
Introduction

Product: ESSENTIAL 2, ESSENTIAL 4

FireClass Essential Panels are available in both 2 Zone and 4 Zone variants. The panels can support up to 128 devices with a maximum of 32 devices on each zone. These 32 devices include 25 detectors and 7 manual call points. The panels are approved to EN 54-2, EN 54-4, and listed as part of the EN 54-13 system certificate. This manual contains all the information necessary for the installation, commissioning, and maintenance of the panels.

The following panels are in this range:

- FireClass Essential 2 Zone Panel
- FireClass Essential 4 Zone Panel

① **Note:** Before you begin the installation process, read this manual fully.







The following supporting documentation is also available:

- *FireClass Essential Panels Application Manual (A16381G5KC_EN)*
- *FireClass Essential Panels User Manual (A16381AH0G_EN)*

Hazard messages

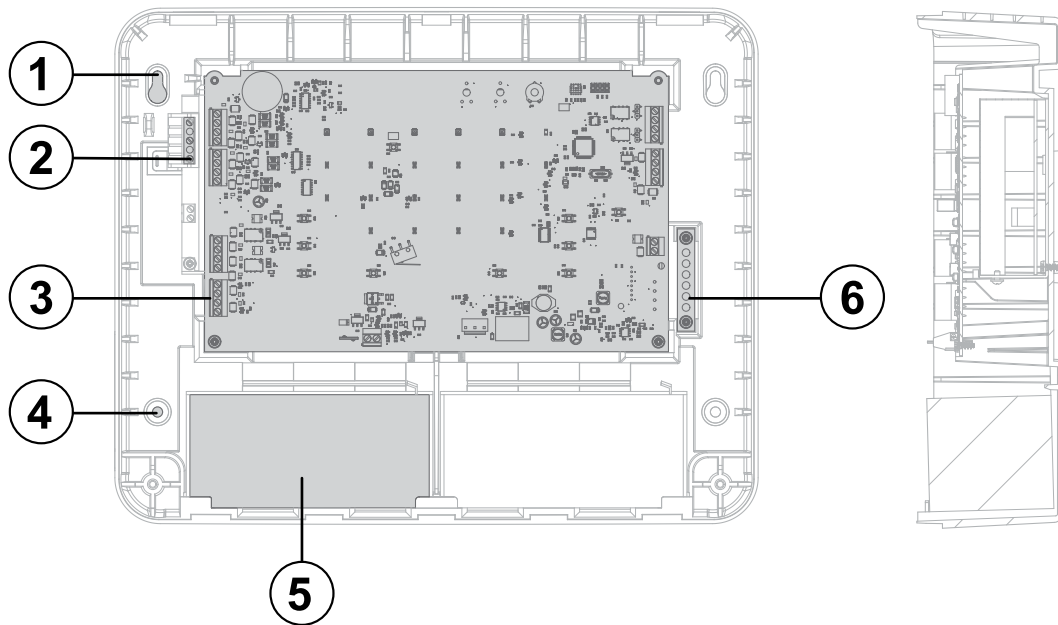
The hazard messages throughout this document are defined in the following table.

Table 1: Hazard messages

Keyword	Symbol	Explanation
DANGER		<div style="background-color: red; color: white; padding: 5px; text-align: center;"> DANGER</div> <p>Imminent danger. Death or severe injury when disregarded.</p>
WARNING		<div style="background-color: orange; padding: 5px; text-align: center;"> WARNING</div> <p>Potentially dangerous situation. Death or severe injury possible when disregarded.</p>
CAUTION		<div style="background-color: yellow; padding: 5px; text-align: center;"> CAUTION</div> <p>Potentially dangerous situation. Minor injury possible when disregarded.</p>

