



2GIG-SDS1-345

SMOKE DETECTOR SENSOR

GENERAL INFORMATION

The 2GIG Smoke Detector Sensor, part number 2GIG-SDS1-345, is a 110V AC powered sensor. It monitors the interconnect line on interconnected hardwired smoke detector systems and sends out a transmission when smoke is detected at any of the smoke alarm units connected on the same circuit. The device has LEDs to visually indicate the status of the sensor. A single CR2032 battery provides backup power in the event that AC power is lost on the smoke detector system circuit. The smoke detector sensor communicates with a compatible 2GIG control panel and can send alarm, low battery, AC power loss, and supervisory messages to the system's receiver.

Contents of Carton:

- 1-Smoke Detector Sensor
- 2-2" long 10-32 Screws
- 1-CR 2032 3 Volt Coin Battery

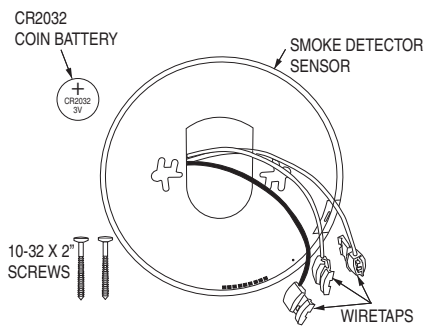


Figure 1. 2GIG-SDS1 Kit

IMPORTANT: This device must be tested and maintained regularly. This device is intended for use with compatible smoke detectors, but will not detect the presence of smoke, heat, or fire directly.

✓ **Note:** Each of the smoke alarms part of interconnected smoke alarms must be:

- Present in every required location per NFPA 72,11.5.1
- Confirmed as less than ten years from date of installation (or manufacture). Please check label on the device or original smoke detector device manual.
- Hardwired to a single, common 120V AC circuit designated for interconnected smoke alarms.
- Pass the manufacturer's stated testing regimen to confirm proper interconnect operation.
- Have fresh back-up batteries.
- On the list of compatible models (any model not listed may work but has not been compatibility tested).
- This device shall not be installed in locations where the normal ambient temperature is below 40F(4.4C) or exceeds 100F (37.8C), unless the alarm has been determined capable of being used at installation points with higher or lower ambient temperatures.
- Please see section at the end regarding information on the proper installation of smoke detectors that are intended to work with the Smoke Detector Sensor.
- This device is not intended to work with smoke alarms paired with smoke alarm guards, unless the combination has been evaluated and found suitable for this purpose.

Compatible Smoke Alarm Models

- BRK Brands Model 7010B: AC Powered Photoelectric Smoke Alarm with Battery Backup
- Firex Kidde Model i4618: Hardwire Ionization Smoke Detector with Battery Backup
- First Alert BRK Model 9120B: Hardwired Smoke Alarm with Battery Backup
- Kidde Model i12040: 120V AC Wire-in Smoke Alarm with Battery Backup
- USI Electric Model 5304: Hardwired Ionization Smoke and Fire Alarm with Battery Backup

CAUTION: Before attempting installation, locate the primary electrical circuit that powers the interconnected hardwired smoke detector system and shut off or disconnect power to this circuit. An electrical shock hazard is present if this electrical circuit is not temporarily disabled during installation.

WARNING: Remember to turn on or reconnect power to the primary electrical circuit that powers the interconnected hardwired smoke detector system. The fire warning system may be disabled if electrical power is not restored to the system

Install Sensor

Select a smoke detector that will be used to provide power and communicate to the smoke detector sensor. Any smoke detector that is within range of a wireless 2GIG receiver can be selected if the smoke detector is part of an interconnected hardwired system.

Remove the existing smoke detector from the existing mounting bracket. This is usually done by twisting the detector counter clockwise or clockwise from where it is mounted.

