

## Introduction

The QS5230-840 is a battery-powered wireless detector intended for use with a compatible wireless alarm system. The detector consists of an electrochemical carbon monoxide sensor assembly coupled to a wireless transmitter. The detector communicates with the control panel and can send alarm, tamper, and battery condition messages to the system's receiver.

This detector is compatible with UL listed control panels IQPanel4, IQ4 Hub, IQ4 NS, IQPanel5, IQ5Hub, IQ5NS when using the SRF319 radio card.

This carbon monoxide (CO) detector helps to protect you and your household from the dangerous effects of carbon monoxide.

The reference to QS5230-840 throughout this manual covers the models listed in the following table unless otherwise stated.

**Table 1: QS5230-840 model numbers and frequencies**

| Model number | Frequency | Region                          |
|--------------|-----------|---------------------------------|
| QS5230-840   | 319.5MHz  | North America, UL/ULC certified |

## Location and positioning

The detector can be mounted on a wall or ceiling. The CO detector must be mounted with its bracket (when it is attached to its bracket the tamper switch is pressed and the detector automatic reset is performed).

1. Install the detector using the screw locations as required. Maneuver the mounting bracket so the screws are at the elbow of the screw slots and secure.
2. To fit the detector inside the mounting bracket, align it as shown in the following figure. The detector's alignment notch should be slightly offset from the mounting bracket tamper release tab. Then turn the detector in a clockwise direction until it clicks into place.

**Figure 1: Mounting your detector**



3. Test the detector after completing the installation and refer to the alarm control panel installation manual for additional information concerning the use of wireless device.

## Recommended protection

For minimum protection, follow these guidelines:

- Install a CO detector in every room that contains a fuel burning appliance, particularly rooms where people spend a lot of time such as bedrooms, kitchens, and sitting rooms.
- In rooms with an appliance, install on the ceiling 300mm from walls, and between 1.5m to 3m horizontally from the appliance. In rooms remote from the appliance, install at head height, where the light indicators can be seen.
- Test the detector weekly by pressing the test/hush button. The horn sounds at a diminished sound output level initially, and then quickly reaches maximum sound output level.
- Replace the detector after approximately 10 years' operation. See the replace by date on side wall label.
- Do not fit the detector until all building work is completed to avoid contamination.
- Individuals with medical problems may consider warning devices which provide audible and visual signals for carbon monoxide concentrations under 30ppm.

For increased protection, in addition to minimum protection, follow these guidelines:

- Install carbon monoxide detectors in every room, except kitchens and bathrooms.
- Install carbon monoxide detectors in kitchens and garages within 5.3 m (17 ft) of potential fire sources.

### ► Important:

This detector must be tested and maintained regularly following NFPA 720 requirements.

This device 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.

- ▲ **WARNING:** This product is intended for use in ordinary indoor residential areas. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial and industrial standards

## Carbon monoxide detectors

Many people are killed each year, and many more suffer ill health from carbon monoxide poisoning. Carbon monoxide is an invisible, odorless, tasteless and extremely toxic gas. It is produced by appliances and vehicles burning fuels, such as coal, oil, natural or bottled gas, paraffin, wood, petrol, diesel, and charcoal. 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.

This carbon monoxide detector is designed for indoor use only. Do not expose to rain or moisture. Do not knock or drop the detector. Do not open or tamper with the detector as this could cause malfunction. The detector will not protect against the risk of carbon monoxide poisoning if not properly installed.

- ▲ **CAUTION:** This device will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.

This carbon monoxide detector is designed to detect carbon monoxide gas from ANY source of combustion. It is NOT designed to detect smoke, fire or other gases unless the product has been investigated and determined to comply with applicable requirements.

This detector should not be installed as a substitute for proper installation, use, and maintenance of fuel burning appliances, including appropriate ventilation and exhaust systems.

Carbon monoxide gas is a highly poisonous gas which is released when fuels are burned. It is invisible, has no smell and is therefore impossible to detect with the human senses. Under normal conditions in a room

where fuel burning appliances are well maintained and correctly ventilated, the amount of carbon monoxide released into the room by appliances should not be dangerous.

High levels of carbon monoxide in a house can be caused by the following:

- 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, or similar, left running in confined spaces.
- Portable paraffin or gas heaters in badly ventilated rooms.

When the detector detects potentially dangerous levels of carbon monoxide, it flashes the red alarm light immediately and then sounds a loud alarm if the carbon monoxide persists. The table below shows how the carbon monoxide detector reacts to different levels of carbon monoxide gas and exposure time. At higher levels of carbon monoxide the detector turns on sooner. The rate of flashing of the red light indicates the level of carbon monoxide. If your carbon monoxide detector sounds follow the instructions in the section What to do when the alarm sounds.