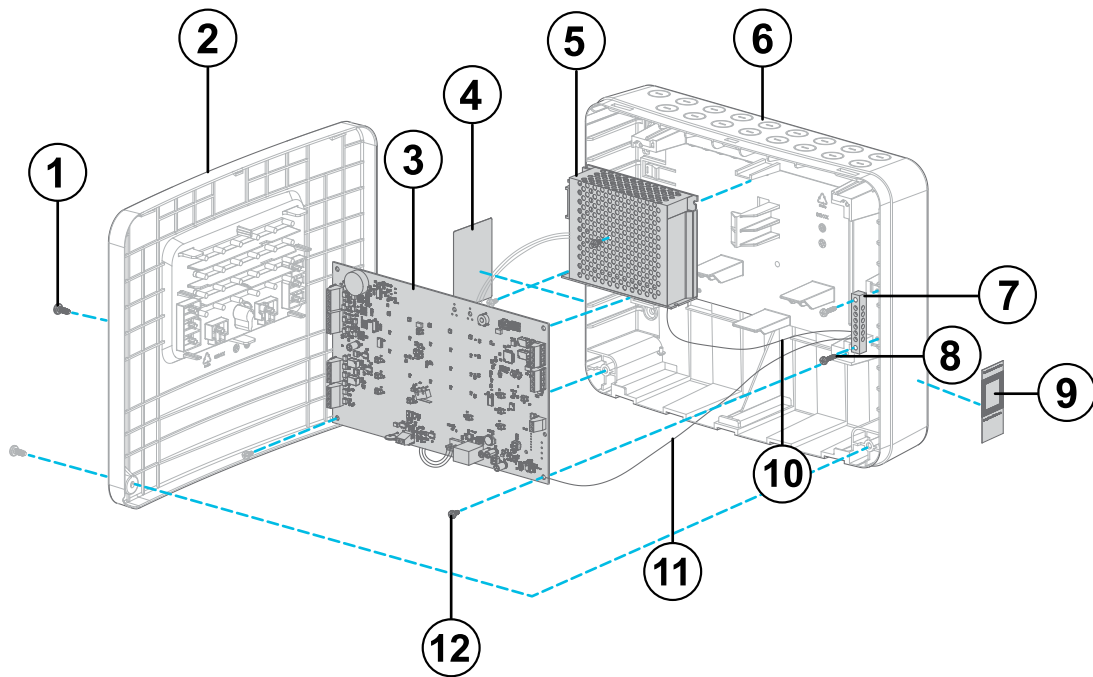
2 Zone and 4 Zone Panel views

Figure 1: Internal view



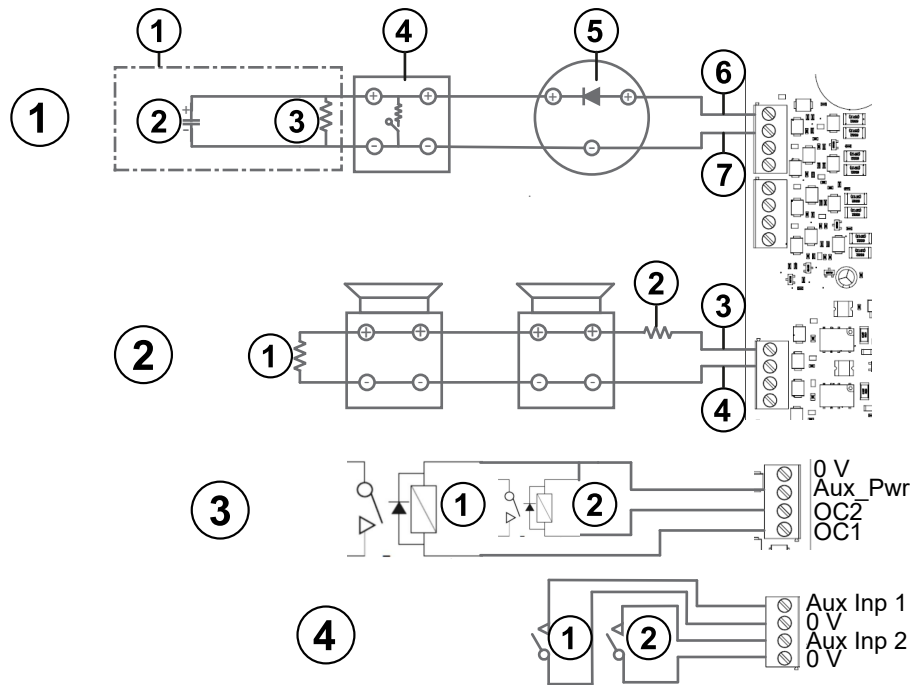
Callout	Component
1	Cabinet or enclosure mounting hole
2	Power supply unit (PSU)
3	2 Zone or 4 Zone main system board, printed circuit board assembly (PCBA)
4	Cabinet or enclosure mounting hole
5	Battery
6	Earth bar

Figure 2: General assembly view



Callout	Component
1	Door screw
2	Door or cover assembly
3	2 Zone or 4 Zone main system board PCBA
4	Panel label
5	PSU
6	Cabinet or enclosure
7	Earth bar
8	Earth bar screws
9	Product QR code
10	Earth wire 2
11	Earth wire 1
12	Main system board and PSU screws

Figure 3: Wiring diagram view



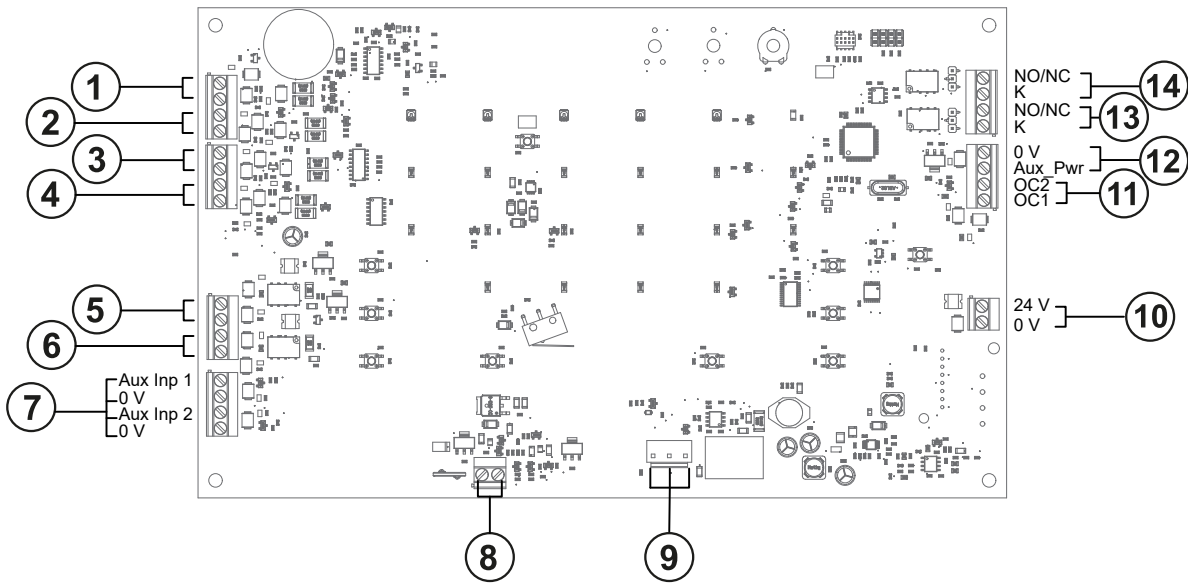
Notes:

- For the typical zone wiring, connect a 47 uF capacitor to the positive terminal of the conventional zone circuit.
- For the typical alarm circuit wiring, connect a 4.7 Ω , 3 W resistor at the top sounder (SNDR), SNDR+.