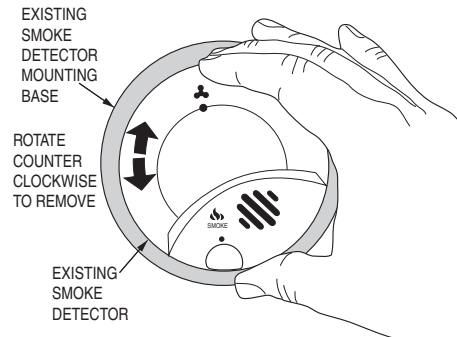


Figure 2. Remove Existing Smoke Detector from Smoke Detector Mounting Bracket

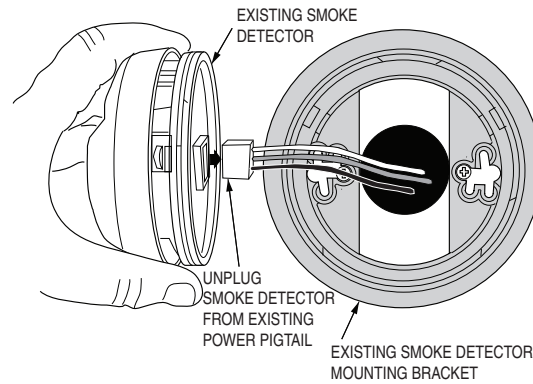


Figure 3. Unplug Pigtail of Existing Smoke Detector

Unplug the existing smoke detector from the smoke detector pigtail. Loosen the two screws used to hold the existing mounting bracket and remove it from the wall or ceiling.

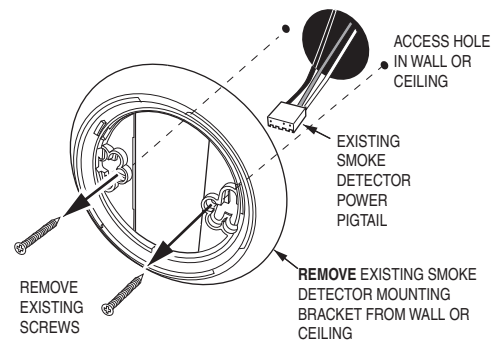


Figure 4. Remove Existing Smoke Detector Mounting Bracket from Wall or Ceiling

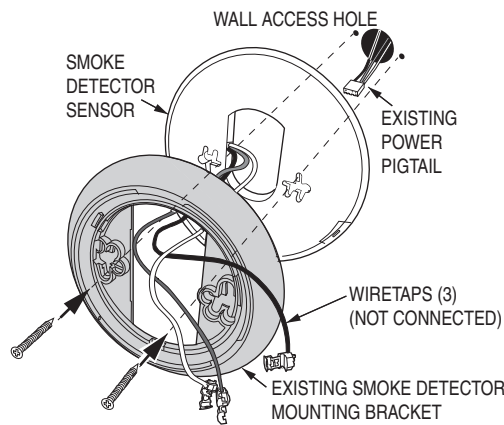


Figure 5. Install Smoke Detector Sensor between Wall and Mounting Bracket
 Place the smoke detector sensor where the existing mounting bracket was located. Make sure the wire/wiretaps are inserted through the center opening of the smoke detector mounting bracket.
 Place the existing smoke detector mounting bracket on top of smoke detector sensor. Align the smoke detector sensor and the smoke detector mounting bracket and replace the two screws used to hold the bracket in place. Tighten all screws down.
 ✓ **NOTE:** It is suggested that the smoke detector sensor LEDs be oriented towards the bottom or in a manner that allows the LEDs on the unit to be visible.