**⚠ WARNING:** Never ignore the alarm.

**Table 2: Symptoms of Carbon Monoxide poisoning**

| 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 Occupational Safety & Health Association (OSHA).                                            |
| 150                            | Slight headache after 1.5 hours.                                                                                                                                                          |
| 200                            | Slight headache, fatigue, dizziness, nausea after 2-3 hours.                                                                                                                              |
| 400                            | Frontal headaches within 1 to 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 to 3 hours.                                                                          |
| 1600                           | Headache, dizziness and nausea within 20 minutes. Death within 1 hour.                                                                                                                    |
| 3200                           | Headache, dizziness and nausea within 5-10 minutes. Death within 25-30 minutes.                                                                                                           |
| 6400                           | Headache, dizziness and nausea within 1-2 minutes. Death within 10-15 minutes.                                                                                                            |
| 12,800                         | Death within 1-3 minutes.                                                                                                                                                                 |

The following symptoms may be related to carbon monoxide poisoning and should be discussed with all members of the household:

- Mild exposure: Headaches, running nose, sore eyes, often described as flu-like symptoms.
- Medium exposure: Dizziness, drowsiness, vomiting.
- Extreme Exposure: Unconsciousness, brain damage, death.

Many cases of reported carbon monoxide poisoning indicate that while victims are aware they are not well, they become so disoriented they are unable to save themselves by either exiting the building or calling for assistance.

## 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 following:
  - The carbon monoxide detector warning of abnormal levels.

- Staining, soot, or discoloration on or around appliances.
  - A pilot light frequently going out.
  - A strange smell when an appliance is operating.
  - A naked gas flame that is yellow or orange, instead of the normal blue.
  - Family members (including pets) exhibiting the flu-like symptoms of carbon monoxide 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, or similar with care and have them professionally installed and regularly maintained.
  3. These appliances take in air to burn the fuel properly. Know where the air comes from and ensure vents and air bricks or similar remain unobstructed, particularly after building work.
  4. The appliances must also leave out the waste gases, including carbon monoxide, 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 or a barbecue for home heating.
  8. Children should be warned of the dangers of carbon monoxide poisoning and instructed never to touch, or interfere with the carbon monoxide detector. Do not allow small children to press the test/hush button because they could be subjected to excessive noise when the unit alarms.
  9. Leaving windows or doors slightly open will significantly reduce the risk of high levels of carbon monoxide occurring. The high levels of draught-proofing in modern houses reduces ventilation and can allow dangerous gases to build up.
  10. Install carbon monoxide detectors in all the areas recommended in this booklet.
  11. Recognize that carbon monoxide 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

## National Fire Protection Association required protection

### NATIONAL FIRE PROTECTION ASSOCIATION REQUIRED PROTECTION

For your information the National Fire Protection Association's standard 720 advises as follows:

Carbon monoxide detectors shall be installed as follows:

- (1) Outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedroom.
- (2) On every occupiable level of a dwelling unit, including basements but excluding attics and crawl spaces.
- (3) Other locations where required by applicable laws, codes or standards.

The equipment should be installed using wiring methods in accordance with the National Fire Protection Association's Standard 72, 720. (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269)

► **Important:** Specific requirements for Carbon Monoxide detector installation vary from state to state and from region to region. Check with your local Fire Department for current requirements in your area.

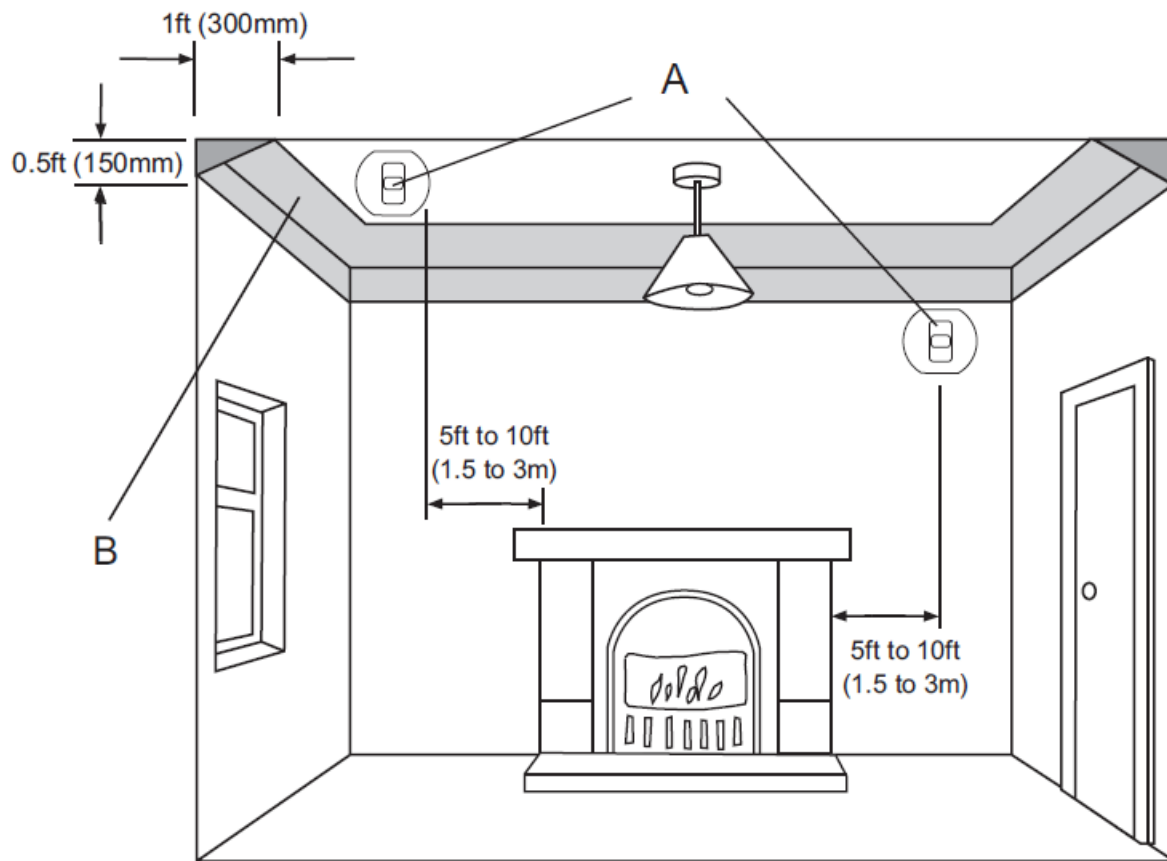
Ideally a carbon monoxide detector should be installed in the following locations:

- Every room containing a fuel burning appliance.
- Remote rooms where occupants spend a considerable amount of time.
- Every bedroom.

If the number of Carbon Monoxide detectors to be fitted is limited, the following points should be considered when deciding where best to fit the detector(s):

- If there is an appliance in a room where people sleep, place a carbon monoxide detector in this room.
- Locate a carbon monoxide detector in a room containing a flueless or open-flued appliance.
- Locate an detector in a room where the occupant(s) spend most of their time.
- In a bedsit, the carbon monoxide detector should be placed as far away from the cooking appliance as possible, but near to where the person sleeps.
- If the appliance is in a room not normally used, such as a boiler room, the carbon monoxide detector should be placed just outside the room so that the detector will be heard more easily.

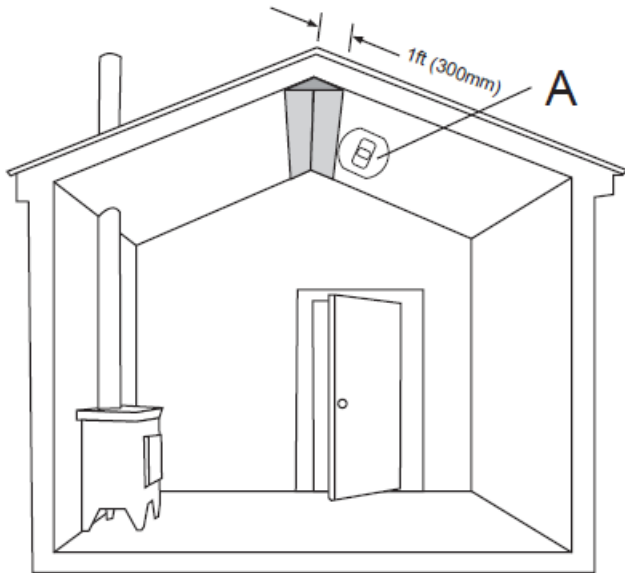
**Figure 2: Location in room with a fuel burning appliance**



| Call out | Description                                    |
|----------|------------------------------------------------|
| A        | CO detector                                    |
| B        | Do not locate in this position due to dead air |

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

**Figure 3: Rooms with sloped ceilings**



In bedrooms and other rooms remote from the appliance, locate at breathing level.

Do not place the carbon monoxide detector in any of the following areas:

- In the immediate vicinity of a cooking appliance. Locate the detector at least approx 3ft (1 metre) horizontally from cooking appliances.
- Outside the building.
- In an enclosed space.
- In a damp or humid area.
- Directly above a sink or cooker.
- Next to a door, window, air vent or anywhere that it would be affected by draughts.
- Next to an extractor fan.
- Over heat sources such as radiators or hot air vents.
- Where it would be obstructed by curtains, furniture, or similar.
- In an area where the temperature could drop below 40°F (4.4°C) or rise above 100°F (37.8°C).
- Where dirt or dust could block the sensor.
- Where it could be easily knocked or damaged, or where it could be accidentally turned off or removed.
- In a bathroom or other areas where the carbon monoxide detector may be exposed to water splashes, dripping or condensation, or above an electric kettle.
- Near paint, thinners, solvent fumes or air fresheners.

If locating the carbon monoxide detector in a room with a fuel burning appliance, take note of the following recommendations:

- If it is mounted on a wall, it should be located at a height greater than the height of any door or window but still be at least 0.5ft (150mm) from the ceiling.
- If it is mounted on the ceiling it should be at least 1ft (300mm) from any wall or light fitting.
- The carbon monoxide detector should be a horizontal distance of between 5ft to 10ft (1.5m to 3m) from the potential CO source.
- If there is a partition in the room, the carbon monoxide detector should be located on the same side of the partition as the potential source.

