Battery Powered

Ei207 / 208 Series
Carbon Monoxide Alarms

Instruction Manual

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

If you are just installing the unit, the manual **MUST** be given to the householder. The manual is to be given to any subsequent user.

Symbol Glossary

The symbols on this page are used in accordance with EN 62368-1, IEC 60417, ISO 7000 and other applicable standards. They are used to convey information on the safe and effective use of our devices. These symbols may be used on the device itself, on its packaging or in associated documentation.

Symbol	Description
	End of life This indicates the date after which the device should be replaced.
	Crossed Paint Brush This indicates that the device must not be painted.
	WEEE symbol Indicates that the device must be taken to a recycling point when it has reached its end of life.
CE	**CE mark** This indicates that this product conforms with the relevant EN standards for products sold within the European Economic Area (EEA). The CE marking is also found on products sold outside the EEA that are manufactured in, or designed to be sold in, the EEA.
UKCA	**UKCA mark** This indicates that this product conforms with the relevant standards for products sold within the United Kingdom (UK). The UKCA marking is also found on products sold outside the UK that are designed to be sold in the UK.
	The Green Dot This is a European trademark that indicates that the manufacturer has contributed financially to the recycling of packaging in Europe.
	Mobius Loop This indicates that the packaging of this product can be recycled.

Table of Contents

1. Introduction

The Ei207/208 Carbon monoxide Alarms contain a proven electrochemical CO sensor to detect the presence of toxic levels of Carbon Monoxide (CO).

1.1 What is Carbon Monoxide ?

Many people 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 and 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.
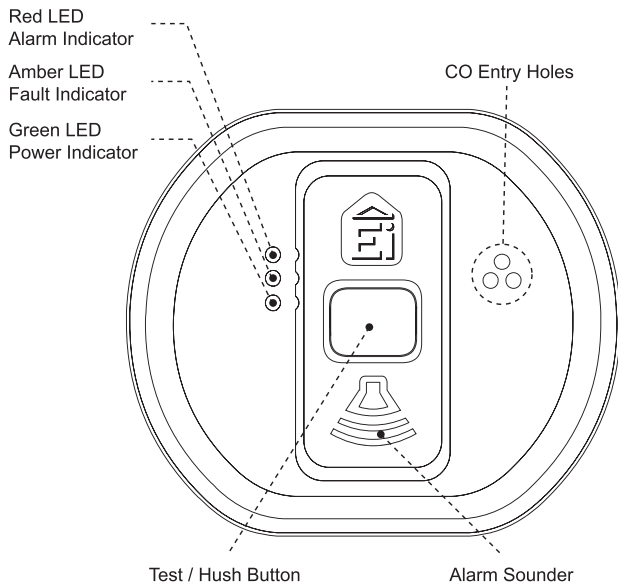
Symptoms of Carbon Monoxide Poisoning

Most people know that high levels of CO are harmful, however the period of exposure is also important. Table A shows how exposure to different concentrations of CO generally affects people.

Table A	
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 parts 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 and Health Association

1.2 Ei207/208 CO Alarm overview

Red LED
Alarm Indicator

Amber LED
Fault Indicator

Green LED
Power Indicator

CO Entry Holes

Test / Hush Button

Alarm Sounder

The models listed below are designed for domestic premises, recreational vehicles and similar premises including recreational craft in accordance with 50291-1:2018 & EN 50291-2:2019

Model Chart

Ei207 Series with Replaceable Batteries (2 x AAA)

Model	RF Capability	RF Module Supplied	LCD Display
Ei207	No	No	No
Ei207D	No	No	Yes

Ei208 Series with built-in Long Life Battery

Model	RF Capability	RF Module Supplied	LCD Display
Ei208	No	No	No
Ei208W	Yes	No	No
Ei208WRF	Yes	Yes	No
Ei208DW	Yes	No	Yes
Ei208DWRF	Yes	Yes	Yes

1.3 Technical Specification

Sensor Type Electrochemical

CO Sensitivity Meets EN 50291-1:2018 and EN 50291-2:2019.
CO Alarm operates as per Table B.