Wiring type callout	Wiring type	Image callout	Image component
1	Typical zone wiring	1	Valid end-of-line (EOL) device: 3.3 K/3.9 K/4.7 K/ 5.1 K/6.8 K
		2	47 uF, 63 V capacitor in parallel with any of the resistor values
		3	3.9 K Ω , default
		4	MCP with 470R resistor
		5	Detector base with Schottky diode
		6	Zone+
		7	Zone-

Wiring type callout	Wiring type	Image callout	Image component
2	Typical alarm circuit wiring	1	3.9 K end-of-line resistor (EOLR)
		2	4.7 Ω, 3 W resistor
		3	SNDR+
		4	SNDR-
3	Typical open collector O/P wiring	1	Remote output relay
		2	Reset output relay
4	Typical auxiliary input wiring	1	Auxiliary input 1
		2	Auxiliary input 2

Figure 4: Circuit connection view



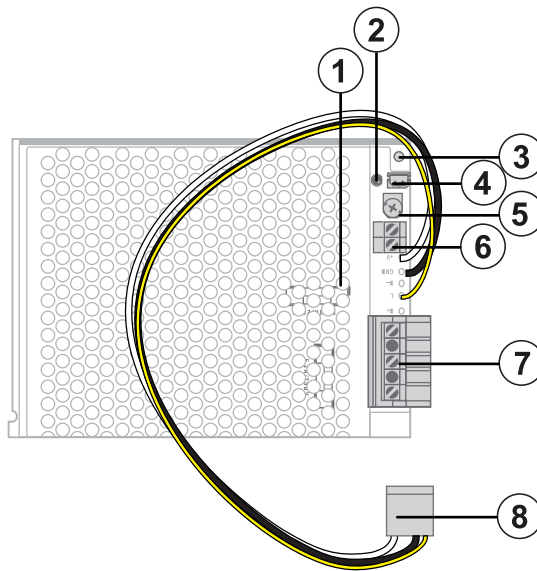
NO/NC: Normally Open/Normally Closed

Callout	Component
1	Conventional zone 4
2	Conventional zone 3
3	Conventional zone 2
4	Conventional zone 1
5	Sounder circuit 1
6	Sounder circuit 2
7	Auxiliary inputs
8	Battery terminals
9	Main supply input

Callout	Component
10	Supply for repeater, reserved for future use
11	Open collector outputs
12	Auxiliary power
13	Fire relay output
14	Fault relay output

Power supply

Figure 5: BAW50T24 switched-mode PSU



Callout	Component
1	Protection fuse
2	Main power LED
3	PSU fixing hole
4	Thermistor cable connector
5	PSU output voltage fine trimmer
6	27.6 V auxiliary power supply terminals
7	230 VAC 50/60 Hz mains power terminals
8	Supply cable to connect with main system board

The panels have an internally mounted BAW50T24 switched-mode PSU. The PSU supplies nominal 27.6 VDC to the main system board. A green LED on the PSU shows that power is available. The SKU for the spare PSU is available in [Table 6](#). The PSU is not approved for 110 VAC.

Note: The thermistor cable is connected to the terminal 4 in the factory, and the PSU voltage is preset.

Ensure that the output of the PSU reads nominal 27.6 VDC when the mains power terminals supply 230 VAC. Depending on the ambient conditions, the PSU output may vary from the nominal value. A value of between 27.2 VDC to 28 VDC is acceptable.

Calibrating the PSU output



Risk of Damage

Ensure that the PSU is set correctly.

If the PSU does not calibrate, follow these steps.

1. Install the thermistor cable as shown in callout 4 in [Figure 5](#) if it is not done already.
2. Turn the PSU trimmer as shown in callout 5 in [Figure 5](#), and measure the PSU output with a calibrated multimeter.
3. Set the PSU output voltage to 27.48 VDC at 20°C.

Installation

The following sections describe how to install the panels.



Read the instructions before installation.

Prerequisites

Qualified engineers familiar with how to install fire detection systems must install the control panel. Engineers must also refer to the following information:

- The current edition of the Institute of Electrical and Electronic Engineers, Inc. (IEEE) wiring regulations or the local code of practice.
- The current edition of BS5839-1 or the installation standards for the relevant country.
- Any specific site requirements.
- Any field device installation manuals.

Engineers must also know the following product information:

- The rating plate that contains essential electrical information is located within the panel on the inside face of the door.
- The mains supply cable must be a minimum of 1 mm² copper protected by a 5 A fuse.
- An appropriate, lockable, double-pole disconnect device is provided as part of the building installation. This device must have a minimum contact gap of 3 mm.

Safety information

WARNING

Risk of Electric Shock

Before you begin the installation process, read this section fully.

Before you install the control panel, ensure that you take adequate precautions to prevent damage to the sensitive electronic components on the main system board due to electrostatic discharge. To discharge any static electricity you may have accumulated, touch a convenient earthed object such as an unpainted copper radiator pipe. You must repeat the process at regular intervals during the installation process, especially if you are required to walk over carpets.

The panel must be in a clean, dry position that is not subject to shock or vibration and at least two metres away from any radio transmitting equipment. The operating temperature range is -5°C to 40°C. Maximum humidity is up to 95%.

Important notes on batteries

DANGER

Risk of Fire

Batteries are electrically live at all times. Never short-circuit the battery terminals.

 **WARNING**

Risk of Personal Injury

Batteries are often heavy. Take great care when you lift or transport batteries. For weights above 24 kg, use lifting aids.

 **DANGER**

Risk of Personal and Environmental Injury

Do not remove the battery lid or tamper with the internal workings of the battery. Electrolyte is a highly corrosive substance that presents significant danger to yourself and to anything else it touches. In the case of accidental skin or eye contact, flush the affected area with plenty of clean, fresh water and seek immediate medical attention.

The battery must be of the valve regulated lead acid (VRLA) type. These batteries are low maintenance and do not require electrolyte top-up or measurement of specific gravity.

The battery must have an enclosure with a flammability class UL94V-1 or better.

The battery must also comply with all the applicable standards indicated in the paragraph M.2.1 Requirements (safety of batteries and their elements). In this case, the standards are IEC 60896-21:2004 and IEC 60896-22:2004.

 **WARNING**

Risk of Explosion

Only clean the battery case with a cloth that is soaked or dampened with distilled water. Do not use organic solvents such as petrol, paint thinner, benzene, and mineral spirits or other materials that can substantially weaken the case. Do not use a dry cloth as this will generate static electricity, which may lead to an explosion.