- In rooms with sloped ceilings, the carbon monoxide detector should be located at the high side of the room. If locating the carbon monoxide detector in a bedroom or in rooms remote from a fuel burning appliance, take note of the following recommendations:

- Mount the carbon monoxide detector relatively close to the breathing zone of the occupants.
- Make sure it is possible to view the three light indicators, when in the vicinity of the detector.

⚠ **WARNING:** A carbon monoxide detector should not be used as a substitute for proper installation, use and maintenance of fuel-burning appliances, including appropriate ventilation and exhaust systems.

⚠ **WARNING:** Your carbon monoxide detector is intended for use in ordinary indoor locations of family units. It is not designed to measure compliance with OSHA commercial or industrial standards.

## Enrolling your device

Use the 6-digit serial number on the back of your detector to enroll your detector on the detector system control panel. The following instructions apply only to the IQ Panel. For other panels, refer to the panel installation guide.

1. In the panel menu, select **Settings**.
2. Select **Advanced Settings > Installation > Devices**.
3. Select **Security sensors**, then select **Auto learn sensor**.
4. To power up the device, remove the pull tab, or insert the batteries, ensuring correct polarity.
5. **Optional:** To enroll the device manually, select **Add Sensor**, identify the device ID number on the device label, and manually enter it in the panel.
6. On the panel, select **Confirm**.

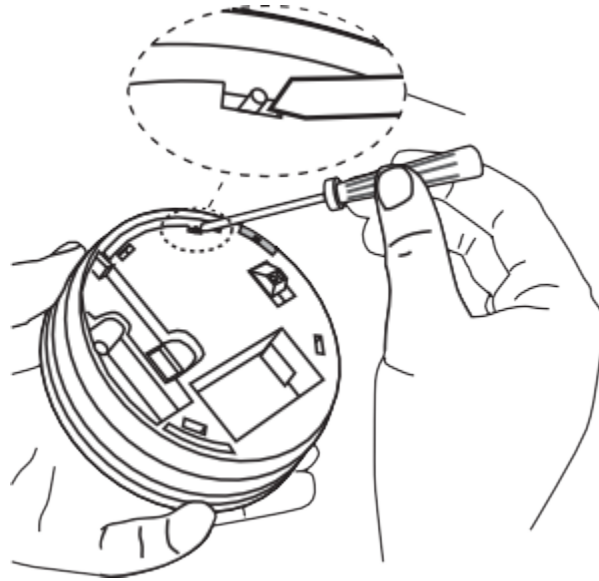
## Performing a unit test

The detector checks for CO gas every 4 seconds and when exposed to the CO gas, the red light flashes to confirm that it is detecting the CO gas.

The detector can be tested with carbon monoxide gas by using gas in an aerosol can. Follow the instructions on the aerosol can.

To check the alarm sound, momentarily press the test button and within seconds the horn will sound briefly. Slide the power switch to the off position and replace the detector on its mounting plate.

Figure 4: Checking the alarm sound



## Performing a diagnostic test

Strong signal strength is required. Poor or good signal strength is not acceptable. If you receive poor or good signal from the device, relocate it and retest until you receive strong signal strength. For UL installations, the test results must be strong. See the detector system installation guide for detailed diagnostic tests.

1. Insert the battery to complete a CO detector test.
2. After you insert battery, wait 2 minutes before you test.
3. It is recommended to perform the periodic test and use either the Installer code (Installer Diagnostic Mode) or the User code (User Diagnostic Mode) to test.
4. To check the signal strength from the panel UI, select **Advanced Settings > System Tests > Sensor Test**
5. Observe the signal strength. If it does not show as a green LED, relocate the detector.

## Installation instructions for RF equipment

The maximum separation (range) of the detector from the compatible receiver/control panel combination (free space) is around 80 meters. However, this specified range is for comparative purposes only and is not applicable when the equipment is installed in a typical home. The range of the RF equipment is greatly impacted (reduced) by the building construction or any metallic bodies that are on the path of communication and are not visible on the outside. The proper location of the RF equipment is determined by strong signal strength as indicated in this manual. Upon completion of installation the system operation shall be tested as instructed in this manual.

## Installing your detector

Do not install CO detectors in the following locations:

- In locations where temperature may be below 0°C (14°F) or above 40°C (104°F).
- In locations where humidity is below 10% or above 93% RH non condensing.
- Near paint thinner fumes.
- Near air conditioners, furnaces, stoves, fireplaces and any other ventilation source that may interfere with the CO gas entering the detector.

