

## READ THIS FIRST

CONT.

### CHECK OPERATION OF ALARM

- GREEN MAINS LIGHT IS ON.
- TEST BUTTON OPERATES ON ALL ALARMS.
- ALL INTERCONNECTED ALARMS OPERATE WHEN EACH TEST BUTTON IS PRESSED FOR 10 SECONDS.
- (Ei144/146 ONLY) IF THE UNIT BEEPS EVERY 40 SECONDS FOR OVER 20 MINUTES THE BATTERY IS PROBABLY DEPLETED. REMOVE UNIT FROM CEILING (SEE FIG 1) AND REPLACE BATTERY. ON THE Ei164/166 UNITS ALLOW CELLS TO CHARGE FOR 2 HOURS (MAINS ON).
- DO NOT ATTEMPT TO OPEN THE ALARM AS IT IS PERMANENTLY SEALED FOR SAFETY.
- IF A NUISANCE ALARM OCCURS PRESS THE TEST/HUSH BUTTON TO SILENCE THE ALARM FOR 10 MINUTES.

Figure 1a

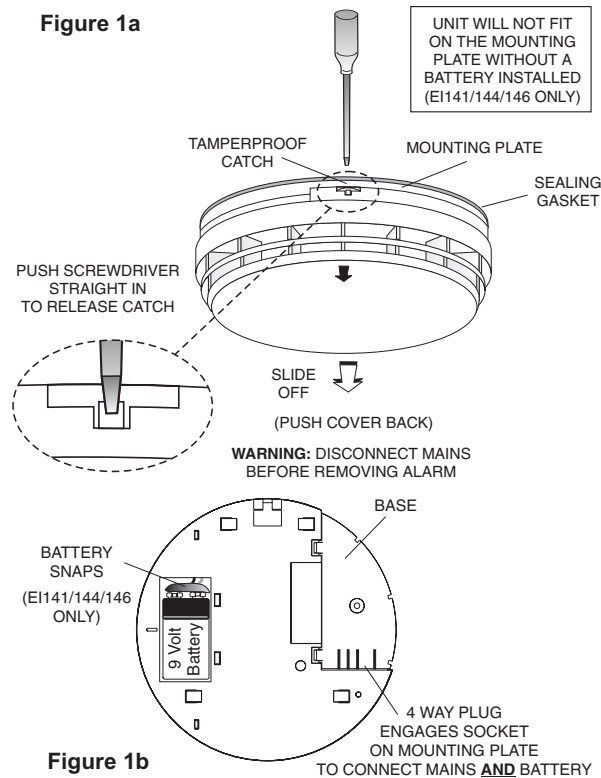


Figure 1b

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## LOCATING ALARMS

### SMOKE ALARMS

Sufficient smoke must enter the Smoke Alarm before it will respond. The Smoke Alarm needs to be within 7.5 metres of the fire to respond quickly. It also needs to be in a position where its alarm can be heard throughout your home, so it can wake the occupants in time for all to escape. A **single** Smoke Alarm will give some protection if it is properly installed, but most homes will require **two** or more to ensure that a reliable early warning is given. For maximum protection you should put individual Smoke Alarms in all the rooms where fire is most likely to break out, (apart from kitchens etc. see Locations to Avoid).

A Smoke Alarm should be located between the sleeping area and the most likely sources of fire (living room or kitchen for example), but it should not be more than 7.5 metres from the door to any room where a fire might start on the escape route from the house.

**Important:** These Smoke/Heat Alarms are designed for a single occupancy in a residential type environment.

A Smoke Alarm should be sited within 3m of bedroom doors for improved audibility.

### HEAT ALARMS

The Heat Alarm gives a fire warning when the temperature at the unit reaches 58°C. It is ideal for kitchens, garages, boiler houses and other areas where there are normally high levels of fumes, smoke or dust i.e. places where Smoke Alarms cannot be in-

### Recommended Protection

See Figures 2 & 3

#### Minimum protection

- Smoke Alarms located on:-
  - each storey
  - every 7.5 metres of hallways and escape routes
  - within 3m of all bedroom doors.