Product life 10 years

Power Supply Two Alkaline AAA type batteries (replaceable) – Ei207 models.
Powered for life lithium battery (non-replaceable) – Ei208 models.

Alarm Sound Level >85dB(A) at 3 meters.

Button Test Checks CO sensor, batteries, electronics and horn.

Hush Mode Duration Alarm: 4 minutes
Battery and Sensor Fault: 12 hours
End of Life: 24 hours

Visual indicators Green LED - Power
Red LED - Pre-alarm, Alarm, Alarm Hush and memory
Yellow LED - Fault

Operating and Storage

Temperature -10°C to 40°C*.

Humidity Range 15% to 95% R.H. (non-condensing).

LCD Display Displays CO level above 20ppm (in steps of 5ppm).

RF Interconnect RF Module required (see Model Chart on page 6).

CO Alarm Memory Indicates if CO Alarm was previously in alarm.

Dimensions (mm) 120 x 105 x 40.

Weight (grams) 185g (Ei207) 178g (Ei208).

*Temperature and Humidity conditions are for normal operation and storage. Units will function outside these ranges as required by the specific Product Standards. However, extended exposure to conditions outside these ranges may affect product life. For advice on prolonged operation outside these ranges consult the manufacturer.

2. Installation

WARNING: The apparatus must be installed by a competent person.

2.1 Where to locate the CO Alarm?

As per EN 50292:2023, a Carbon Monoxide Alarm should be installed in every room containing a fuel-burning appliance.

a) If a fuel-burning appliance is in a room that is part of the dwelling, the apparatus may be interconnected to other apparatus or smoke alarms according to the requirements of EN 50291-1:2018, 5.13, within the same dwelling, to ensure an appropriate early warning for occupants:

– in rooms in which the occupant(s) spend considerable time whilst awake and from which they may not be able to hear an alarm from apparatus in another part of the premises, i.e. due to a complex and/ or large dwelling or closed doors between the apparatus and other rooms;

– in every sleeping room.

b) If a dwelling is a bedsit (a single room serving as both sitting and bedroom), then the apparatus should be positioned as far from the cooking appliances as possible but near to where the person sleeps.

c) If a fuel-burning appliance is in a room which is not normally frequented (for example a boiler room), the apparatus should be interconnected to e.g. smoke alarms or to ancillary devices (siren, beacon) in other rooms and/ or circular spaces to ensure an appropriate early warning is given for occupants elsewhere in the building. If CO is detected, it is recommended that those interconnected devices operate with a sound pattern that is different from i.e. a smoke or fire alarm.

Where a fuel-burning appliance has an extended and/or concealed flue, an apparatus should be installed in each room through which the flue passes.

Additionally, the installation of carbon monoxide alarms is recommended to prevent from unnoticed spread of CO from the biofuels storage room to other parts of the building. In this case the carbon monoxide Alarm should be installed outside the storage room, but in the immediate vicinity – ideally near the access door.

Boiler rooms are often located in areas of a building that are normally not frequented very often, and so are the fuel storage rooms. Consequently, an audible alarm of the apparatus may not be heard in other parts of the building. For this reason, it is recommended to connect the apparatus to other warning devices in the building and to attach at least a visual signalling device at the entrance to this part of the building, which is activated by the apparatus if it is in alarm condition. To ensure a reliable activation of this signalling device a Type A apparatus (see EN 50291-1:2018, 5.9) should be used.

2.1.a Where in a room?

