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CARBON MONOXIDE DETECTOR WITH BUILT IN WIRELESS TRANSMITTER

Installation and Operation Manual



Intertek
3126052

Model # CO5-SS
418 MHz TRANSMITTER

Document #
108182

GENERAL INFORMATION:

Before installing detectors, please thoroughly read these installation instructions. For detailed information on detector spacing, placement, zoning, wiring, and special applications refer to current edition of the NFPA 72 National Fire Alarm and Signaling Code.

NOTICE: These instructions should be left with the owner/user of this equipment.

IMPORTANT: This detector must be tested and maintained regularly following NFPA 72 requirements. Test detector operation weekly. The detector should be cleaned at least once a year.

NOTE: CO Detectors have a limited life. CO detectors should be replaced immediately if not operating properly. You should always replace a CO detector after 6 years from date of purchase.

NOTE: Remove battery tab before installation.

NOTE: Radio Frequency device operates at 418MHz



WARNING: This product is intended for use in ordinary indoor locations of family living units. It is not designed to measure compliance with Occupational Safety and Health Administration (OSHA) commercial or industrial standards. Individuals with medical problems may consider using warning devices which provide audible and visual signals for carbon monoxide concentrations under 30ppm.

FCC ID: PPJC05SS418

WHAT TO DO IF THE CARBON MONOXIDE DETECTOR GOES INTO ALARM:



WARNING:

Activation of your CO alarm indicates the presence of Carbon Monoxide (CO) which can KILL YOU. If Alarm sounds:

1. Operate 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 nor move away from the open door/window until emergency services responders have arrived, the premises has been aired out, and your alarm remains in its normal condition.
4. After following steps 1-3, if your alarm reactivates within 24 hour period, repeat steps 1-3 and call a qualified appliance technician(_____) 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.

IMPORTANT INFORMATION FOR THE USER:



CAUTION: This alarm will indicate the presence of carbon monoxide gas at the sensor. Carbon Monoxide gas may be present in other areas.



WARNING: Carbon Monoxide Detector will not operate without a serviceable battery. Inspect and replace your batteries at least once a year to ensure proper working condition.



IMPORTANT: Constant exposures to high or low humidity may reduce battery life. A good safety measure is to replace the battery at least once a year, or at the same time you change your clocks for daylight savings time.



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

Carbon Monoxide Gas and its Detection

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. The detector 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 NOT:

- Designed to detect smoke, fire or any gas other than carbon monoxide
- To be seen as a substitute for the proper servicing of fuel-burning appliances or the sweeping of chimneys.
- To be used on an intermittent basis, or as a portable alarm for the spillage of combustion products from fuel-burning appliances or chimneys

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.

SYMPTOMS OF CO POISONING:

Carbon Monoxide (CO) is an insidious poison. Carbon monoxide bonds to the hemoglobin in the blood and reduces the amount of oxygen being circulated in the body. It is a cumulative poison. Even low levels of CO have been shown to cause brain and other vital organ damage in unborn infants with no effect on the mother.

The following symptoms are related to CARBON MONOXIDE POISONING and should be discussed with ALL members of the household:

- Mild exposure:** Slight-Headache, nausea, vomiting, fatigue (often described as "flu-like symptoms).
- Medium exposure:** Severe throbbing headache, drowsiness, confusion, fast heart rate.
- Extreme exposure:** Unconsciousness, convulsions, cardio-respiratory failure, death.

Many causes of reported CARBON MONOXIDE POISONING indicate that while victims are aware that they are not well, they become so disoriented that they are unable to save themselves by either exiting the building or calling for assistance.

Also young children and pets may be the first to be affected. You should take extra precautions to protect high risk persons from CO exposure because they may experience ill effects from CO at levels that would not ordinarily affect a healthy adult.

