Instruction leaflet

MAINS POWERED

CARBON MONOXIDE ALARMS

Read and retain carefully for as long as the product is being used. It contains vital information on the operation and installation. The leaflet should be regarded as part of the product.

If you are just installing the unit, the leaflet must be given to the house-holder. The leaflet is to be given to any subsequent user.

MODEL: Ei 225

Suffix letters indicate extra features:

C - Interconnect

R - Relay Output

P/N B13073-4

1. READ THIS FIRST

WARNINGS

(1) The Alarm should be permanently wired to the mains by a qualified electrician in accordance with IEE wiring regulations.

(2) Do not locate the CO Alarm where it could be exposed to dripping, splashing or condensation (e.g. bathroom, above an electric kettle etc).

Install the Carbon Monoxide Alarm (CO Alarm) in or near every room that contains a fuel burning appliance, particularly rooms where people spend a lot of time e.g. bedrooms kitchens, sitting rooms.

Install preferably on the ceiling (300mm from walls) in rooms with an appliance. Install between 1m to 3m horizontally from appliance. In rooms remote from the appliance install about 1.5m to 2m above floor level at breath level.

Regularly check that the green power light is on. **Important:** The CO Alarm will not work if the mains supply is off.

Test the unit weekly by pressing the test/hush button. The horn will sound and the red warning light will turn on.

Table B: CO Alarm Response

CO Level ppm	Horn & red Light on within	Red Alarm Light	Time to first Symptom*
0 ppm	----------	off	----------
150 ppm	30 min	Flashes every 2 sec	90 min
350 ppm	6 min	Flashes every 0.5 sec	30 min

*Slight Headache

Table B shows how the built in microprocessor reacts to different levels of CO gas and exposure time. At higher levels of CO the alarm turns on sooner. The rate of flashing of the red light indicates the level of CO.

If your CO Alarm sounds follow the instructions on page 2.

When ventilation is provided by leaving the windows and doors open, the CO build up may have dissipated by the time the alarm sounds, so that you may have stopped sounding. Although your problem may appear temporarily solved it is crucial that the source of the CO is determined and appropriate repairs made.

NEVER IGNORE THE ALARM.

NOTE: The CO Alarm may sound if cigarette smoke is blown into it, or aerosols are released nearby.

3. Where to place CO Alarms

3.1 Suitable Locations

Ei Electronics recommends that the advice of the **Health & Safety Executive (HSE) UK** is followed as this is based on research done at the BRE subsequent to the issueing of the BS 7860 : 1996 standard.

The Health & Safety Executive (HSE) UK, give the following recommendations for rooms where CO alarms should be located - these are in order of priority:

- In rooms with flueless or open flued appliances
- In rooms where the occupant spends most time
- In bedrooms

British Standard BS7860 : 1996 gives the following advice:

Ideally you should have a detector in or near every room that contains a fuel-burning appliance.

However, if you have more than one appliance, but only one detector, you should take the following into consideration when deciding where best to put the detector.

(1) If there is an appliance in the room where you sleep, you should put the detector in that room.

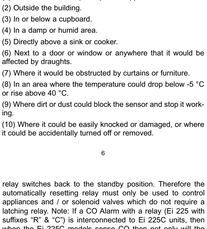
(2) If there is an appliance in a room that you use a lot, e.g. a sitting room, you should put it in that room.

(3) If you live in a bedsit, put the detector as far away from the cooking appliances as possible, but near to the place where you sleep.

(4) If the appliance is in a room not normally used (e.g. a boiler room), put the detector just outside the room so that you will be able to hear the alarm more easily.

Ideally you should have a detector in or near every room that contains a fuel-burning appliance.

Figure 2



*If they contain or are near a fuel-burning appliance

3.2 Unsuitable Locations

Do not place the CO Alarm in any of the following areas.

(1) Within 1.85 metres (6 feet) of the appliance.

(2) Outside the building.

(3) In or below a cupboard.

(4) In a damp or humid area.

(5) Directly above a sink or cooker.

(6) Next to a door or window or anywhere that it would be affected by draughts.

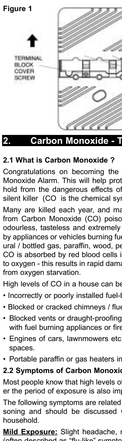
(7) Where it would be obstructed by curtains or furniture.

(8) In an area where the temperature could drop below -5 °C or rise above 40 °C.

(9) Where dirt or dust could block the sensor and stop it working.

