Carbon monoxide detector i10

careium

User guide
English

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1. Product overview

The carbon monoxide detector i10 is designed to protect you and your family from harmful levels of toxic gas by analysing and detecting the presence of carbon monoxide gas in the air (also known as CO gas). The carbon monoxide detector i10 is also designed to work in a wireless system with one or more of our smoke detectors and heat detectors.

1.1. Product features

- Sealed built-in 10 year lithium battery.
- The carbon monoxide detector switches on automatically when clicked into place on the radio base.
- The integrated LEDs provide information about the status of the carbon monoxide detector during installation, during normal operation and during live alarms.
- If the battery is low or the detector has reached the end of its service life, a beep will be emitted every minute. It is possible to silence the alarm for ten hours by pressing the pause button (Silence). The carbon monoxide detector does not need to be removed from the mounting plate. It can be replaced at your convenience the following day/days.
- Pressing the pause button (Silence) will silence all unwanted alarms for 5 minutes.
- Reacts quickly with a strong signal (85dB at 3 metres) that automatically resets when carbon monoxide has left the detection chamber.

2. What is carbon monoxide

Carbon monoxide (CO) is an extremely toxic gas. It is a colourless, odourless and tasteless gas that can be released by incomplete combustion of fossil fuels such as natural gas, bottled gas, petrol, diesel, oil, paraffin, wood, coal coke and biofuels. When inhaled, CO causes chemical asphyxiation and when it mixes with blood it reduces the oxygen transported around the body, especially to the brain. The following symptoms are typical of CO poisoning and should be discussed with all members of your household.

Mild exposure:
Mild headache, nausea, fatigue, similar to flu symptoms.

Medium exposure:
Severe throbbing headache, fatigue, confusion, vomiting and rapid heart rate.

Extreme exposure:
Unconsciousness, convulsions, heart and respiratory failure leading to possible death. Even if they do not feel well, victims of CO poisoning are so disoriented that they can no longer decide

what to do, such as even leave the building or call for help. Very young children often show symptoms earlier than adults. Being affected while you sleep is the most dangerous situation that can occur because the person will not wake up by themselves

Examples of common sources of risk that create CO poisoning:

- Technical problems in heating equipment due to faults, lack of service or maintenance
- Non-functioning chimneys or ventilation pipes which may have collapsed or become sealed (e.g. due to a bird's nest, snow, etc.)
- Incorrect air direction, so-called retraction
- Improper installation of burners or fireplaces
- In equipment used intermittently for short periods or by different persons
- Incorrectly sized chimneys or garden bbq grills used indoors

The carbon monoxide detector is set to warn of the following concentrations of CO gas in accordance with EN50291-1:2018.
It does not set off unwanted alarms at concentrations as low as 30 ppm for short periods (120 mins.), but if the amount of carbon monoxide in the air exceeds 50 ppm, the unit will set off the alarm within 90 mins.
At concentrations higher than 100 ppm, the alarm is set off within 60 minutes and at concentrations higher than 300 ppm, the alarm is set off within 3 minutes.

Concentration in the air (ppm)	No alarm within	Alarm within
30 ppm	120 mins	-
50 ppm	60 mins	90 mins
100 ppm	10 mins	60 mins
300 ppm	-	3 mins

3. The right amount of oxygen in the room

If appliances draw in air for combustion from inside the room for open wood and coal fires, portable gas or paraffin heaters or portable wood-burning stoves, the room MUST be adequately ventilated to allow sufficient air for complete combustion. DO NOT block fresh air vents specifically designed for this purpose. Heating systems will compete for the air supply, make sure that there is sufficient air supply.

4. Where to install

The construction and design of premises, as well as the number, type and position of different sources of carbon monoxide vary greatly. Below is a general guide on where and where not to mount a CO detector to minimise the risk of false alarms/ misleading indications.

Which room?

Ideally, a carbon monoxide detector should be installed in each room containing a combustion device. Additional carbon monoxide detectors can be installed to provide as early a warning as possible for residents in other rooms. Place additional carbon monoxide detectors in the following locations:

a. In remote rooms where residents spend a lot of time while awake and from where they may not be able to hear an alarm from a detector in another part of the building,

b. And preferably in every bedroom.

