flashing indicates fault type	If required chirping can be silenced again by pressing silence button
	-	 When pressing Test button	-	There has been an alarm in your absence	Check Alarm memory section



6.1.2 Low Battery Backup Fault

If the battery backup supply is depleted, the sounder will give one short chirp with one yellow indicator fault indicator flash every 48 seconds. In this case, check that the green indicator power indicator is on continuously. If it is off, or flashing every 48 seconds, the Alarm is not receiving 16Vdc power from the FA000 base and is being powered by the battery backup. The chirp every 48 seconds indicates that the battery is depleted. The battery is not replaceable. Check the FA000 base, fuses, circuit breakers and wiring to determine the cause of the interruption to the mains power. If in doubt, contact a qualified electrician. Once power is reinstated, the chirps should cease within 2 hours as the battery charges up. If the chirping persists for over 2 hours with the green light on, there may be some other problem with the Alarm. The Alarm must be returned for repair or replacement.

6.1.3 Sensor Fault

The Alarm regularly checks the photoelectric smoke sensor and/or thermistor heat sensor for correct operation. If the Alarm has found a fault with the sensor, it will give 2 short chirps with 2 yellow indicator flashes every 48 seconds. In this case, the Alarm must be returned for repair or replacement.

6.1.4 End of Life

Once the Alarm passes its 10th year of installation, it will give 3 short chirps with 3 yellow indicator flashes every 48 seconds to indicate it has reached its end of useful life. The entire Alarm must be replaced. Also check the replace by date on the label on the side of the Alarm. Disconnect the main power first and replace the Alarm. See, 'Removing the Alarm' section.

6.1.5 Max Dust compensation

The Alarm monitors the dust contamination build-up in the optical smoke chamber and then compensates for it, reducing the possibility of nuisance alarms. If, however, the Alarm gives 4 short chirps with 4 yellow indicator flashes when the test button is pressed, it indicates that the Alarm has reached the maximum dust compensation. When this occurs, the Alarm will continue to operate as normal, but there is an increased risk of nuisance alarms caused by dust contamination. If contamination has occurred quickly (e.g. due to dust from carpets being replaced) and the Alarms are sounding, the dust compensation may take some hours to operate. In this situation, remove the Alarm from the ceiling, leave it disconnected for 5 minutes, then reinstall the unit (the air must be clean i.e., dust and smoke free). The dust compensation will now operate quickly, within 60 seconds.

Refer to the maintenance section §7.1.

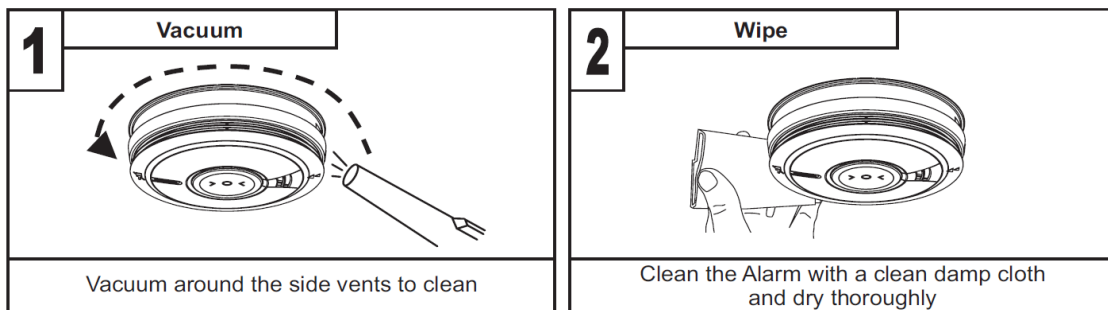
6.1.6 Temporarily Silencing the Fault chirps

If the test / hush button is pressed on an Alarm that is giving fault chirps and yellow indicator fault indicator flashes, the Alarm will be silenced (Fault Hush mode) for a period of 12 hours. However, the Alarm will sound / function as normal within that period should it detect Fire (except if the fault detected is a sensor fault). The yellow indicator fault indicator will continue to flash as before to indicate the fault is still present. This is a useful feature should the fault occur at night as it keeps the disturbance at a time when people in the building are trying to sleep to a minimum. The fault chirps would return 12 hours later, which perhaps may be a more suitable time to address the fault issue with the Alarm. In case of low backup battery voltage and end of life fault chirps, this can be repeated as required. A sensor fault condition can only be hushed once.

7 Maintenance

7.1 Cleaning alarms

Clean alarms regularly. In dusty areas it may be necessary to clean the Alarm more frequently.



Use the narrow nozzle attachment of your vacuum cleaner to remove dust, insects and cobwebs from the sides and cover slots where the airflow enters. Clean the outside cover by occasionally wiping with a clean damp cloth, then dry thoroughly with a lint free cloth. Do not use any cleaning agents, bleaches, detergents or polishes, including those in aerosol cans.

7.2 Battery Maintenance

The batteries – 2 x 12V 9Ah SLA batteries are placed inside the FA40's plastic enclosure §3.1

The FA40 charges and monitors the batteries and continuously monitors their condition. A fault will be generated when the batteries are disconnected or outside the specified limits.