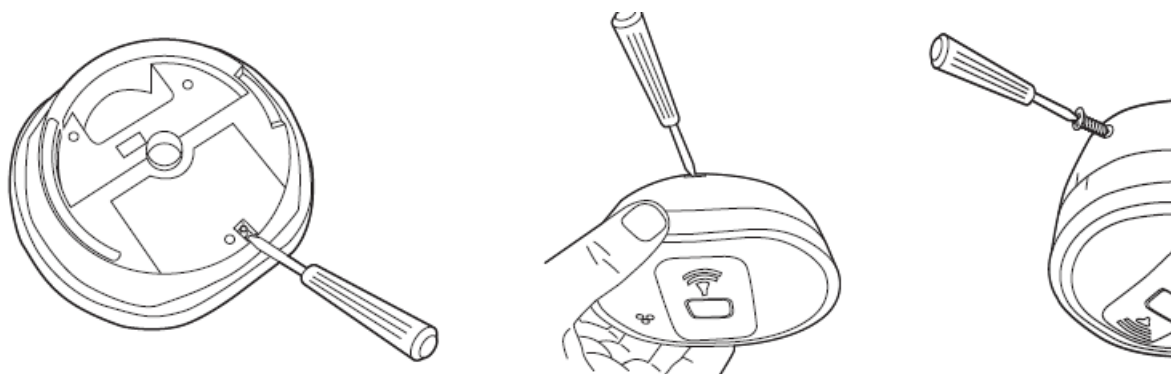
- In locations where furniture or draperies may obstruct the air flow.
- In exhaust streams from gas engines, vents, flues or chimneys.
- Where dirt or dust could collect and block the sensor and stop its working.
- In locations that can be reached by children.
- In turbulent air from ceiling fans.
- In close proximity to an automobile exhaust pipe; this will damage the detector.

## Tamper-proofing your detector

This detector has a built-in tamper switch that causes a Tamper signal to be displayed at the console of the detector system if it is removed from its mounting base. To activate this feature, complete the following steps:

1. Break off the small pillar on the base.
2. Use a small screwdriver to remove the detector from the ceiling.
3. Push catch towards the ceiling to release it, and twist off the detector.

**Figure 5: Tamper-proofing the detector**



4. **Optional:** If necessary it is possible to further secure or tamper-proof the detector 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 detector and its mounting plate together.

## Mounting your detector

Selecting a suitable location is critical for the CO detector. The Consumer Product Safety Commission (CPSC) recommends to use at least one CO detector per household, located as near as possible to sleeping areas of the home, because the human body is most vulnerable to the CO gas effect during sleeping hours. For added protection, install additional CO detectors in every separate bedroom and on every level of your home. If your bedroom hallway is longer than 14 meters (40 feet), install a CO detector at both ends of the hallway. Install an additional detector 6 meters (20 feet) away from the furnace or fuel burning heat source. For maximum protection, the detector should also be located outside primary sleeping areas or at each level of your home. Mount the detector on a firm wall or ceiling.

**⚠ WARNING:** The installation of this apparatus should not be used for a substitute for proper installation, use, and maintenance of fuel-burning appliances, including appropriate ventilation and exhaust systems.

**➤ Important:** Before you mount the detector permanently, conduct a walk test. Review the control panel instructions to verify adequate signal strength and adjust the device location and orientation as necessary. You can mount the detector on the ceiling or on the wall.

1. Select a suitable location.

2. Remove the mounting plate from the detector.
3. Place the mounting plate on the ceiling or wall exactly where you want to mount the detector. 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 13/64" (5.0mm) drill bit through the center of the marked locations. Push the plastic screw anchors provided into the drilled holes. Screw the mounting plate to the ceiling or wall.
5. Detach the detector from the mounting plate.
6. Place your panel in auto-learn mode.
7. Remove the pull tab to connect the batteries and power the unit.
8. When the device is recognized by the panel, customize the name and settings as desired and tap **Add**.
9. Carefully line up the detector on the base, gently push, and twist on. This connects the batteries. The red, amber, and green lights immediately flash in sequence to show they are working.
10. Press the **Test** button after 15 seconds to ensure that the detector works.

## What to do when the alarm sounds

**⚠ WARNING:** Actuation of your CO detector indicates the presence of carbon monoxide (CO) which can KILL YOU. If an alarm signal sounds, complete the following steps:

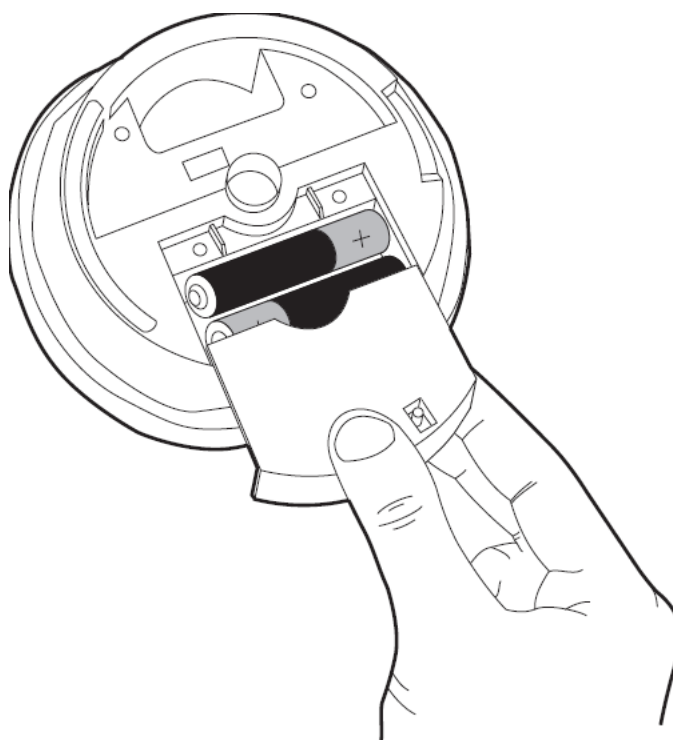
1. Operate the reset/ silence button.
2. Call your emergency services Fire Department or 911.
3. Immediately move to fresh air – outdoors or by an open door/ window. Do a head count to check that all persons are accounted for. DO NOT re-enter the premises until the emergency services responders have arrived, the premises have been aired out and your detector remains in its normal condition.
4. After following steps 1-3, if your detector reactivates within a 24 hour period, repeat steps 1-3 and call a qualified appliance technician (Telephone Number) to investigate for sources of CO from fuel burning equipment and appliances, and inspect for proper operation of this equipment. If problems are identified during this inspection have the equipment serviced immediately. Note any combustion equipment not inspected by the technician and consult the manufacturers' instructions, or contact the manufacturers directly, for more information about CO safety and this equipment. Make sure that motor vehicles are not, and have not been, operating in an attached garage or adjacent to the residence. 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 detector 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.