The locations must comply with applicable building regulations

300mm

150mm

CO Alarm

1 to 3 m

1 to 3 m

DEAD AIR
DON'T LOCATE
HERE

Fig.1

300mm

CO Alarm

Fig.2
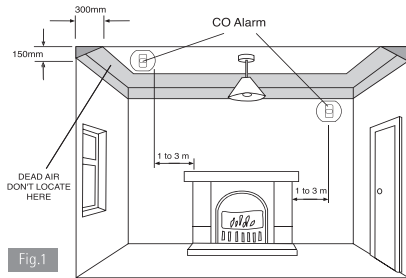
In a room WITH a fuel burning appliance

- The CO Alarm should be at a horizontal distance of between 1m and 3m from the potential CO source.
- If there is a partition in the room, the CO Alarm should be located on the same side of the partition as the potential source.
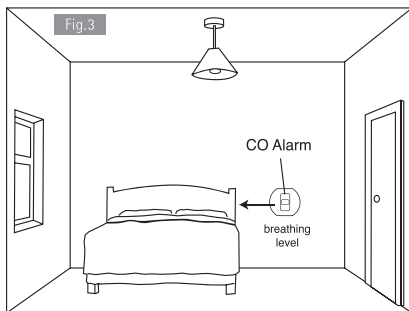- The CO Alarm should be mounted at least 300mm from any wall, joist or fixture.
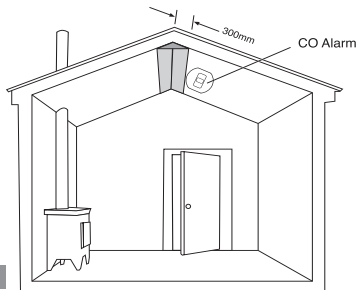
– Ceiling Mounting

In rooms with sloped ceilings, the CO Alarm should be located at the high side of the room.

– Wall Mounting

If it is mounted on a wall, it should be located at a height greater than the height of any door or window and at least 150mm (max. 300mm) below the ceiling.

Fig.3

CO Alarm

breathing
level

In a room <u>WITHOUT</u> a fuel burning appliance and WITHOUT an exhaust duct passing through.

– Wall mounting
 Mount the Alarm close to breathing height and at least 300mm from any other wall or fixture.

2.1.b Where in recreational vehicles?

Recreational vehicles may have additional risks of carbon monoxide ingress through air vents due to the nearby presence of other vehicles, engines, generators or barbecues, however this does not change the basic guidance on location of the Alarm. Recreational vehicles should be fitted with an Alarm in the same room as any combustion appliance(s), located in accordance with section 2.1.a. If the recreational vehicle has a single living space which incorporates the sleeping accommodation, it can be considered to be equivalent to a bedsit, and a single Alarm is sufficient. However, any sleeping accommodation which is in a separate room from the combustion appliance(s) should also contain an Alarm, located in accordance with 2.1.a.

It is not always possible to find an optimum location for an Alarm, for example, a small caravan or boat may not have suitable walls or ceilings available. Nevertheless, when fitting

an apparatus in such situations, the two most important considerations when selecting an appropriate location are:

- not mounting the apparatus directly above a source of heat or steam; and
- mounting the apparatus at a distance of 1m - 3m from the nearest edge of the potential source of CO.

2.1.c Unsuitable Locations

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

(1) In the immediate vicinity of a cooking appliance (keep it at least 1 metre horizontally from it).

(2) Outside the building.

(3) In an enclosed space (e.g. in or below a cupboard).

(4) In a damp or humid area. If, however, there is a fuel burning appliance in e.g. the bathroom, then an apparatus suitable for humid rooms should be installed[1].

(5) Directly above a sink or cooker.

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

(7) Next to an extractor fan.

(8) Over heat sources such as radiators or hot air vents.

(9) Where it would be obstructed, e.g. by curtains or furniture.

(10) In an area where the temperature could drop below -10°C or rise above 40°C.

(11) Where dirt or dust could block the sensor.

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

(13) In a bathroom or other areas where the CO Alarm may be exposed to water splashes, dripping or condensation (e.g. above an electric kettle).

(14) Near paint, thinners, solvent fumes or air fresheners.

[1] The Ei208 range can be installed in a bathroom, but do not place the detector directly above a sink, shower or bath where it will be subject to splashing water and a high level of condensation. It Is advised to test you CO alarm at least once per month using the test button.

2.1.d Interfering Substances

CO Alarms have a cross sensitivity to other substances that can trigger an alarm.

A CO Alarm should not be exposed to excessive amounts of fumes from petrol, diesel, solvents, greases, alcohols and organic cleaning fluids.