(10) Where it could be easily knocked or damaged, or where it could be accidentally turned off or removed.

Figure 1



2. Carbon Monoxide - The Silent Killer

2.1 What is Carbon Monoxide ?

Congratulations on becoming the owner of an Ei Carbon Monoxide Alarm. This will help protect you and your household from the dangerous effects of Carbon Monoxide - the silent killer (CO is the chemical symbol).

Many are killed each year, and many more suffer ill health from Carbon Monoxide (CO) poisoning. CO is an invisible, odourless, tasteless and extremely toxic gas. It is produced by appliances or vehicles burning fuels, such as coal, oil, natural / bottled gas, paraffin, wood, petrol, diesel, charcoal etc. CO is absorbed by red blood cells in the lungs in preference to oxygen - this results in rapid damage to the heart and brain from oxygen starvation.

High levels of CO in a house can be caused by:

- Incorrectly or poorly installed fuel-burning appliances.
- Blocked or cracked chimneys / flues.
- Blocked vents or draught-proofing which makes areas with fuel burning appliances or fireplaces airtight.
- Engines of cars, lawnmowers etc., left running in confined spaces.
- Portable paraffin or gas heaters in badly ventilated rooms.

2.2 Symptoms of Carbon Monoxide Poisoning

Most people know that high levels of CO are harmful, however the period of exposure is also important.

The following symptoms are related to Carbon Monoxide poisoning and should be discussed with all members of the household:

Mild Exposure: Slight headache, nausea, vomiting, fatigue (often described as "flu-like" symptoms).

Medium Exposure: Severe throbbing headache, drowsiness, confusion, fast heart rate.

Extreme Exposure: Unconsciousness, convulsions, cardiorespiratory failure, death.

A high level of CO for a short period (e.g. 350 ppm CO for 30 minutes) will cause the same symptoms, a slight headache, as a lower level for a longer time (e.g. 150 ppm for 90 minutes). Table A shows how exposure to different concentrations of CO generally affects people.

Many cases of reported carbon monoxide poisoning indicate that while victims are aware they are not well, they become so disorientated that they are unable to save themselves by either leaving the building or calling for assistance. Young children and household pets may be the first affected.

Table A: Effects of Cumulative CO Exposure

Concentration of CO in Air ppm▲	Inhalation Time (approx.) and Symptoms Developed
35	The maximum allowable concentration for continuous exposure in any 8 hour period according to OSHA*.
150	Slight headache after 1.5 hours.
200	Slight headache, fatigue, dizziness, nausea after 2-3 hours.
400	Frontal headaches within 1-2 hours, life threatening after 3 hours, also maximum exposure per million in flue gas (on an air free basis) according to US Environmental Protection Agency.
800	Dizziness, nausea and convulsions within 45 minutes. Unconsciousness within 2 hours. Death within 2-3 hours.
1,600	Headache, dizziness and nausea within 20 minutes. Death within 1 hour.
3,200	Headache, dizziness and nausea within 5-10 minutes. Death within 25-30 minutes.
6,400	Headache, dizziness and nausea within 1-2 minutes. Death within 10-15 minutes.
12,800	Death within 1-3 minutes.

▲ **ppm = parts per million**

***OSHA Occupational Safety & Health Association**

2.3 What happens when your CO Alarm detects Carbon Monoxide ?

When the Alarm detects dangerous levels of CO, it sounds a loud alarm and flashes the red alarm light.

6. The Brown wire (terminal 4) must be connected to the house wiring coloured red or brown or to a house terminal marked "L".

The Blue wire (terminal 5) must be connected to the house wiring coloured black or blue or to a house terminal marked "N".

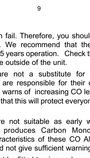


Figure 4: Locations for Surface Wiring

The alarm does not need to be earthed, however for convenience a spare terminal is provided to hold an earth wire if present.

Interconnect (Ei 225 with a suffix "C" only)

The interconnect wires can be used to interconnect up to 12 units (Ei 225 with a suffix "C") so that when one unit senses Carbon Monoxide all alarm (the unit sensing CO can be identified by its flashing red alarm light). Connect all the grey wires (terminal 7) together and all the yellow wires (terminal 6) together as shown in Figure 6.

These CO 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 cigarettes etc.

Warning: Do not interconnect these alarms to any other type of Ei alarm, including smoke / heat alarms, or to any other model. Doing this may damage the alarm and could result in a shock or fire hazard.