If there is a combustion device in more than one room and the number of alarms is limited, the following points should be considered when deciding where best to place a carbon monoxide detector:

c. Place a carbon monoxide detector in the room containing a stove or fireplace, and

d. Place a carbon monoxide detector in a room where residents spend most of their time.

e. If the combustion device is in a room that is not normally used (for example, in a boiler room), the carbon monoxide detector should be placed just outside that room so that the alarm can be heard better if the room is remote; see the guidance in points a. and b. above, as these should be considered.

Where in the room?
It should be possible to see all light indicators on the detector. Unfortunately, it is not possible to provide specific guidance on the exact location of a detector suitable for all types of rooms and their use. However, the following points should be considered when determining an optimal location for all appropriate situations.

A detector in the same room as a combustion device:

- If the detector is mounted on a wall, it must be placed close to the ceiling and at a height greater than the height of doors or windows.
- A ceiling mounted detector must be at least 300 mm from any wall and for a wall mounted detector it should be at least 150 mm from the ceiling.
- The detector must be at a horizontal distance of between 1 and 3 metres from the potential source. If there is a partition in a room, the detector should be placed on the same side as the potential source.
- Carbon monoxide detectors in rooms with a sloping ceiling should be placed on the higher side of the room.

A detector in the bedroom or in a room that is far away from the combustion device:
A detector placed in a bedroom or in a room that is far away from the combustion device should be placed relatively close to people's breathing zone. The breathing zone should be determined as the horizontal level in the room where a person's head spends most of the time, i.e. when sitting in a chair or lying on a pillow sleeping. Pay special attention to the positions of the elderly and disabled when making decisions about placement. Carbon monoxide is particularly dangerous for someone sleeping, as the gas will not wake them up. If they wake up and have been exposed to carbon monoxide, they may be too disoriented to know what's wrong with them and what to do next. A carbon monoxide alarm at the headboard helps to avoid this situation.
WARNING: Do not use this device in areas with temperatures below -10°C or above + 40°C; or in humidity less than 30% RH or at more than 90% RH.

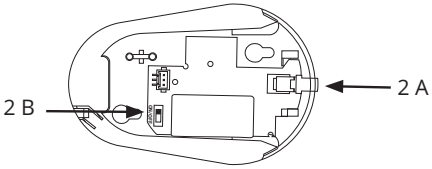
Where not to mount:

- in an enclosed space (e.g. in a cupboard or behind a curtain);
- where normal airflow may be obstructed (e.g. by furniture, books or ornaments);
- next to a door or window, fan, air vent or similar ventilation openings;
- in an area where the temperature may drop below -10°C or exceed 40°C,
- where dirt and dust can block the sensor or in a place with high humidity,
- in the immediate vicinity of a stove or oven or directly above a sink.

Fig. 1

Test/Silence button, indicator lights

Fig. 2



5. Mounting/Installation

Separate the alarm from the radio base. The alarm is delivered switched off and the radio base is loose. If the alarm has been activated before installation, press the small locking tab located in the side wall and slide it apart until it opens while holding the radio base together. Then remove the alarm. Be careful, there may be a cable connected between the radio card and the detector.

Select the desired location, see section 4. Always ensure that surfaces do not contain hazardous materials, e.g. asbestos, water or electrical wires before drilling. The enclosed screws are suitable for use in wood, and screws and plugs are used for plasterboard and concrete. For some installations, the installer may need to use another solution such as double-sided tape or adhesive to avoid drilling. If mounting adhesive is used, take the drying time into account before actually fitting the CO detector. If you use double-sided tape or adhesive, make sure that the surfaces are clean, dry, flat and have good adhesion. Always take appropriate safety precautions when attaching the mounting plate to the ceiling. Wear protective equipment, e.g. protective goggles and a face mask when drilling.

5.1. Installing a device

N.B. If you want to use multiple devices connected via WiFi, see section 5.2.

