

# SA-6 Area Alarm for Piped Medical Gases





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## 1. Introduction

The SA-6 area alarm is designed to monitor piped gas pressure. The SA-6 will act as a stand-alone Alarm or be configured to operate as a Repeater to another SA-6 alarm within 250 meters, using a 3-core screened data cable (4 cores if signals are to be returned to the master unit).

The SA6 Area Alarm is designed to monitor high & low pipeline pressure on up to 6 gases, using volt-free contacts on pressure switches (by others) mounted in the pipeline and downstream from the final Area Valve Service Unit (AVSU).

Each gas has a green “Normal,” red “High Pressure” & red “Low Pressure” lamps. The panel also has a green “Power On” lamp and a red “System Fault” lamp, together with a mutable audible alarm.

## 2. Safety-Related Information

### 2.1. Intended Purpose:

Shire Controls Ltd. Area Alarm is intended to monitor the pressure in area gas supply pipelines. The Device is designed to monitor up to 6 gases using volt-free contacts on pressure switches mounted in the pipeline.

### 2.2. Intended User group:

The device is intended to alert operators including technical and clinical staff of abnormal operating pressures downstream from the Area Valve Service Unit.

### 2.3. Target Patient Group:

Not applicable as device does not diagnose, treat, prevent, cure or mitigate any diseases. It is used in maintaining normal operating conditions of the Medical Gas Pipeline Systems.

### 2.4. Indications and Contraindications:

Not applicable. Shire Controls Ltd. Area Alarms are not intended to be used by patients as the Device does not directly diagnose, treat, or monitor any medical conditions.

### 2.5. Environment of use:

The SA6 Area Alarm has been designed and validated for use in controlled indoor hospital environments and complies with the environmental requirements set forth under both EU MDR 2017/745 and UK MDR 2002 regulations.

The environmental tolerances are suitable for typical clinical installations and comply with IEC 60601-1 requirements under expected transport and use conditions.

The device housing is unsealed; therefore, it must be installed in dry, climate-controlled interiors as per HTM 02-01. Risk management activities have confirmed that no unacceptable environmental risks exist under the validated conditions.

Avoid using the Area Alarm in an environment where there is a risk of explosion.

## **2.6. Structural (EU MDR – Annex II, Section 1.1):**

The SA6 Area Alarm is an electrical medical device designed to monitor pipeline pressures of up to six medical gases downstream of the Area Valve Service Unit (AVSU), using volt-free pressure switch contact. All materials and structural components have been selected to comply with requirements of HTM 02-01, ISO 7396-1, and IEC 60601-1 for electrical and structural safety.

### Structural Components and Materials

#### 1. Alarm Enclosures and Fascia Assemblies

- Flush Mount Dimensions: 330 mm × 220 mm × 70 mm (W × H × D)
  - Weight: 3.832 kg
  - Back Box: M1079, Mild Steel, 1.2 mm (18 SWG)
  - Bezel: M1112, Mild Steel, 1 mm (20 SWG)
  - Fascia Plate: M1057, Aluminium, 1.5 mm
  - Hinge: M1275, Mild Steel, for hinged fascia access
- Surface Mount Dimensions: 315 mm × 205 mm × 65 mm (W × H × D)
  - Weight: 3.520 kg
  - Surface Box: M1112, Mild Steel, 1 mm (20 SWG)
  - Fascia Plate: M1057, Aluminium, 1.5 mm
  - Hinge: M1276, Mild Steel

#### 2. PCB Assemblies

- SAMK3 Control PCB: Provides LED indication, muting, status logic, and user interface.
- SAPSMK3 Power Supply PCB: AC-DC power conversion, battery charge control, and relay output

#### 3. Electrical Safety Covers

- Protective Mains Cover: ‘Acrylic 3mm’, 20×40×40 mm, light grey and non-conductive.

#### 4. Power Backup

- Battery Pack: SH 404 – 12V, 1.2Ah sealed lead-acid battery, end-mounted within the enclosure and fused for protection.

The SA6 Area Alarm has been designed and constructed to eliminate or reduce mechanical hazards in accordance with IEC 60601-1 Clause 9. All accessible mechanical parts are free of sharp edges and constructed from robust, medical-grade materials including steel, brass, and acrylic. Enclosures

and structural components (e.g., bezels, back boxes, and mounting hardware) are securely fixed and mechanically stable to prevent crushing, impact, shearing, or instability during normal use, maintenance, or foreseeable misuse.

### 3. Operator

The SA6 Area Alarm is designed for manual operation via the Test/Mute push-button. Hence it is envisaged that the operator can visually monitor from within 900mm.

The inherent design includes Red/Green indicator LED's and the use of gas colour recognition within the title bar of each gas window, which ensures that the alarm can be monitored comfortably from 3-4 meters away.

Consideration should be made for the final location, in accordance with the HTM guidelines and prior to installation.



**Note: When you see this symbol, the associated text refers to something which may cause danger.**

### 4. Mounting

The SA6 Area Alarm

- Surface mounting - Mount the enclosure with the "TOP" sticker uppermost.
- Flush mounting –
  - Fit the back box in the wall so that the front edge is from 2 to 15 mm lower than the finished wall surface.
  - When the wall is finished/filled/painted, attach the bezel to the back box, using the 4no M3 x 25mm countersunk screws provided, with the hinge mounting to the left.
  - Attach the Bezel earth-lead to the back box earth-stud.
- For Both mounting types
  - Fit the Power Supply PCB on the Top Left & Right and Bottom Left, Centre & Right 4mm PCB fixings clips, locate & push gently until the clips locate.
  - Fit M4x6 Pan Head Screw (with BX35 Copper Crinkle Washer) through Power Supply PCB, just left of 'Live' terminal.
  - Take the battery from the packing & stand it on end, in the right-hand end of the box, with the terminals at the top and facing to the left. Connect the red & black leads to the red & black terminals and OBSERVE POLARITY.
  - Locate the Control PCB & Fascia Plate Assembly to the Hinge, gently ease the hinge ends apart and locate (top & bottom) into the P-clips in reverse of the PCB.