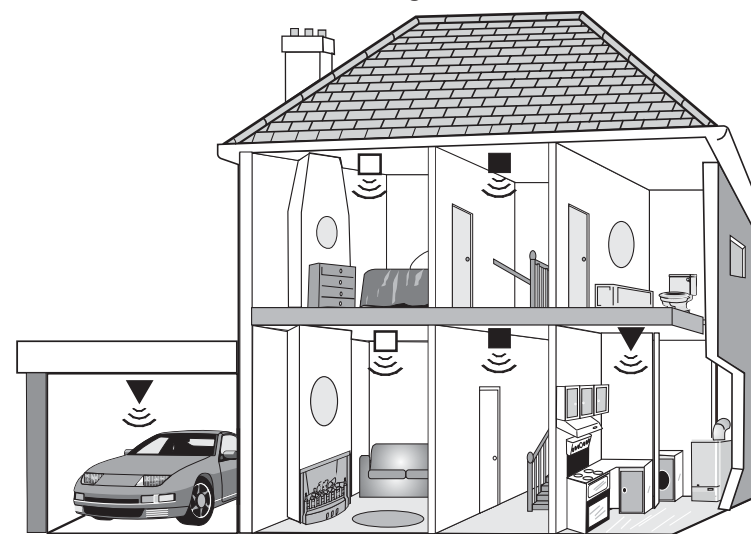
#### - Interconnect all Alarms -

#### Maximum protection

- Smoke Alarms located as above plus:
  - All rooms (except bathroom, shower rooms & kitchens)
- ▽ Heat Alarms located in Kitchens, garages, boiler rooms etc. within 5.3m of potential fire sources.

### Multi Storey Dwelling with Recommended Protection

Figure 2



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stalled without the risk of excessive nuisance alarms.

A Heat Alarm should only be used in a room adjoining an escape route, in conjunction with Smoke Alarms on the escape routes.

All the Heat Alarms and Smoke Alarms should be interconnected to ensure the early warning will be heard, particularly by somebody sleeping. A properly designed early warning fire system ensures the alarm is given before the escape routes become blocked with smoke. Therefore, there must be Smoke Alarms along the escape routes as Heat Alarms would not give sufficient warning. However, a fire in a closed room (e.g. kitchen) adjoining the escape route, can eventually cause the corridor to become smoke-logged due to smoke leaking out from around the door before adequate warning can be given by detectors in the corridor. (Smoke leaking out from a room is often cool and slow moving so it can take a long time to rise to the ceiling, and travel to a detector which could be some distance away). A Heat Alarm in the closed room will give early warning of fire in that room and help overcome this problem.

### RECOMMENDED LOCATIONS

Figure 2 illustrates where Smoke Alarms and Heat Alarms should be located in a typical two storey house. Note the spacings in "Recommended Protection" which ensure the early detection of fire and that warning will be heard.

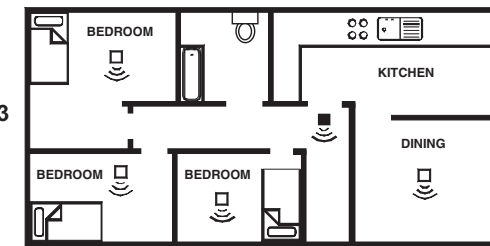
Locate Heat Alarms in rooms adjoining or on escape routes - kitchens, garages, boiler houses etc. where Smoke Alarms are unsuitable. Install within 5.3m of potential sources of fire.

### Single Storey Dwelling.

If the Home is on one level (a bungalow or mobile home for example) you should put the first Smoke Alarm in a corridor or hallway between the sleeping and living areas. Place it as near to the living area as possible, but make sure you can hear it loudly enough to wake a person in the bedrooms. (for example, see figure 3)

### Single Storey Dwelling with Recommended Protection

Figure 3



If the bungalow is very large and the corridor or hallway is more than say 15 metres long, one Smoke Alarm will not be sufficient. This is because no matter where it is located it will be more than 7.5 metres from potential fires.