The Alarm may respond to brief exhaust gas emissions e.g. during initial start-up of an appliance or engine.

Hydrogen acts as an interferent and may give rise to alarms. Hydrogen can arise from some battery charging activities and also the curing of concrete under certain circumstances.

IMPORTANT: Do not use the CO Alarm on an intermittent basis, or as a portable detector for the leakage of combustion products from fuel burning appliances or chimneys.

2.2 Mounting the Alarm

WARNING: The installation of this CO Alarm is not a substitute for proper installation, use and maintenance of fuel burning appliances including appropriate ventilation and exhaust systems.

2.2.a Installation Procedure

1. Select a location complying with the advice in '**Where to locate the CO Alarm**'.

2. Remove the mounting plate from the packaging/Alarm.

3. Place the mounting plate on the ceiling/wall exactly where you want to mount the Alarm. With a pencil, mark the location of the two screw holes.

4. Taking care to avoid any electrical wiring in the ceiling, drill holes using a 5.0mm drill bit through the centre of the marked locations. Push the plastic screw anchors provided into the drilled holes. Screw the mounting plate to the ceiling/wall. If wall mounting the CO Alarm, the panel pin may be used as an alternative to the screws, provided it is suitable for the mounting surface.

mounting pad

panel pin

wall

Alternative Mounting pin

5. Alternatively, if desired, the CO Alarm will also free stand on a flat surface with the mounting plate attached.

6. If using the RadioLINK interconnection, ensure the RF module is fitted correctly into the base of the Alarm. For further advice on the RadioLINK installation, read the manual of the RadioLINK module.
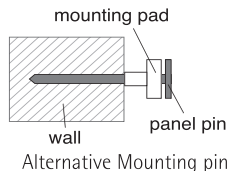
7. Carefully line up the Alarm on the base, gently press home and twist on – see figure 4. (This connects the batteries). The red, yellow and green LEDs will immediately flash in sequence to show they are working. In addition, the icons on the LCD display on the Display models will briefly light up.

8. In standby mode, the Alarm's green LED will flash once every minute to indicate it is powered.

9. Press the Test button (after 15 seconds) to ensure that the Alarm sounds (see figure 5).

10.Install all the other Alarms similarly.

Fig.4

Fig.5

Red LED
Amber LED
Green LED
Test Button

ALARM
FAULT
POWER

Ei
CARBON MONOXIDE ALARM
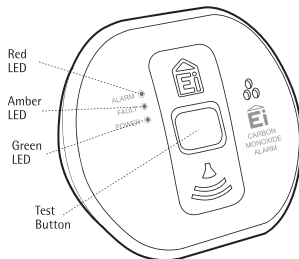
2.2.b How to Tamperproof the Alarm

The Alarm can be made resistant to unauthorised removal. Break off the small pillar on the base as shown in figure 6a. To remove the Alarm from the ceiling it is now necessary to use a small screwdriver (see figure 6b). To release the catch, push catch towards the ceiling and then twist off the Alarm. If necessary it is possible to further secure or tamperproof the Alarm by using a No.2 or No.4 (2 to 3mm diameter - not supplied) self tapping screw 6 to 8mm long to firmly lock the Alarm and its mounting plate together (see figure 7).
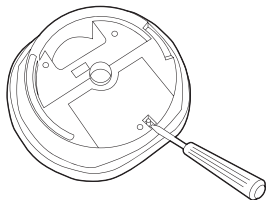
Fig.6a
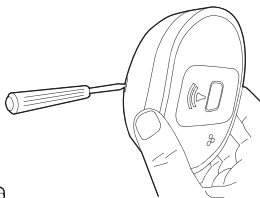
Fig.6b
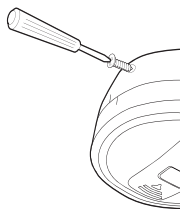
Fig.7

3. Operation

3.1 How does your CO Alarm work?

When the CO Alarm detects levels of CO (above 43ppm), it flashes the red LED. If the CO level persists, then the CO Alarm will sound a loud alarm to warn the occupants. Table B shows how the CO Alarm reacts to different levels of CO gas and exposure time. At higher levels of CO the CO Alarm will sound quicker. The rate of flashing of the red light indicates the level of CO.