- After connection of 230vac & data cables (and earthing ALL screened data cable), close the fascia onto the back box assembly and secure with 4no M3x6 Pan-head screws through fascia plate.
  - Optional For Line Monitored Alarms
    - Locate the TB4 PCB adjacent to the pressure switches (contact source).
    - Mount in enclosure as required.
- Note: remove the transmitter PCB from the box whilst fixing, to avoid damage to the PCB or connectors.

**WARNING**

The SA6 Area alarm is designed and built in accordance with HTM 02-01 and ISO 7396-1 regulations. Persons undertaking installation (or maintenance) should be trained in work of this nature. The “PERMIT TO WORK” procedure must be adhered to for all installations once commissioned.

Read and become familiar with the contents of this manual before installing (or maintaining) this device.

- Before the device is handed over to the operator, the proper functioning of the system must be proven as part of the acceptance tests for the completely installed system. This verifies compliance with national regulations.
- Equipment must be approved before commissioning the system and after installing the components.
- If the test fails, these medical devices must NOT be put into service.
- An improperly mounted device may compromise the safety of patient care and endanger the user.
- DO NOT USE OIL OR GREASE on any parts in contact with medical gases for any reason. This could lead to an EXPLOSION.

## 5. Connecting

**WARNING**

Always ensure that you are in contact with earth when handling electronic components to avoid damage by static discharges.

All cable screens must be connected at both ends. Continuity must be maintained through any

**junction boxes. A minimum of 20mm clearance must be maintained between the alarm system cabling and any other cables (including the 230Vac to the alarm system).**

**Connect signalling devices (i.e., pressure switches) with screened cable, SWA or single core cable in steel conduit or trunking.**

**FAILURE TO CONDUCT THESE INSTRUCTIONS MAY CAUSE INTERMITTENT FAULTS AND INVALIDATES THE DECLARATION OF CONFORMITY RELATING TO THIS ALARM**

For cable entry, bring the cables into the box as shown on the drawings:

- Fig 4 Flush Mounting
- Fig 5 Surface Mounting

If the SA6 Alarm is to receive data directly from pressure switches, a 2-core screened cable, minimum 0.5 square mm CSA, is required between the main alarm panel and each pressure switch.

If the SA6 Alarm is to use line-monitoring (as per HTM requirements for externally input signal data cables), install:

- a 2-core screened cable, minimum 0.5 square mm CSA, is required between the TB4 termination PCB and each pressure switch.
- a multicore screened cable, minimum 0.5 square mm CSA, is required between the main alarm and the TB4 termination PCB.
  - Number of cores required:
    - 1no Core For Each Condition Being Monitored + 1 (Common)

For each pressure (or vacuum) switch, make off cable ends with 6.3 mm female receptacle crimp terminals & insulating covers for electrical connection to spade terminals. These components are used to ensure secure, tool-free electrical termination and support serviceability.

For all Pressure Switch input signals polarity is NOT relevant.



## **WARNING**

**This equipment is not suitable for connection to an IT power system A readily accessible means of disconnecting the supply must be provided. The maximum prospective fault current must not exceed 1500 amps.**

**Mains Supply**

Remove the "Warning" Cover, by loosening the 2no M3 pozi-drive screws on the cover to reveal the mains terminals. Connect Live, Neutral and Earth to L, N & E. Replace the "Warning" Cover, making a cut-out in the side to allow the cable to pass. The supply required is 230Vac, 50/60 Hz, fused at 3 amp.

**Battery**

Connect the 12V battery (red-red & black-black) on the right of the back box with terminals at the TOP & facing LEFT to avoid damage to the PCBs.

**Input Data Signals**

For medical applications which require cable monitoring, a termination board (supplied with the panel) must be mounted in or by the contact source (plant or pressure switches) for each service. (The termination boards supplied can be mounted in boxes if required). The contact source should be connected to the "PLANT" terminals on this board, and the alarm terminals are connected to the "ALARM" terminals.

At the Alarm,

- terminal "L" is for low pressure or vacuum,
- terminal "H" is for high pressure and
- terminal "C" is common.

Unused conditions should be set to normal by connecting a 56k resistor between "C" and the "L" or "H" terminal on the alarm power supply board as required.

- Colour coded green/blue/orange/silver or gold.
- Failure to do this will create a "System Fault" (open circuit) resulting in the condition staying at fault and the System Fault lamp flashing.

For medical applications which do not require cable monitoring (when the alarm panel is mounted in the same enclosure as the pressure switches) and for non-medical applications, the H, L & C terminals are connected directly to the pressure switches.

Unused inputs are linked (0 Ohms) to C for fail-safe operation (or left open when the alarm is set to operate with normally open contacts).

A Common Fault Relay output is provided, which incorporates change-over contacts. The relay out terminals is clearly marked and in the following state when all conditions are at normal.



**"CM"=common, "C"=closed & "O"=open.**

The Relay operates (i.e. Continuity between CM & C becomes Open and CM & O becomes closed, when there is:

- Any High- or Low-Pressure Gas Condition Fault Present
- System Fault (Wiring/Line Monitoring Fault) is Present
- Under Battery Back Up – Loss of Mains Supply 230Vac

Where a Repeater/Repeater Alarm is required, the inter-panel wiring between the Alarms is made via the 5-way terminal block in the top left corner of the Power Supply PCB, as follows:

<u>Master</u>	<u>To</u>	<u>Repeater</u>
SO (Strobe Out)		SI (Strobe In)
CM (Common)		CM (Common)
DO (Data Out)		ALL L & H Terminals - On Bottom Row of Power Supply Terminals

The following connection is only required if a gas is to be sent from Repeater to master:

<u>Repeater:</u>	<u>To</u>	<u>Master</u>
DO (Data Out)		ALL L&H Terminals - On Power Supply Bottom Terminal Row



## WARNING

**In addition, units to be used as master's must have SO (Strobe Out) connected to their SM (Strobe Monitor) terminal (all panels are dispatched with this connection made). If the unit is to be used as a Repeater, this link must be removed, and the SM (Strobe Monitor) terminal must be connected to the SI (Strobe In).**

## 6. Display Unit

This section outlines the display components and their corresponding conditions during use and in case of an alarm.

Alarm Condition	Power On LED	System Fault LED	Red Gas Condition LED	Relay Output CM & C	Audible Output (2-Tone)	Comment
Normal	On	Off	Off	Closed	No	
Mute-Test (With Alarm at Normal)	On	Flashing	Flashing	Closed	Yes	Gas Condition Green Normal's All On
Gas Fault	On	Off	Specific Condition Flashing	Open	Yes	Temporary & Permanent Mute can be used
Mute-Test (With Gas Fault Present)	On	Flashing	On* (If Permanent Muted) or Flashing	Open	Yes	Gas Condition Green Normal's All On
System Fault (Loss Of Line Monitoring)	On	Flashing	Off	Open	Yes	Temporary Mute Only can be used
Gas Fault & System Fault (Loss Of Line Monitoring)	On	Flashing	Specific Condition Flashing	Open	Yes	Temporary Mute Only can be used
Loss Of Mains Battery Jumper Set to M	Off	Flashing	Off	Open	Yes	Gas Conditions Monitored
Loss Of Mains Battery Jumper Set to HTM	Off	Flashing	Off	Open	Yes	Gas Conditions & Normal's Disabled (Off).

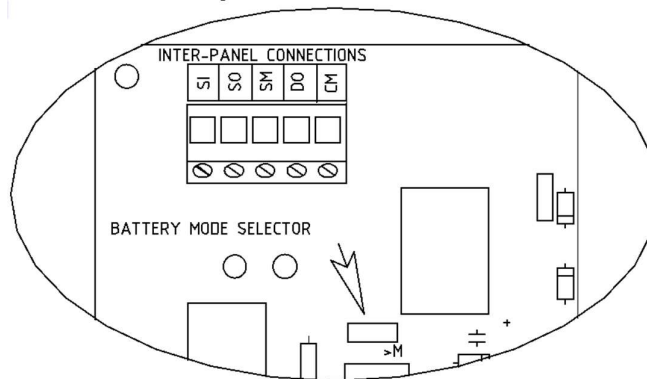
## 7. Battery

The 12V, 1.2Ah sealed lead-acid battery, should be mounted on the right-hand side of the Power Supply PCB with terminals at the top and facing left. This will reduce any risk of damage if the battery is moved while disconnected.

Select the required mode of battery operation with the Battery Mode Selector.

With the red jumper across the centre & right-hand pins (marked >M) full battery reserve is M operation.

With the jumper across the centre & left-hand pins, HTM02 mode is in operation (only supporting system fault and audible warnings for maximum battery life).



*Figure 1: Battery Mode of Operation.*

## INSTALL & SET-UP THE LED CONTROL BOARD.

Connect the ribbon cable from the Power Supply to the 26way socket on the back of the Control Board. Locate the hinge ends to the centre right copper P clips (top & bottom) on the rear of the board.



### WARNING

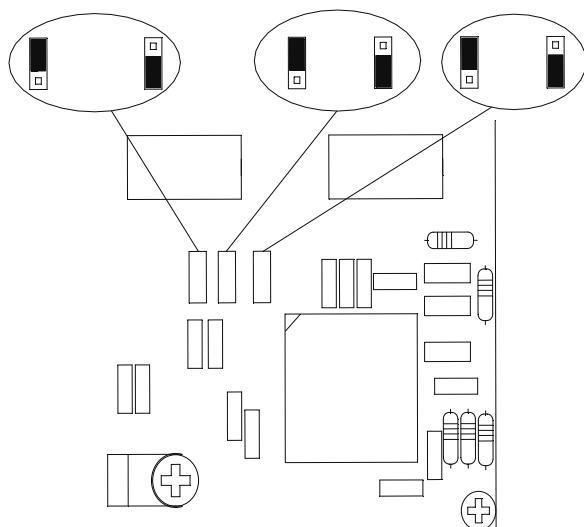
**Always ensure that you are in contact with earth when handling electronic components to avoid damage by static discharges.**

There are 6no jumper settings to check. 3no to the far bottom right to set number of gases (vertically mounted) and 3no to the left of the main PLCC Chip to set operating mode (horizontally mounted).

Jumpers for the number of gases, will not normally need to change. These are factory sets.

Jumpers for mode of operation are to switch between enabling OR disabling the use of Termination boards, use of fail-safe OR normally open input signals and enabling OR disabling medical mode (15 audible trigger).

:



Medical

Up, Up, Down.

Medical (C type):-

Down, Up, Down.

Non-Medical (B type):-

Down, Up, Up.

*Figure 2: Typical SA-6 Modes Of Operation*

Set the volume control to the required level, by holding in the mute button until a permanent audible is heard. Then by rotating a small terminal screwdriver in the component marked VOLUME, on the reverse of the board, until suitable.

Locate the fascia plate over the front of the Control PCB and push through the 5no spacer clips until they click. One in each corner and one in the centre.

## 8. Priority Signals

All normal conditions are represented by Green LEDs (Power On if 230Vac is present & Normal when neither fault on a gas is present).

All fault conditions are represented by flashing Red LEDs. A System Fault is displayed if there is a cable fault or mains loss. Gas warnings are displayed if the pressure is out of range.