1. Fix the mounting plate to the wall using your preferred solution.
2. Activate the radio card in the base unit: press and hold the push button on the radio card, see Fig. 2 A. Turn on the radio card with the power switch, see Fig. 2 B. The push button (2 A) now flashes quickly. Release the button. Press the button again. The button will light up for a while and then go out. The radio card is now activated as a single unit. Connect the cable.
3. Place the Carbon Monoxide Detector on top of the radio base and carefully slide it downwards. The unit is then activated automatically and emits 4 short beeps and each LED will flash briefly.
4. Activate the radio learning mode in the personal alarm phone/ system
5. Press the test button once to send a radio message that can be used to pair the carbon monoxide detector with the personal alarm phone.
6. Confirm the setting on the receiver unit.
7. Configure the desired alarm type on the receiving unit.
8. Test the entire alarm chain by pressing the test button to send an alarm and wait for the operator to respond to the alarm. See Fig 1.
   N.B. *Contact the alarm centre before starting the test.*

5.2. Installation of devices connected in series

The radio card is used to communicate between our various devices for smoke, heat, carbon monoxide (max 8) and communication to the personal alarm phone. In order for the detectors to be able to communicate between each other, the radio cards must be connected, which is done either automatically the first time they are switched on or via a manual procedure. The link creates a group in which the one entered as the master is designated number 1 and the others are designated from 2 upwards.

Radio communication can be tested manually to ensure that all devices are in contact with each other. Automatic testing of radio communication takes place once a week.
In the event of an alarm from one of the connected alarms, the connected radio card will transmit this to other connected devices so that their connected warning system also emits an alarm. The radio card has a built-in non-replaceable lithium battery for 10 years of operation.

N.B. If you are going to use several devices connected in series, it is a good idea to create the group before mounting them on a wall or ceiling.

When all devices that are to be connected in the group are paired, distribute the devices throughout your building and test to ensure the communication between the devices works, see section 9 to test the radio communication between the devices, otherwise adjust the location. When all devices are working properly, proceed as below.

5.2.1. Automatic pairing

The first time a non-connected radio device is started via the switch on the radio card, automatic pairing is activated.
In order for interconnection to work, one device must initiate interconnection and others must be ready to pair. The radio card's output is reduced during pairing, so the devices need to be close together (max. 2 metres).
Hold down the push button on the device that is to initiate pairing, see Fig. 2 A, and start it via the switch, see Fig. 1 B, on the radio card. Release the push button (2 A). It will flash rapidly and wait for other devices for 60 seconds. The devices to be connected are activated by simply turning on the switch (2 B) on their radio card. Pairing will automatically end 60 seconds after the last paired device is connected or if the main device push button (2 A) is pressed once.
N.B. The connected devices must not be switched off or moved away until the master device is finished and its push button has gone out.

N.B. All detectors must be paired with the personal alarm phone in accordance with section 5.1, points 3–8.
See section 9 for testing the entire chain

5.2.2. Manual pairing

Manual pairing of devices is done in installer mode. See section 6 Installer settings.
All devices must be paired with the personal alarm phone in accordance with section 5.1, points 3–8. See section 9 for testing the entire chain

6. Installer settings

By pressing and holding (5 seconds) the radio card button, the installer settings are activated. The LED should then light up continuously and then continue as required using the short button presses according to the table below. If no further buttons are pressed, the radio card returns to normal mode after 8 seconds. The radio card's output is reduced during pairing, so the devices need to be close together (max. 2 metres).

Number of short presses	Description	LED indication
One	Start pairing	Goes out briefly – Steady on – Flashes quickly for 60 sec – Steady on when finished – Goes out when ready
Two	Adding devices	Goes out after pairing or timeout (50 sec)
Three	N/A	N/A
Four	N/A	N/A
Five	Re-order group	Goes out briefly five times
Six:	Deleting devices	Goes out briefly 6 times

Interconnection can take place by starting the radio card with the switch and go to the installer settings "Start pairing" position via the push button according to the table.
Start other radio cards you want to add by stepping to the “Add device” function via the push button. Pairing is terminated automatically after 60 seconds or if the radio button on the master device is pressed once.