In houses with more than one sleeping area, Smoke Alarms should be placed between each sleeping area and the living area.

### Multi Storey Dwellings

If the dwelling has more than one storey it must have an interconnected alarm on each level for minimum protection.

### Maximum Protection

For maximum protection you should put individual Smoke Alarms in all the rooms where fire is most likely to break out (apart from the locations to avoid, mentioned below). Ensure that they are all interconnected. The living room is the most likely place for a fire to start at night, followed by the kitchen and then the dining room. You should also consider putting Smoke Alarms in any bedrooms where fires might occur, for instance, where there is an electrical appliance such as an electric blanket or heater, or where the occupant is a smoker. You could also consider putting Smoke Alarms in any rooms where the occupant is unable to respond very well to a fire starting in the room, such as an elderly or sick person or a very young child.

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### Checking you can hear the Smoke & Heat Alarms

With the Alarm sounding in its intended location, check you are able to hear it in each bedroom with the door closed, above the sound of the radio. The radio should be set to a reasonably loud conversation level. If you can't hear it over your radio the chances are that it wouldn't wake a person.

If a Smoke Alarm is too far away for it to wake a person, it is best to Interconnect to another Smoke Alarm or Heat Alarm near the bedroom. The alarms can be interconnected - when one alarm senses smoke, all interconnected alarms respond (see below for further details).

### LOCATIONS TO AVOID

Don't place **Smoke Alarms** in any of the following areas:

**Bathrooms, kitchens, shower rooms, garages** or other rooms where the smoke alarm may be triggered by steam, condensation, normal smoke or fumes. Keep at least 6 metres (20 feet) away from sources of smoke.

Don't place **Heat Alarms** in any of the following areas:

**Bathrooms, shower rooms** or other room where the unit may be triggered by steam or condensation.

Don't place **Smoke or Heat Alarms** in any of the following areas:

Places where the normal temperature can exceed 40°C or be below 4°C e.g. attics, furnace rooms etc. directly above **ovens or kettles**, as the heat/steam could cause nuisance alarms.

Near a **decorative object, door, light fitting, window moulding** etc., that may prevent smoke or heat from entering the Alarm.

Surfaces that are normally **warmer or colder** than the rest of the room (for example attic hatches, uninsulated exterior walls etc). Temperature differences might stop smoke or heat from reaching the unit.

Next to or directly above **heaters or air conditioning vents, windows, wall vents** etc. that can change the direction of airflow.

In very high or **awkward areas** (eg. over stairwells) where it may be difficult to reach the alarm (for testing, hushing or battery replacement).

Locate away from very **dusty or dirty areas** as dust build-up in the chamber can impair performance. It can also block the insect screen mesh and prevent smoke from entering the smoke detector chamber.

Locate the unit at least 1 metre from **dimmer controlled lights and wiring** - some dimmers can cause interference.

Locate unit at least 1.5m and route wiring at least 1m away from **fluorescent light fittings** as electrical "noise" and/or flickering may affect the unit. Do not wire into the same circuit as fluorescent lights or dimmers.

Do not locate in **insect infested areas**. Small insects getting into the smoke detector chamber can cause intermittent alarms. Insects and contamination on the Heat Alarm sensor can increase its response time.

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### POSITIONING SMOKE & HEAT ALARMS

The locations must comply with applicable building regulations.

Hot smoke rises and spreads out, so a central ceiling position is the preferred location. The air is "dead" and does not move in corners, therefore Smoke & Heat Alarms must be mounted away from corners. Place the unit at least 0.5m (1.5 ft) from any light fitting or decorative object which might obstruct smoke / heat entering the Alarm. Keep at least 0.5m (1.5 ft) away from walls. See figure 4. (Smoke Alarms should be located directly on the ceiling or up to 0.57m below it. Heat Alarms should be located directly on the ceiling or up to 90mm below it).

Wall mounting is not recommended for these Alarms.

### Sloping Ceiling

In areas with sloping or peaked ceilings install your Smoke/Heat Alarm 0.9m from the highest point measured horizontally (see figure 5), because "dead air" at the apex may prevent smoke from reaching the unit.