## 9. Operation

When all conditions and the power supply are at normal, only the “Power On” and “Normal” lamps energize. If any signal contact opens, the appropriate “Normal” lamp goes out, the appropriate Red Fault lamp will flash, and the audible will sound.

If the signal cable is short or open circuited, the alarm condition will operate as above but the “System Fault” lamp will also flash.

In the event of power failure, if the battery mode is set to HTM02 mode, only the “System Fault” lamp and the audible will operate otherwise operation is as follows: When the power

fails, the “Power On” lamp will go out, the “System Fault” lamp will flash, and the audible will sound. All other lamps will continue to function normally.

A fault on the Strobe line on a unit used as a Repeater (for example, failure of the master or its power supply or damage to the cabling) will cause the “System Fault” lamp to flash, all “High” & “Low” lamps to flash and the audible to sound.

Failure of the Data In line on a unit receiving signals from another unit (Master or Repeater) will create a “System Fault” on all gases received by this unit.

If any gas or system fault is present, the Common Fault Relay output relay will be de-energised, only re-energising when all gases and power are at normal.



#### WARNING

**Inadequately installing a device could jeopardize patient safety and put the user at risk. Prior to handing over the device to the operator, it is essential to confirm that the system functions correctly through an acceptance test, ensuring adherence to national standards.**

- **Prior to system deployment and following component installation, the equipment must undergo approval.**
- **In the event of a test failure, medical devices must NOT be utilized.**

#### **a. Muting (Temporary)**

The audible is muted by pressing the Mute/Test button then releasing. The audible will then stop.

The audible will re-trigger after a nominal 15 minutes. It can then be re-muted.

#### **b. Muting (Permanent) or Lockout**

If an alarm condition is to be in a fault condition for a prolonged period, the audible on this condition can be permanently muted from the large white push button on the centre rear of the Control PCB.

**Note:** Any other conditions present at this time, if muted or not, will also be locked out. The lockout can be verified by pressing the Mute/Test button. Lamps for conditions which are locked out will be lit & steady. The lockout condition is cancelled as soon as the condition returns to normal.

A system fault cannot be locked out.

#### **c. Testing**

Periodically operate the Mute/Test button.

Hold in until All Red Gas Condition LEDs flash, The “System Fault” flashes (opposite timing to the Gas Condition flashing) All Green LEDs show continuously the audible sounds. Any Red alarm LEDs for conditions which are locked out will be steady.

Release the button. After a short delay, all conditions should return to normal operation and the audible should stop.

Periodically switch off the mains supply.

Lamps should operate as described earlier. After a short delay, the audible should sound and the “System Fault” lamp should flash.

When the mains supply is switched back on, all conditions should return to normal operation.

#### **d. Clinical Benefits**

The Area Alarm is crucial for hospital pipeline systems. A properly functioning Medical Gas Pipeline System avoids any delay in treatment. The claims of Shire Controls Ltd. Area Alarm include:

- The Area Alarm used as instructed aims to indicate normal functioning of the Medical Gas Pipeline System by means of visual indicators on the alarm panel.
- The Area Alarm helps to inform the user by providing visual and audible emergency alarms that abnormal conditions have occurred which may require immediate action by the user or clinical staff or Medical Gas Pipeline System (MGPS) operator.

#### **e. Disposal**

This product must be disposed of in accordance with national regulations.  
The unit does not contain any hazardous substances.

#### **f. Technical Data**

- **Environmental Conditions**

The device meets the following operational and storage environmental limits:

- Operating Temperature:  $-10^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$
- Storage Temperature:  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$
- Operating and Storage Humidity: 10% to 90% RH, non-condensing
- Atmospheric Pressure Range: Tested between 860 mbar and 1010 mbar.

- **Operating Data**

Operating voltage: 230vac

Power Consumption: 18va

Protection Class: Class 1 (Mains supplied equipment using protected earth).

Fuse: 5x20mm 250ma (Slow Blow) Ceramic

- **Display Unit**

Status display of pressure ratios: None Displayed

Pressure display: Red LED Denote High- or Low- Pressure warning received from a Pressure Switch (By others)

Maximum Pressure: Pressure Levels are set at the pressure switches as part of the system installation.

- **Relay Module**

A Common Fault Relay is incorporated within the Power Supply PCB of the Alarm

A Normal Terminals CM & C have continuity and CM, and O is Open Circuit

When a Fault is present CM & C are Open Circuit and CM, and O have continuity.

Relay Contacts are Volt-free and are rated at 0.5amp for 110Vac & 1-amp 24Vdc (minimum)

Environmental Transport and Storage Conditions

All products are separately packaged and stored in controlled conditions.

- **Modes Of Operation**

Set For 1-6 Gases (High & Low detection)

With or Without Line Monitored Data Inputs

Medical or Non-Medical (No 15 Minute Audible reset) Operation

Indoor use

Continuous (equipment may be left switched on indefinitely)

- **Risk Classification**

Class IIb as per the Annex VIII Classification Rules under Rule 9 of EU MDR 2017/745

**g. Maintenance**

Recommended cleaning method:

- Use a soft, anti-static brush to remove loose dust particles.
- Wipe surfaces with a lint-free, non-abrasive cloth lightly moistened with Isopropyl Alcohol (IPA), 70–90% concentration.
- Ensure all visible marks or debris are removed.
- Allow the surface to air-dry fully or wipe until dry before packaging or installation.

Justification: Providing detailed cleaning instructions ensures consistent product presentation and reduces the risk of residue or debris interfering with product operation or user perception of quality.
