SOURCES OF CARBON MONOXIDE:

Home appliances used for cooking and heating are the most common household Carbon Monoxide sources. Vehicles running in an attached garage can also produce dangerous levels of CO. Burning any fossil fuel including gasoline, propane, natural gas, oil, and wood can produce Carbon Monoxide. It can be produced when any heating or cooking appliance is not installed properly, vented correctly, or malfunctioning. CO producing appliances include furnace, hot water heaters, gas range/stove, gas dryer, fuel burning space heaters, generators, vehicles, fireplaces, blocked chimney/vents and grills.

CONDITIONS WHICH CAN RESULT IN TEMPORARY CO SITUATIONS:

1. Excessive spillage or reverse venting of fuel burning appliances caused by:
 - i. Outdoor ambient conditions such as wind direction and/or velocity, including high gusts of wind; heavy air in the vent pipes(cold humid air with extended periods between cycles).
 - ii. Negative pressure differential resulting from the use of exhaust fans.
 - iii. Simultaneous operation of several fuel burning applications competing for limited internal air.
 - iv. Vent pipe connection vibrating loose from clothes dryers, furnaces, or water heaters.
 - v. Obstructions in or unconventional vent pipe designs which amplify the above situations.

2. Extended operation of unvented fuel burning devices (range, oven, fireplace, etc.).
3. Temperature inversions which can trap exhaust gases near the ground.
4. Car idling in an open or closed attached garage, or near a home.

GENERAL DESCRIPTION:

The CO5-SS is a 3V battery powered Carbon Monoxide (CO) detector with a built in wireless transmitter intended for use with Silent Call 418MHz Signature Series SK2-SS and WC08-SS Receivers.

The detector consists of an electrochemical carbon monoxide sensor assembly coupled to a wireless transmitter. The transmitter can send alarm messages to the Silent Call receivers. Refer to the Receiver system instructions for the CO alert details. The CO5-SS CO detector will alert the Silent Call Receiver only during a CO Alarm. Please refer to Maintenance Section for Low battery and End of Life conditions. The transmitter signal incorporates a digital addressable coding system that is preset at the manufacturer.

IMPORTANT: The range and proper operation of any wireless device will vary depending on its surroundings. It is very important that each CO5-SS detector is tested with each receiver intended for alarm.

Detector Description

- Listed to UL Standard 2034
- CO sensitivity is evaluated to UL 2034
- Local sounder
- Dual LED's
- Test/Hush button
- Functional Gas Test
- Surface mount to wall or ceiling
- Optional drywall anchors included

The CO5-SS contains a piezoelectric horn which generates the ANSI S3.41 temporal 4 pattern in an alarm condition (see note below Table 1 for temporal 4 pattern). In alarm, a message is also sent to a programmed Silent Call Receiver. The alarm message is transmitted every 4 seconds until the carbon monoxide condition has cleared and the detector has reset. During an alarm condition, pressing the detector's test button will silence the piezoelectric horn for five minutes. The mounting base installation is simplified by the incorporation of features compatible with drywall fasteners or other methods that provide a method for securing the detector in place.

Two LEDs and a sounder on the detector provide local visual and audible indication of the detector's status as listed in Table 1.

During initial power-up, the red and green LEDs will blink together once every 10 seconds four times. It takes about 30 seconds for the detector's CO sensor to stabilize (see Table 1).

After power-up has completed and the detector is functioning normally, the green LED blinks once every 10 seconds. The LED indication must not be used in place of the tests specified under **TESTING THE DETECTOR.**

Table 1: Detector LED Modes

	Green LED	Red LED	Sounder
Normal (Standby)	Blinks every 10 seconds	Off	Off
Alarm/Test	Off	Blinks every 1 second	Temporal 4 Pattern†
Low Battery	Off	Blinks every 45 seconds for 37 days	Chirp every 45 sec beginning 7 days after LED blinks, continues 30 days
Detector Trouble	Off	Blinks every 5 seconds	One Chirp every 45 seconds
Detector End-of-Life	Off	Blinks every 10 seconds	One Chirp every 45 seconds
Power Up	Blinks every 10 secs †† (w/red LED)	Blinks every 10 secs †† (w/green LED)	Off
Functional Gas Test	Blinks every 1 second	Off	Off
(After Co is Sprayed)	Off	Blinks every 1 second	Temporal 4 Pattern†

† Temp 4 pattern is repeated pattern of four short beeps followed by a five second pause. If ambient conditions return to normal, the detector will self-restore out of alarm and into the previous mode.

