

Silent Alert Fire Safe System

Technical Manual



This manual covers the
FSTX-2225-EU – Fire alarm interface
PG3A-2204-EU – Pager
FSCH-2226-IN Fire Safe Charger or CH3A-2205-IN Alarm clock charger
SW3A-2208-EU SignWave



The Fire Safe interface panel contains electrostatic discharge sensitive components.
Observe antistatic precautions whilst ever the cover is removed.

TECHNICAL SPECIFICATION

Introduction

The Silent Alert Fire Safe system alerts people who are deaf when a fire alarm is activated; it comprises a fire alarm interface and one or more compatible receivers. The fire alarm interface links to a fire alarm panel via a volt free relay and incorporates a radio transmitter. When the fire alarm is activated the transmitter within the fire alarm interface sends out a coded radio signal. When a Pager receives this signal it vibrates and lights a fire key on the Pager display. The system is designed to comply with all relevant parts of BS5839-1 2013 & EN54-2 and **MUST** be installed by a competent person as defined in BS5839-1 2002.

Installation Training

Installation training is available; please call us on 01246-450789 for more details.

Fire Safe Interface Panel

Part Number: FSTX-2225-EU

Dimensions: H300mm x W210mm x D160mm

Weight: Without Battery 1.50 KG - With battery 2.3KG

Material: Polycarbonate self-extinguishing enclosure.

Protection: Water resistant

Power Supply: 240v AC 50 Hz

Battery back up: 6volt lead acid 4Ah (Yuasa Type Y4-6) Dimensions
H100mmxW47mmxD70mm

Alarm Panel feed to Fire Safe Panel: Normal condition 5-30 Volts DC.

Grounded in alarm mode via an integral OPTO isolated voltage fed relay.

Fault signal to Fire Panel: Via an integral normally open or normally closed volt free relay.

Fault conditions: Mains failure, battery removal or charge failure,
PCB failure, radio failure

Radio compliance: In accordance with EN300 220-1.

Radio licence: Licence exempt

Range: Up to 1000m in open air

Pager Unit

Part number: PG3A-2204-EU MKIII

Dimensions: H63mm x W82mm x D26mm (Excluding belt clip)

Weight: 74gms

Material: Impact resistant ABS

Power supply: Integral NiMH 3.6Volt rechargeable battery pack.

Charger: Intelligent boost, trickle and maintenance charging.

Fault conditions: Low battery & radio failure.

Radio compliance: In accordance with EN300 220-1.

Radio licence: Licence exempt.

Range: Up to 1000m in open air.

Other: Integral field strength / data validation meter for system commissioning.

SignWave Unit

Part number: SW3A-2208-EU

Dimensions: H140mm x W50mm x D70mm (Excluding belt clip)

Weight: 278gms

Material: Impact resistant fire retardant ABS

Power supply: Integral NiMH 6Volt rechargeable battery pack.

Charger: Intelligent boost, trickle and maintenance charging.

Fault conditions: Low battery & radio failure.

Radio compliance: In accordance with EN300 220-1.

Radio licence: Licence exempt.

Range: Up to 1000m in open air.

Other: Integral field strength / data validation meter for system commissioning.

Preliminary radio coverage test

A preliminary radio coverage test is normally conducted prior to installation to ensure total coverage throughout a building. It is recommended that a further radio coverage test is performed prior to permanently securing the Fire Safe panel to a wall in case it needs to be relocated. The Fire Safe panel should be mounted temporarily to a wall at between 1.5 and 1.75 meters from the ground away from large metal objects and lift shafts. For best results locate the panel central to the building. In multi-storey buildings penetrations through steel re-enforced concrete floors may be poor. In these situations coverage would be improved if the panel is located one floor above ground level to provide coverage over three floors or two levels above ground level to cover four floors. In-building coverage will vary from building to building therefore it is essential that a full and thorough radio coverage test is conducted. The range test procedure detailed later under the heading **Site Survey** should be followed. If it is found that the coverage is inadequate then additional Fire Safe interfaces may need to be added. In this case it will be necessary to change the signal patterns for each panel to ensure there are no standing wave problems. This aspect is covered in more detail under the heading **The use of more than one Fire Safe panel** below.

Power Supply

It is necessary to supply the Interface Panel with a dedicated mains supply (220-240v AC 50 Hz) via its own un-switchable fused spur. The mains terminal block is located at the bottom left hand side of the main PCB and is marked Earth (top) Neutral (middle) Live (bottom). The Panel will also require a 6 Volt lead acid 4Ah back-up battery Type Y4-6 (Dimensions H100mmxW47mmxD70mm).

It is necessary to connect the battery to the two wires with crimped connectors, before connecting the mains to avoid a fault condition.

Alarm Output from main fire alarm panel

It is possible to trigger the unit by the removal of an external voltage using the bottom I/O terminal.

The Interface Panel requires an external voltage of at least 5 – 30V AC or DC.

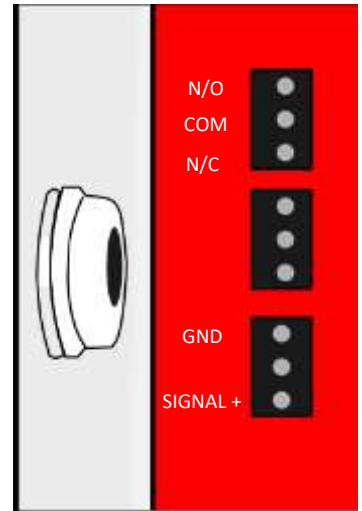
NOTE the maximum voltage must not exceed 30v AC or DC or damage will occur to the panel invalidating warranty.

Fault conditions from Fire Safe panel

The Fire Safe panel has a fault output to the main fire alarm panel provided via the top terminal block. A fault condition on the Fire Safe panel will cause a relay to be closed that will create an open circuit between common and normally closed (N/C) and a closed circuit between normally open (N/O) and common.

A fault alarm will be given in the following conditions:

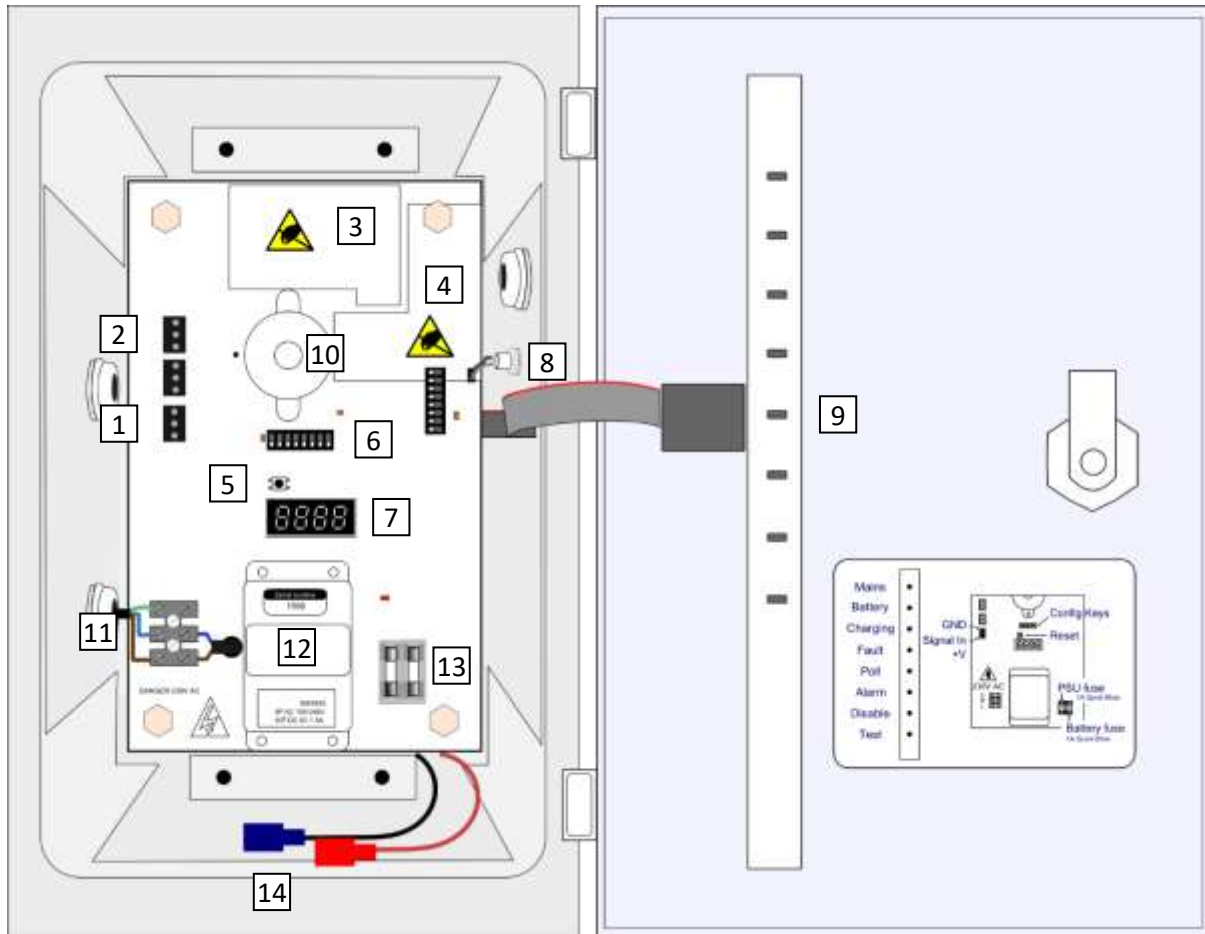
- Mains failure
- Battery charge failure or removal
- Loss of radio signal
- Main PCB failure



Front Panel Indicator Lights

●	Mains	Green	Lit when mains power present
●	Battery	Green	Lit when battery present
●	Charging	Yellow	Lit whilst battery is charging
●	Fault	Orange	Lit when any of the above fault conditions occur
●	Poll	Yellow	Lit constantly, goes out when poll signal is sent
●	Alarm	Red	Lit when alarm signal received from fire panel
●	Disable	Orange	Lit when disable key is turned to the on position
●	Test	Red	Lit when in range test mode.

FIRE SAFE PCB LAYOUT



1. Signal in from alarm panel
2. Fault out to alarm panel
3. Transmitter
4. Receiver
5. Master reset button
6. Engineers keys
7. LED Display

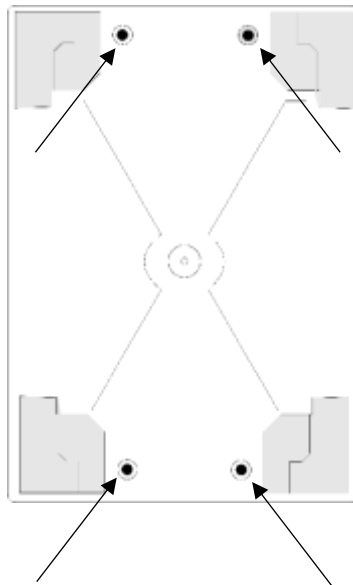
8. Disable Key
9. LED indicator PCB
10. Sounder
11. Mains Input
12. Power supply
13. 1A 20mm fuse
14. Battery Leads

SYSTEM SETUP

Setup

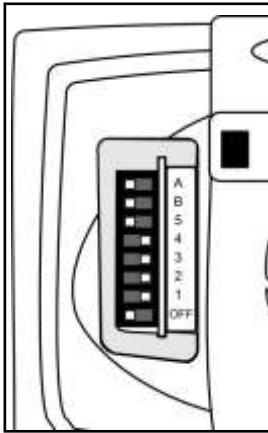
Fire Safe Interface Panel

1. Open the panel door using the large key provided.
2. The Interface contains a number of components that are susceptible to electrostatic damage. Observe antistatic precautions whilst ever the front cover is removed and avoid touching the surface of the PCB.
3. Locate the Interface panel next to the main fire alarm panel at 1.5m –1.75m from the ground. Avoid locating the panel close to large metal objects and lift shafts.
4. Use the four mounting holes shown below to secure to a wall. Any additional holes in the case may affect its IP rating.



5. Attach battery terminals +V Red, -V Black to 6 volt lead acid battery (Yuasa Type Y4-6) dimensions H100mmxW47mmxD70mm
6. Fit two cable glands (supplied) to the input / output holes on left of case.
7. Connect mains in accordance with BS5839-1 2002 to the bottom terminal block via the cable gland. The terminal block can be easily removed from the board via the two nylon bolts to assist connection.
Ensure the terminal block is securely fastened back to the board if it is removed.
8. Connect a voltage from the Fire Alarm Panel to the bottom I/O terminal block. This voltage should be present in normal condition and removed in alarm condition. The Interface Panel requires at least 5v AC or DC and a maximum voltage 30v AC or DC.
9. Connect a fault wire link between the Fire Safe Interface Panel and the Fire Alarm Panel via the top I/O terminal block. A fault condition on the Fire Safe Panel will cause a relay to be closed that will create an open circuit between common and normally closed (N/C) and a closed circuit between normally open (N/O) and common.
10. Move Engineer's key numbered 4 to the on position. This will cause the unit to send a continuous sequence of poll signals to enable a site test as detailed later.

Pager unit



1. Move keys A, B and S to the On position away from the belt clip as shown.
2. Switch pager on by moving the miniature key labelled OFF to the left away from the belt clip. As the Pager is switched on the battery key lights for 2 seconds then the pager should vibrate and each light on the display will light up four times. If this does not happen it may be necessary to charge the pager (see below).
3. Immediately after the set up sequence the field strength will be displayed on the keypad each time a poll signal is received approximately once every four seconds.

Charger unit

1. Plug the Mains Adaptor into a 13 amp socket and connect the plug to the socket at the back of the Fire Safe or Alarm Clock Charger.

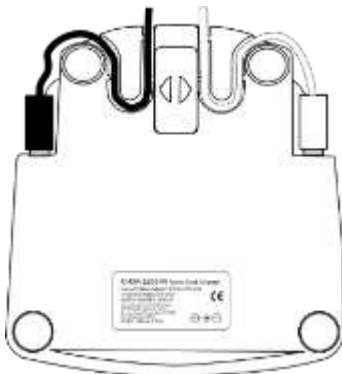
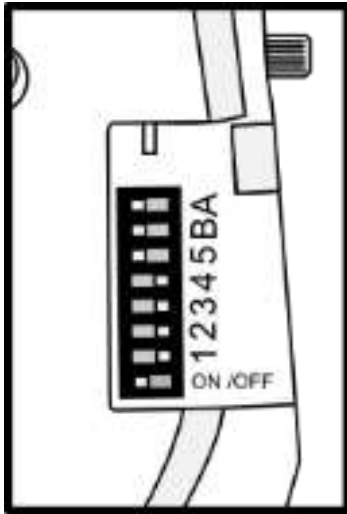


Illustration shows the mains adaptor (left) and optional Pillow Pad / Strobe plug (right) connected to the charger using the strain relief features

2. Place Pager in charging slot to charge.



SignWave



1. Move keys A, B & 5 to the on position as shown.
2. Switch SignWave on by moving the key labelled ON/OFF to the left.
3. The Polling field strength will now be displayed using the SignWave front LED's (telephone = full power) .

Once the range test is complete switch key **B** OFF. The fire key will flash every seven seconds to show the unit is in Fire Safe mode. If the unit is moved out of range or does not receive a polling signal within 5 minutes the SignWave will alarm to notify the user.

Charging Base

Plug the mains adaptor into a 13A socket and connect the jack plug to the SignWave base.

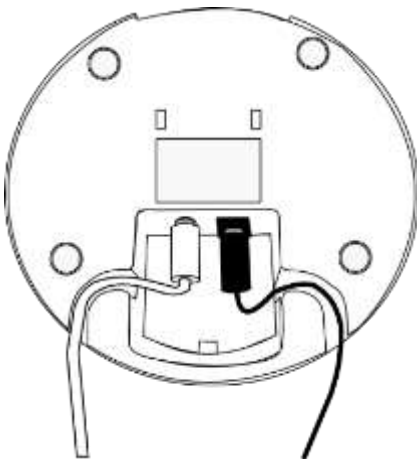
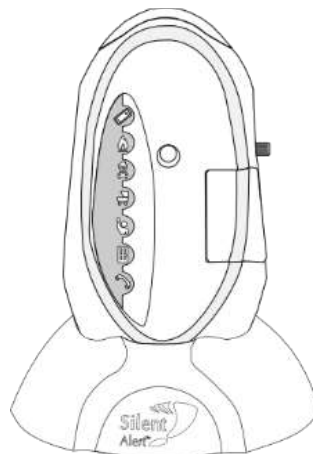


Illustration shows the mains adaptor (left) and optional Pillow Pad connected the charger using strain relief features.

Place the SignWave onto the charging base to charge



Entrance Stickers

Entrance stickers for wall and windows are included. These should be displayed at all entrances to the building.



Site survey

Radio coverage test

1. Ensure the Fire Safe is in range test mode. Engineer's key 4 in the on position.
2. Ensure the Pager is charged and in range test mode, as above.
3. Walk around the building with the pager. As the pager receives a poll signal, the keys on the pager will light. The highest signal strength will light the telephone key the lowest the battery key. It is essential that one of the keys lights up during each transmission, within the area to be covered.
4. It is possible to add additional Interface Panels on larger sites.
5. Switch Engineer's Key 4 on the Fire Safe Interface to the OFF position.
6. Move key B to the OFF position, the fire key will flash every 7 seconds to show it is now in Fire Safe mode. If the Pager fails to receive a polling signal from the Fire Safe system it will flash all the keys and vibrate 6 times to indicate it is out of range.

The use of more than one Fire Safe Panel

In larger buildings it may be necessary to have more than one Fire Safe Interface Panel. In this case it is important that the timing of the fire alarm radio signals are altered to avoid standing wave problems. A standing wave is where two radio waves meet at similar power levels and can have the effect of cancelling each other out. It is necessary therefore to overcome this phenomenon by ensuring that adjacent Fire Safe Panels do not send radio signals out at the same time. This is achieved by changing the ON / OFF periods as shown below.

Panel key 6		1 Sec	2 Sec	3 Sec	4 Sec	5 Sec	6 Sec	7 Sec	8 Sec	9 Sec
Panel 1	OFF	ON	ON	ON	OFF	OFF	OFF	ON	ON	ON
Panel 2	ON	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF

Poll Signals

The Fire Safe Panel sends a poll signal once every 4 minutes 45 seconds. This is a radio signal integrity check. The pager will expect a poll signal at least once every 5 minutes. If a signal is missed due to a fault, then the Pager will vibrate and all keys will flash six times. This will occur every five minutes whilst ever the fault remains. The Fire Safe Panel includes its own radio receiver to check the radio signal, using the same poll signal. If a poll signal is not sent the Fire Safe Panel will send a fault to the Fire Alarm Panel.

Daily Use

The Pager can be placed at reception on charge permanently. Both the Fire Safe Charger and Alarm Clock Charger have intelligent charging circuits that ensure the Pager is not overcharged.

If a visitor leaves the building without returning the Pager to reception the Pager will vibrate and all lights will flash 6 times within 4 minutes 45 seconds to remind the user. This sequence will repeat whilst ever the Pager is out of range of the system.

Visitors who have their own Silent Alert Fire Safe compatible Pagers can log onto the system by pressing the fire key on their own pager as they enter the building.

Annual / Six Monthly Maintenance

1. The lead acid battery should be checked and replaced as necessary.
2. The site survey should be repeated with each Pager.
3. The Charger power supply should be PAT tested annually.
4. Check for obvious signs of wear and tear to the Pager/s, Charger/s and Fire Alarm Interface Panel.
5. During the Fire Alarm system test check that the Fire Safe Panel goes into alarm mode, indicated by the red alarm light on the front panel and that a fire signal is received by all receivers.
6. Fault condition test should be carried out as follows:
 - Remove mains from Fire Safe Panel – Observe green mains indicator goes out and that the orange fault light comes on.
 - Reinststate mains power and disconnect battery lead – Observe green battery and yellow charging lights go out, sounder activates and the red fault light comes on.

Master Reset & Numeric Display Diagnostics

Master reset

The system will recover from a fault condition when the fault has been rectified. This however can take a number of seconds. The master reset button can be used to clear fault conditions more quickly.

Numeric display diagnostics

The 4 digit LED display will display messages from the panel when an event occurs.



Fire alarm from the main panel



Panel is polling. Followed by flashing line to indicate on board radio test.



Panel is disabled via the key on the right hand side of the panel



Battery missing / low voltage. Replace the battery with a new Y6-04. The panel will send a fault condition to the fire alarm in this state.



Mains Failure. Check panel fuses and mains supply is present. The panel will send a fault condition to the fire alarm in this state.

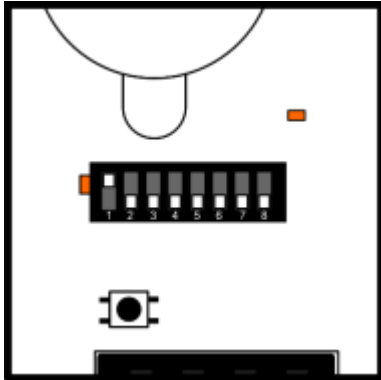


Battery charging failure. Check that mains is present, the condition of the battery leads and the battery itself. The panel will send a fault condition to the fire alarm in this state.

Battery Check Mode

The panels Battery voltage can be checked by switching key 1 on the panel up.

NOTE: Allow 24 hours after installation for the battery to charge before taking readings.



This display would indicate 7.1V in the battery.

If a battery reads over 8V or below 5V it should be discarded and replaced with new.

Technical Help Line

If you have any queries please call our technical help line on 01246-450789.