## h. Fault Troubleshooting

Fault	Cause	Remedy
Alarm does not switch on.	No 230vac connected	Check site supply to fused spur adjacent to alarm.
	Check the round 5mm green led in centre of pcb.	If off, 1.6a glass fuse may have failed. Replace fuse.
	Recheck the round 5mm green led in centre of pcb.	If fuse has blown again see below.
Alarm Condition Does not switch On when Gas level is out of Operating Range	Pressure Switches incorrect or set incorrectly	Remove wiring to Alarm CLH terminals and check for Visual/Audible indication.
	If after removing wiring to CLH terminals, alarm does not respond.	PCB may have been damaged, Call Shire Controls for assistance.
Alarm Condition Does not switch Off when Gas level is in Normal Operating Range	Pressure Switches incorrect or set incorrectly	Remove wiring to Alarm CLH terminals, replace with 56K resistors C-H & C-L and check for Normal conditions.
	If after replacing wiring with 56K resistors to CLH terminals, alarm does not respond.	PCB may have been damaged, Call Shire Controls for assistance.
Audible not sounding with visual warning.	Possible damaged speaker/audible circuit	Press & hold Mute/Test button and check audible sounds
	If audible sounds when tested, possible external interference	Press & hold Mute/Test button and check that visual warning flashes or is lit steady.
	Visual condition is permanently lit under test function	Retest for another gas condition to see if the audible is working correctly.
	If 2 <sup>nd</sup> test produced different outcome, original fault may have been permanently muted from Lockout button.	If the 2nd test produced the same outcome, there may be interference from external sources.
	Check for correct earthing of ALL screened data cables on Alarm earth stud.	Call Shire Controls for assistance.
Battery Back Up not functioning.	Battery may have exceeded its life cycle.	Check for date code on heat stamp of top of battery.
	If battery code is OK, is battery still sound	Check DC voltage across terminals (should be 12-12.5v)
	If battery is OK, check jumper link on power supply	Is jumper fitted between middle-left or middle-right pins












	If no jumper is fitted, fit jumper link to middle-right pins and test	If jumper is fitted, pcb may be damaged, call Shire Controls for assistance
Intermittent faults on same conditions	May be due to broken cables between pressure switches & end of line PCB	Check cabling between these points.
	Faulty pressure switch.	Check operation of pressure switch.
Intermittent faults on different conditions	Are these faults lasting for 3-4 seconds before changing/clearing?	Check all data cables are screened & Earthed at <b>Both</b> ends.
	Faults still persist after cabling screened check	PCB or ribbon connectors may be damaged, call Shire Controls for assistance.

## i. Symbol

Symbol	Explanation
	Medical Device
	Do not use it if the package is damaged and consult the instructions for use.
	Humidity Limitation
	Keep Away from Sunlight
	Non-Sterile
	Keep Dry
	Caution
	Fragile
	Storage Temperature
	Manufacturer
	Date of Manufacture
	Serial Number
	Observe the Instructions for use.
	UKCA Marking
	CE Marking European Union directives & regulations (including (EU) 2017/745 MDR)

j. UDI-DI & UDI-PI Label

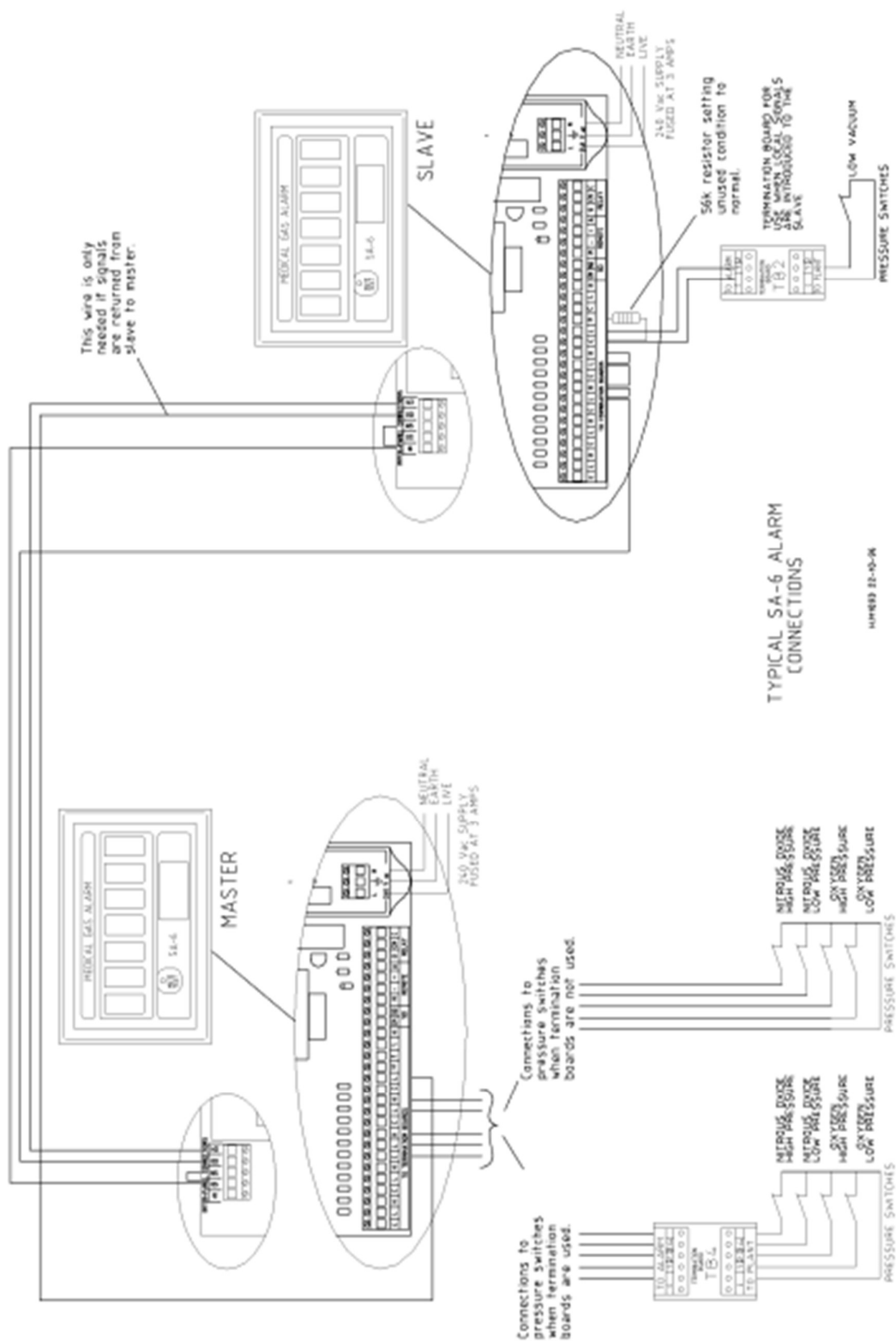
 <b>SA6 Area Alarm</b> <b>Medical Gas Alarm</b>		?????	
		#	Model No. ?????
			