## Replacing the batteries

Check the replace by label on the side wall. If it has been exceeded replace the entire unit.

If the replace by label on the side wall has not been exceeded, remove the detector from the mounting plate, remove the battery cover, and replace the batteries.

1. To remove the detector from its mounting base, twist the detector counterclockwise. Remove and dispose of the battery according to your local regulations
2. To ensure proper power-down sequence, wait a minimum of 20 seconds before installing the new battery.
3. Install a new battery in the battery compartment. Follow the polarity diagram inside the compartment. If the battery is incorrectly inserted please remove gently with a non-conductive tool and correctly reinsert.
4. Replace the battery cover and twist clockwise to replace the detector back on its mounting plate (this action automatically switches on the batteries).



5. Button test the detector (after 15 seconds) to check the batteries are installed correctly and that they are not depleted. After the power-up sequence, the green LED blinks about once every 12 seconds to indicate normal operation. If the battery is not installed correctly, the detector will not operate and the battery may be damaged. If the detector does not power-up, check for correct battery installation and for a fully charged battery.

ⓘ **Note:** Constant exposure to high or low temperatures or high humidity might reduce battery life.

⚠ **WARNING:** Constant exposures to high or low temperatures or high humidity may reduce battery life. Use only batteries specified in marking. Use of a different battery may have a detrimental effect on detector operation. For environmentally sound disposal, remove the detector from its mounting plate (open the battery door and remove the batteries) and dispose in accordance with best practice and guidance on WEEE disposal and recycling.

## Limitations of CO detectors

1. The CO detector will not work without good batteries. If the batteries have been drained the detector will not give protection. Button test the detector weekly and on return from holidays and other long absences.
2. Carbon monoxide must enter the unit for it to be detected. There may be carbon monoxide in other areas of the house, such as downstairs, in a closed room, or similar, but not in the vicinity of the CO detector. Doors, air draughts, and obstructions can prevent the CO reaching the detector. For these reasons we recommend CO detectors 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 detector 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 detectors greatly improves the probability that they will be heard. The detector may not wake up somebody who has taken alcohol or drugs. The detector sound may be masked by other sounds such as television, stereo, traffic noise, or similar. Fitting CO detectors on either side of closed doors will improve their chance of being heard. This CO detector is not designed for people with impaired hearing.
  4. CO detectors do not last indefinitely. CO detectors are sophisticated electronic devices with many parts. Although the detector 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 detector weekly. The CO detector must be replaced after 10 years of operation.
  5. CO detectors are not a substitute for life insurance. House-holders are responsible for their own insurance. The CO detector warns of increasing CO levels, but we do not guarantee that this will protect everyone from CO poisoning.
  6. CO detectors are not suitable as early warning smoke detectors. Some fires produce carbon monoxide, but the response characteristics of these CO detectors are such that they would not give sufficient warning of fire. Smoke detectors must be fitted to give early warning of fire.
  7. The CO detector does not detect the presence of natural gas (methane), bottled gas (propane, butane) or other combustible gases. Fit combustion gas detectors to detect these.
- ① **Note:** Carbon monoxide detectors, with electrochemical sensors have a cross sensitivity to hydrogen. This means that they can detector 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 unit will detector with 500 ppm H<sub>2</sub> after between 10 and 40 minutes exposure.

This CO detector is intended for residential use. It is not intended for the use in industrial applications where Occupational Safety and Health Administration (OSHA) requirements for carbon monoxide detectors must be met.

This carbon monoxide detector is designed to detect carbon monoxide gas from ANY source of combustion. It is NOT designed to detect smoke, fire, or any other gases.

**⚠ WARNING:** THIS CO detector 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.

## Detector indicator summary

The carbon monoxide detector contains a sounder which generates a temporal pattern in an alarm condition. In alarm, a message is also sent to the control panel and the detector's ID is displayed at the console. During an alarm condition, press the detector's hush button to silence the sounder for five minutes.

The mounting base installation is simplified by the incorporation of features compatible for both drywall fasteners (not supplied) and other methods.