 **WARNING**

Risk of Battery Damage

Avoid operating temperatures outside the range of -15°C/5°F to +50°C/122°F for float and standby applications.

The normal operating temperature is 20°C.

High temperatures reduce battery service life. In extreme cases, this can cause thermal runaway that results in high oxygen or hydrogen gas production and battery swelling. Batteries are irrecoverable from this condition and must be replaced.

Low temperatures prolong battery life but reduces output capacity.

 **DANGER**

Risk of Environmental Damage

Do not incinerate batteries. If placed in a fire, the batteries may rupture, with the potential to release hazardous gases and electrolyte. VRLA batteries contain substances harmful to the environment. You must recycle exhausted batteries. Return them to the battery manufacturer or take them to your council waste disposal site for appropriate disposal.

Electrical safety

 **DANGER**

Risk of Serious Injury

All contacts of the relay mounted on the appliance must only be connected to circuits that operate with SELV (safety extra-low voltage).

Only qualified and trained personnel should install the panel in accordance with the recommendations of BS5839 part 1 and the current edition of the IEE regulations.

This panel must be earthed.

Panel accessories

Table 2: Panel accessories

Item	2 Zone and 4 Zone Panels
EOL devices for conventional zones	47 uF, 63 V electrolytic capacitor in parallel with 3K9, 0.25 W resistor, qty 4
EOLRs for sounders	3 K9 0.25 W, qty 2
Engineer's door keys	See the enable key in Figure 10
Positive battery lead	Red, qty 1
Negative battery lead	Black, qty 1
Battery coupling lead	Black, qty 1
PSU terminal cover	Grey plastic, qty 1
Series resistor for SNDR+	4.7 Ω , 3 W, qty 2

Installing and commissioning overview

1. Install the panel as described in [Installing the panels](#).



Risk of Property Damage

Do not connect the field equipment at this stage.

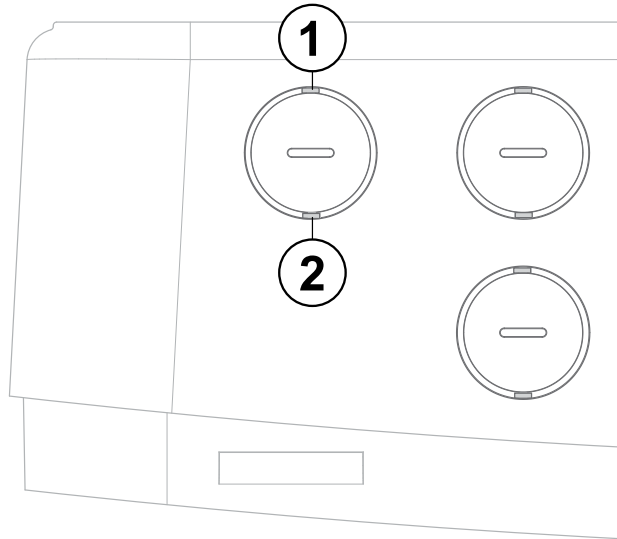
2. Install the field wiring and equipment as described in [Installing the cables](#) and [Installing the batteries](#).
 - a. Refer to the field device installation manuals.
3. Commission the panel as described in [Commissioning the panels](#).

The panel belongs to Overvoltage Category II. If the panel is subjected to transient voltages that exceed Overvoltage Category II, additional transient voltage protection, external to the panel, is required.

Installing the panels

1. Carefully remove the control panel from the packaging, and lay the panel on a flat surface.
 2. Remove the two screws from the cover, and open the control panel.
 3. Check that the items in [Table 2](#) are present.
 4. Lift the lower part of the cover, and push upwards to remove the cover fully from the panel assembly.
 5. Keep the door aside.
 6. To remove the PCBA, unscrew the two bottom screws that hold the PCBA.
 - a. Keep the PCBA aside to access the mounting holes.
 7. To remove the required knockouts from the top of the cabinet or enclosure, use a flathead, thin tip, screwdriver.
 - a. Insert the screwdriver into all the gaps between the circles at locations 1 and 2 in [Figure 6](#).
 - b. Tilt the screwdriver at locations 1 and 2 to remove the knockouts.
- **Important:** The extreme left single knockout is reserved for the external power cable.

Figure 6: Removing the knockouts



Callout	Component
1	Location 1
2	Location 2

8. Identify a suitable mounting location on the wall for the control panel.
9. Level and hold the cabinet or enclosure up to the wall.
 - a. To determine the mounting positions, see [Figure 1](#).
 - b. Mark the positions for the four mounting holes on the wall.

 **WARNING**

Risk of Electric Shock

Before you drill into the wall, check for water pipes and existing electrical wiring.

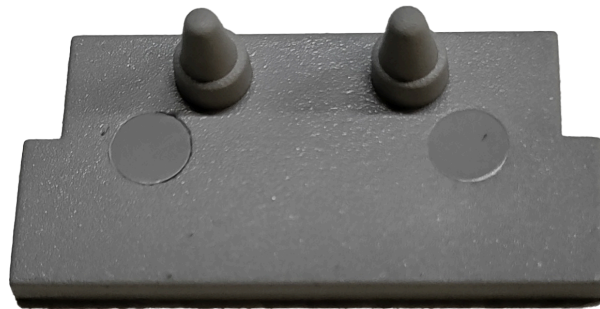
10. Drill the holes in the marked positions on the wall.
 - a. Insert the top two screws halfway, hang the panel on the top two screws, and tighten them securely.
 - **Important:** The mounting screws thread diameter must not be greater than 5 mm. Do not use hex head screws for mounting.
 - b. Insert the bottom two screws and tighten them securely.
11. Remount the PCBA over the enclosure and tighten it securely.

Installing the cables

1. Insert the installation cables into the cabinet or enclosure and secure them with the required cable glands.
The knockouts support P11 cable glands.