QTY: 999999			
		Shire Controls Ltd. Studio 3 Channocks Farm, Gilston, Harlow Essex CM20 2RL United Kingdom	
			
(01) 506108026999999		<a href="http://shiremedical.co.uk/">http://shiremedical.co.uk/</a>	
(11) 2023-12-06		2023-12-06	
(21) 999999			

## k. Alarm Variations

Description	Part Number	Supplier
1 Gas SA6 Alarm (Flush)	sa3f	Shire Controls Ltd
2 Gas SA6 Alarm (Flush)	sa6f	Shire Controls Ltd
3 Gas SA6 Alarm (Flush)	sa3f	Shire Controls Ltd
4 Gas SA6 Alarm (Flush)	sa6f	Shire Controls Ltd
5 Gas SA6 Alarm (Flush)	sa3f	Shire Controls Ltd
6 Gas SA6 Alarm (Flush)	sa6f	Shire Controls Ltd
1 Gas SA6 Alarm (Surface)	sa3s	Shire Controls Ltd
2 Gas SA6 Alarm (Surface)	sa6s	Shire Controls Ltd
3 Gas SA6 Alarm (Surface)	sa3s	Shire Controls Ltd
4 Gas SA6 Alarm (Surface)	sa6s	Shire Controls Ltd
5 Gas SA6 Alarm (Surface)	sa3s	Shire Controls Ltd
6 Gas SA6 Alarm (Surface)	sa6s	Shire Controls Ltd
1 Gas SA6 Pre-Wired in GW Box	pwbox1g	Shire Controls Ltd
2 Gas SA6 Pre-Wired in GW Box	pwbox2g	Shire Controls Ltd
3 Gas SA6 Pre-Wired in GW Box	pwbox3g	Shire Controls Ltd
4 Gas SA6 Pre-Wired in GW Box	pwbox4g	Shire Controls Ltd
5 Gas SA6 Pre-Wired in GW Box	pwbox5g	Shire Controls Ltd
6 Gas SA6 Pre-Wired in GW Box	pwbox6g	Shire Controls Ltd
SA6 Computer Interface in GW44209	saci	Shire Controls Ltd

## 1. Alarm Spares

Description	Part Number	Supplier
Surface box	saboxsas	Shire Controls Ltd
Flush box	saboxsaf	Shire Controls Ltd
Flush Bezel	safbez	Shire Controls Ltd
Front Plate+Membrane	saplasy	Shire Controls Ltd
Battery 6 volt	sh002	Shire Controls Ltd
Battery 12 volt	sh404	Shire Controls Ltd
Blanking plate	sh962	Shire Controls Ltd
Weather Proof Box	sh700	Shire Controls Ltd
1 Gas Control Board	Sa1control	Shire Controls Ltd
2 Gas Control Board	Sa2control	Shire Controls Ltd
3 Gas Control Board	Sa3control	Shire Controls Ltd
4 Gas Control Board	Sa4control	Shire Controls Ltd
5 Gas Control Board	Sa5control	Shire Controls Ltd
6 Gas Control Board	sa6control	Shire Controls Ltd
6 Gas Power Supply	saps	Shire Controls Ltd
TB4 Termination PCB	TB4	Shire Controls Ltd
SA6 Computer Interface PCB	sacipcb	Shire Controls Ltd