Tricolor LED (green, yellow, red) and a sounder on the detector provide local visual and audible indication of the detector's status. During initial power-up the LED blinks alternately green, yellow then red. It takes about 60 seconds for the detector's CO sensor to stabilize. After power-up has completed and the detector is functioning normally, the green LED blinks once every 12 seconds.

| QS5230-840 Indicator Summary |                                       |              |
|------------------------------|---------------------------------------|--------------|
| CO gas level                 | Red light                             | Horn/sounder |
| 0 < ppm < 30 ppm             | Off, unless it has alarmed previously | Off          |

|           |                        |                                                 |
|-----------|------------------------|-------------------------------------------------|
| > 50 ppm  | 1 flash every 3 secs   | On within 60-240 minutes (typically 90 minutes) |
| > 110 ppm | 2 flashes every 3 secs | On within 10-50 minutes (typically 30 minutes)  |
| > 250 ppm | 3 flashes every 3 secs | On within 4-15 minutes (typically 9 minutes)    |

| Normal operation                   | Red LED  | Amber LED              | Green LED               | Sounder             |
|------------------------------------|----------|------------------------|-------------------------|---------------------|
| Power up                           | 1 flash  | 1 flash                | 1 flash                 | Off                 |
| Standby                            | Off      | Off                    | Off                     | Off                 |
| Button test (weekly)               | Off      | Off                    | Flashing (every second) | Temporal full sound |
| Unit sensing CO gas                | Flashing | Off                    | Off                     | Temporal full sound |
| Sensing CO through RF interconnect | Off      | Off                    | Off                     | Temporal full sound |
| Fault mode                         |          |                        |                         |                     |
| Low battery condition              | Off      | 1 flash (every 50 s)   | Off                     | 1 beep with flash   |
| Sensor fault condition             | Off      | 2 flashes (every 50 s) | Off                     | 2 beeps with flash  |
| End of life condition              | Off      | 3 flashes (every 50 s) | Off                     | 3 beeps with flash  |

Table 3: Service diagnostics

| Diagnostics modes                  | Action                                   | Red LED                     | Yellow LED                               | Sounder              | Action            |
|------------------------------------|------------------------------------------|-----------------------------|------------------------------------------|----------------------|-------------------|
| Fault checks: low battery          | Press and hold button                    | Off                         | 1 flash                                  | 1 beep with flash    | Replace batteries |
| Fault checks: faulty sensor        | Press and hold button                    | Off                         | 2 flashes                                | 2 beeps with flashes | Replace detector  |
| Fault checks:End of Life (EOL)     | Press and hold button                    | Off                         | 3 flashes                                | 3 beeps with flashes | Replace detector  |
| Alarm memory: 24 hours after event |                                          | See <a href="#">Table 4</a> | Off                                      | Off                  | Off               |
| Alarm memory: long term memory     | Press and hold button                    | See <a href="#">Table 4</a> | Off                                      | Temporal full sound  | CO ppm            |
| Alarm memory: memory erase         | Keep button pressed after long term test | See <a href="#">Table 4</a> | Wait for green light then release button | Temporal full sound  | CO ppm            |

### Alarm indicators

Pre-Alarm: Red LED flash only

CO Alarm: Red LED flash + sounder

Faults: Yellow LED flash + beeps

**Pre-Alarm (before horn sounds):** When the detector detects over 50 ppm CO the red light flashes in accordance with Table B. This helps locate CO leaks as the unit gives an indication straight away. Without this feature the CO level would need to be at 50 ppm CO for typically 90 minutes for an alarm sound to be given.

- ① **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 30ppm.

- ① **Note:** The CO Alarm may sound if cigarette smoke is blown into it, or aerosols are released nearby.

## CO Alarm Memory

The CO Alarm Memory is an important feature of the CO detector where even if the house is unoccupied during an alarm condition it warns the homeowner that the unit has previously detected CO gas and been in alarm. The memory feature has two operation modes as follows:

- memory indication for 24 hour period after alarm.
- memory recall on demand

**Table 4: CO Alarm Memory Indicators**

| CO gas level | Red light response   |                          |
|--------------|----------------------|--------------------------|
|              | 24 hours             | On demand (button press) |
| > 50 ppm     | 1 flash every 50 s   | 1 flash                  |
| > 110 ppm    | 2 flashes every 50 s | 2 flashes                |
| > 250 ppm    | 4 flashes every 50 s | 4 flashes                |

**24 hour memory indicators:** After alarm, the RED light will flash at different rates every 50 seconds 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 light stops and the green light 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 unit is switched off.

## Testing, monitoring, and maintenance

- ① **Note:** Before testing, notify the central station that the detector system is undergoing maintenance in order to prevent unwanted alarms. Testing the detector will activate an alarm and send a signal to the panel. Also, the test function cannot be used if the detector has a trouble or end-of-life condition. Detectors must be tested after installation and following periodic maintenance.

Frequent testing of the system is a requirement to ensure its continued and safe operation. To test the detector press the hold the test button.

The green LED flashes and the horn sounds at the loudest setting to indicate the detector is operating correctly.