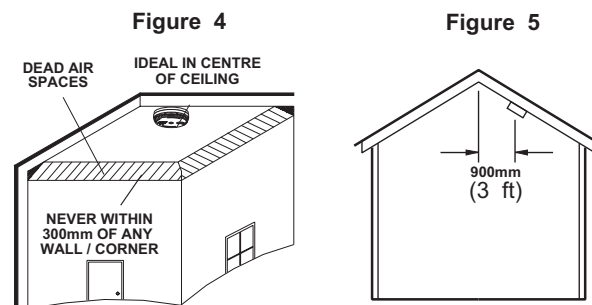


Figure 4

Figure 5

### INSTALLING SMOKE & HEAT ALARMS

The Alarm is designed to be permanently mounted, using its own built-in terminal block to connect it to the mains. The mounting plate can be screwed directly to the ceiling. Alternatively it can be screwed to a standard junction box. It requires a current of 40mA. The Alarm must not be exposed to dripping or splashing. There are important markings on the underside of the alarm.

**IMPORTANT PRECAUTION: Do not install the actual alarm itself in new or renovated buildings until all work is completed (including floor coverings) and the building has been fully cleaned. The wiring can be installed when appropriate. (Excessive dust and debris from building work can contaminate the smoke chamber or heat sensor and cause problems, it will also invalidate the guarantee). If it must be installed, cover it completely, particularly around the edges, with a dust cover (eg. with the elasticated cover supplied or a plastic bag), until all cleaning is finished.**

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The Alarm must not be connected when the house wiring insulation is being checked with high voltages.

**WARNING:** Mains operated Alarms should be installed and interconnected by a qualified electrician in accordance with local institutions. Failure to install this Alarm correctly may expose the user to shock or fire hazards.

An ALL-POLE MAINS SWITCH with a contact separation of at least 3mm in each pole shall be incorporated in the electrical installation of the building.

**WARNING:** The Alarm must be continuously powered 24 hours a day so it is important that it is not on a circuit that can be turned off by a switch.

### INSTALLATION

1. Select a location complying with the above advice.
2. Disconnect the AC mains supply from the circuit that is going to be used.
3. Remove the mounting plate from the Smoke/Heat Alarm by releasing the tamper-proof catch with a small screwdriver as shown in figure 1 and sliding the Alarm from the plate.
4. The house wiring must be connected to the terminal block on the mounting plate as follows:

L: Live - connect to the house wires coloured brown, red or marked L.

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N: Neutral - connect to the house wires coloured blue, black or marked N.

IC: Interconnect - connect to the third core. (If you are not interconnecting units, do not connect anything to the IC terminal). (See below for information on interconnecting).

**Warning:** Mixing Live & Neutral wires will damage interconnected alarms.

We recommend the use of 6243Y mains cable when interconnecting units. Use the third core for interconnection.

**Do not use an earth wire for the interconnect line.**

Lift off the wiring cover as shown in Fig 6.

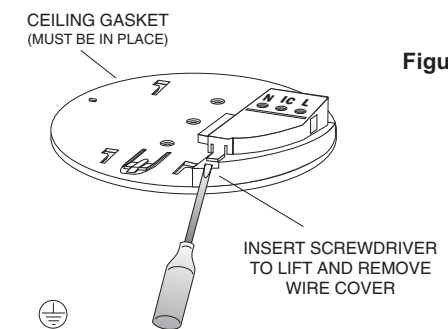



Figure 6

N.B. The alarm does not need to be earthed. However the terminal marked  is provided for the convenience of the installer so that any copper earth wire or cable coloured green or green & yellow, can be safely terminated.

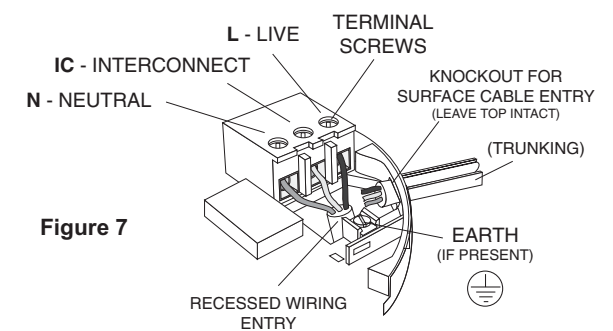


Figure 7

To interconnect the Alarms connect all the IC terminals together as shown in Figure 8.

5. If the mains wires are recessed, bring the wires through the rear hole in the mounting plate as shown in figure 7.

If the mains wires are being brought along the surface: (a) position the mounting plate so the cable trunking is as shown in figure 7.

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(b) carefully cut around the knockouts on the two alarm side walls so it blends with the contours of the alarm sidewall.

**Important:** only cut the thinned down knockout section and leave the top intact as shown. There is only one position suitable for the surface wiring to enter the alarm.

6. Carefully align the mounting plate and screw into place. Connect the wires to the terminal block. With recessed wiring, ensure the rear gasket seals around the edge of the hole in the ceiling or wall. This is to prevent air draughts affecting the smoke / heat entering the alarm. If the orifice is too large it should be sealed with silicone rubber or equivalent.

Replace the wiring cover. Check the battery is connected (140 series only).

Carefully line up the unit on the base and slide on.

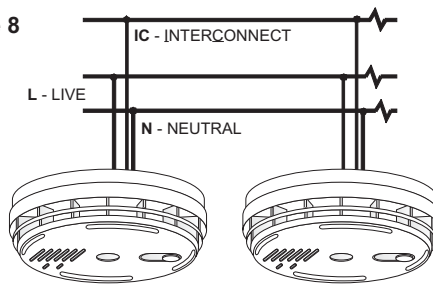
Press the test/hush button for 10 seconds. The horn will sound.

**CAUTION:** Do not attempt to remove the Alarm without first releasing the tamper clip as shown in Figure 1.

7. Connect the mains power to the alarm circuit. Check the green light is on. Attach the label provided to the distribution board to identify the alarm circuit.

Attach the 'Mains Smoke / Heat Alarm' label on or near the distribution board and write in date installed and the number of alarms on the circuit.

Figure 8



Check the operation of the Alarm as outlined below.

#### INTERCONNECTING EI ELECTRONICS SMOKE / HEAT ALARMS

Note: A maximum of twelve Ei143/144/145/146/ 164/166 Smoke or Heat Alarms may be interconnected along with an Ei 128 pattress with relay (see Accessories below).

(If you wish to connect more than twelve alarms contact your distributor). Systems using more than 3 or 4 alarms must be very carefully planned to ensure nuisance alarms are not excessive. e.g. from cooking or weekly testing.

Smoke Alarm Locator Switch (EI 159) should be incorporated into the system and be readily accessible to all occupants so that the source of an alarm can be quickly identified.

All alarms must be cleaned and maintained regularly.

A qualified person must be on call to quickly remove any faulty alarms (i.e. units with red light flashing), which are causing all the alarms to sound.

**WARNING: Do not connect these Alarms to any other type of Ei Alarm, or to any other model produced by another manufacturer, apart from those listed above.** Doing this may damage the Alarms and could result in a shock or fire hazard.

The interconnect wire (minimum 0.75mm<sup>2</sup> cable) must be treated as if it was live. It should be insulated and sheathed.

A maximum of 250 metres of wire can be used (maximum resistance between detectors 50 ohms).

These Smoke/Heat Alarms should be interconnected only within the confines of a single family living unit. If they are connected between different units there may be excessive nuisance alarms. Everybody may not be aware that they are being tested or that it is a nuisance alarm caused by cooking etc.

### CHECKING THE OPERATION OF THE ALARMS

#### INSPECTION & TESTING PROCEDURE

After installation check **all** the Alarms

We recommend that the functioning of the mains battery back-up is checked directly after installation as follows:

(i) Turn off the mains power at the distribution board and check that the green mains indicator on the alarm is extinguished.

(ii) Press the test button and ensure that the horn sounds loudly for 10 seconds. Ensure that any interconnected alarms also sound.