†† Red and green LEDs blink a total of four times, once every 10 seconds

Hush feature: If required, the audible alarm can be silenced for five minutes by pushing the Test button. The red alarm light will continue to flash in temp-4 pattern. If carbon monoxide is still present after the 5-minute hush period, the audible alarm will sound. The hush feature will not operate at levels above 350 ppm (parts per million) carbon monoxide.

Trouble feature: When the sensor is in a trouble condition. The red LED blinks once every five seconds. Trouble conditions include an open circuit, sensor removal (tamper), and sensor end of life. See Table 1 for LED and sounder mode.

End of Life Timer feature: When the detector has reached the end of its life, the LED will blink, this indicates that the CO sensor inside the detector has passed the end of its life and the detector must be replaced. This detector's lifespan is approximately six years from the date of manufacture. Refer to Detector Replacement section. See Table 1 above for LED and sounder mode.

Low Battery Detection: The CO5-SS is powered by a single 3-volt CR123A Lithium battery. The red LED of the detector will blink every 45 seconds. After 7 days the detector's horn will "chirp" about every 45 seconds (red LED continues to blink) for up to 30 days. Pressing the test button during this time will silence the chirps for 12 hours, if no other trouble conditions exist. The battery should be replaced BEFORE the chirps begin. Be sure to replace the battery with a fresh one.

BATTERY INSTALLATION AND REPLACEMENT:

You can purchase a new 3 volt Panasonic CR123A or Duracell DL123A at many different local retail stores or directly from Silent Call Communications by calling 1-800-572-5227, or online at www.silentcall.com.

To replace the battery:

1. Remove the detector from its mounting base by twisting the detector counterclockwise. Remove the battery and dispose of properly.
2. To ensure proper power-down sequence, wait a minimum of 20 seconds before installing new battery.
3. Install a new 3-volt CR123A Lithium battery in the battery compartment. Follow the polarity diagram inside the compartment.
4. Reinstall the detector onto the mounting base by turning the detector clockwise.
5. Test the detector as described in the TESTING SIGNAL STRENGTH section of this manual. The green LED should blink about once every 10 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 appear to be sending a signal during any of the tests, check for correct battery installation and for a fully charged battery.

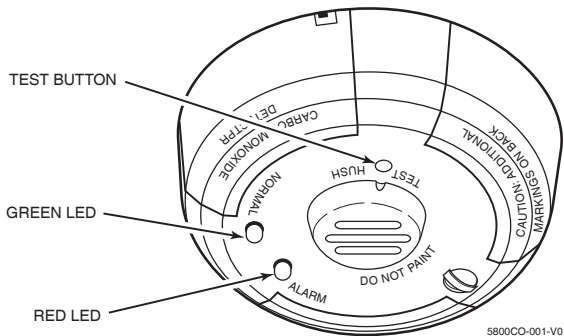


Figure 1: CO5-SS Wireless Carbon Monoxide Detector

CO5-SS Wireless Smoke detector will be addressed at manufacturer to Code L. You can change address due to possible cross talk between like systems. Battery must be reset for new address to register. Note: Dip switches all ON or all OFF is NOT a valid address.

Refer to your Signature Receiver Installation Operation Manual for programming instructions.

MOUNTING THE DETECTOR:

First, determine the best location for the detector, one that provides proper carbon monoxide detection (see Figure 4 for suggested detection locations) and a strong wireless transmission path.

Proper Carbon Monoxide Detection Location:

On a wall location, the detector should be at least as high as a light switch, and at least six inches from the ceiling. In a ceiling location, the detector should be at least 12 inches from any wall.