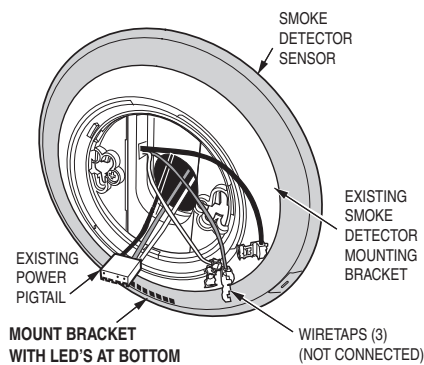


Figure 6. Wiretaps/Wires, & Pigtail through Center

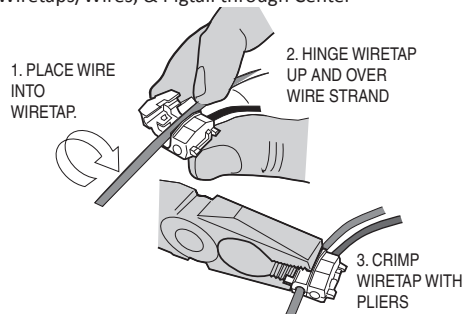


Figure 7. Crimping Wiretaps onto Wires

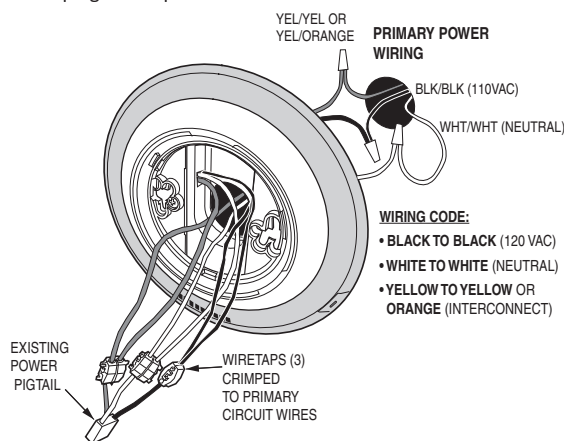


Figure 8. Wiretap Connections

Wiring the Connections

Before connecting the wires from the smoke detector sensor, identify the (+) line (hot) 120VAC wire and the neutral wire. Usually the (+) line (hot) 120VAC wire will be **black** and the **neutral** wire white. Use a voltmeter or voltage sensor to verify that the proper wires are selected. You may need to reconnect power to the electrical circuit powering the interconnected hardwired smoke detectors in order to do this (Figure 8).

WARNING: Remember to disconnect or shut off electrical power to the interconnected hardwired smoke detector if it was powered on in the previous step to identify the 120VAC wires.

Use an electrician's linesman plier or equivalent tool (See Figure 8) and using the installed wiretaps on the device, crimp the wiretap with the black wire onto the 120VAC line (hot) wire.

✓ **NOTE:** Wiretaps must be used on a section of stranded wire. This is typically located between the connector to the smoke detector and the wire nut.

The wiretap with the yellow wire should be attached to the wire lead connected to the interconnect wire of the smoke detector. This wire is typically yellow or orange.

Once all (3) three wiretaps have been installed (Figure 8), reattach the electrical wire pigtail to the back of the smoke detector unit and mount the smoke detector on the mounting base (Refer to Figure 3).

Installing the Back-Up Battery

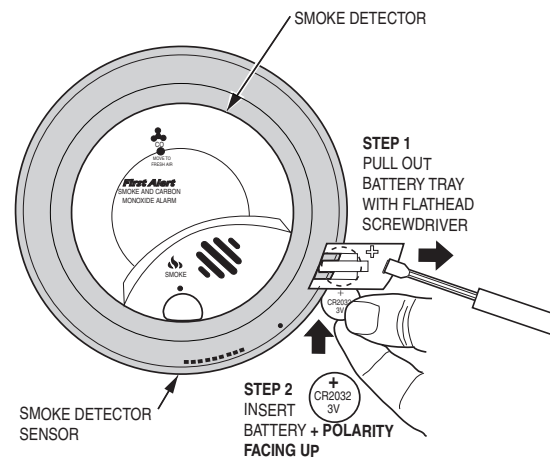


Figure 9. Installing Back-up Battery

WARNING: Ensure that the smoke detector sensor has been wired correctly. Damage to the smoke detector sensor may occur if the 120 VAC line (hot) wire neutral wire are reversed. The unit may fail to function properly if incorrectly wired.

Turn on or reconnect power to the primary electrical circuit that powers the interconnected hardwired smoke detector system. The device should now power on.

Use a flat bladed tool, slide out the battery tray that holds the backup battery. Insert a CR2032A battery (included) into the battery slot. Slide the battery tray back into the device (Figure 9).

✓ **NOTE:** Orient the (+) battery terminal up so that it is visible when facing the unit.

Programming the Sensor

Follow the instructions on how to program a sensor into a compatible 2GIG control panel. See the 2GIG control panel's Installation & Programming Guide for more information on how to learn a sensor into the control panel.

The device should learn in as a Loop 1 sensor device. Use a small paper clip or other sharp object and carefully insert into the learn/test button hole. This will send out an alarm transmission ID so the the sensor can be learned into a compatible control panel or can be used to test that the transmitter is working properly.

Replacing the Battery

If the compatible control panel shows that this sensor has a low battery, the backup battery may need to be replaced.

Use a flat headed screw driver or other tool to slide the battery tray out of the device. Remove the battery from the tray and replace with a new CR2032A battery. Slide the battery tray back into the unit, making sure that the tray is fully inserted into the unit.

✓ **NOTE:** Use Panasonic CR2032A batteries or equivalent. Use of another battery may damage or negatively affect the operation of the device.

End-of-Life

The Smoke Detector Sensor does not have an End-of-Life (EOL), however the smoke detector(s) that this device monitors may have an EOL condition. Follow the owner's manual for the smoke detector regarding instructions on proper smoke detector EOL conditions.

LED Status

Status	LEDs	Radio Signaling	2GIG Control Panel Display
PowerOn	Sequential green, orange, red flashes	N/A	N/A
Normal	Green LED flash every 48s	N/A	N/A
Alarm	Red flash every 1s	Alarm (Loop 1)	On screen and audible alarm (Use code to silence)
Loss of AC Power Fault	Orange flash every 20s	Tamper	On screen alert shown "Device name- Battery Low" or "AC Loss"
Low Battery Fault	Orange flash every 4s	Low Battery	On Screen alert shown "Device name- Battery Low"
Learn Button	Sequential green, orange, red flashes	Alarm (Loop1)	On screen and audible alarm (use code to silence)

Testing the Smoke Detector System

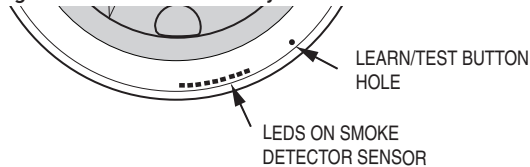


Figure 10. Location of LEDs and Learn/Test Button

The device should be tested in accordance with NFPA 72 guidelines. The following instructions are intended to provide a general guideline on how to test the smoke detector system, smoke detector sensor, and communications to an alarm panel. Follow the smoke alarm instruction manual on testing the smoke alarm and any interconnected units. There usually is a test button on the smoke detector that can be pressed to initiate a test mode. This should cause the sounder to alarm and also any smoke detectors that are interconnected to also alarm. The smoke detector sensor should send out a transmission to a compatible alarm panel.

If this transmission is not received, first check if the Smoke Detector Sensor is properly programmed into a compatible alarm panel. Please follow the alarm panel instructions on learning in a sensor.

Also, check that the interconnect wire on the smoke detector is properly connected to the Smoke Detector Sensor. The LEDs on the Smoke Detector Sensor should flash red indicating that it has received the alarm signal from the smoke detector.

Testing the Smoke Detector Sensor Radio Transmission Only

The Smoke Detector Sensor incorporates a small test button. This test button can be activated by inserting a straightened paper clip or sharp object into the Learn/Test hole. The Smoke Detector Sensor will then send an alarm signal transmission to a compatible alarm panel. This can be used to test that the Smoke Detector Sensor will send a proper transmission to an alarm panel. This DOES NOT test if the wiring between the smoke detector and the smoke detector sensor is correct.

Troubleshooting Installation Chart

When testing the installation of a smoke detector sensor, check for these common issues.

Condition Smoke Detector	Result		Resolution
	Smoke Detector Sensor LED	Alarm Panel	
Smoke detector is in alarm mode	LED on smoke detector sensor do not work properly	Alarm panel does not receive alarm signals	Check to make sure interconnect wire from the smoke detector is properly connected to the smoke detector sensor.
Smoke detector is in alarm mode	LED on smoke detector sensor works properly	Alarm panel does not receive alarm signals	Check to make sure the smoke detector sensor is properly learned or programmed into a compatible alarm panel

Specifications

Input Power	120VAC 50/60Hz 12W
Backup Power	3-Volt CR2032 Battery or Equivalent
Backup Battery Life	>8 years
Operating Temperature	32°F to 122°F (0°C to 50°C)
Operating Humidity	5–95% RH non-condensing
Compatibility	2GIG receivers
Wireless Signal Range	350ft (110m)
Supervisory Interval	70 minutes
Certification	FCC/IC and ETL

Selecting a Location

Selecting a suitable location is critical to the operation of smoke alarms. This equipment should be installed in accordance with National Fire Protection Association's (NFPA) Standard 72 (see Figure 11).