- **Important:** Before you install any other cable into the cabinet or enclosure, complete the installation of the mains-in cable.
- As part of the building installation, add a lockable, double pole disconnect device on the mains-in cable.
This device must have a minimum contact gap of 3 mm.
 - Connect the mains-in live brown cable to the mains terminal block, the L terminal of the PSU.
 - Connect the mains-in neutral blue cable to the mains terminal block, the N terminal of the PSU.
 - Connect the incoming protective earth green cable to the earth terminal in the mains terminal block of the PSU.
 - After you install the mains power supply cable into the PSU through the cable glands, press fit the plastic terminal cover into the two empty holes on the PSU for electrical safety.
The plastic terminal cover is available in the panel accessories kit. See the following figure.

Figure 7: Plastic terminal cover



- Secure the mains cable to the cable clamp adjacent to the mains terminal, with a cable tie. The clamp must be over the outer cable insulation.
- Check that all the field wiring is in place.
 - Ensure that the cable conductors are of a sufficient length within the cabinet or enclosure, and secure the cables through cable ties.
 - Ensure that all the conductors are labeled clearly.
- While you install the zone, sounder, and auxiliary input cables, ensure that they are isolated sufficiently from the mains-in cable.

❗ **Note:** Do not remove knockouts from any unused cable entries. Seal any unused cable entries that are open with a P11 cable gland.
- At places where the wiring or conductor is subject to contact pressure, do not use soft soldering to consolidate them.
- When the cabling installation is complete, check the cabling to ensure that it is free from short circuits, open circuits, earth faults, and crossed connections.
- Ensure that continuity of any cable shield is maintained through to the last device on the circuit.
 - You must only connect the shield to the cabinet or enclosure earth with the earth bars provided.
The primary earth is on the earth bar. For more details, see [Figure 2](#).
- Clear any dust and debris from within the cabinet or enclosure.

Installing the batteries

Before you begin:

A skilled person must install or replace the battery. The SKU for the spare battery is available in [Table 6](#).

1. Place the terminals and left-hand battery in the following correct positions:
 - a. Position the terminals towards the centre of the cabinet or enclosure.
 - b. Position the battery adjacent to the left-hand side of the back box, fixed by the raised indents in the back box, one above the battery, and one to the right.
2. Place the terminals and right-hand battery in the following correct positions:
 - a. Position the terminals towards the centre of the cabinet or enclosure.
 - b. Position the battery adjacent to the right-hand side of the back box, near the raised indents in the back box, above the battery, and to the right.
3. Connect the black battery lead to the TB9 battery connector batt- (battery negative) terminal on the main system board.
4. Connect the red battery lead to the TB9 battery connector batt+ (battery positive) terminal on the main system board.
5. Fit the connector on the end of the black lead onto the negative black terminal of the left-hand battery.
6. Fit the connector on the end of the red lead onto the positive red terminal of the right-hand battery.
 - ⓘ **Note:** Until the mains supply is available, do not connect the battery coupling lead. If you connect the battery coupling lead prior to mains supply availability, only the batteries supply power to the panel.
7. Connect the black battery coupling lead between the positive red terminal of the left-hand battery and the negative black terminal of the right-hand battery.
8. Place the thermistor device on the battery's surface and paste it with a suitable tape. The connector of the thermistor device is already plugged into PSU connector position 4.

What to do next:

1. Program the control panel in accordance with the *FireClass Essential Conventional Panels User Manual (A16381AH0G_EN)*.
2. Test the entire system: control panel, detectors, fire warning, and fire control devices.

Commissioning

The following sections describe how to commission the panels.

Prerequisites

Before commissioning, the engineer must check the following:

- Check that all field wiring is inspected and tested in accordance with Tyco wiring or local code of practice, local fire regulations, and local wiring regulations.
- Check that all field cables are glanded into the control panel cabinet or enclosure.
- Check that the detector bases are terminated but that detector heads are not fitted.
 - Any devices with electronic components are not fitted.
 - Terminations to devices with electronic components must be linked through to maintain cable continuity.
- Check that manual call points are not connected but that the cable is linked through to maintain continuity.
- Check that no EOLs are fitted in the field.

The following information must be available to the commissioning team:

- Detection layout drawings
- Wiring schematic diagram
- Control panel installation manuals
- Installation manuals for all equipment connected to the system
- Site-specific configuration details

Experience has shown that tracing wiring faults on long circuits that are routed through risers and so on can be difficult without knowledge of the wiring route.

The electrical installer must be available until basic wiring continuity is proven. A minimum of two people is ideal for efficient commissioning.

Pre-commissioning the panels

The purpose of pre-commissioning the panel is to locate any faults quickly and accurately. Pre-commissioning the panel has three parts:

1. Check the wiring.
2. Turn on the panel with no field wiring connected.
3. Configure the panel in accordance with the site-specific requirements, and conduct a functional check.

Checking the wiring

Before you begin:

Prior to specific commissioning of any detection, alarm, and auxiliary circuits, follow this procedure to test all wiring.

1. Ensure that no devices are connected to the detection zones and alarm circuits but that the cables are linked through at the device locations to achieve a continuous circuit.
2. Ensure that the resistance of all cables to earth and between cores is at least 2 M Ω .
3. Check that the following values are correct:
 - Positive to earth resistance is 2 M Ω or greater.
 - Negative to earth resistance is 2 M Ω or greater.

- Positive to negative resistance is 2 MΩ or greater.
- 4. Connect a wire link as the EOL device on each of the zones and alarm circuits.
 - a. At the panel end, measure the resistance across the positive and negative ends of the cables for each of the circuits and ensure that the value does not exceed 20 Ω.
 - b. After the tests, remove the wire links.
 - **Important:** Maintain polarity throughout all circuits and rectify any faults.
- 5. Connect all the detector heads and call points, and install the correct EOL devices at the end of the respective zones.
- 6. Remove any links fitted to detector bases.
 - ⓘ **Note:** Do not install manual call points in the following locations:
 - In the detector zone's to be configured for delay to output.
 - In the same zone as detectors installed on bases without diodes.
- 7. Ensure that a 4.7 Ω, 3 W resistor is connected at the SNDR+.

Turning on the panels

Before you begin:

The following actions must be complete:

- The panel is installed in accordance with the installation instructions as described in [Installation](#).
- All cabling is installed and tested fully.
- All cabling is glanded into the panel cabinet or enclosure but not connected to the panel terminals.
- The mains supply is isolated externally to the panel and is turned off.

To turn on the panels, complete the following steps.

1. Connect all cabling to the respective panel terminals: zone, sounder, aux input, and so on.
2. Check the battery connections are correct.
3. Turn on the mains power supply: 230 VAC
When the panel turns on, the system, common fault LEDs, and buzzer also activate.
4. To clear the system fault, you must access the panel through access level 3.
5. When the panel door is open, press the **Reset** button, followed by the **HW RST** button.
The panel resets, and if all EOL devices are correctly terminated and the battery is ok, the panel is silent and displays the power supply on (green LED) indication.
6. Before you close the cover, remove any debris.
7. To exit from access level 3, press the third level access key.
8. Align the top edge of the cover to the top edge of the cabinet or enclosure, and lock the three tabs.
9. Tilt the bottom edge of the cover towards the bottom edge of the cabinet to close it.
10. With two screws, secure the cover with the cabinet or enclosure on the bottom side.
 - ⓘ **Note:** When you install the door, ensure that the enable key is not inserted.
11. In access level 1, press the **Lamp Test** button for 5 seconds.
The panel lights all indications and sounds the buzzer. This continues for a few seconds after the lamp test button is released.

Configuring the panels

1. When you first turn on the panels, you can operate them in the basic default mode without additional configuration.

2. To tailor the functionality of the panels in line with site-specific requirements, use the site-specific configuration.

Basic default configuration

The basic default mode involves the following:

- All zones latching fire and non-delay
- Sounder outputs are not delayed

Site-specific configuration

For details of the site configurable options and the configuration process, see [Engineer functions](#). This configuration is not lost when the panel is turned off.

Commissioning the panels overview

1. Check alarm circuits first.
 - a. Enter into access level 2 and press the **Silence/Resound/Evacuation** button to check that each sounder operates correctly for audibility as specified by local fire regulations.
 - b. To restore the panel to normal, press the **Reset** button.
2. Commission the detection zones.
 - a. Establish the correct functionality of each device and check for correct indication at the control panel.
 - b. Also check the panel responses as configured at this time.
3. To check that the panels function correctly, refer to the *FireClass Essential Panels User Manual (A16381AHOG_EN)*.

WARNING

Risk of Electric Shock

Before testing, you must be aware both of the operation of all devices fitted to the auxiliary circuits and of the consequences of their operation.

Commissioning the panels

After you complete the wiring check, turn on the panel, and configure it, commission the circuits in line with the following sections.

Checking the sounder circuits

1. Use the zone test facility in the *FireClass Essential Panels User Manual (A16381AHOG_EN)*, or press the manual **Silence/Resound/Evacuation** button to operate the sounders.
 - a. Check that all sounders connected to the circuit operate.
2. Deselect the **Zone Test** condition, or if you pressed the manual **Silence/Resound/Evacuation** button, press the **Reset** button to stop the sounders, and set the panel to normal.

Commissioning zones

Before you begin:

Work logically and systematically through each zone.

Commissioning the zone fault conditions

1. To check that the fault monitoring of the cable is correct, apply an open circuit, then a short circuit at the EOL device in the field.
 - a. Check that the fault condition is indicated on the respective zone on the fire panel.
The internal buzzer sounds and the fault relay operates.
2. To restore the circuit to a healthy condition, remove the circuit faults and confirm that the fault indication clears.

Commissioning the zone fire conditions

Before you begin:

Refer to the *Zone test condition* section in *FireClass Essential Panels User Manual (A16381AH0G_EN)*.

1. Start with the device nearest to the panel, and operate each manual call point and detection device on the zone in turn.
2. After you operate each device, confirm the following:
 - The fire indication is on the panel in the correct zone.
 - As described in the user manual, the sounder must turn on and off based on the zone tested.

ⓘ **Note:** Before you exit the test condition or reset the panel, ensure to restore the manual call points.

User interface

The following sections provide an overview of the indications and buttons on the panel user interface (UI).

Figure 8: 2 Zone Panel UI

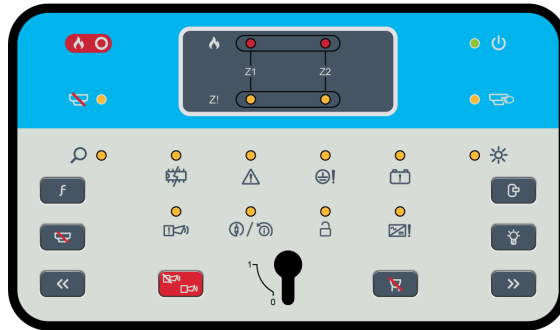


Figure 9: 4 Zone Panel UI

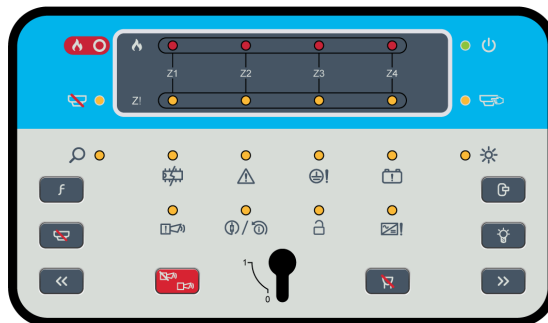
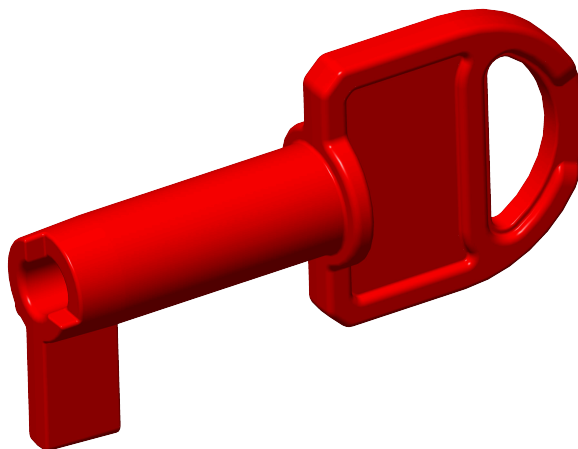


Figure 10: Enable key



UI indications

Table 3: General indicators










Indicator icon	Indicator description	Indicator colour	Operating condition
	Power supply	Green	Illuminates steady for mains or battery power on
	Test	Yellow	Flashes when any zone is in test condition
			Steady on while you select the test programming
	Accessed	Yellow	Steady on in access level 3 and flashes in access level 2
	Enabled/disabled	Yellow	Flashes during enable/disable programming
			Steady on when any zone or sounder is disabled
			Steady on while you select the enable/disable programming
	General fire/zone fire	Red	Flashes for a fire alarm and turns steady on when the alarm buzzer is silenced
			The general fire indication and individual zone fire indications are identical
	Common fault	Yellow	See Common fault detection
	Power supply fault	Yellow	Flashes for mains failure or power supply failure
			Flashes twice continuously for panel overcurrent
			Flashes four times continuously for PSU over voltage
			See Power supply fault detection

Table 3: General indicators

Indicator icon	Indicator description	Indicator colour	Operating condition
	System fault	Yellow	Steady on for all system faults See System fault detection
	Earth fault	Yellow	Flashes when an earth fault occurs See Earth fault detection
	Sounder fault	Yellow	Flashes for any sounder fault Steady on when the sounders are disabled See Sounder fault detection
	Aux fault	Yellow	Flashes for an auxiliary fault See Auxiliary power fault detection
	Battery fault	Yellow	Flashes for a battery fault See Battery fault detection
	Reserved for future use		
	Delay	Yellow	Steady on for delay programming mode selection Flashes twice when the delay time is overridden Flashes continuously when the alarm is activated on delay enable zones Off when the delay is disabled for all zones
	Zone fault	Yellow	See Zone fault detection

Table 4: Zone location indicators

Indicator icon	Indicator description	Indicator colour	Operating condition
	Separate fire LED indicator for each zone	Red	Flashes when a zone is in an alarm condition Steady on when the alarm buzzer is silenced
	Separate fault LED indicator for each zone	Yellow	Depending on the type of fault, this flashes when a zone is in a fault condition Steady on when a zone is disabled

Fault detection

The following events occur for all new faults:

1. The respective fault LED flashes, depending on the type of fault in the subsystem.
2. The common fault LED flashes on and off continuously for a new fault detection.
3. The buzzer pulses on and off.
4. The fault relay turns on.

The following events occur for restored faults:

1. The fault relay deactivates.
2. The common fault LED and respective fault LED turn off.
3. The buzzer turns off.

Common fault detection

The common fault indicator flashes continuously when any of the following faults occur on the panel:

- Zone fault
- Sounder fault
- Power supply fault
- Battery fault
- Aux fault
- Earth fault

The common fault indicator is steady on for a system fault or when the **Buzzer Silence** button is pressed.

Power supply fault detection

The power supply fault LED flashes as follows:

- For a mains disconnection, the LED flashes on and off continuously.
- For panel overcurrent, the LED flashes twice continuously.
- For PSU over voltage above 28.5 VDC with a tolerance of +0.5 V, the LED flashes four times continuously.

System fault detection

If a system fault is detected, the system fault LED and common fault LED turn steady on.

Earth fault detection

If an earth fault is detected, the earth fault LED flashes on and off continuously.

Sounder fault detection

The sounder fault LED flashes as follows:

- For sounder short, the LED turns on and off continuously.
- For sounder open, the LED flashes twice continuously.
Both sounder 1 and sounder 2 circuits use the sounder fault LED.

Auxiliary power fault detection

If an auxiliary power fault or auxiliary output fault is detected, the aux fault LED flashes on and off continuously.

Battery fault detection

The battery fault LED flashes as follows:

- When the battery voltage is less than 22.7 VDC, a low battery fault occurs, and the LED flashes twice continuously.
- When the battery voltage is less than 19.7 VDC, a depleted battery fault occurs, and the LED flashes on and off continuously.

If the panel has a battery depleted fault and there is no mains supply, then the sounder, remote output, zone power, and fire relay turn off immediately, irrespective of faults or alarm events.

If the battery voltage is less than 19.0 VDC, the panel enters sleep mode, and all audio and visual indications turn off except for the following LEDs:

- Power supply fault LED
- Battery fault LED
- Common fault LED

The panel restarts itself if the mains power supply is resumed with a system fault.

If this condition persists, the batteries are unable to function as intended in the event of a blackout.

Note: New batteries are required.

- If the battery is not connected, the LED flashes on and off continuously.
- If the battery has a high internal resistance fault, the LED flashes three times continuously.
- If the battery is overcharged and the voltage is more than 28.5 VDC with a tolerance of +0.5 V, a battery overcharge fault occurs, and the LED flashes four times continuously. The charging is cut off from the battery.






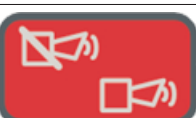


Zone fault detection

The following LED pattern occurs on respective zones when a zone fault is present.

1. Zone open: The respective zone fault LED flashes twice continuously.
2. Zone short: The respective zone fault LED flashes once continuously.
3. Zone disabled: The respective zone fault LED is steady on.
4. Missing detector in a zone: The respective zone fault LED flashes three times continuously.
5. Invalid EOL device: The respective zone fault LED flashes four times continuously.
6. Zone-in-test: The respective zone fault LED flashes continuously, in sync with the test LED.