Where to install, ideally:

- Within 10 feet of all sleeping areas
- Inside the bedroom if it contains a fuel burning appliance
- On every floor of the building
- Ideally, install in any room that contains a fuel burning appliance
- If the appliance in the room is not normally used, such as the boiler room, the detector should be placed just outside the room so the alarm can be heard more easily

Where NOT to install, ideally:

- Detectors operate best if not installed within 5 feet of any cooking appliance Outside
- Directly above a sink, cooker, stove or oven Next to a door or window that would be affected by drafts i.e. extractor fan or air vent
- Do not install in any environment that does not comply with the detector's environmental specifications
- In or below a cupboard
- Where air flow would be obstructed by curtains or furniture

- Where dirt or dust could collect and block the sensor
- Where it could be knocked, damaged, or inadvertently removed

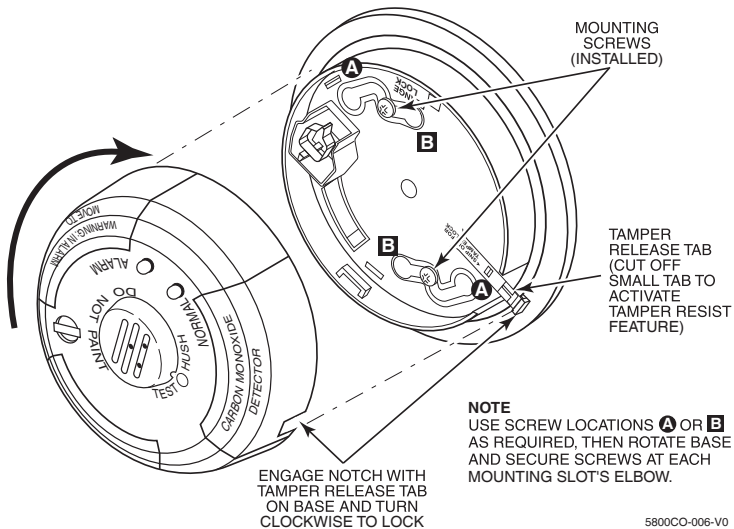
Good Transmission Path:

A good transmission path must be established from the proposed mounting location before permanently installing the detector. To check, perform the test described in the testing signal strength section.

Mounting Procedure:

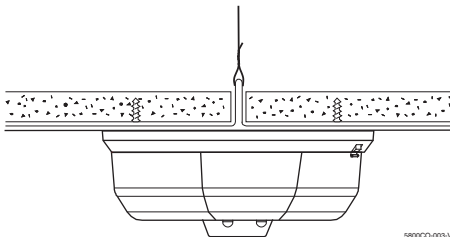
Once a suitable location is found, mount the detector as follows:

1. Refer to the diagram below and install the mounting base on the ceiling or on the wall (if local ordinances permit) using screw locations "A" or "B" as required. Use the two screws and anchors provided. Maneuver the base so the screws are at the elbow of the screw slots and secure.
2. Fit the detector inside the base by aligning it over the base as shown (detector's alignment notch should be slightly offset from mounting base tamper release tab), then turn the detector in a clockwise direction until it clicks into place.
3. Test the detector after completing the installation (as described in the TESTING THE DETECTOR section of this manual) and refer to the control system's instructions for additional information concerning the use of wireless devices.



