BATTERY POWERED CARBON MONOXIDE ALARM

1 MAIN FEATURES:
1. High accuracy and sensitivity
2. Good anti-jamming capability
3. Reliable stability and reproducibility
4. Low quiescent current (≤20uA), energy-saving, long standby time
5. Three leds to indicate different status: power (green), alarm (red), fault (yellow)
6. Easy installation, portable, ideal for home and travel
7. Test/Mute function/Manual Reset
8. Memory Function
9. Low battery warning
10. Sensor fault signal warning
11. Battery removal warning
12. End of alarm life warning

This instruction leaflet contains important information on the correct installation and operation of your carbon monoxide alarm. Read this leaflet fully before attempting installation and retain for future reference.

2. SPECIFICATION
Power Source: 2PCS LR03 SIZE AAA 1.5V ULTRAMAX battery
Sensor Type: Electrochemical
Type of Gas sensed: Carbon Monoxide
Alarm activation: 30 to 49 ppm(after 120 minutes)
          50ppm to 99ppm (60 to 90 minutes)
          100 ppm to 299ppm (10 to 40 minutes)
          Above 300ppm (0 to 180 seconds)
Operation Temperature : -10℃ to 40℃
Ambient Humidity: 15% to 90%
Horn Level: 85 dB at 1 m (3.3 feet)
Product Weight: 104g approx
Product Size: 98mmx98mmx25mm
Product Life: 10 years

3. WHAT IS CARBON MONOXIDE
Carbon Monoxide (CO) is an insidious poison that is released when fuels are burnt. It is a colorless, odorless, tasteless gas and therefore very difficult to detect with the human senses. CO kills hundreds of people each year and injures many more. It binds to the hemoglobin in the blood and reduces the amount of oxygen being circulated in the body. In high concentrations, CO can kill in minutes. CO is produced by the incomplete combustion of fuels such as wood, charcoal, coal, heating oil, paraffin, petrol, natural gas, propane, butane etc.

Examples of CO sources:
Running engine in garage   -Gas appliances
Oil and Gas furnaces   -Portable generators
Wood stoves   -Gas or kerosene heaters
Barbecues Clogged chimneys
Wood and gas fireplaces Heating boiler

4. SYMPTOMS OF CO POISONING
The following symptoms may be related to CO poisoning:
35 ppm   The maximum allowable concentration for continuous exposure for healthy adults in any 8 hour period.
200ppm   Slight headaches, fatigue, dizziness, nausea after 2-3 hours
400ppm   Frontal headaches within 1-2 hours, life threatening after 3 hours
800ppm   Dizziness, nausea and convulsions within 45 minutes. Unconsciousness within 2 hours, Death within 3 hours.
1600ppm Headache, dizziness and nausea within 20 minutes. Death within 1 hour
6400ppm Headache, dizziness and nausea within 1-2 minutes.
WARNING: The apparatus may not prevent the chronic effects of carbon monoxide exposure, and that the apparatus will not fully safeguard individuals at special risk .It may not fully safeguard individuals with specific medical conditions.If in doubt, consult a medical practitioner.

5. LOCATING THE CO ALARM
C12 Carbon Monoxide alarm is designed to detect the toxic CO fumes that result from incomplete combustion, such as those emitted from appliances, furnaces, fireplace and auto exhaust.
NOTE: For maximum protection an alarm should be fitted in or near every room that contains a fuel-burning appliance such as any gas fires, central heating boilers, room heaters, water heaters, cookers, grills, etc.
WARNING: This alarm will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.
A CARBON MONOXIDE ALARM DOES NOT FUNCTION AS A REPLACEMENT FOR A SMOKE OR GAS DETECTOR.

6. Location of the carbon monoxide detector
6.1   General
The design and layout of domestic premises and the number, type and position of carbon monoxide sources vary widely. However, general   guidance is given on where and where not to locate the apparatus in order to minimise the risk of misleading indications.
6.2 Which room?
Ideally, an apparatus should be installed in every room containing a fule burning appliance. Additional apparatus may be installed to ensure that adequate warning is given for occupants in other rooms, by locating apparatus in:
- remote rooms in which the occupant(s) spend considerable time whilst awake and from which they may not be able hear an alarm from apparatus in another part of the premises and
- every sleeping room
However,if there is a fuel burning appliance in more than one room an the number of apparatus is limited, the following points should be considered when deciding where best to put the apparatus:
- locate the apparatus in a room containing a flueless or open-flued appliance, and
- locate apparatus in a room where the occupant(s) spend most time.
If the domestic premises is a bedsit (a single room serving as both sitting and bedroom) then the apparatus should be put as far from the cooking appliances as possible bue near to where the person sleeps.
If the appliance is in a room not normally used (for example a boiler room), the apparatus
should be put just outside the room so that the alarm may be heard more easily. Alternatively, a remote alarm siren may be connected to a type A apparatus located in a room(s) containing a fuel-burning appliance.
6.3 Where in the room?

It should be possible to view all the light indicators when in the vicinity of the chosen location for the apparatus.
It is not possible to give specific guidance on the exact location of a detector which suits all types of room and their usage. The following points should be taken into consideration when determining an optimum location for any appropriate situation:
6.3.1   Where not to install the apparartus
The apparartus should not be installded:
*   in an enclosed space (for example in a cupboard or behind a curtain);
*   where it can be obstructed (for example by furniture);
*   directly above a sink;
*   next to a door or window;
*   next to an extractor fan;
*   next to anair vent or other similar vebtilation openings;
*   in an area where the temperature may drop below -10 °C or exceed 40 °C,unless it is designed to do so;
*   where dirt an dust may block the sensor;
*   in a damp or humid location;
*   in the immediate vicinity of the cooking appliance.
6.3.2   Apparatus located in the same room as a fuel-burning appliance
If the apparatus is located on a wall:
a) it should be located close to the ceiling;
b) it should be located at a height greater than the height of any door or window.
A ceiling mounted apparatus should be at least 300 mm from any wall, and for a wall
mounted apparatus it should be at least 150 mm from the ceiling.
The apparatus should be at a horizontal distance of between 1m and 3 m from teh potehtial
source.
Id there is a partition in a room, the apparatus should be located on the same side of the
partition as the potential source.
Carbon Monoxide alarms in rooms with sloped ceilings should be located at the high side of the room.
WARNING: This carbon monoxide alarm is designed for indoor use only. Do not expose to rain or moisture. It will not protect against the risk of carbon monoxide poisoning when the battery has drained. Do not open or tamper with the alarm as this could cause malfunction.

7. INSTALLING THE CO ALARM
WARNING: The apparatus should be installed by a competent person.
This CO alarm is powered by battery and requires no additional wiring. It can either be installed on the wall using the fixings provided or on a tabletop.
7.1 Wall Mount Installation:
Having established the mounting location ensure that there is no electrical wiring or pipe work in the area adjacent to the mounting surface (fig 1).
Mark the two mounting hole locations.
Drill holes in the positions marked.
Screw tight the screws into the drilled holes, and keep the steel screws out for 4mm.
Insert 2PCS LR03 SIZE AAA1.5V batteries firmly into battery compartment on the rear of the detector.
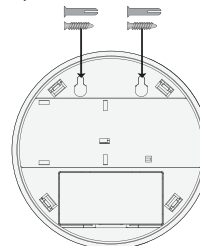

Fig 1

7.2 Tabletop Installation:
Just place the CO alarm on the table, so that the users can see LEDS clearly.
**WARNING:** Installation of the apparatus should not be used as a substitute for proper installation, use and maintenance of fuel burning appliances including appropriate ventilation and exhaust systems.

8. OPERATING YOUR CO ALARM
8.1 Install batteries
This alarm is powered by 2 PCS LR6 SIZE AAA1.5V battery, open the battery compartment on the rear of the detector and install the batteries (see fig 2-5).
PAY ATTENTION TO THE POLARITY CONNECTION AND CLOSE THE BATTERY COMPARTMENT.

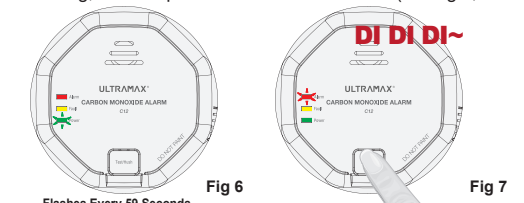Fig 2   Fig 3
Fig 4   Fig 5
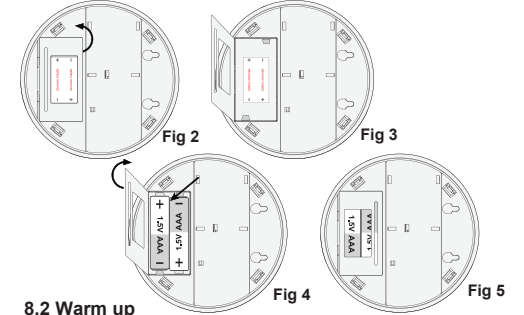
8.2 Warm up
After the batteries are installed, the green, yellow and red lights of the product are illuminated in turn, and then enter the preheating countdown, and the warm-up time is 120S.
8.3 Standby mode
When no carbon monoxide is present, the green LED flashes once about EVERY 59 SECONDS(see fig 6).
8.4 Test your CO alarm
Press the TEST button to enter the test mode. At this time, the green and yellow lights are always on, the red light is flashing, and the product simulates an alarm.(see fig 7).
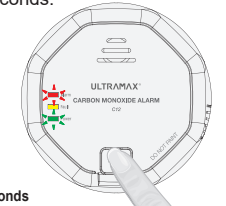

Flashes Every 59 Seconds   Fig 6   Fig 7

NOTE: Though this alarm can self-diagnose the amplifying circuit and sensor, it is recommended that you test your CO alarm once a month to ensure the alarm is working correctly.

8.5 Mute function
8.5.1 Entry Condition
a) In the alarm state, if the concentration is lower than 50PPM, press the test button (see Figure 8), it will enter the alarm mute mode, the red LED and the green LED will flash once every 10 seconds.

Flashes Every 10 Seconds   Fig 8

b) After entering the silent mode, if you need to enter the alarm again, you need to re-time the alarm generation time under different concentrations.

8.5.2 Exit Condition
a) When the carbon monoxide concentration continues to be as low as 30 PPM, the mute mode is exited and the non-alarm standby mode is entered.
b) When the concentration rises and reaches the corresponding concentration and time, it enters the alarm mode.

8.6 Alarm time and prompt
8.6.1 Alarm time
When the unit detects dangerous levels of CO, it will emit an alarm signal along with flashing of red LED (see fig7). When the CO concentration dropped to about 30ppm, the product will stop the alarm.

CO Concentration	No alarm before	Alarm before
30 ppm	120 minutes	-
50 ppm	60 minutes	90 minutes
100 ppm	10 minutes	40 minutes
300 ppm	-	3 minutes

8.6.2 Alarm prompt

CO Concentration	Product Alarm Status	
	Sound Prompt	LED Prompt
50 ppm	3 sounds every 2 seconds, interval of every 3 sounds 1.5 seconds	Synchronized with the sound
100 ppm	4 sounds every 4 seconds, interval of every 4 sounds 1.5 seconds	Synchronized with the sound
300 ppm	4 sounds every 2 seconds, interval of every 4 sounds 0.8 seconds	Synchronized with the sound

8.7 Alarm memory function
8.6.1 Entry conditions:
Record the highest concentration point of the last alarm. This prompt is only issued after the CO concentration has dropped to the alarm condition.
8.6.2 Status prompt: The red LED is on for one second every 20 seconds, and the buzzer produces a sound of 'DI' 'DI'(see fig 9).
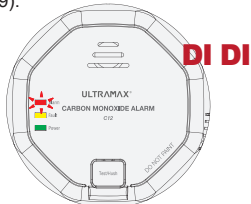
Flashes Every 20 Seconds **Fig 9**

8.6.3 Exit conditions:
a) Press the button to exit the alarm memory function;
b) CO concentration is greater than the display threshold (20PPM).

8.8 LOW BATTERY Signal
When the unit detects that the battery voltage is low and needs to be replaced, the yellow LED will flash once about every 47 seconds and an alarm sound BEEP will be issued (see fig10). When the battery voltage is further reduced, the low voltage indicating cycle is shortened to 12 seconds.
NOTE: The normal stand by time of battery is 3 years minimum. Please replace the battery in time after the low

voltage alarm signal.
It is recommended to use the same type of battery when changing the battery (2PCS LR03 SIZE AAA 1.5V ULTRAMAX battery).
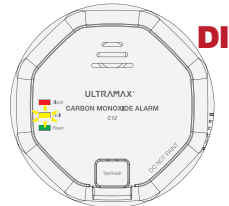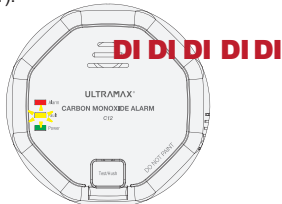

Fig 10

Flashes Every 47 Seconds

8.8 Fault signal warning
When a sensor failure is detected, the yellow light will beep 5 times every 30 seconds and the yellow LED will flash 5 times (fig 11).
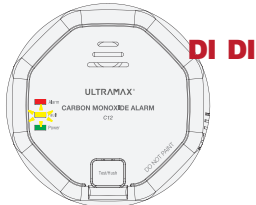

Flashes Every 30 Seconds **Fig 11**

8.10 End of alarm life warning
The product design life is 10 years. When the 10 years expires, the product will emit two beeps and the yellow LED will flash twice every 60 seconds (see fig 12).