A maximum of 250 metres (820ft) of wire can be used (maximum resistance between detectors 50 ohms) to interconnect the Carbon Monoxide Alarms. The interconnect wires connect to the yellow and grey wires, terminals 6 & 7 and must be kept electrically isolated from the mains wiring for safety.

Relay (Ei 225 with a suffix "R" only)

The relay wires (terminals 1,2 & 3) can be connected to suitable load in the normal way -see Figure 6 (maximum load 250VAC / 8 Amps). The relay contacts are electrically isolated. Please note the relay is not latching i.e. it only stays switched while CO is being sensed. When the CO clears the relay switches back to the standby position. Therefore the automatically resetting relay must only be used to control appliances and / or solenoid valves which do not require a latching relay. Note: If a CO Alarm with a relay (Ei 225 with suffixes "R" & "C") is interconnected to Ei 225C units, then when the Ei 225C models sense CO then not only will the horn sound in the Ei 225RC models but the relay will switch also.

7. After the terminal block is fully wired replace the terminal block cover and screw it on. Then slide on the outer cover.

8. Connect the mains power to the CO Alarm circuit. The green power light should turn on. Check the full operation of the CO Alarm as outlined below in "Testing Your CO Alarm".

Figure 5

Figure 6

4. Testing your CO Alarm

(1) Regularly check that the green mains power light is on - the unit cannot detect CO if the mains power is not on (if it is off check circuit breakers, fuses, wiring etc.).

(2) Test the unit weekly by pressing the test/hush button. Hold the test button for 5 seconds until the red alarm light flashes and the horn sounds for over 5 seconds. This will help to familiarise you and your family with the distinctive on-off sound of the CO Alarm. This test checks that the electronics and the horn are working correctly. Do not try to test the CO Alarm in any other way. If the units are interconnected, button test each unit in turn and check all interconnected units alarm.

(3) If the CO Alarm gives a short beep and the amber fault light flashes every 4 seconds it means the self-checking circuitry may have detected a fault. Press and hold the test / hush button until the horn sounds and it resets the unit. If the beeping starts again the Alarm is defective.

(4) If the Alarm fails to operate when the test/hush button is pressed, disconnect the mains supply at the distribution fuse board for 3 minutes, re-connect the mains and try again. (This procedure resets the microprocessor in the unit).

If the CO Alarm fails any of the above tests it must be replaced immediately (see section 9 "Getting the CO Alarm Serviced").

The CO Alarm is fully operational and will provide protection against a build up of carbon monoxide gas after it is connected to the mains supply. The unit reaches its optimum performance after it has been powered for 72 hours.

Testing with Carbon Monoxide

It is recommended that the alarm is tested with actual Carbon Monoxide annually. This can be done by using one of the proprietry kits that comes with CO either in a glass phial or aerosol can. Follow the instructions on the kit and be sure the CO is retained in the unit for at least 6 minutes.

How to distinguish between CO Alarm and Smoke Alarm warnings

The CO Alarm has a distinctive on-off sound of 3 pulses, followed by a pause as compared with a typical Smoke Alarm which has a rapid pulsing sound.

In addition, when your CO Alarm is sounding the red alarm light in the centre of the cover will be flashing.

Testing both your CO Alarms and Smoke Alarms weekly will help you and your family to clearly distinguish between them in an emergency.

(11) In a bathroom or where the CO alarm may be exposed to water splashes or condensation (e.g. above an electric kettle).

(12) Near paint, thinners, solvent fumes or air freshners.

3.3 Installation

The HSE, UK gives more detailed recommendations as follows:

If locating the CO Alarm in a room with an appliance:

- the alarm should be located between 1m and 3m horizontally from the appliance. (To comply with both BS & HSE advice locate between 1.85m and 3.0m from appliance).

- the alarm should be located preferably on the ceiling. Ceiling mounted detectors should be at least 300mm from any wall.

- if placed on a wall the CO Alarm should be as high as possible (higher than doors and windows) but not within 150mm of the ceiling.

If locating the CO Alarm in a room remote from the appliance:

- the alarm should be located at a level similar to the breathing zone of the occupant (typically in living rooms at 1.5m to 2.0m above floor level and in bedrooms at the height of the bed).

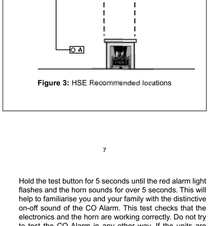


Figure 3: HSE Recommended locations

The **BS 7860 : 1996** standard recommends that the CO Alarm should be at least 1.5 metres (5 ft) above floor level, (see fig.3A) and also the detector should be at least 1.85 metres (6 ft) from the appliance.