A-11-8.3a Where to Locate the Required Smoke Alarms in Existing Construction.

The major threat from fire in a family living unit occurs at night when everyone is asleep. The principal threat to persons in sleeping areas comes from fires in the remainder of the unit. Therefore, a smoke alarm(s) is best located between the bedroom areas and the rest of the unit. In units with only one bedroom area on one floor, the smoke alarm(s) should be located as shown in Figure 11A.

In family living units with more than one bedroom area or with more than one floor, more than one smoke alarm is required, as shown in Figure 11C.

In addition to smoke alarms outside of the sleeping areas, the installation of a smoke alarm on each additional story of the family living unit, including the basement, is required. These installations are shown in Figure 11B. The living area smoke alarm should be installed in the living room or near the stairway to the upper level, or in both locations. The basement smoke alarm should be installed in close proximity to the stairway leading to the floor above. Where installed on an open-joisted ceiling, the alarm should be placed on the bottom of the joists. The alarm should be positioned relative to the stairway to intercept smoke coming from a fire in the basement before smoke enters the stairway (Figure 11D).

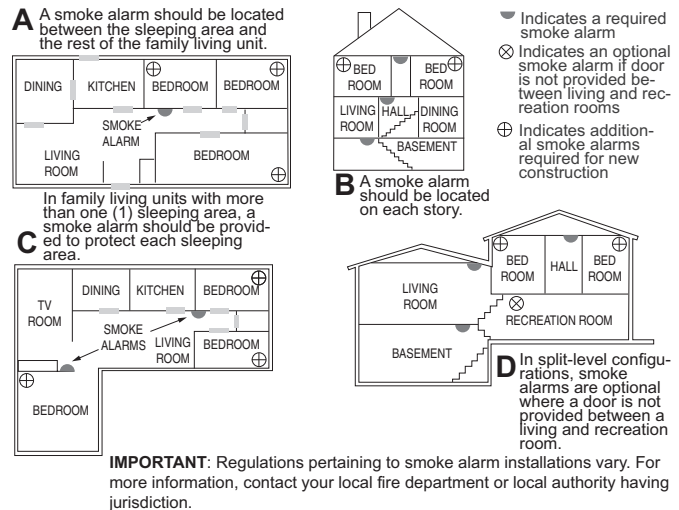


Figure 11. Smoke Alarm Placement

Where to Locate the Required Smoke Alarms in New Construction.

All of the smoke alarms specified for existing construction are required and, in addition, a smoke alarm is required in each bedroom.

Are More Smoke Alarms Desirable?

The required number of smoke alarms might not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke alarms. For this reason, it is recommended that the householder consider the use of additional smoke alarms for those areas for increased protection.

The additional areas include the basement, bedrooms, dining room, furnace room, utility room, and hallways not protected by the required smoke alarms. The installation of smoke alarms in kitchens, attics (finished or unfinished), or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation.

Since regulations pertaining to smoke alarm/detector installation vary from state to state, contact the authority having jurisdiction (AHJ). Where public safety is primary, the AHJ may be federal, state, local, or other regional department or individual such as a fire chief, fire marshal, chief of a fire prevention bureau,

labor or health department, building official, electrical inspector, or others having statutory authority. For insurance purposes, an insurance inspection department, rating bureau, or other insurance company representative may be the AHJ. In some cases, the property owner or their designated agent assumes the role of the AHJ. At government installations, the commanding officer or department official may be the AHJ.

In addition to NFPA 72, use the following location guidelines to optimize performance and reduce the chance of false alarms from the alarm:

- Locate ceiling-mounted smoke alarms in the center of a room or hallway at least 4 inches (10cm) from any walls or partitions.
- Locate wall-mounted smoke alarms so the top of the alarm is 4 to 12 inches (10 to 31cm) below the ceiling.
- Locate in a suitable environment as follows:
 - Temperature between 40°F (4.4°C) and 100°F (37.8°C)
 - Humidity between 0 and 95% non-condensing
- Locate away from air conditioners, heating registers, and any other ventilation source that may interfere with smoke entering the alarm.
- Mount smoke alarms on a firm permanent surface.
- Locate away from large metallic objects to reduce shielding of the wireless transmitter's signal.

Smoke alarms are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

WARNING! LIMITATIONS OF SMOKE ALARMS

Wireless smoke alarms are very reliable, but may not work under all conditions. No fire alarm provides total protection of life or property. Smoke alarms are not a substitute for life insurance.

Smoke alarms require a source of power to work. This smoke alarm will not operate and the alarm will not sound if batteries are dead or not installed properly.

Smoke alarms may not be heard. A sound sleeper or someone who has taken drugs or alcohol may not awaken if the alarm is installed outside a bedroom. Closed or partially closed doors and distance can block sound. This alarm is not designed for the hearing impaired.

Smoke alarms may not always activate and provide warning early enough. Smoke alarms only activate when enough smoke reaches the alarm. If a fire starts in a chimney, wall, roof, on the other side of closed doors, or on a different level of the property, enough smoke may not reach the alarm for it to be activated.

Smoke alarms are a significant help in reducing loss, injury and even death. However, no matter how good a detection device is, nothing works perfectly under every circumstance and we must warn you that you cannot expect a smoke alarm to ensure that you will never suffer any damage or injury.

Current studies have shown smoke alarms may not awaken all sleeping individuals. It is the responsibility of individuals in the household that are capable of assisting others to provide assistance to those who may not be awakened by the alarm sound, or to those who may be incapable of safely evacuating the area unassisted.

FIRE PREVENTION AND ESCAPE

The purpose of an early warning smoke alarm is to detect the presence of fire in its early stages and sound an alarm giving the occupants time to exit the premises safely.

AVOID FIRE HAZARDS

No detection device can protect life in all situations. Therefore, safeguards should be taken to avoid potentially dangerous situations as follows:

- Do not smoke in bed.
- Do not leave children home alone.
- Never clean with flammable liquids such as gasoline.
- Properly store materials. Use general good housekeeping techniques to keep your home neat and tidy. A cluttered basement, attic, or other storage area is an open invitation to fire.
- Use combustible materials and electrical appliances carefully and only for their intended uses. Do not overload electrical outlets.
- Do not store explosive and/or fast burning materials in your home.
- Even after proper precautions have been taken, fires can start. Be prepared.

IN CASE OF FIRE

In the event of a fire:

- Leave immediately. Don't stop to pack or search for valuables.
- In heavy smoke, hold your breath and stay low, crawl if necessary. The clearest air is usually near the floor.
- If you have to go through a closed door, carefully feel the door and door knob to see if undue heat is present. If they seem cool, brace your foot against the bottom of the door with your hip against the door and one hand against the top edge. Open it slightly. If a rush of hot air is felt, slam the door quickly and latch it. Unvented fire tends to build up considerable pressure. Be sure all members of the household realize and understand this danger.
- Use your neighbor's phone or a street fire alarm box to call the fire department. The job of extinguishing the fire should be left to the professionals.

BE PREPARED

Practice the following steps to prepare you and your family in the event of a fire:

- Perform fire drills regularly. Use them to assure recognition of an alarm signal.
- Draw a floor plan and show two exits from each room. It is important that children be instructed carefully, because they tend to hide in times of crisis.
- Establish one meeting place outside the home. Insist that everyone meet there during an alarm. This will eliminate the tragedy of someone reentering the house for a missing member who is actually safe.
- If you have children and/or physically challenged people residing in your household, use window decals to help emergency personnel identify the sleeping quarters of these individuals.

FCC COMPLIANCE STATEMENT

This device complies with Part 15 of the FCC Rules and Industry Canada license exempt standard(s). 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 received that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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 Class B digital apparatus complies with Canadian ICES-003.

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

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 to help.

WARNING: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

LIMITED WARRANTY

This Nortek Security & Control LLC product is warranted against defects in material and workmanship for two (2) years. This warranty extends only to wholesale customers who buy direct from Nortek Security & Control LLC or through Nortek Security & Control normal distribution channels. Nortek Security & Control does not warrant this product to consumers. Consumers should inquire from their selling dealer as to the nature of the dealer's warranty, if any.

There are no obligations or liabilities on the part of Nortek Security & Control for consequential damages arising out of or in connection with use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation, or reinstallation. All implied warranties for functionality, are valid only until the warranty expires. This Nortek Security & Control Warranty is in lieu of all other warranties express or implied.

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Contact your regional distributor

Visit dealer.2gig.com for a list of distributors in your region