5800CO-006-V0

Figure 2. Mounting the Detector



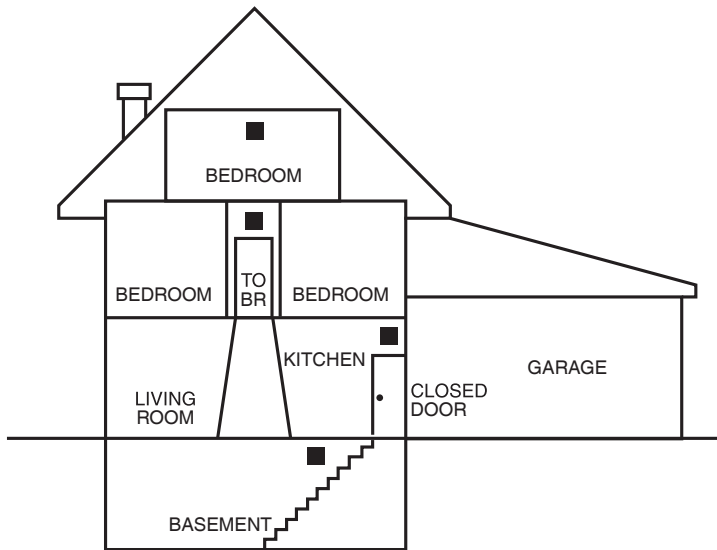
5800CO-003-V0

Figure 3. Mount Detector Across Ceiling Panel Support

DO NOT attach the detector to removable ceiling panels. Attach the detector across panel support as shown in Figure 3.

CAUTION:

Airborne dust particles can enter the detector. Manufacturer recommends the removal of detectors before beginning construction or any other dust producing activity. Carbon monoxide detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.



CARBON MONOXIDE ALARM LOCATION FOR MULTI-LEVEL RESIDENCE

Figure 4. Detector Location Diagram

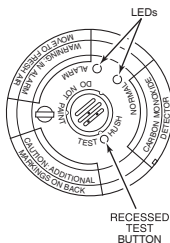
Tamper Protection:

The CO5-SS detector includes a tamper-resistant feature that prevents removal from the mounting base without the use of a tool. To engage the tamper-resistant feature, cut the small plastic tab located on the mounting base (Figure 2), and then install the detector. To remove the detector from the base once it has been made tamper resistant, use a small screwdriver to depress the square tamper release tab, located on the skirt of the mounting base, and turn the detector counterclockwise.

TESTING THE DETECTOR:

NOTE: Remove battery tab before installation

NOTE: Before testing, notify the occupants 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 Silent Call receiver. Also, the test function cannot be used if the detector has a trouble or end-of-life condition. The manufacturer cannot recommend a specific agent with which to test the detector. Detectors must be tested after installation and following periodic maintenance.



REFERENCE TABLE 1 for LED indication Mode definitions. Using a 1/8 diameter tool press and release the Test /Hush button. If the Detector is operating properly you will hear 4 quick beeps followed by 5 seconds of silence, followed by 4 more quick beeps. Red Led Blinks once a second between Temporal patterns. After second beep CO detector will reset back to Normal (standby) mode. It may take up to 30 seconds for CO detector to properly reset and be ready to retest when programming Silent Call receivers.

Testing Signal Strength:

This test should be performed before installation to determine a strong communication path with the Silent Call Receiver and after installation is complete. Also, the owner/user should test the unit's signal strength at least weekly.

1. Have someone monitor the Receiver you wish to alert.
2. Depress and hold the detector's TEST/Hush button. If the detector has not previously detected a low battery condition and it is within proper sensitivity limits, the detector should immediately transmit an alarm signal to the receiver. The built-in horn will start to sound about 2.5 seconds after depressing the button.
3. The Silent Call Receiver shall annunciate a CO Alert in accordance with specific receiver used.
4. When the Silent Call Receiver has received the test signal, release the TEST button. The horn will stop and approximately 16 seconds after releasing the test switch the receiver will stop alerting CO.
5. If the receiver does not respond as noted, check the polarity of the battery and be sure it is fresh. If this is an initial installation, try

rotating the detector or moving the detector to another location that provides proper reception. Also be sure that the detector has been programmed and tested to the receiver in use.

FUNCTIONAL GAS TEST

The CO5-SS has a functional gas test mode which can be used to verify the detector's ability to sense carbon monoxide gas.

NOTE: Check with local codes and the AHJ to determine whether or not a functional gas test is desired for an installation.

A canned CO testing agent may be used to verify the [model #] ability to sense CO by utilizing the functional gas test mode. To perform the functional gas test, follow these steps:

1. With a small screwdriver, depress and hold the recessed "Test" switch for approximately 2 seconds. The detector will temporarily go into alarm and the red LED will illuminate.
2. Within a few seconds the green LED will start to blink rapidly indicating the detector is in a speed up, functional test mode awaiting gas entry.
3. Spray a very small amount of Solo brand C6 canned CO into one of the 3 small gas entry holes located on the top center of the detector.
4. Upon successful gas entry and if functioning properly, the detector will alarm by sounding in a Temporal 4 pattern with the red LED blinking. An alarm signal will be sent to the Silent Call Receiver providing verification of alarm signal.
5. The alarm condition at the detector will time out in 20 to 60 seconds or when the CO gas has cleared.
6. If gas entry is unsuccessful, the test will time out after 27 seconds.

MAINTENANCE:

It is recommended to Test and visually inspect the CO alarm Once a week. Replace CR123A Battery at least once a year to ensure proper operation of all the CO5-SS functions. Make Note of the Replace CO detector by Date. CO detector has a life span of six years max.

Occasionally clean the outside casing with a clean dry cloth. Ensure that the holes on the front of the alarm are not blocked with dirt and dust.

Do not paint, and do not use cleaning agents, bleach, or polish on the detector.

IMPORTANT: REGULAR TESTING IS RECOMMENDED.

DETECTOR REPLACEMENT

This detector is manufactured with a long-life carbon monoxide sensor. Over time the sensor will lose sensitivity, and will need to be replaced with a new carbon monoxide detector. This detector's lifespan is approximately six years from the date of manufacture.

The user should periodically check the detector's replacement date. Remove the detector from its base and check the replacement date label on the underside of the detector. The label indicates the date that the detector should be replaced.

NOTE: The detector will also cause a trouble condition once it has reached the end of its useful life. If this occurs, it is time to replace the detector.

NOTE: Before replacing the detector, test unit to Silent Call receiver to ensure proper operation.

CO Technology Limitations:

The CO5-SS utilizes an electrochemical CO sensing element, and therefore has certain performance limitations. The CO sensing element has a typical life of 6 years from the date of manufacture, and while the product has a timer to create a trouble condition after 6 years of operating, the date code of the product, rather than the timer, should determine when the product is replaced. The CO sensing element has a carbon filter that provides resistance to false alarms caused by cross-interference gasses, but the filter can be saturated, and so the product should not be installed in locations where high concentrations of these gasses are present. Cross-interference gasses include, but are not limited to: Methane, Butane, Heptane, Ethyl Acetate, Isopropyl Alcohol, Carbon Dioxide, Ammonia, Ethanol, Toluene, Trichloroethane, and Acetone. Only a cloth moistened with water should be used to clean the CO5-SS housing. The movement of gases into the sensing element can be impaired if a sealant blocks the porous surface of the CO sensor. The CO5-SS should not be exposed to aerosol products such as furniture polish, paint or varnish that can coat the CO sensing element and render it inoperative.

FCC INFORMATION NOTICE:

Unauthorized changes or modifications could void the user's authority to operate the equipment.

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 of the device.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 the 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/television technician for help

Specifications

Power Source: One 3-volt CR123A Lithium Battery (included).
(Replace with Panasonic CR123A or DURACELL DL123A)
These batteries are available at local retail stores.
You can also order Replacement Batteries Online
at www.Silentcall.com.

Audible Signal (temp 4 tone):

85 dBA min. in alarm (at 10ft)

Height: 2.3 inches (58 mm)

Diameter: 5.3 inches (135 mm) (with mounting base)

Weight: 7 oz. (241 g) (without battery)

Operating Ambient Temperature Range:

40° to 100°F (4.4° to 37.8°C)

Operating Humidity Range:

15% to 95% Relative Humidity, non-condensing

Agency Listings: Conforms to ANSI/UL STD 2034

For Warranty Claims/Repairs Please Contact the Manufacturer:

Silent Call Communications

5095 Williams Lake Road

Waterford, MI 48329

800-572-5227

Please Visit www.Silentcall.com

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