UI buttons

Table 5: UI buttons

Button icon	Button description	Button functionality	Button availability
	Enable/disable	See Using the enable/disable button	In access level 2 and 3
	Reset	See Using the reset button	In access level 2 and 3
	Buzzer silence	See Using the buzzer silence button	In access level 1, 2, and 3
	Lamp test	See Using the lamp test button	In access level 1, 2, and 3
	Function	See Using the function button	In access level 1, 2, and 3
	Silence/resound/evacuation	See Using the silence/resound/evacuation button	In access level 2 and 3
	Right navigation	See Using the right navigation button	In access level 2 and 3
	Left navigation	See Using the left navigation button	In access level 2 and 3

Using the enable/disable button

Press the **Enable/Disable** button in the following events:

- To enable or disable the zone test condition on the zones.
- To enable or disable the sounder and zones.
- To turn on and off the delay to output on individual zones.

Using the reset button

To reset the state of the panel, press the **Reset** button. The following events then occur:

1. The panel turns off the detectors for 2 seconds. The alarm clears from the panel after reset.

2. If an alarm condition remains, the alarm indications and sounder restarts.
3. The power to auxiliary outputs turns off for 5 seconds.
4. The reset output then activates for 5 seconds and turns off.
5. Refer to the *Resetting the fire alarm* section in the *FireClass Essential Panels User Manual (A16381AH0G_EN)*.

Using the buzzer silence button

- To silence the buzzer in either a fire or fault event, press the **Buzzer Silence** button.

Using the lamp test button

- When you press the **Lamp Test** button for 5 seconds, all the LEDs on the panel and the buzzer turn on for 10 seconds, then turn off again.

Using the function button

Press the **Function** button in the following events:

- To enter programming mode in access level 2 and 3.
- To navigate through functions such as test mode, enable/disable, and delay to output for individual zone programming.
- To override the delay mode, refer to the *Overriding the delay mode* section in the *FireClass Essential Panels User Manual (A16381AH0G_EN)*.

Using the silence/resound/evacuation button

1. Following a fire alarm condition, to silence the sounders and deactivate the remote output, press the **Silence/Resound/Evacuation** button.
The fire alarm LED is unaffected by the sounder silence/resound/evacuation button.
2. To turn on the previously silenced sounders and reactivate the remote output, press the **Silence/Resound/Evacuation** button.
3. To turn on the sounders, fire relay, and remote output for manual evacuation, press the **Silence/Resound/Evacuation** button if the panel is selected to drive all the evacuation outputs.
The general fire LED starts to flash in evacuation.

- Note:** For evacuations, you can configure sounders, fire relays, and remote outputs through the panel programming jumper. In the Netherlands, you are only required to configure sounders for evacuations.

Using the right navigation button

Press the **Right Navigation** button in the following events:

- To navigate between zones and the sounder in enable/disable programming.
- To navigate between zones in test programming.
- To navigate between zones in delay to output programming.

Using the left navigation button

Press the **Left Navigation** button in the following events:

- To navigate between zones and the sounder in enable/disable programming.
- To navigate between zones in test programming.
- To navigate between zones in delay to output programming.

Engineer functions

For details on the engineer functions, refer to the *Engineer functions* section in the *FireClass Essential Panels Application Manual (A16381G5KC_EN)*.

Order information

Table 6: Order information


SKU	Product
508.032.730	FireClass Essential 2 Zone Panel
508.032.731	FireClass Essential 4 Zone Panel
508.032.732	Essential 4 Zone Panel Main System Board
508.032.733	Essential 2 Zone Panel Main System Board
PS-1230	12 V, 3.4 Ah Battery
508.031.752	BAW50T24 Switched-Mode PSU/Battery Charger Max 1.8 A at 27.6 VDC

Specifications

Table 7: Specifications

Item	2 Zone and 4 Zone Panels
Mechanical specifications	
Dimensions	282 mm x 352 mm x 86 mm (H x W x D)
Weight	2.15 kg, without batteries
Mains input specifications	
Current consumption	0.65 A/230 VAC
Supply voltage	230 VAC -15/+10%, 50/60 Hz
Cable requirements	AC power cord
Standby supply specifications	
Maximum battery capacity	2 x 12 VDC, 3.4 Ah
Internal battery resistance	45 mΩ
Rimax (resistance internal maximum)	1 Ω
Residual ripple voltage	85 mVpp, <0.5%
Nominal output voltage	27.6 VDC
Output voltage range	19.7 VDC to 27.6 VDC
Minimum output voltage	19.7 VDC +/- 5%
Power supply output specifications	
I max a	1310 mA
Maximum short term current output (I max b)	1490 mA
Supervised voltage output	24 VDC, 0.25 A
Unsupervised voltage output	24 VDC, 0.5 A
Maximum current output, mains failed	1310 mA
Voltage output, mains failed at full load	27.6 VDC, battery charged fully
Maximum ripple including switching spikes, full load/ battery disconnected (mV p-p)	n/a The PSU is integrated within the panel
Output voltage adjustment	Output voltage adjustment available through trimmer
Environmental specifications	
Operating temperature	-5°C to 40°C
Operating humidity	Up to 95% non-condensing

CPR information


Tyco Fire and Security GmbH, Victor von Bruns-Strasse 21, 8212 Neuhausen am Rheinfeld, Switzerland. 23 0051-CPR-2941 24 UK_8535-CPR-01001 DoP-2022-4037
EN 54-2 Essential characteristics Performance under fire conditions: Passed Response delay (response time to fire): Passed Operational reliability: Passed Durability of operational reliability, temperature resistance: Passed Durability of operational reliability, vibration resistance: Passed Durability of operational reliability, electrical stability: Passed Durability of operational reliability, humidity resistance: Passed
EN 54-4 Essential characteristics Performance of power supply: Passed Operational reliability: Passed Durability of operational reliability, temperature resistance: Passed Durability of operational reliability, vibration resistance: Passed Durability of operational reliability, electrical stability: Passed Durability of operational reliability, humidity resistance: Passed

The declarations of performance can be found on the product web page at <http://www.fireclass.com>.