(iii) Repeat the process on all interconnected alarms on the system. Turn the mains power on only if the units pass the above test.

(iv) Check that the green mains indicator light is on. (If it is off check circuit breakers, fuses and wiring etc.) Check the red light on the cover flashes every 40 seconds.

(v) Press the test button for up to 10 seconds to ensure the sensor chamber, electronics and sounder are working. The red light on the cover will flash while horn is sounding. The alarm will stop when the button is released. Pressing the test button simulates the effect of smoke or heat during a real fire and is the best way to ensure the Alarm is operating correctly.

**WARNING: DO NOT TEST WITH FLAME.**

This can set fire to the Alarm and damage the house.

We do not recommend testing with smoke or heat as the results can be misleading unless special apparatus is used.

#### Interconnected alarms

Test the first unit by pressing the button. All the detectors should alarm within about 5 seconds of the first horn sounding and the red light on the first unit **only** will flash once a second. Check all the other units similarly. (**Note:** Heat alarms signal to other interconnected alarms about 4 seconds after their own horn sounds. Optical alarms signal within about a second.

#### Checking Battery Back-up

When the unit is beeping:

The Alarm automatically monitors the battery every 40 seconds to ensure that it is satisfactory. If it is depleted it will give a short beep every 40 seconds.

Models Ei144 & Ei 146 only

Before replacing the battery, check that the beeps are not due to one of the following:

(i) battery snaps not connected properly.

(ii) On the **Optical Smoke Alarm only** (EI 146/145) if the unit beeps and the red light does **not** flash at the same time it indicates a problem with the smoke chamber - see Cleaning the Smoke Alarm section below.

If the beeps have continued for over 20 minutes (and the other causes of beeps have been ruled out - see below) the battery must be replaced.

(iii) Switch off the mains and remove the unit as shown in figure 1a. Remove depleted battery and replace with one of the specified 9V alkaline batteries. The alarm cannot be replaced on the mounting plate unless a battery is installed. After replacing the battery, slide on the mounting plate then press the test button and ensure horn sounds loudly before you turn on the mains. If it is satisfactory turn on the mains and check that the green light comes on. **Note:** Only use the specified **Alkaline** batteries shown on the base label (Duracell MN1604 or Eveready 522). We recommend that the "use by date" on the battery should still have at least 2 years to go. Older batteries will give beeps prematurely. We recommend that the battery is replaced each year for optimum performance.

Models Ei161, Ei164 & Ei 166 only

(i) Check that the green mains power light is on. If it is off the Alarm has been powered from the cells and the beeps indicate they are depleted. Re-connect the mains, check fuse, circuit breakers and wiring. If in doubt contact a qualified electrician. The beeps should cease within 2 hours as the cells charge up.

(ii) The cells may be depleted. The beeps should cease within 2 hours as they charge up. Fully charged, the cells will provide up to 6 months back-up without mains power.

(iii) On the **Optical Smoke Alarms only** (EI 166) if the unit beeps and the red light does **not** flash at the same time it indicates a problem with the smoke chamber - see Cleaning the Smoke Alarm.

If all of the above possible causes of beeps have been ruled out but the beeping has still persisted for over 2 hours with the green light on - the rechargeable cells are probably defective. The Smoke / Heat Alarm must be returned to the manufacturer for repair or replacement (see section Getting Your Alarm Serviced).

(**Please note:** The ionisation alarms (EI140/141/161) give two short beeps about a second apart at the end of the hush period (i.e. about 10 minutes after test/hush button has been pressed. These two beeps should not be confused with low battery beeps.

### ACCESSORIES

#### (a) Relay Module EI 128:

The Ei 128 module has a relay rated 250V AC / 5 amps. This is useful for remote signalling and turning on lights.

#### (b) Smoke Alarm Locator Ei 159:

The Smoke Alarm locator is recommended for systems with three or more Smoke / Heat Alarms as it helps quickly identify the unit in alarm and reduces the impact of nuisance alarms.

Pressing the Smoke Alarm Locator button will silence all interconnected alarms for 10 minutes, except those sensing fire. It is easily installed between the interconnect and neutral terminals.

### TROUBLESHOOTING

CONT.

(2) The Heat alarms (Ei 143/144/164) give two beeps 10 minutes after the test/hush button is pressed.

(3) If the Optical units (EI 146/145/166) beeps without the red light flashing at the same time, the chamber is defective. Clean the chamber.

#### 4. INTERCONNECTED ALARMS DO NOT ALL SOUND:

(1) Hold test button for 10 seconds after first alarm has sounded to ensure signal is transmitted to all units.

(2) Switch off mains and check that live, neutral and interconnect cables have been correctly connected and that the connections are tight.

## TROUBLESHOOTING

### 1. FREQUENT NUISANCE ALARMS OCCUR:

- (1) Close kitchen / bathroom door when in use.
- (2) Ensure that the alarm is sited at least 6m away from sources of fumes.
- (3) Contamination from insects, paint or paint fumes may have occurred. Clean the alarm - see "User Instructions" leaflet.
- (4) If the problem persists, resiting of the unit should be considered.

### 2. ALARM SOUNDS FOR NO APPARENT REASON:

- (1) Identify the alarm source. On interconnected units, the red light on the cover will flash rapidly **only** on the unit which is the source of the alarm.
- (2) Check for fumes, steam etc. from the kitchen or bathroom. Paint and other fumes can cause nuisance alarms.
- (3) Press the test/hush button to silence the Smoke/Heat Alarm for 10 minutes.
- (4) If alarm does not stop, switch off mains and remove unit (see figure 1). (Only remove alarm with red light flashing, the others are probably satisfactory).

### 3. LOW BATTERY & OTHER BEEPS:

#### (On Ei144/146 only)

If the battery is correctly connected and the unit has beeped for over 20 minutes the battery is probably depleted. Obtain a new battery, disconnect the mains, then remove the alarm and replace the depleted battery.

#### (On Ei164/166 only)

Check the green mains power light is on. If not, check fuse, circuit breakers and wiring connections. If the green light is off, the lithium cells will deplete after some months without mains and will need to be recharged. If the above fails to turn on the green light, a fault may exist. Switch off mains and remove the unit (see figure 1).

#### (All Alarms)

- (1) If the green mains light is on and replacing battery, recharging lithium cells or cleaning unit has not stopped beeps, a fault may exist. Disconnect the mains first and replace the unit (see figure 1).



## -230V AC SMOKE & HEAT ALARMS



IONISATION	HEAT	OPTICAL
RECHARGEABLE LITHIUM CELL BACK-UP		
Ei161	Ei164	Ei166
ALKALINE 9 VOLT BATTERY BACK-UP		
Ei141	Ei144	Ei146
NO BATTERY BACK-UP		
Ei140	Ei143	Ei145

### LEAVE WITH USER

## SITING & INSTALLATION INSTRUCTIONS

### READ THIS FIRST

- IDEALLY INSTALL IN THE CENTRE OF CEILING AT LEAST 0.5m FROM LIGHT FITTINGS.
- REMOVE UNIT FROM MOUNTING PLATE BY RELEASING CATCH AS SHOWN IN FIG 1a.
- Ei144/146 ONLY: CHECK BATTERY IS CONNECTED TO SNAP (SEE FIG 1b). BATTERY WILL NOT **POWER** THE UNIT UNTIL IT IS SNAPPED ON TO THE MOUNTING PLATE.
- ENSURE HOUSE LIVE MAINS IS CORRECTLY CONNECTED TO L TERMINALS ON ALL INTERCONNECTED ALARMS - OTHERWISE UNITS WILL BE DAMAGED.
- DO NOT FIT ACTUAL ALARM UNTIL ALL BUILDING WORK IS COMPLETED TO AVOID CONTAMINATION. AFTER CHECKING OPERATION, COVER SMOKE ALARM WITH DUST COVER UNTIL REQUIRED FOR USE.
- DISCONNECT THE ALARM BEFORE APPLYING HIGH VOLTAGE TO HOUSE WIRING.