Flashes Every 60 Seconds **Fig 12**

9. IN THE EVENT THE CO ALARM RAISES AN ALARM:
Immediately move to fresh air outdoor or open all doors / windows to ventilate the area and allow the carbon monoxide to disperse.
Where possible turn off fuel burning appliance.
Evacuate the building.
Do not re-enter the premises nor move away from the open door / window until emergency services responders have arrived, the premises have been aired out, and your alarm remains in its normal condition.
Seek medical help immediately for anyone suffering from the symptoms of headache, drowsiness, nausea, etc.
Do not use the appliances again until they have been checked by a qualified technician and the fault located and cleared.

10. MAINTENANCE YOUR CO ALARM
Your detector will alert you to potentially hazardous CO concentrations in your home when maintained properly. To maintain your alarm in proper working order, it is recommended that you:
• Test the alarm at least once per month by pressing the

TEST button.
• Clean your CO alarm regularly to prevent dust build up. This can be done using a vacuum cleaner with the brush attachment once per month. Clean gently around the front grilled section and sides.
• Never use cleaning solutions on your alarm. Simply wipe with a damp cloth.
• Do not paint the alarm.
• Do not tamper with any of component as this may lead to a product fault and cause Risk of death.

11. GAS SELECTIVITY
This alarm possesses conformity to selectivity which international standards require, and table 1 shows the selectivity to typical noise gases defined in UL2034 and EN50291.
Table 1. Gas selectivity

Test gas	Relative sensitivity (CO is 100)
CO	100
Hydrogen	40
Methane	0
Iso-Butane	0
Carbon dioxide	0
Carbon di-sulfate	0
Hydrogen sulfide	0
Nitrogen oxide	0
Nitrogen dioxide	Less than 5
Ammonia	0***
Ethyl acetate	0***
Di-chloromethane	0***
Heptane	0***
Toluene	0***
IPA	0***
Ethanol	Less than 2*
Hexa-methyl di-siloxan	0**

Exposure time :* :30 minutes ** :40 minutes ***: 2 hours

12. IMPORTANT SAFETY REQUIREMENTS
Installing a CO-detector is only the first step towards safer living conditions. Make sure that you and other members of your household are familiar with the cause and effect of carbon monoxide poisoning and how to operate a CO-detector:
Test your CO-detector once per month
Immediately replace low batteries
Only purchase approved combustion devices.
Install combustion devices in the correct way and strictly follow the instructions of the manufacturer
Have your installation performed by a professional
Have your installation checked by a qualified installer on a regular basis.
Clean your chimney and drainage once every year
Regularly check all combustion devices.
Verify if your equipment is free of corrosion and peelings.
Never use your barbecue indoors or in garages.
Ensure sufficient ventilation when using a fireplace or multi-burner.
Always pay attention to symptoms of carbon monoxide poisoning.

WARNING:
Please avoid using CO alarm in the following situations, so as not to affect the service life of the alarm:
• This unit should avoid contact with organic solvents (including silicone and other adhesives), coatings, pharmaceutical, oil and high concentrations gas
• This unit can not be used in environments containing corrosive gas, corrosive gas can damage the unit;

NOTES:
• This unit can be only used at residential application, not suitable for usage on vehicles, boats, factory, shopping malls, etc.
• For the calibrating, first put the unit in clean atmosphere,then put the unit into 400ppm gas.
• This unit can not be used in environments with strong wind movement.
• Never block the unit air inlet; otherwise the sensitivity will beaffected.
• This unit can not bear excessive shock or vibration.
• It will take a long time for this unit to return to the initial state after used in high concentrations gas long time.
• Never open the unit; the electrolyte leakage can cause damage.
• This CO alarm is designed to only sense Carbon Monoxide from any source of combustion. It is NOT designed to detect smoke, fire and other gases.

WARRANTY DISCLAIMERS:
We promise two years warranty on this CO alarm.
This warranty does not cover damage resulting from accident, misuse, disassembly, abuse or lack of reasonable care of the product, or applications not in accordance with the user manual. It does not cover events and conditions outside of our control, such as Acts of God (fire, severe weather etc). It does not apply to retail stores, service centers or any distributors or agents. We will not recognize any changes to this warranty by third parties. We shall not be liable for any incidental or consequential damages caused by the breach of any express or implied warranty. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose is limited in duration for 2 (two) years.
THIS PRODUCT CANNOT BE REPAIRED IF THE UNIT IS TAMPERED WITH IT WILL INVALIDATE THE GUARANTEE. IF THE UNIT IS FAULTY PLEASE RETURN IT TO YOUR ORIGINAL SUPPLIER WITH YOUR PROOF OF PURCHASE.

NOTE: In keeping with our policy of continuing improvement, we reserve the right to institute changes in design, material, dimensions, or specifications without prior notice and without incurring any obligation to make such changes and modifications on product previously or subsequently sold.

Product code: MONUMX-C12

ULTRAMAX®

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