Table B: CO Alarm Response

CO Gas Level	Red LED (Pre Alarm)	Display Icon (before horn sounds)	Display Icon (after horn sounds)	Sounder (Alarm)
0 < ppm < 20 ppm	Off*	Blank	N/A	Off
20 < ppm < 43 ppm	Off*	Flashes on - 1 second, off - 3 seconds	N/A	Off
43 < ppm < 80 ppm	1 flash / 2 secs	060 PPM	060 PPM	on within 60-90 mins (typ 72 mins)
80 < ppm < 150 ppm	1 flash / sec	100 PPM	100 PPM	on within 10-40 mins (typ 18 mins)
> 150 ppm	1 flash / 0.5 sec	170 PPM	170 PPM	on within 2 mins (typ 40 secs)

* unless it has alarmed previously (see CO Alarm Memory below)
ppm values shown in table are for example purposes only

18

The standard Ei Electronics Carbon Monoxide alarm pattern is a repeating cycle of 3 sound pulses followed by a pause to help distinguish it from the Fire alarm pattern which is a continuous rapid pulsing sound.

WARNING: If your Carbon Monoxide Alarm sounds (even if you are unsure of the cause), it has detected dangerous levels of carbon monoxide. Always evacuate the dwelling.

NEVER IGNORE THE ALARM !

Pre-Alarm

When the Alarm detects over 43 ppm CO, the red light flashes in accordance with Table B. This helps locate CO leaks as the CO Alarm gives an indication straight away. (Without this feature the CO level would need to be at 43 ppm CO for typically 72 minutes for an alarm sound to be given). Note the Pre-Alarm signal may be triggered by CO coming for example, from cooking with gas, from car engines or from nearby barbecues. This is usually not a concern, unless the pre-alarm signal persists until the Alarm sounds and the CO source is unknown. The display models will display CO concentrations greater than 20ppm in accordance with Table B.

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

Table C: CO Alarm Memory Indicators

Time lapsed after the Alarm	CO Gas Level	Red LED	Green LED	Display
0-24hrs	ppm > 43 ppm	2 flashes / min	-	-
	ppm > 80 ppm	4 flashes / min	-	-
	ppm > 150 ppm	8 flashes / min	-	-
>24hrs (while pressing the Test button)	ppm > 43 ppm	2 flashes / 8 secs	-	Maximum CO level recorded is displayed
	ppm > 80 ppm	4 flashes / 8 secs	-	
	ppm > 150 ppm	8 flashes / 8 secs	-	

Alarm Memory

The Alarm memory records when the alarm has been triggered, warning the occupier that CO gas has been detected even if no one is in the house at the time.

The memory feature has two operation modes:
- memory indication for 24 hour period after alarm.

- memory recall on demand

24 hour memory indicators: After alarm, the red LED will flash at different rates every minute (approx) depending on the level of CO detected - see Table C.

Memory recall on demand: To review the memory status after initial 24 hours, press and hold the test button, the red LED will flash in accordance to Table C. Display models will show the peak level of CO measured.

Reset Memory: Hold down the test button until the red LED stops and the green LED starts flashing. Cover the horn with a cloth to muffle the alarm during this time. Please note that the memory will also be reset when the CO Alarm is switched off.

Hush feature

When the Alarm sounds, pressing the test/hush button will immediately stop the horn (the red LED will continue to flash). If CO is still present the horn will turn on again after about 4 minutes.

The CO Alarm can only be silenced once during a CO incident. At levels > 150ppm CO, the CO Alarm cannot be silenced.

If an accessory is used to remotely silence the alarm, it shall only be operated when in line of sight of the CO alarm.

AudioLINK:

AudioLINK is an added feature available in the Ei208 series only. This feature allows an authorised person to download information from the Alarm through the use of a smart phone App. For more information on using this feature, please refer to the relevant section on www.eielectronics.com.

3.2 Testing your Alarm

Frequent testing of the Alarm is a requirement to ensure the Alarm is functioning. Guidelines and best practices for testing are as follows:

1. After the system is installed.

2. Once monthly thereafter.

3. After prolonged absence from the dwelling (e.g. after holiday period).

4. After repair or servicing of any of the systems elements or household electrical works.

First check that the green LED power indicator is flashing.

Then, to test the Alarm press and hold the test button for at least 5 seconds. This tests the sensor, battery, electronics and horn. The horn will stop sounding when the button is released. The Alarm will respond with one of the following status conditions:

1. The Green LED will flash and the horn will sound to indicate the Alarm is operating correctly.

2. If there is a fault condition the yellow LED will flash and the horn will beep (see "**Fault Mode**" in Table D).

3. If the memory has been set the Red LED will flash and the horn will give a full alarm sound (see "**Alarm Memory**" section).

ATTENTION: Do not test with CO gas

We do not recommend testing the alarm with carbon monoxide as the results can be misleading unless special apparatus is used.

However, if testing the Alarm with CO gas is required, the red LED flashing indicates the presence of CO gas as per table B.

3.3 Cleaning your Alarm

Clean the outside case by occasionally wiping with a clean damp cloth. 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 CO Alarm.

4. What to do when the Alarm sounds

(1) Open the doors and windows to ventilate the area (see note).

(2) Turn off all fuel appliances where possible and stop using them. (The Alarm can be silenced immediately by pushing the test/hush button provided the CO level <150ppm).

(3) Evacuate the property leaving the doors and windows open.

(4) Get medical help immediately for anyone suffering the effects of Carbon Monoxide poisoning (headache, nausea), and advise that Carbon Monoxide poisoning is suspected.

(5) Ring your gas or other fuel supplier on their emergency number. Keep the number in a prominent place.

(6) Do not re-enter the property until the Alarm has stopped. (If the Alarm has been silenced by pressing the test/hush button, wait at least 5 minutes so the Alarm can check that the CO has cleared).

(7) Do not use the fuel appliances again until they have been checked by a registered installer or equivalent expert.

The alarm will stop once the CO has cleared.

Note: When ventilation is provided by leaving the window and doors open, the CO build up may have dissipated by the time help arrives and the Alarm 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.

5. 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 operating.
- 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 pipe work.

(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 for home heating.

(8)   Never use a barbecue indoors.

(9)   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 they could be subjected to excessive noise when the CO Alarm sounds.

(10) 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 can allow dangerous gases to build up.

(11) Install CO Alarms in all the areas recommended in this booklet.

(12) 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.

6. Limitations of CO Alarms

(1) The CO Alarm will not work without good batteries. If the batteries have been drained the Alarm will not give protection. Button test the Alarm monthly and on return from holidays and other long absences.

(2) Carbon Monoxide must enter the CO Alarm 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 install 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. RF 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 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 people with impaired hearing.

(4) CO Alarms don't last indefinitely. CO Alarms are sophisticated electronic devices with many parts. Although the Alarm and its component parts have undergone stringent tests, and are designed to be very reliable, it is possible that parts can fail. Therefore, you should test your CO Alarm monthly. The CO Alarm must be replaced when the "REPLACE

UNIT BY" date has been reached. Check the label on the side of the Alarm.

(5) CO Alarms are not a substitute for life insurance. House-holders 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. Some fires produce Carbon Monoxide, but the response characteristics of these CO Alarms are such that they would 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. **Note:** Carbon Monoxide Alarms, with electrochemical sensors have a cross sensitivity to hydrogen. This means that they can alarm due to sensing hydrogen being produced by batteries being incorrectly charged such as on boats or with battery back-up systems such as those used with alternative energy systems. The CO Alarm will alarm with 500 ppm H_2 after between 10 and 40 minutes exposure.

WARNING: THIS CO ALARM IS DESIGNED TO PROTECT INDIVIDUALS FROM THE ACUTE EFFECTS OF CARBON MONOXIDE EXPOSURE. IT WILL NOT FULLY SAFEGUARD INDIVIDUALS WITH SPECIFIC MEDICAL CONDITIONS. IF IN DOUBT CONSULT A MEDICAL PRACTITIONER.

7. Troubleshooting and indicator summary tables

Your Alarm does not sound when you press the Test button	• Check the Alarm is secured correctly on the mounting plate. • Wait 15 seconds after connecting the power before button testing. • Hold button down firmly for at least 5 seconds. • Replace batteries (Ei207 models only). If after following the above instructions the horn does not sound, then your Alarm must be returned for repair or replacement - see "**GETTING THE ALARM SERVICED**" section
Your Alarm chirps/beeps	In standby mode, the Alarm does not sound, beep or chirp. The only Indicator on is the flashing green power LED. The Alarm automatically monitors the battery, sensor and electronics periodically to ensure that all are satisfactory. If a fault has been found, the alarm alerts the occupier to this via short chirps from its sounder and yellow LED fault indicator flashes every 48 seconds. The alarm will also indicate any faults when the test button is pressed. See Table D

Your Alarm sounds for no apparent reason	• Follow the detailed instructions in "What to do when the alarm sounds" section.
	• If there are still problems:
	- Ensure there are no fuel burning appliances in the vicinity which could be leaking CO gas (e.g. even from next door).
	- Ensure there are no fumes or aerosols in the area (e.g. paint, thinners, hair spray, chemical cleaners, aerosol sprays, damp proofing done with an aqueous emulsion such as Aminofunctional siloxane and Alkylalkoxysilane).
	- 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).
	- Ensure there is no source of hydrogen such as batteries being charged (e.g. on boats or in Uninterruptable Power Supplies (UPS)).
	- Ensure there is not excessive smoke or fumes from devices such as Egyptian shisha, hookah or hubbly bubbly pipes, especially those that use coal or charcoal to heat the tobacco.
	- Press the test/hush button to silence the Alarm.
	If the CO Alarm continues to sound it is possibly defective and should be replaced - see "**GETTING THE ALARM SERVICED**" section
Test/Hush button does not silence the alarm	• 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 alarm.
	• The Test/Hush button will only silence the alarm once during a CO incident and only if the level of CO detected is less than 150ppm.

Table D: Indicator Summary

Normal Operation	Red LED (Alarm)	Yellow LED (Fault)	Green LED (Power)	Sounder	LCD Display	Action
Power Up	LED Flashing x 1	LED Flashing x 1	LED Flashing x 1	—	Flash all icons	
Standby	—	—	LED Flashing x 1/min	—	—
Button Test (No faults)	—	—	LED Flashing x 1/sec	Alarm	✓ 🔋 000 PPM	
Button Test (Fault)	—	Flashes as per fault mode	—	Beeps as per fault mode	As per fault mode	See fault mode
Alarm detecting CO	Flashes as per table B	—	—	ON or OFF depending on ppm level and duration of detection	PPM level and either ventilate or evacuate icon	See Table B for details
- Alarm Hush	Flashes as per table B	—	—	(muted) x 4min	PPM level and evacuate icon	
Alarm activated via RF interconnect	—	—	—	Alarm	—	
Fault Mode						
Low Battery	—	LED Flashing x 1/48sec	—	Beep x 1/48sec	🔋	Replace Alarm
- Low Battery fault hush	—	LED Flashing x 1/48sec	—	(muted) x 12h	🔋	
Sensor Fault	—	LED Flashing x 2/48sec	—	Beep x 2/48sec	🗑	Replace Alarm
- Sensor Fault hush	—	LED Flashing x 2/48sec	—	(muted) x 12h	🗑	
End of Life (EOL)	—	LED Flashing x 3/48sec	—	Beep x 3/48sec	🗑	Replace Alarm
- End of Life (EOL) fault hush	—	LED Flashing x 3/48sec	—	(muted) x 24h	🗑	

((•)) = LED Flashing   🔊 = Alarm   🔊 = Beep

Low Battery fault

When the battery is starting to be depleted the CO Alarm will beep and the yellow LED will flash about every 48 seconds.