N.B. The connected devices must not be switched off or moved away until the master device is finished and its push button has gone out.
It is not possible to add a device that is already paired. It must first be reset via “Delete device”. To remove a device from the group, use the “Delete device” function.
If a device does not work or if you have deleted a device, re-sort the group using “Re-sort group”. For example, if you have 4 units; 1, 2, 3 and 4 and you delete device 2, the other devices will continue to try to contact device 2, which is not possible, so you should sort the group from 1, 3 and 4 into a group of 1, 2 and 3.

6.1. Adding device to existing group

You can add one or more devices to an existing group by activating one of them as “Start pairing” and then activating the others to be linked again via “Add device”.
If a new, non-previously connected device is to be added, it is sufficient to start it via the switch.
If it is a previously connected unit, after “Delete device”, activate it as “Add device”.

7. Description of push button/LED radio

In normal operating mode (no alarm) (See Fig. 2 A)

- Briefly press the button once to display the device number of the radio card.
- The button flashes with x flashes for the device number.
- Briefly press the button twice to start a test sequence for radio communication.
- When the test is in progress, the LED flashes rapidly.
- The LED flashes the same number of times for each missing device number.
- Example “2 flashes – pause – 4 flashes”, to show that devices 2 and 4 are missing.
- The sequence is only shown once. To see it again, restart the test. The other devices flash with their respective device number for approx. 1 minute.

7.1. LED indicators on the radio card

The LED can indicate the following error modes without first pressing the button.

One flash every minute	Low battery in this radio card
Two flashes every minute	Low battery in other radio card
Three flashes per minute	Cannot contact other radio card
Four flashes every minute	Fault in any connected detector

If a device has lost communication (indicated by 3 flashes as above), the result of the system test done once a week and automatically reset the following week shows if the communication then works. A communication test can be performed manually with 2 short presses on the radio card button for a new test, which will reset the error code if the communication is working.

8. Alarm from a device connected in series

If there is an alarm from one device, the other devices will also sound.
If the alarm is to be regarded as a false alarm, silence the device by pressing the device Silence button once. This will silence the alarm and other paired devices will go silent.

A secondary alarm (the one that did not initiate the alarm) cannot be silenced by pressing the device silence button, but can only be silenced locally by pressing once on the radio card push button.
If you press on an alarm that has not triggered a warning, a normal test of the device takes place.

9. Alarm test

An alarm test can be done on individual devices in an entire alarm chain and on the entire alarm chain for devices connected in series.

9.1.1. Individual CO detector test in an alarm chain

Warning, wear ear protection!! (85dB at 3m)

Test the entire alarm chain by pressing and releasing the test button (see Fig. 1) to send an alarm, wait for the operator to respond to the alarm. The detector should beep four times. Green, red and yellow LEDs flash consecutively. After the test, check that the green LED flashes approximately every minute. Test the alarm every six months to ensure proper operation.

WARNING: The test button provides a complete test of the CO detector. Do not try to test the alarm using CO gas; doing so in an uncontrolled manner is dangerous.

9.1.2. Multiple detector test in an alarm chain

Warning, wear ear protection!! (85dB at 3m)

Testing the alarm chain from one alarm to one or more others can be done by pressing the CO detector's test button (see Fig. 1). This initiates an alarm to the operator, wait for the operator to respond to the alarm. At the same time, all other paired devices will sound once. If you want the connected devices to sound the alarm several times, you must press the test button repeatedly 5 times within 2 minutes at an interval of about 10 seconds.

10. User information

Protect your home and visit the emergency services website to find help in designing your fire protection. Their information is free and identifies potential fire hazards in and around your home. Also make sure that everyone in the building knows what a fire alarm sounds like!