**Figure 3: Typical SA-6 Alarm Connections**

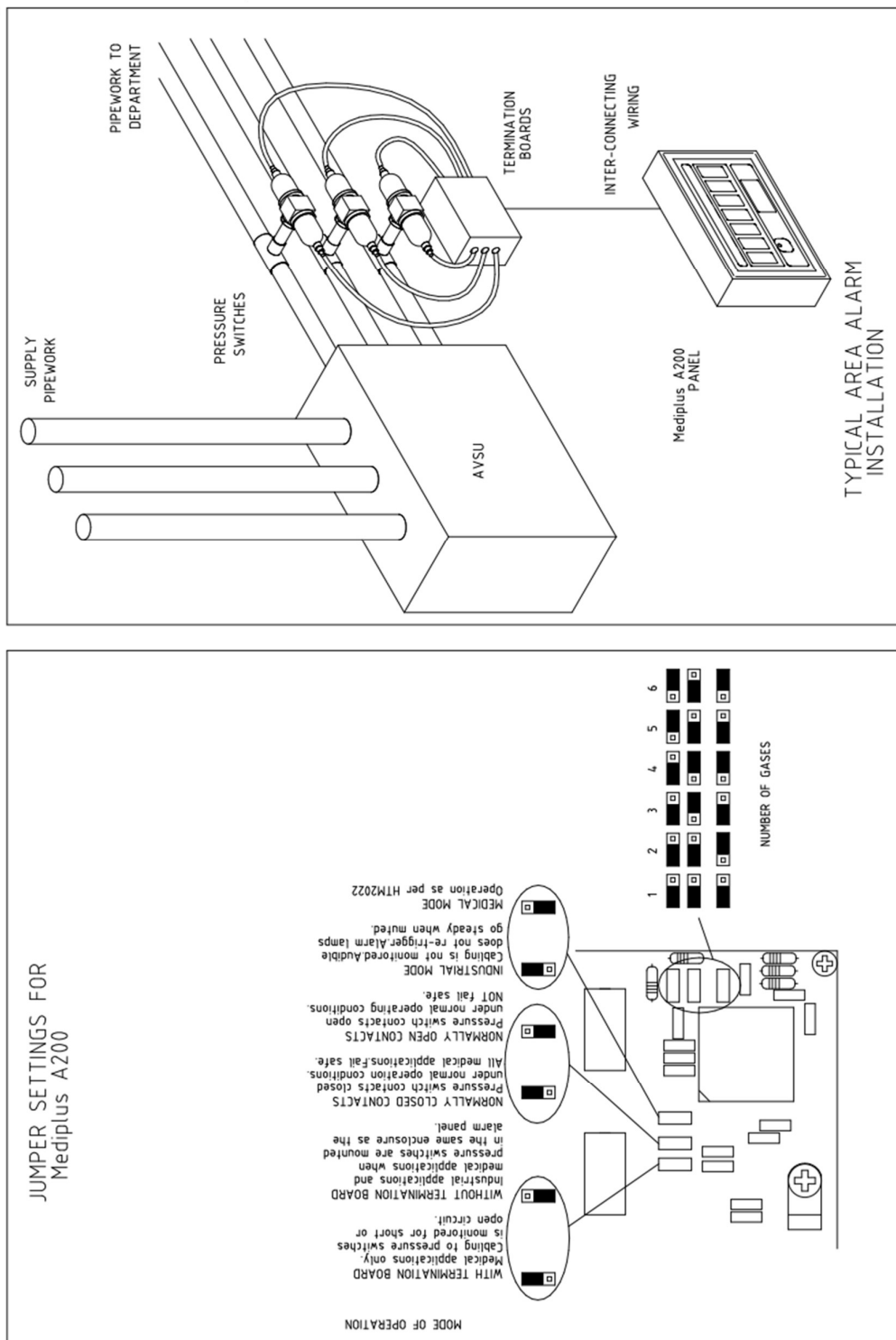
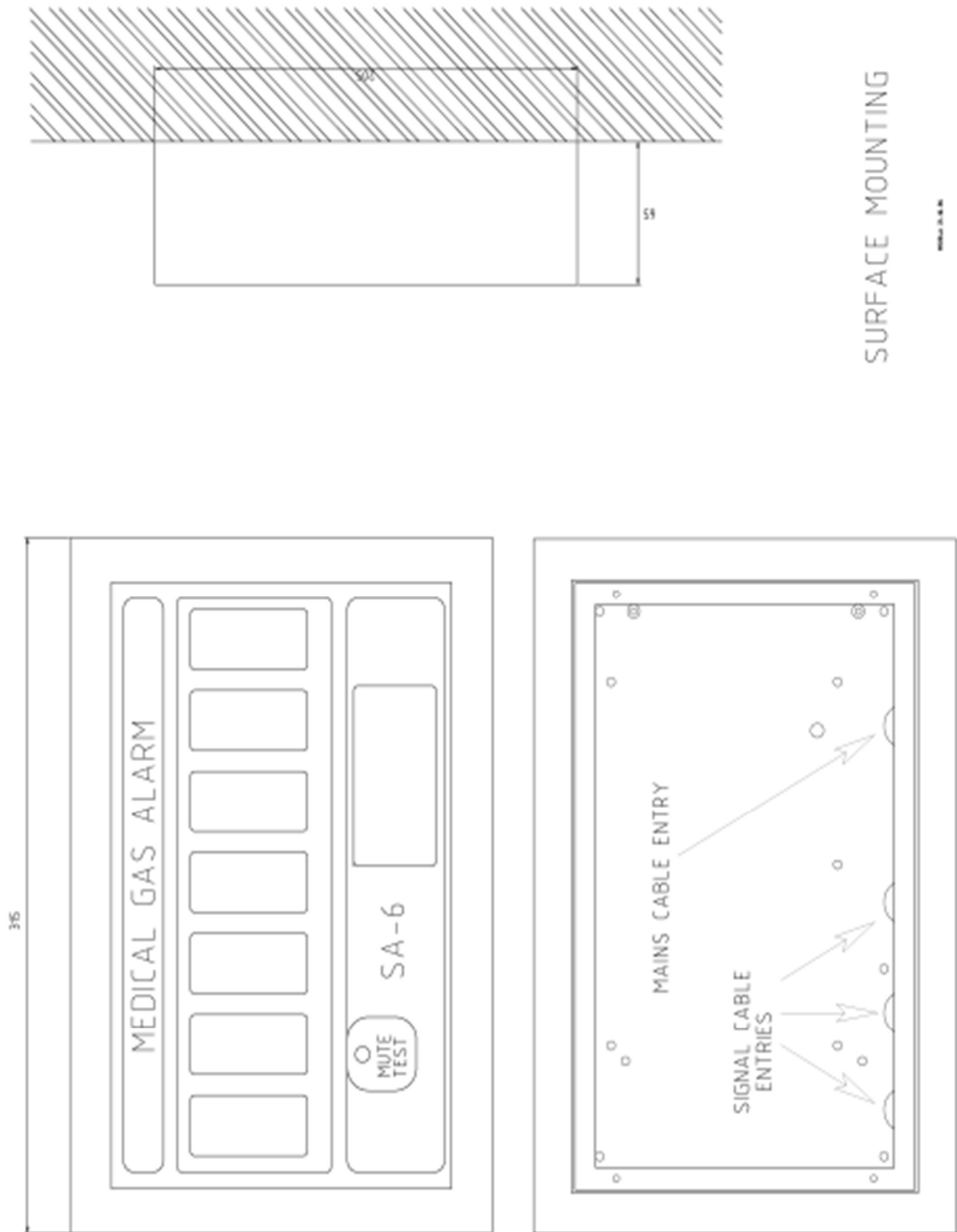
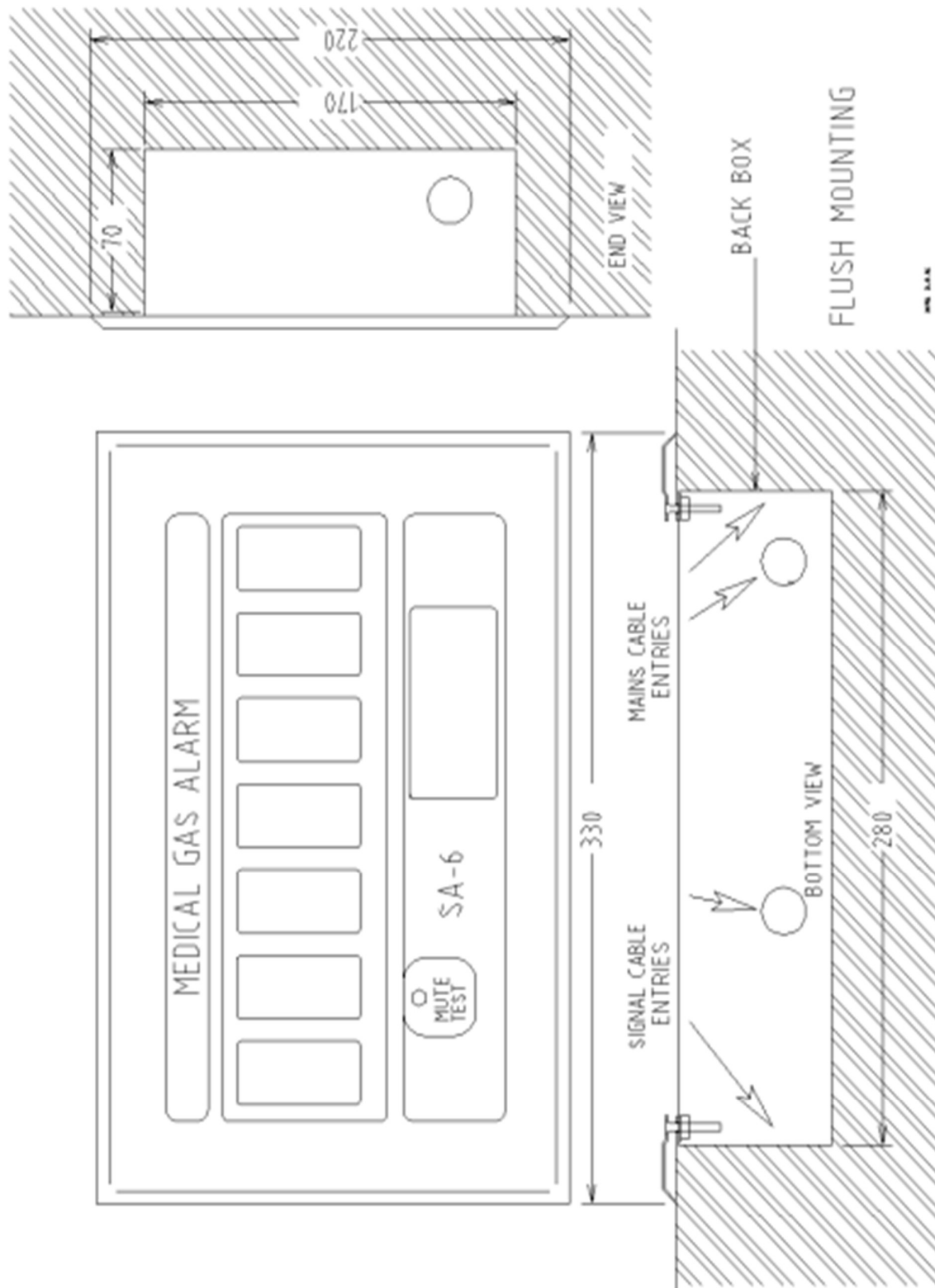