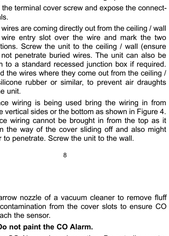


Figure 3A: BS 7860 : 1996 recommendation

Warnings:

(1) The CO alarm should be installed by a qualified electrician in accordance with the IEE wiring regulations (BS 7671). Failure to install this alarm correctly may expose the user to shock or fire hazards.

(2) Do not use the CO Alarm on an intermittent basis, or as a portable detector for the spillage of combustion products from fuel-burning appliances or chimneys.

Precaution: Do not install the actual alarm itself in new or renovated buildings until all work is completed, including painting, and the building has been fully cleaned. Wiring can be installed when appropriate. (Excessive fumes from paints, solvents, cleaning agents etc. may damage the sensor).

Procedure:

1. Select a location complying with the above advice.
2. Disconnect the AC mains supply from the circuit to be used.
3. Slide off the outer cover as shown in Figure 1. Press gently in the centre to release the catches before sliding upwards.
4. Remove the terminal cover screw and expose the connecting terminals.
5. (a) If the wires are coming directly out from the ceiling / wall locate the wire entry slot over the wire and mark the two screw locations. Screw the unit to the ceiling / wall (excess screws do not penetrate both wires). The unit can also be screwed on to a standard recessed junction box if required. Seal around the wires where they come out from the ceiling / wall with silicone rubber or similar, to prevent air draughts affecting the unit.

(b) If surface wiring is being used bring the wiring in from either of the vertical sides or the bottom as shown in Figure 4. Note surface wiring cannot be brought in from the top as it would be in the way of the cover sliding off and also might allow water to penetrate. Screw the unit to the wall.

that parts can fail. Therefore, you should test your CO Alarm weekly. We recommend that the CO Alarm is replaced after 5 years operation. Check the "replace unit by date" on the outside of the unit.

(5) CO Alarms are not a substitute for life insurance. Householders are responsible for their own insurance. The CO Alarm warns of increasing CO levels, but we do not guarantee that this will protect everyone from CO poisoning.

(6) CO Alarms are not suitable as early warning Smoke Alarms. Fire produces Carbon Monoxide, but the response characteristics of these CO Alarms are such that they will not give sufficient warning of fire.

Smoke Alarms must be fitted to give early warning of fire.

(7) The CO Alarm does not detect the presence of natural gas (methane), bottled gas (propane, butane) or other combustible gases. Fit combustion gas alarms to detect these.

(8) **WARNING:** APPARATUS CONFORMING TO THE BS 7860 : 1996 STANDARD MAY NOT PROTECT PEOPLE WHO ARE AT SPECIAL RISK FROM CARBON MONOXIDE EXPOSURE BY REASON OF AGE, PREGNANCY OR MEDICAL CONDITION. IF IN DOUBT, CONSULT YOUR MEDICAL PRACTITIONER.

A CARBON MONOXIDE DETECTOR IS NOT A SUBSTITUTE FOR A SMOKE ALARM OR A COMBUSTIBLE GAS DETECTOR

5. Maintaining your CO Alarm

Clean the outside case by occasionally wiping with a clean damp cloth (disconnect the mains supply at the distribution / fuse board first). Do **not** use any cleaning agents, bleaches, detergents or polishes, **including** those in aerosol cans. Avoid spraying air fresheners, hair spray, paint or other aerosols near the CO Alarm. Do not place air fresheners near the unit.

6. Limitations of CO Alarms

(1) The Ei 225 CO Alarm will not work without mains power - the green power light must be on at all times.

(2) Carbon Monoxide must enter the unit for it to be detected.There may be Carbon Monoxide in other areas of the house (e.g. downstairs, in a closed room etc.) but not in the vicinity of the CO Alarm. Doors, air draughts and obstructions can prevent the CO reaching the Alarm. For these reasons we recommend CO Alarms are fitted both near and in bedrooms, particularly if bedroom doors are closed at night. Additionally in rooms where members of the household spend much of their time, and in rooms with potential sources of CO gas.