11. Control lamp/signal

	Control lamp	Signal
Normal operation	1 flash/min.	Silent
Carbon monoxide present	Red LED flashing continuously	Repeated series of four short beeps
Test button	Green, red and yellow LEDs flash consecutively	A series of four short beeps
Low battery warning	-	One click every minute
Device error	Red and yellow LEDs flash	Two clicks per minute
The sensor has expired	-	Three clicks per minute

12. Pause function

If there is a known cause for the alarm and it is safe to pause the device, you can do so.
The alarm sound will be silenced but the red LED will continue to flash for up to 5 minutes. If the concentration of CO gas is too high, the carbon monoxide detector will not react to the pause function, in that case follow section 13 below

13. What to do if the alarm sounds

- Take all alarms and suspected CO alarms seriously
- Seek fresh air immediately. Open all windows and doors and ventilate.
- If necessary, call the emergency services on 112 directly from outside after you and all residents have been safely evacuated.
- Make sure that everyone in the building feels okay.
- Do not return to the building until the rescue services have arrived and the premises have been ventilated and the alarm signal has stopped sounding.
- Have a qualified person investigate the source of the carbon monoxide gas as soon as possible.

14. Maintenance manual

A regular detector maintenance program will help keep your alarm in good working order.

- Vacuum the alarm every six months and wipe with a damp cloth to prevent the sensors from clogging.
- Do not paint the alarm.
- Cover the detector when performing dusty work, such as sanding floors or walls.
- A CO detector is a sensitive life-saving device. The lifetime of the alarm can be significantly reduced by not regularly cleaning and maintaining it according to the instructions. Lack of reasonable care may also cause malfunction and may void the warranty.

15. General information

The internal battery lasts for 10 years and cannot be replaced. At the end of its operating period, the device clicks once per minute for at least one month to indicate that it is time to replace the device due to low battery. The life of the battery can be significantly reduced by incorrect storage and/or use, e.g. at temperatures below 0°C or above 45°C. The service life can also be shortened by repeated or prolonged periods in full alarm. In such circumstances, the warranty does not apply. If a low battery warning occurs at night, press the test button to pause the battery warning for 10 hours. Replace the alarm as soon as possible, preferably within the next few days if possible. If the device clicks twice per minute, it is a technical error and three clicks per minute means the sensor has expired. When sounding 1, 2 or 3 clicks, the detector must be replaced as it no longer working as it should do. In the event of repeated false alarms (loud noises as opposed to clicks), check that the alarm has been installed as instructed and that the unit is free from dust, and do not forget to check the surrounding equipment that can generate sporadic amounts of CO gas, if this does not solve the problem. DO NOT attempt to repair the device yourself. There are no easy to service parts inside the device.

16. Technical data

The product is intended for indoor use in a normal residential environment	
Temperature	Temperature range +5ºC to +35ºC
Humidity	0–75% relative humidity (non-condensing)
Emission class	1
Detector type	Carbon monoxide gas
Dimensions	100x65x55
Power supply	Lithium battery, not replaceable
Battery life	10 years
Radio frequency	869.2125 MHz, 868.1 MHz
Radio max output power	10 mW (10 dBm)
Equipment class	Class 1 radio equipment

17. Other

17.1. EU declaration of conformity

Deltronic hereby declares that this type of radio equipment is in compliance with the following directives: 2014/53/EU and 2011/65/EU.
The full text of the EU declaration of conformity is available at the following internet address: www.deltronic.com/careium.

17.2. Environment information

This product complies with the EU directives 2012/19/EU (WEEE) and 2006/66/EC (batteries). These directives regulate product liability for the recycling of electrical and electronic equipment and batteries in order to increase recycling and minimise waste. This device is marked with the crossed-out wheeled bin symbol, which means it should be recycled. This means that the product can be returned to an appropriate municipal recycling centre, to Careium or to the retailer. Detailed instructions are available from your retailer or on our website www.careium.com.
Note: *The WEEE information and recycling instructions apply only to EU member states. For other countries, please check your local legislation or contact your dealer. Manufactured according to EU Directive 2011/65/EU (RoHS2).*

17.3. Legal information

The information contained herein is subject to change without notice. The only warranties applicable to Careium products and services are set forth in the warranty terms accompanying these products and services.
Nothing herein should be construed as constituting any additional warranty.
Careium accepts no liability for technical errors or errors or omissions in this document.

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