Figure 4: Modes Of Operation and Typical Area Alarm Installation



*Figure 5: Surface Mounting Box Detail*





*Figure 6: Flush Mounting Box & Bezel Detail*

## **m. Regulatory Standards**

To which this declaration relates is in conformity with the following standards:

**EN60601-1-2 4th Edition 2015** - Emissions Standard for Medical Equipment

**EN55011, Class A 2016 + A1:2017** - Emissions Standard for ISM Equipment

**EN61000-3-2 2014** - Harmonic Current Fluctuations

**EN61000-3-3 2013** - Voltage Fluctuation and Flicker

**EN60601-1-2 4th Edition 2015** - Immunity Standard for Medical Equipment **EN61000-4-2 2009**

ESD Requirements **EN61000-4-3 2006 + A1 + A2**

Radiated Susceptibility

**EN61000-4-4 2016** - Electrical Fast Transient Burst Requirement

**EN61000-4-5 2017** - Surges Requirements

**EN61000-4-6 2014** - Conducted Susceptibility

**EN61000-4-8 2012** - Magnetic Field Immunity

**EN61000-4-11 2017** - Voltage Dips and Interruptions

## History

- 1 For Production
- 1.1 Updating of Spare Lists & Product Variations, Maintenance, Environment, Symbols, Labelling, & Structural