(3) The CO Alarm may not be heard. The sound output is loud, but it may not be heard behind a closed door or if it is too far away. Interconnecting CO Alarms greatly improves the probability that they will be heard. The Alarm may not wake up somebody who has taken alcohol or drugs. The alarm sound may be masked by other sounds such as a T.V., stereo, traffic noise etc. Fitting CO Alarms on either side of closed doors will improve their chance of being heard. This CO Alarm is not designed for the deaf or hard of hearing.

(4) CO Alarms don't last indefinitely. CO Alarms are sophisticated electronic devices with many parts. Although the alarm and its components will undergone stringent tests, and are designed to be very reliable, it is possible

Electrical Safety :	Complies with BS 7860 : 1996
Electromagnetic Compatibility :	Complies with BS EN 50081-1 : 1992 and BS EN 50082-1 : 1992.
Test / Hush Button :	Checks electronics and horn. When the unit is alarming, after sensing about 150ppm of CO, pressing the test / hush button will immediately stop the horn and turn off the red light. (With interconnect units, the hush only works on the alarm sensing CO). If CO is still present the red light and the horn will turn on again after about 2.5 minutes. It can be only be hushed once at 150ppm CO. It cannot be hushed at about 350ppm CO.
Operating Temperature :	-5°C to 40°C (23°F to 104°F)
Humidity Range :	15% to 95% R.H. (non-condensing)
Audible Alarm :	85dB(A) at 3m (10ft) minimum
Self Diagnostics :	Horn beep and amber fault light flashes every 4 seconds if a fault is found.
Tamperproof :	Screwdrivers needed to unscrew mains cover over terminal block, and to remove unit from wall.
Interconnect : (with "C" suffix only)	Up to 12 Ei 225C Alarms only can be interconnected, so that when one senses CO, all alarm.
Relay Output : (with "R" suffix only)	Built-in relay is available with isolated contacts rated 8A / 250Vac. Ei 225R is identical to Ei 225 series otherwise. Pulse relay switches back after 5 seconds. (with "RP" suffix only)
Dimensions :	135mm X 105mm X 71mm
Weight :	330grams

7. How to Protect your Family

Follow these guidelines to reduce the risk of Carbon Monoxide poisoning.

(1) Know and look out for tell-tale signs that Carbon Monoxide may be present. These include:

- The CO Alarm warning of abnormal levels.
- Staining, sooting or discolouration on or around appliances.
- A pilot light frequently going out.
- A strange smell when an appliance is working.
- A naked gas flame which is yellow or orange, instead of the normal blue.
- Family members (including pets) exhibiting the "flu-like" symptoms of CO poisoning described above.

If any of these signs are present get the appliance checked out by an expert before further use. If family members are ill get medical help.

(2) Choose all appliances and vehicles which burn fossil fuels such as coal, oil, natural / bottled gas, paraffin, wood, petrol, diesel, charcoal etc. with care, and have them professionally installed and regularly maintained.

(3) These appliances must "breathe in" air to burn the fuel properly. Know where the air comes from, and ensure vents/air bricks etc. remain unobstructed (particularly after building work).

(4) The appliances must also "breathe out" the waste gases (including the CO) - usually through a flue or chimney. Ensure chimneys and flues are not blocked or leaking, and get them checked every year. Check for excessive rust or cracks on appliances and pipework.

(5) Never leave your car, motor bike or lawnmower engine running in the garage with the garage door closed. Never leave the door from the house to the garage open if the car is running.

(6) Never adjust your own gas pilot lights.

(7) Never use a gas cooker or a barbecue for home heating.

(8) Children should be warned of the dangers of CO poisoning and instructed never to touch, or interfere with the CO Alarm. Do not allow small children to press the test / hush button as this could be subjected to excessive noise when the unit alarms.

(9) Leaving windows or doors slightly open (even a few inches) will significantly reduce the risk of high levels of CO occurring. The high levels of draught-proofing in modern houses reduces ventilation and allows dangerous gases to build up.

(10) Install CO Alarms in all areas recommended in this leaflet.

(11) Recognise that CO poisoning may be the cause when family members suffer from "flu-like" symptoms when at home but feel better when they are away for extended periods.

8. Technical Information

Operating Voltage :	230±10% VAC, 50Hz
Power :	6 Watts
Power on Indicator :	Green light on.
Sensor :	Semiconductor Gas Senor Checks CO concentration every 2.5 minutes. Temperature cycled between measurements to ensure high sensitivity to CO and also high immunity to false alarms from other gases.Chemical filter on sensor enhances sensitivity and selectivity.
CO Sensitivity :	Meets or exceeds the CO sensitivity specifications in BS 7860 : 1996

the unit.