The ambient temperature affects the batteries capacity, self-discharge and life span. The temperature should preferably not be higher than normal room temperature (approximately 20-22°C) For highest safety, the batteries used in a fire alarm system should not be more than four years old.

Note: Risk of explosion if batteries are replaced by the incorrect type. Dispose of used batteries according to the manufacturer's instructions and National regulations.

Skilled personnel are required to replace batteries.

8 Block Wiring Diagram

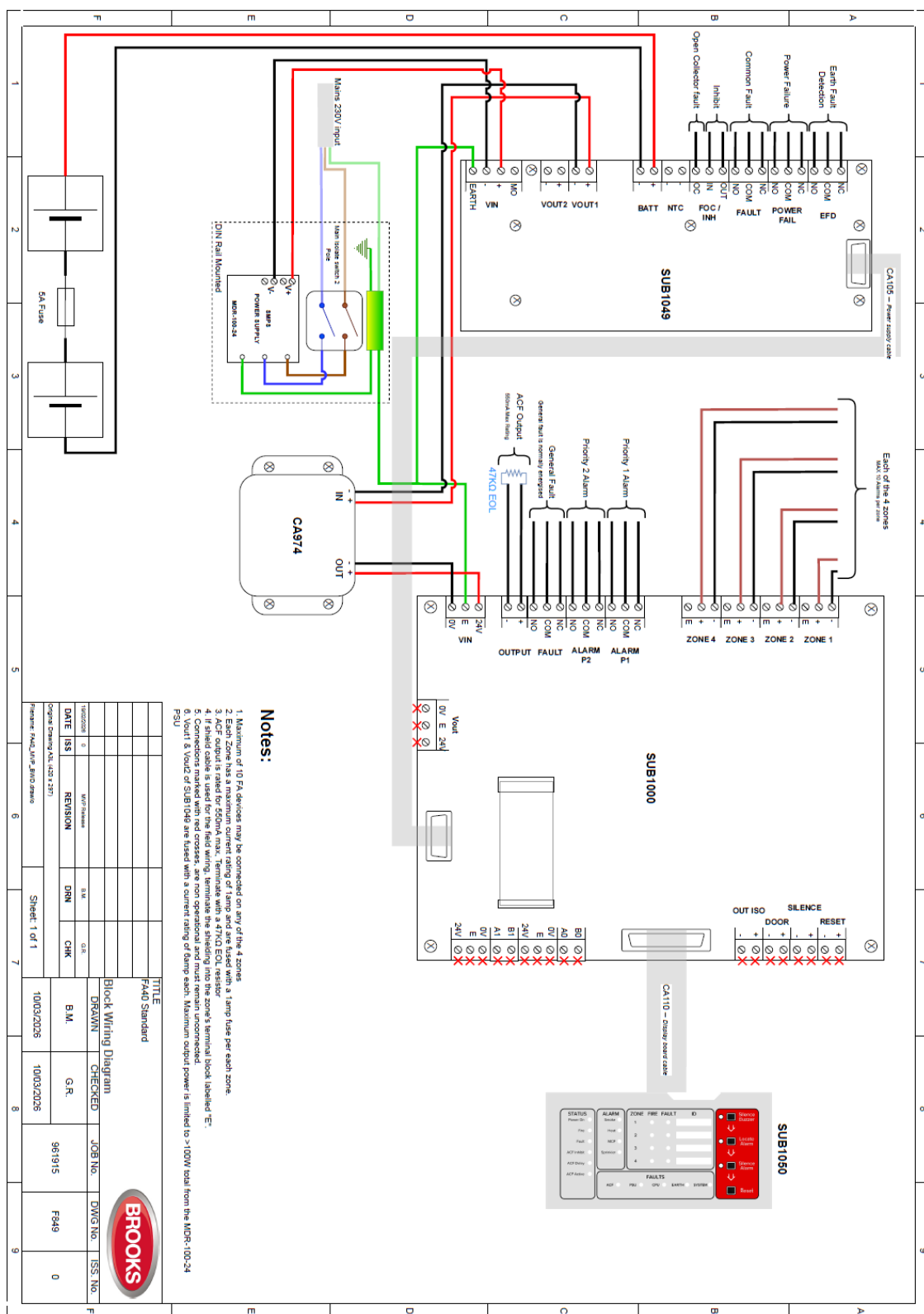


Figure 37: FA40 Standard Block Wiring Diagram



9 GUARANTEE

If the FA40 control panel, or any of its system components, have any defects due to faulty workmanship or material, it is to be returned to BROOKS freight paid. BROOKS will, at its sole discretion, repair or replace the item free of charge.

On returning a component or complete product, proof of purchase will be required. If returning the complete product, all accessories and documentation **MUST** be returned.

This guarantee does not cover damage caused to the product or its components because of incorrect installation, accident, negligence, misuse, unauthorised dismantling, contamination howsoever caused, careless handling, or where repairs have been made or attempted by others.

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, consequential loss or injury caused to any equipment, property or persons resulting from the use of FireAlert FA40.

BROOKS guarantees FireAlert FA40 units for a period of 15 months from the date of purchasing the equipment or 12 months from the date of installation, whichever is greater.



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10 REVISION HISTORY

Issue	Date	Description	Written By	Checked By
1.0	8-Oct-2026	Release	N.S/B.M/G.R	J.L



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