521CXT-ID
Smoke Detector
Installation Instructions

CSFM

UL LISTED

Description

The 521CXT-ID Smoke Detector is an addressable 2-wire photoelectric detector that interfaces with the PinPoint® system.

The smoke detector provides the following features:

CleanMe®
Enables the control panel to receive a warning signal via the NX-2192 PinPoint® module, indicating that the optical chamber needs to be replaced.

Self-diagnostics
Includes automatic sensitivity testing. Once a day and immediately upon first power up, each 521CXT-ID detector performs a full diagnostic test that includes a dynamic test of the sensing chamber and internal electronics. This meets NFPA 72 field sensitivity testing requirements without the need for external meters.

Drift compensation
The detectors automatically adjust sensitivity, up to a maximum of 0.5%/ft., as the detectors become dirty.

WARNING
This document is intended for licensed electricians/ alarm installers. GE Security cannot provide technical support to unqualified persons.

If you have questions, call GE Security at 1-800-648-7424.

Selecting a Location

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

A-11-8.3.a 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 1 A.
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 1 B.
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 1 C. 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 the smoke enters the stairway.

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.

Important: Regulations pertaining to smoke detector installations vary from state to state. For more information, contact your local fire department or local authority having jurisdiction.

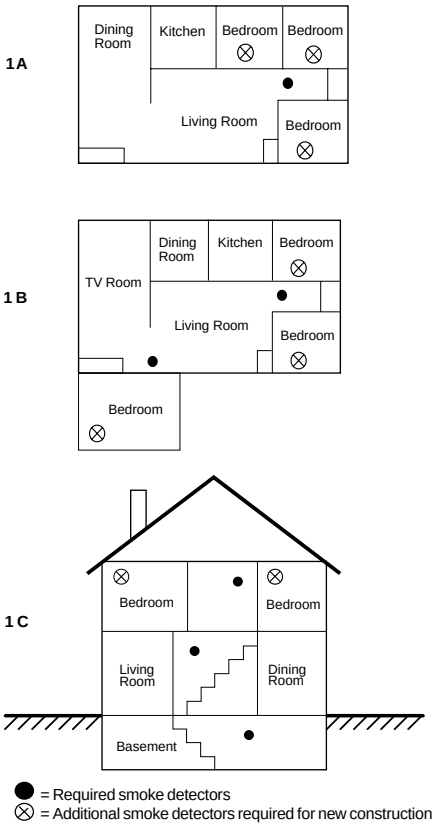


Figure 1. Detector placement

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

- Locate ceiling-mounted smoke detectors in the center of a room or hallway at least 4 inches (10cm) from any walls or partitions.
- Locate wall-mounted smoke detectors so the top of the detector is 4 to 12 inches (10 to 30cm) below the ceiling.
- **Do not** locate detectors in or near bathrooms or kitchens.
- Locate in a suitable environment as follows:
  - Temperature between 32°F (0°C) and 100°F (37°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 detector.
- Mount smoke detectors on a firm permanent surface.

Installing the Detector

All wiring must conform to the National Electric Code (NEC) and/or local codes having jurisdiction. Use 14 to 22 AWG wire to install the detector; maximum of two wires per terminal.

1. If you are using the detector/base lock, remove the detector knockout and break off the tab on the mounting base. See Figure 2.
2. Remove the red plastic cover from the detector. The detector is shipped with a cover for protection against construction site dust.
3. Run PinPoint system wiring to the detector location and mount electrical boxes if necessary.
4. Line up and attach the mounting base to the electrical box, wall, or ceiling using the screws provided. Use the wall anchors provided if necessary. See Figure 3.
5. Strip the system wires and connect them to the appropriate terminals on the detector. See Figure 4.
6. Set the PinPoint address DIP switches. See Figure 4.

   Note

   Units are shipped with DIP switches set to 255. This is an invalid address. **The unit will not communicate with the control panel until a valid address has been set.** Refer to the NX-2192 manual to determine the correct address setting for each unit.
7. Attach the detector to the mounting base as follows:

   - Line up the raised tab on the side of the detector with the arrow on the mounting base. See Figure 5.

   - Insert the smoke detector into the base and turn clockwise approximately 15 degrees. It should snap firmly into place.
8. Test the unit when the PinPoint system is completely installed and the control panel is powered.

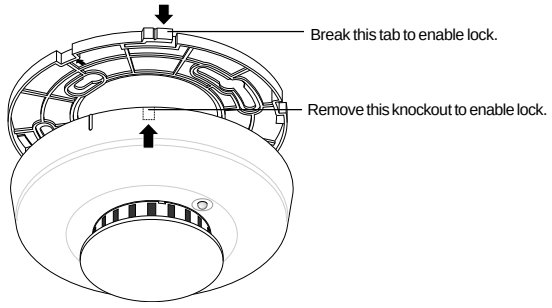


Figure 2. Detector/base lock

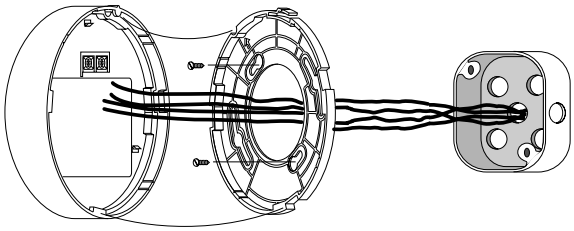
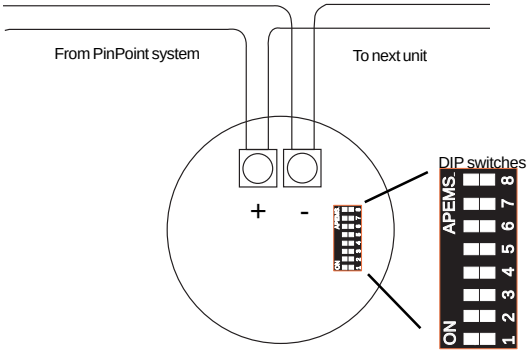


Figure 3. Detector installation



Note: The 521CXT-ID is polarity sensitive

Figure 4. Wiring and DIP switch diagram

Warning

The system may not operate if the detector is not connected to the control unit initiating device circuit as specified in the detector or control unit literature.

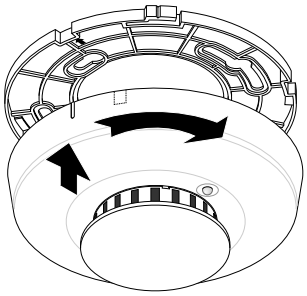


Figure 5. Mounting

Smoke Testing the Detector

Smoke detectors should be tested in place annually using one of the following methods:

A. Use Smoke! in a can® (product number SM-200), a canned aerosol simulated smoke and follow the directions on the can.

B. Use the following steps to test the detector with smoke:

1. Hold a smoldering punk or cotton wick close to the smoke entry openings.
2. Gently direct the smoke into the detector for 20 seconds or until an alarm is indicated by the LED flashing once every 3 seconds.

Be sure to extinguish the smoke source after testing! The detector LED should flash once every 3 seconds. An alarm should be indicated at the control panel. Reset the alarm condition at the control panel after the smoke has cleared from the detector. The LED returns to its normal 9 second flash rate.

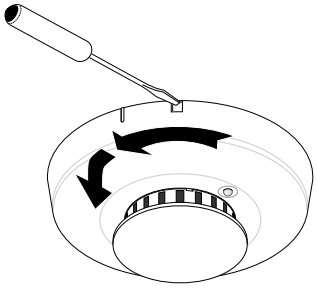


Figure 6. Unlocking the detector

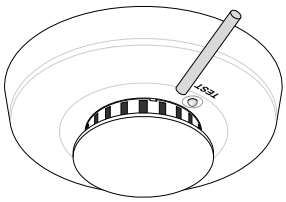


Figure 7. Testing the detector

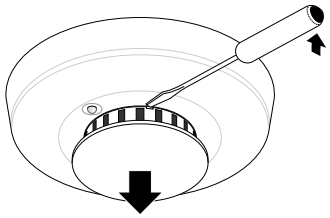


Figure 8. Removing the detector cap

Understanding the LED

The LED on the detector indicates the status of the detector as follows:

Flashing every 9 seconds = Normal operation.
Off or flashing once every 3 seconds = Alarm, trouble, or maintenance is required. Test the detector. See *Testing the Detector Sensitivity.*

Removing the Detector

To remove the detector from the mounting base, grasp the detector and turn it counterclockwise approximately 15 degrees. The detector should snap off of the mounting base.
To remove the detector from the mounting base when the detector/base lock is used, insert a small screwdriver into the locking tab slot on the side of the base and press in while simultaneously turning the detector counterclockwise 15 degrees. See Figure 6.

Testing the Detector Sensitivity

The detector provides a sensitivity test that allows you to check the detector sensitivity using a test magnet and the LED indicator on the detector as follows:

1. Hold the test magnet up to the raised TEST letters on the top of the detector until alarm notification. See Figure 7. Once the test starts, remove the magnet. The alarm LED flashes one to nine times. The LED flashes every 3 seconds while in the test mode.
2. Count the number of times the LED flashes and use the following table to determine the status of the detector sensitivity and what action to take, if any.

After the test:

If the sensitivity is within limits and all other tests pass, the detector goes back to the normal 9 second LED flash mode.

If the sensitivity is not within limits or an unserviceable hardware fault has been detected, the detector LED flashes every 3 seconds until the detector is serviced.

Flashes	Indications	Action
1	Unserviceable hardware fault detected.	Reset unit and rerun sensitivity test. If the error persists, replace the unit.
2-3	Detector is not sensitive enough.	Clean the unit per instructions. Reset unit and rerun sensitivity test. If the error persists, replace the unit.
4-7	Detector is within normal sensitivity range.	N/A
8-9	Detector is too sensitive.	Verify that the smoke chamber is snapped down securely. Clean the unit.

Cleaning the Detector

Clean the detector cover with a dry or damp (water) cloth as needed to keep it free from dust and dirt.
When necessary, clean the detector interior and **replace** the optical chamber as follows:

1. Disconnect the alarm notification appliances, service release devices and extinguishing systems.
2. Slide a flat-blade screwdriver into the slot on the detector cap and gently push the handle down to pry the cap up and off. See Figure 8.
3. Press in on the sides of the optical chamber and pull it up and away from the detector and discard. See Figure 9.
4. Use a vacuum to remove dust and dirt from the optical chamber base.
5. Line the new optical chamber up with the optical chamber base and snap it down into place.
6. Replace the detector cap as follows:

   -Line the tabs on the cap with the slots on the detector.

   -Insert the cap into the smoke detector and turn clockwise approximately 15 degrees. It should snap firmly into place.
7. Test the detector sensitivity (See *Testing the Detector Sensitivity).*
8. Reconnect all alarm notification appliances, service release devices and extinguishing systems.

Important: The control panel alarm and all auxiliary functions should be verified for a complete test of the system.

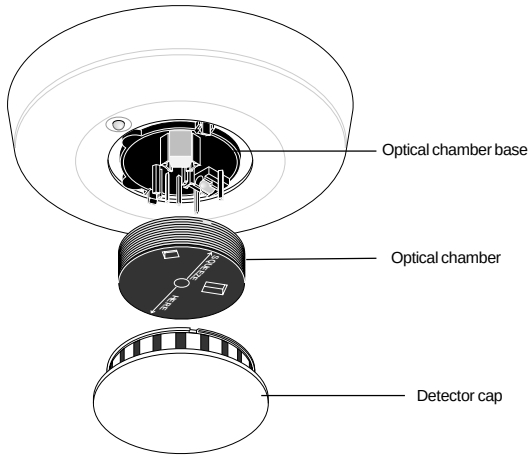


Figure 9. Removing the optical chamber

Maintaining the Detector

These smoke detectors are designed for easy field service and maintenance. When installed and used properly, they require minimal maintenance.

The smoke detector should be tested monthly. See *Testing the Detector Sensitivity* and *Smoke Testing the Detector.*

Fire Prevention and Escape

The purpose of an early warning smoke detector 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, you should do the following:

- 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 understands 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.

WARNING

Smoke detectors CANNOT provide warnings for fires resulting from explosions, smoking in bed or other furniture, ignition of flammable liquids, vapors and gases, children playing with matches or lighters.

Failure to properly install, test, and maintain a smoke detector system may cause it to fail resulting in loss of life and/or property.

Limited Warranty

The 521CXT-ID is a GE Security product. The manufacturer warrants this smoke alarm to be free from defects in material and workmanship under conditions of normal use for a term of 3 years from the date of manufacture.

During the warranty period, if a GE Security product or any of its components becomes defective, it will be repaired or replaced without charge. Out-of-warranty units will be repaired at the discretion of the manufacturer, if not, a card will be forwarded to the customer suggesting a replacement unit and the cost of that unit. This warranty does not apply to units which have been subject to abuse, misuse, negligence or accident, or to which any modifications, alterations or repairs have been made or attempted.

This warranty is extended only to the original purchaser of the smoke alarm and may be enforced only by such person. During the warranty period, if the alarm or any warranted components thereof becomes defective, at the manufacturer's discretion, it will be replaced or repaired without charge if returned in accordance with the following instructions:

Obtain a Return Authorization Number by calling 1-800-648-7422 or 503-692-4052, then carefully pack it in a well padded and insulated carton and return, postal charges prepaid to:

Customer Service RMA#
GE Security
12345 SW Leveton Drive
Tualatin, OR 97062-9938

A note should be included advising the nature of the malfunction. Care must be exercised in the proper packing of alarms returned under this warranty as GE Security will not be responsible for warranty repairs to equipment damaged because of improper packing.

The above warranty is in lieu of all other express warranties, and implied warranties of merchantability and fitness for a particular purpose are limited in duration for a period of 3 years from the date of manufacture. Under no circumstances shall manufacturer be liable to the purchaser or any other person for incidental or consequential damages of any nature, including without limitation damages for personal injury or damages to property, and however occasioned, whether alleged as resulting from breach of warranty by manufacturer, the negligence of manufacturer or otherwise. Manufacturer's liability will in no event exceed the purchase price of the product. Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. Unless a longer period is required by applicable law, any action against manufacturer in connection with this smoke alarm must be commenced within one year after the cause of action has occurred.

No agent, employee or representative of the Manufacturer nor any other person is authorized to modify this warranty in any respect. Repair or replacement as stated above is the exclusive remedy of the purchase hereunder. This warranty gives you specific legal rights and you also have other rights which vary from state to state.

WARNING

Limitations of smoke detectors

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

Smoke detectors require a source of power to work.

This smoke detector will not operate and the alarm will not sound if the detector is not installed properly.

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

Smoke detectors may not always activate and provide warning early enough. Smoke detectors only activate when enough smoke reaches the detector. 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 detector for it to alarm.

Smoke detectors 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 detector to ensure that you will never suffer any damage or injury.

Specifications

Operating voltage range	8.5-33VDC
Typical average standby current	360µA (12/24V) (used for system battery calculation)
Average alarm current	500µA (used for system battery calculation)
Peak alarm current	1.5mA
Peak current	1.5mA
Photoelectic sensitivity range	1.8%/ft to 3.54%/ft
Operating termperature	32° to 100°F (0° to 38°C)
Storage temperature	-4° to 158°F (-20° to 70°C)
Operating humidity range	0 to 95% non-condensing
Color	White head and base
Field wiring size	14-22 AWG max. two wires per terminal
Heat detector specifications	Rate-of-rise, 15° F/min and >105° F (8.3° C/min and >40.6° C)
Absolute alarm temperature	135°F ± 9°F (57.2°C ± 5°C)
Automatic drift compensation adjustment	0.5%/ft. max
Detector head dimensions	5 in. (12.7cm) diameter; 2 in. (5cm) deep
Mounting dimensions	4.75 in. (12.1cm) diameter; 0.3 in. (0.8cm) deep
Power-up time	The unit is ready to sample smoke after 4 blinks or 20 seconds
Listings	UL 268, CSFM

FCC Compliance

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.

2 This device must accept any interference received, including interference that may cause undesired operation.

Product Ordering

Product	Description
521CXT-ID	Addressable 2-wire, photoelectric smoke detector, multi-criteria algorithms, fixed/ rate-of-rise heat, for use with the NX-2192 PinPoint® Bus Interface
401	Test magnet in plastic shell for pole mounting
SM-200	Smoke! in a can® (canned smoke) for functional testing of smoke detectors
211	Replacement optical chambers (set of 10)

GE Security

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