Use the narrow nozzle of a vacuum cleaner to remove fluff and other contamination from the cover slots to ensure CO gas can reach the sensor.

Caution: Do not paint the CO Alarm.

Remove the CO Alarm when decorating. Do not allow water or dust to contaminate the alarm (see below).

Warning: Do not open or tamper with the CO Alarm. There are no user serviceable parts inside. This can damage the unit and may expose the user to shock or fire hazards.

How to disconnect and remove the alarm:

1. First disconnect the mains supply to the CO Alarm circuit at the distribution / fuse board.
2. Slide cover up as shown in figure 1.
3. Unscrew the terminal cover screw.
4. Disconnect the wires from the terminal block and make safe, particularly if the circuit is going to be turned on again after the CO Alarm is removed.
5. Unscrew from the wall.

9. Getting the CO Alarm Serviced

If your CO Alarm fails to work after you have carefully read all the instructions, checked the unit has been installed correctly, and is receiving AC power, - see "How to disconnect and remove the Alarm" in section 5. Return it for repair or replacement. This should be done where it was purchased, or alternatively return it in a padded box to "Customer Assistance and Information" at the nearest address given on the CO Alarm or in this leaflet. **Since the nature of the fault, where the CO Alarm was purchased, and the date of purchase.**

seconds, the CO sensor is possibly defective. Press the test/hush button to reset the unit. If the beeping and the amber light flashing re-occurs after 2.5 minutes, the unit is defective.

4. ALARM SOUNDS FOR NO APPARENT REASON:

Follow the detailed instructions on the top of page 2. entitled **"What to do when the alarm sounds".**

(1) Ensure there are no fuel burning appliances in the vicinity which could be leaking CO gas (e.g. even from next door).

(2) Ensure there are no fumes in the area (e.g. paint, thinners, hair spray, chemical cleaners aerosol sprays etc).

(3) Ensure there is no outdoor source of CO in the vicinity (e.g. a car with engine running, heavy traffic, heavy air pollution, barbecue fumes etc).

(4) Press the test / hush button to silence the alarm.

If the unit continues to sound it is possibly defective and should be replaced, follow the instructions in section 5 on **"How to disconnect and remove your alarm"** and then see section 9 "Getting the CO Alarm Serviced".

5. TEST / HUSH BUTTON DOES NOT SILENCE ALARMS:

If there are a number of alarms interconnected and they are all sounding, pressing the test / hush button on the unit sensing CO (i.e. the one with the red light flashing) will silence the system. Pressing any other test / hush button will not silence the alarms. The unit cannot be hushed at a level of 350ppm CO or greater.

10. Five Year Guarantee

Ei Electronics guarantees this Carbon Monoxide Alarm for five years from date of purchase against any defects due to faulty materials or workmanship. This guarantee only applies to normal conditions of use and service, and does not cover damage caused by misuse, neglect, accident, modification, fair wear and tear, contamination however caused. This guarantee excludes incidental and consequential damage. If this Carbon Monoxide Alarm should become defective within the guarantee period, it must be returned to where it was purchased or alternatively to Ei Electronics, carefully packaged, with the problem clearly stated, (see section 9 "Getting the CO Alarm Serviced") along with proof of the date of purchase. We shall at our discretion repair or replace the faulty unit.

Do not interfere with the Carbon Monoxide Alarm or attempt to tamper with it. This will invalidate the guarantee, but more importantly may expose the user to shock or fire hazards.

This guarantee is in addition to your statutory rights as a consumer.

Ei Electronics, Shannon, Co. Clare, Ireland.
Phone: + 44 (0) 870 758 4000
E-mail: eielectronics@eiltd.ie
www.eielectronics.com

AICO Ltd.,
Oswestry,
Shropshire SY10 8NN
Phone: + 44 (0) 870 758 4000
E-mail: enquiries@aico.co.uk
www.aico.co.uk

11. TROUBLESHOOTING

1. ALARM DOES NOT WORK WITH THE TEST BUTTON:
(1) Check that the green mains power light is on. If it is off check the wiring, fuse, circuit breakers etc.
(2) Hold the test button down for at least 5 seconds.

2. THE CO ALARM IS WARM TO TOUCH:
This is normal, as the unit uses a heated sensor.

3. ALARM BEEPS AND AMBER LIGHT FLASHES EVERY 4 SECONDS:
If the alarm beeps and the amber fault light flashes every 4