Guidelines and best practices for testing are as follows:

- After the system is installed.
- Once weekly thereafter.
- After prolonged absence from the dwelling, such as after a holiday period.
- After repair or servicing of any of the systems elements or household electrical works.

## Silencing (hush)

When the alarm sounds, after sensing CO, press the test/hush button to immediately stop the horn (the red light will continue to flash). If CO is still present the red light and the horn will turn on again after about 4 minutes. The unit can only be silenced once during a CO incident. At levels > 300ppm CO the unit cannot be silenced.

## Monitoring

The CO detector will self-check (monitor) and give a status update every 50 seconds if there are any problems. The status of the detector can also be checked on demand by using the test button. The table below shows the status response to both the self check and on demand testing.

**Table 5: Monitoring summary**

| Status result         | Red LED (alarm)                               | Amber LED (fault) | Green LED (power) | Sounder                | Action            |
|-----------------------|-----------------------------------------------|-------------------|-------------------|------------------------|-------------------|
| Standby               | No visual or audible indication if unit is OK |                   |                   |                        |                   |
| Unit OK (button test) | Off                                           | Off               | On                | Ramps up to full sound |                   |
| Low battery           | Off                                           | 1 flash           | Off               | 1 beep                 | Replace batteries |
| Sensor fault          | Off                                           | 2 flashes         | Off               | 2 beeps                | Replace unit      |
| End of life           | Off                                           | 3 flashes         | Off               | 3 beeps                | Replace unit      |

If the detector indicates a fault, press the test button to silence the beeps for a 24-hour period. This is for your convenience and can only be done once.

## Maintenance

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 carbon monoxide detector. Do not place air fresheners near the unit. Use the narrow nozzle of a vacuum cleaner to remove fluff and other contamination from the cover slots and gas entry holes.

- ⚠ CAUTION:** Do not paint the CO detector. Remove the CO detector when decorating. Do not allow water or dust to contaminate the detector.
- ⚠ WARNING:** Do not open or tamper with the CO detector. There are no user serviceable parts inside and this can damage the detector.

## Troubleshooting

### Alarm does not work with the test button

1. Wait 15 seconds after connecting the power before button testing.
2. Hold button down firmly for at least 5 seconds.
3. Check the detector is secured correctly on the mounting plate.
4. Replace the batteries.

### Alarm sounds for no apparent reason

Follow the detailed instructions in [What to do when the alarm sounds](#).

If there are still issues, complete the following steps:

1. Ensure there are no fuel burning appliances in the vicinity which could be leaking CO gas, even from next door.
2. Ensure there are no fumes in the area such as paint, thinners, hair spray, chemical cleaners aerosol sprays, damp proofing done with and aqueous emulsion such as Aminofunctional siloxane and Alkylalkoxysilane.
3. Ensure there is no outdoor source of CO in the vicinity such as a car with engine running, heavy traffic, heavy air pollution, barbecue fumes, or similar.
4. Ensure there is no source of hydrogen such as batteries being charged (e.g. on boats or in Uninterruptable Power Supplies (UPS)).
5. 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.
6. If the detector is fitted with an RF Module, ensure that there are no problems with the other RF interconnected detectors and that all detectors are housecoded correctly.
7. Press the test/hush button to silence the alarm.

If the unit continues to sound it is possibly defective and should be replaced.

## Technical specifications

| Feature                   | Description                                   |
|---------------------------|-----------------------------------------------|
| Power                     | Two Alkaline AAA type batteries (replaceable) |
| CO sensitivity            | Meets UL2034                                  |
| Regulatory listing        | Complies with UL2075, CAN/ULC-S588:2024       |
| Test/hush button          | Checks electronics and horn.                  |
| Operating temperature     | 40°F (4.4°C) to 100°F (37.8°C)                |
| Humidity range            | 15% to 95% R.H. (non-condensing)              |
| Audible alarm             | 85dB(A) at 10ft (3m) minimum                  |
| CO alarm memory           | Indicates if unit was previously in alarm     |
| Dimensions                | 4.7" x 4.1" x 1.6" (120mm x 105mm x 40mm)     |
| Weight                    | 185g                                          |
| Radio operating frequency | 319.5 MHz                                     |

## FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and

2. this device must accept any interference received, including interference that may cause undesired operation. Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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## RF Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, this equipment should be installed and operated with minimum distance 20 cm (7.9 inches) between the antenna and your body during normal operation. Users must follow the specific operating instructions for satisfying RF exposure compliance.

This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm (7.9 inches) between the radiator and any part of your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Cet équipement est conforme aux limites d'exposition aux radiations ISED CNR-102 établies pour un environnement non contrôlé. Une distance de séparation d'au moins 20 cm doivent être maintenue entre l'antenne de cet appareil et toutes les personnes. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

## ISED Canada non-interference disclaimer

This device contains licence-exempt transmitter that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

This device complies with the Canadian ICES-003 Class B specifications. CAN ICES-003(B) / NMB-003 (B).

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempt de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet appareil numérique de la Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

## Warranty and EULA

To download the Warranty for this product, scan the QR code:



To download the EULA for this product, scan the QR code:

