



Leading the way in Gas Detection

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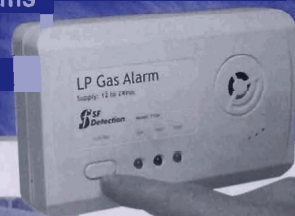
PLEASE READ THESE INSTRUCTIONS  
BEFORE INSTALLING THE GAS ALARM



# Z10a Z10d & Z10e Operating & Installation Manual

Mains and DC powered  
Domestic Gas Alarms

Models for Natural  
Gas and LP Gas



## 1 INSTALLATION

### SAFETY

**The Alarm should only be installed by a competent person using the following installation instructions**

There are several types of alarm available in this series. These are as follows

Z10a Natural Gas, mains powered (110-230Vac 50-60Hz)

Z10d Propane and Butane (LPG), mains powered (110-230Vac 50-60Hz)

Z10c Propane and Butane (LPG), DC powered (12-24Vdc)

(Specialist LPG alarms for boats are also available)

Ensure you have the correct model for your application by checking the label on the product.

Isolate the electricity supply before starting the installation. All electrical wiring should be installed according to your local electrical safety regulations

Once the unit has been installed, do not tamper with the inside of this alarm - you may stop the alarm working, or receive an electric shock. No maintenance or adjustment is required.

### WHERE NOT TO INSTALL THE ALARM

- Outside the house/caravan
- In an enclosed space, e.g. Inside a cupboard or behind a curtain
- Directly above a sink
- Directly above a cooker
- Next to a door or window
- Next to an extractor fan
- In an area where the temperature can drop below  $-10^{\circ}\text{C}$  or rise above  $+40^{\circ}\text{C}$
- Where dirt and dust can block the sensor and stop it working
- Damp or humid areas
- Where it is likely to be knocked or damaged.

### WHERE TO INSTALL THE ALARM

For maximum protection the alarm should be installed on a flat wall in the room where the gas appliance is situated. In most installations this will be the cooker in the kitchen.

## 2 INSTALLATION

### NATURAL GAS MODELS

Natural gas is lighter than air so the alarm should be installed higher than the top of the highest outside window or door within a room. This will usually be no more than 30 centimetres from the ceiling. It should also be between 1 metre and 5 metres from the gas appliance.

Figure 1 Natural Gas Installation



Figure 2 LPG Installation



### LPG MODELS

LPG is heavier than air so the alarm should be installed not more than 30 centimetres from the floor and not more than 4 metres from the appliance.

### UNPACKING THE DETECTOR

Remove the unit from its packaging, gently remove the cover. Discard the piece of packing between the cover and base; do not attach the cover to the base at this stage.

### FITTING YOU DETECTOR TO THE WALL

The product can be installed flush mounted set into a wall/partition or surface mounted on top of a wall. You will need the following tools to install the unit:

- Drill with a 6mm bit
- Phillips screwdriver

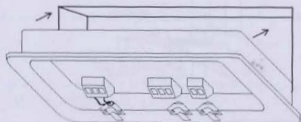
The product is designed with the cables emerging from the bottom of the unit.

### 3 INSTALLATION

#### Flush mounting

In order to flush mount the unit, a suitable hole will need to be cut in the wall. This will need to be 140mm wide by 96mm high and a minimum of 20mm deep. The power supply cabling and connections for the interconnect and relay (if used) will need to come from behind or inside the wall. This will normally be via conduit in solid wall or from inside the outer skin of a partition wall. In this type of installation the mounting bracket used for surface mounting can be discarded. Once mounted in the hole in the wall, the unit can be secured to the wall using the two screws provided (and if needed the raw plugs) through the two holes either side of the base.

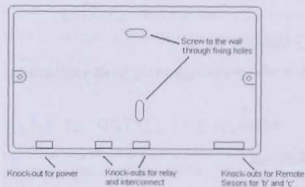
Figure 3 Flush Mounting



#### Surface Mounting

The unit can be surfaced mounted on any flat wall or partition. In this configuration the cables are brought in via knock-outs in the surface mounting bracket. The diagram below shows how to fix the bracket to the wall using the screws (and if needed the raw plugs) provided. Use a screwdriver to remove the appropriate knock-outs for power, relay and interconnection wiring.

Figure 4 Mounting Bracket

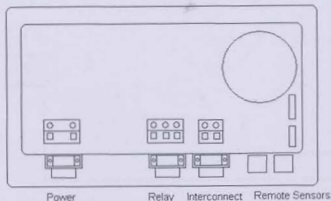


### 4 INSTALLATION

#### HOW TO CONNECT POWER TO THE ALARM

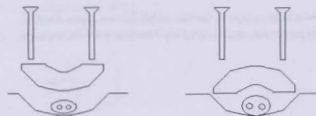
Before connecting power ensure you have selected the correct product for either mains or DC installation, checking the label on the product.

Figure 5 Base



Feed the cables for the power (and, if used, the relay and interconnect) up from the underside of the base. The cables are then secured using the cable clamps provided. The cable clamp can be reversed to accommodate larger cables as shown.

Figure 6 Cable Clamps



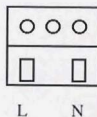
## 5 INSTALLATION

### Mains Powered Alarms

#### CAUTION: ISOLATE THE MAINS BEFORE STARTING WORK

The detector should be wired to the mains supply via an unswitched fused outlet to BS5733. The fuse should be rated at 3 Amps. The brown or red wire should be connected to the live terminal shown as L below and the blue or black wire should be connected to the neutral terminal shown as N. The earth terminal is not required.

Figure 7 AC Supply Wiring



### DC Powered Alarms

#### CAUTION: ISOLATE THE MAINS BEFORE STARTING WORK

The detector should be wired to the 12V or 24V supply with a fuse rated at 3 Amps. The red wire should be connected to the terminal shown below with a + (plus) sign and the black wire to the negative terminal shown with a - (minus). Reversing the connections may damage the product.

In caravans and motor-homes the detector should be connected to the battery supply via the main switch. This will ensure operation when the caravan is occupied. Permanent connection for prolonged periods may cause a flat battery if the battery remains uncharged.

Figure 8 DC Supply Wiring

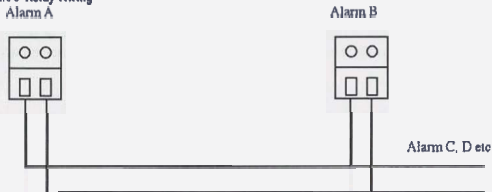


## 6 INSTALLATION

### HOW TO USE THE INTERCONNECT FACILITY

The interconnect facility can be used to link up to 20 alarms so all the alarms will sound if one unit should detect gas. To link alarms in this way, wire the interconnection terminal block as shown below. Care must be taken not to reverse any of the connections as this may damage the product.

Figure 9 Relay Wiring Alarm A

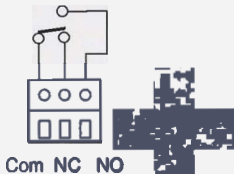


### HOW TO USE THE RELAY FACILITY

The relay provides a means of signalling an alarm condition to an external warning device such as control panel or remote audible buzzer. It can also be used to shut off a gas valve in the event of a detected leak. The relay is a single pole changeover type that allows contacts to be either open or closed when gas is detected. Relay contacts can be wired in parallel to provide an alarm signal when any of the units connected detect gas.

For the mains powered versions the relay contact is specified up to 240V @ 6A ac and for DC powered versions its is specified at 24V @ 8A

Figure 10 Relay Wiring



## COMPLETING THE INSTALLATION

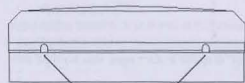
Once the unit has been wired, the cover can be attached by connecting the plug and socket between the lid and base. Ensure the plug is firmly in place and the wiring is secured to the lid. The cover can then be pushed onto the base and secured using the four clips moulded into the cover.

When the power is applied all three LEDs should come on for 5 seconds. During this period the buzzer should make 5 short chirps. This verifies that the alarm is working correctly. The unit will then enter its warm up mode which may take up to 20 minutes. For this period the Green power LED will flash with the other LEDs not lit. During this period the detector is capable of detecting very high concentrations of gas but will not operate fully within specification. After this period the Green LED will turn on continuously to indicate normal operation.

## REMOVING THE COVER

Before removing the cover, ensure the mains or DC supply has been switched off and that the green power LED is not lit. Push two small screwdrivers into the two holes on one end of the unit. Then gently prise that end of the cover off. Repeat this process for the other end and lift the whole cover off the base. Be careful not to damage the wiring between the cover and base.

Figure 11 Cover Removal



Insert two small screwdrivers in these holes and gently lift the lid

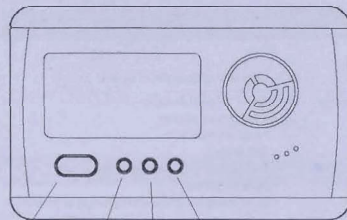
# Z10a Z10d & Z10e OPERATING MANUAL

## 1 OPERATION

### OPERATION

The alarm has three LED lights and one button on the front panel.

Fig 1 Control Unit



Test/Flash/Revolt      Yellow - Fault      Red - Alarm      Green - Power

**Green Power** -- Indicates the alarm is receiving sufficient power

**Red Alarm** - Gas detected

**Yellow Fault** - The alarm has an internal fault

## ALARMS

It is important that the alarm is situated in the best position to detect gas. It is designed to operate inside a house, caravan, mobile-home or motor-home in a location with free access to air in the room. It is not designed for outdoor use. Refer to the installation manual for full details of how and where to install the product.

This alarm has both a high and low level alarm. When gas concentrations reach the low level threshold the

alarm will warn you by flashing the red LED. If a more dangerous high level threshold is reached the red LED will stay on permanently and the audible alarm will sound..

**If gas is detected you should take the following action:**

Condition	Alarm LED	Buzzer	Action
No gas present	Off	Off	- None
Low level gas leak	Flashing	Off	- Check for possible sources of the leak.
High level gas leak	On	Sounding	- Turn off the gas at the supply - Open doors and windows - Put out all naked flames - Don't smoke - Don't turn electrical switches on or off - Locate the gas leak - Do not operate a telephone where gas might be present
Alarm continues & the leak cannot be found	On	Sounding	Vacate the premises. Inform the gas supplier or the gas emergency service immediately

**NOTE:** The gas companies add a strong smelling but harmless chemical to the gas before it is used by their customers. This enables you to smell the gas at levels well below those required to cause an explosion. It is therefore likely that you will smell the gas before the detector goes into alarm. This is because the alarm is factory set in accordance with British and European standards to detect gas levels before they are considered to be explosively dangerous. However; if you smell gas you should still take the steps recommended by your gas supply company.

## ACCIDENTALLY SETTING OFF THE ALARM

The detector is a highly sensitive unit that is capable of sensing many flammable gasses and vapours found in the home. To avoid false alarms do not use the following near the gas alarm because they may cause a false alarm.

- Aerosol sprays
- Alcohol used in cooking
- Cigarette, cigar or pipe smoke
- Strong household cleaning agents, polishes and solvents
- The gas from a cigarette lighter
- Paint fumes and adhesive vapours

## WHEN TO PRESS THE TEST/HUSH BUTTON

The button on the front of the alarm has several different functions depending upon the level of gas present.

Condition	Function	Result
In normal operation with no gas present or a low level of gas present	Self test mode	The buzzer will sound and the alarm LED will flash for 5 seconds to verify correct operation
High gas levels have been detected	Hush audible alarm	The audible alarm is silenced for a period of 5 minutes after which it will be reactivated
High gas levels have been detected, but have now dispersed	Reset the alarm latch	To avoid the possibility of a gas leak being missed, the alarm will continue to sound even when the gas has fallen to a safe level. Pressing the button will reset this condition.

## FAULT CONDITIONS AND SIGNALS

In the unlikely event that your alarm develops an internal fault, it will signal this by giving short chirps on the audible alarm. A single chirp every 5 seconds indicates a sensor fault while four or five chirps every 5 seconds indicates an internal electronic or wiring fault.

## MAINTENANCE

To clean the unit, wipe it clean with a dry cloth. Do NOT use cleaning agents, bleach or polish. The alarm's calibration is factory set and requires no user adjustments.

The only way to perform an accurate gas check is to use pre-calibrated gas and flow it past the sensor inlet. However, a simple confidence check can be conducted by using a small disposable cigarette lighter and pressing the lever normally used to maintain the flame without lighting it. If this is then held close to the gas inlet at the bottom right hand corner of the alarm the red LED light will come on and the audible alarm will sound within 10 seconds. This test verifies that the product does respond to flammable gas but does not verify the exact level at which the detector may alarm.

## INTERCONNECT FUNCTION

If your alarm is interconnected with other units, a high level alarm on any of the connected units will cause the audible alarms on all the units to sound. Pressing the button on an alarm that was not exposed to gas will hush the sounder or reset the alarm on that unit only. However, pressing the button on the unit that caused the alarm will hush or reset all the alarms.

## RELAY

If the internal relay output has been connected, it will operate only when a high level alarm is signalled. Once activated, the relay can only be reset by pressing the test / hush button after the gas has fallen below the high level alarm. Relays on interconnected alarms will only operate on the units that detect the gas leak.

## SPECIFICATION

**Note:** The Lower Explosive Limit (LEL) is the minimum concentration of flammable gas in air that can cause an explosion, i.e. 100% LEL is when the gas becomes explosively dangerous.

## MAINS POWERED ALARMS

<b>Input Supply Voltage</b>	100 to 250V 50/60Hz
<b>Fuse Rating</b>	3 Amps in unswitched fused outlet
<b>Power Consumption</b>	less than 4 Watts

## DC POWERED ALARMS

<b>Input Supply Voltage</b>	8 to 27 Volts dc
<b>Fuse Rating</b>	3 Amps
<b>Power Consumption</b>	less than 4 Watts

## ALL ALARMS

<b>Sensing method</b>	Semiconductor sensor
<b>Time to alarm</b>	Less than 5 seconds
<b>Temperature</b>	-10° to +40°C
<b>Humidity</b>	30% rH to 90% rH
<b>Gases detected</b>	
Natural Gas (methane)	Natural gas models
LPG (Propane or Butane)	LP gas models
<b>Range of low level alarm</b>	3 to 7% LEL
<b>Range of high level alarm</b>	7 to 13% LEL
<b>Audible Alarm Output</b>	85dB at 1m
<b>Expected life of product</b>	5 years (warranty 1 year)

All alarms are calibrated, tested and designed to meet the stringent performance requirements of the latest European standard for domestic gas alarms - BS EN50194:2000

The Alarm is calibrated at the factory and does not need recalibration. Do not tamper with the inside of the case or electric shock or malfunction may occur.

No user maintenance or adjustment is required.



## GUARANTEE

We guarantee your new gas Alarm for one year from the date of purchase by the end user, to be free from defects in materials and workmanship under normal use and service. We will, at our discretion, repair or replace any part of the gas Alarm which is found to be defective in either materials or workmanship, under normal use and service during the guarantee period. We shall be under no obligation to repair, replace or refund units which are found to be defective in any way due to unreasonable use or neglect, or if they have been tampered with or found to have been dismantled.

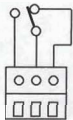
If you have any problem with your gas alarm, please do not return the unit without first contacting SF Detection for the appropriate advice. If asked to return the unit then clearly state any problem with the gas alarm in a letter and enclose with the unit in suitable packaging along with your name, address and telephone number.

Defective units should be returned to: SF Detection, 4 Stinsford Road, Nuffield Industrial Estate, Poole, Dorset, BH17 0RZ.

This guarantee does not affect your statutory rights.

## Errata

The connection to the relay on your Z10 should be as follows  
Figure 10 Relay Wiring

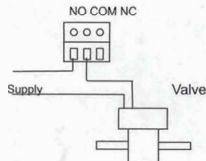


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## Further Notes on Connection of Gas Shut Off Valves

### Normally Open

If the gas is turned off when the power is applied to the valve then use this configuration.



### Normally Closed

If the gas is turned off when the power to the valve is removed then use this configuration. The valve will close when gas is detected or when the supply is interrupted.