For the **Ei208** Models, the entire CO Alarm will have to be replaced as it has a built in battery.

For the **Ei207** models, replace the batteries as follows:

Check the 'Replace by' label on the side wall - if it has been exceeded replace the entire CO Alarm. If the Replace by' label on the side wall has not been exceeded, remove the Alarm from the mounting plate, remove the battery cover (see figure 8) and replace the batteries. Use only the following Alkaline AAA size batteries: Duracell, Panasonic, or Energizer.

Fig.8

Insert the new batteries with the orientation shown on the base. Replace the battery cover and replace the Alarm back on its mounting plate (this action automatically switches on the batteries). Button test the Alarm (after 15 seconds) to check the batteries are installed correctly and that they are not depleted.

The batteries in the Ei207 series should be replaced before the "best before" date printed on the batteries is exceeded. (The batteries will usually last over 5 years in standby under normal conditions. The life will be reduced if the unit regularly goes into alarm or if it is exposed to excessive temperatures for long periods).
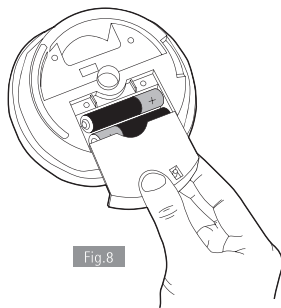
If it is not convenient to replace immediately the batteries or the Alarm (as applicable), then press the test button to silence the low battery beeps for 12 hours. This can be repeated as required.

Sensor Fault

If a sensor fault has been detected the Alarm will give 2 short beeps with 2 yellow LED flashes about every 48 seconds. The Alarm must be replaced when this fault occurs.

If it is not convenient to replace it immediately, then press the test button to silence the sensor fault beeps for 12 hours. The sensor fault can only be silenced once.

End of Life

When the sensor has reached its End of Life, the Alarm will give 3 short beeps with 3 yellow LED flashes about every 48 seconds. This indicates that the Alarm must be replaced.

If it is not convenient to replace it immediately, then press the test button to silence the End of Life beeps for 24 hours. This can be repeated for a maximum of 30 days.

Table E: Display Summary

Button Test OK	Low Battery Warning	Sensor Fault
✓ 🔋 **000** PPM	🔋	♻🗑

Ventilate Status	Evacuate Status	End of Life Status
⚠🏠 **060** PPM	☠ 🚶 **335** PPM	♻🗑

8. Getting the Alarm Serviced

If your CO Alarm fails to work after you have carefully read all the instructions, checked the CO Alarm has been installed correctly, and ensured that it has good batteries connected, return it for repair or replacement. This should be 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. (Remove the Alarm from the mounting plate before shipping the product). State the nature of the fault, where the CO Alarm was purchased, and the date of purchase.

9. Guarantee

Ei Electronics guarantees Carbon Monoxide Alarms Ei207 models (excluding batteries) and Ei208 models for 5 years from date of purchase against any defects that are due to faulty materials or workmanship. These guarantees only apply to normal conditions of use and service, and do not include damage resulting from accident, neglect, misuse, unauthorised dismantling, or contamination howsoever caused. These guarantees exclude incidental and consequential damage. If the 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 '**Getting the CO Alarm Serviced**' section) along with proof of the date of purchase.

We shall at our discretion repair or replace the faulty CO Alarm.

Do not interfere with the Alarm or attempt to tamper with it. This will invalidate the guarantee, and may result in malfunction.

The crossed out wheelie bin symbol that is on your product indicates that this product should not be disposed of via the normal household waste stream. Proper disposal will prevent possible harm to the environment or to human health. When disposing of this product please separate it from other waste streams to ensure that it can be recycled in an environmentally sound manner. For more details on collection and proper disposal, please contact your local government office or the retailer where you purchased this product.

CE   UKCA

Aico

Oswestry,

Shropshire SY10 8NR, U.K.

Tel: 01691 664 100

www.aico.co.uk

Ei Electronics

Shannon, V14 H020, Co. Clare, Ireland.

Tel: 061 471277

www.eielectronics.com

P/N B17090 Rev10