

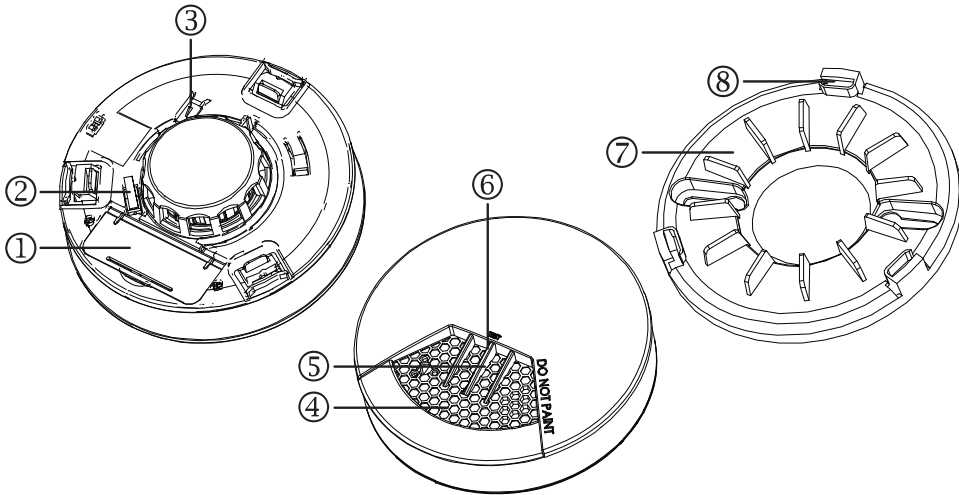
SF813 SMOKE DETECTOR



The photoelectric Smoke Detector is a Z-Wave™ enabled device which is fully compatible with any Z-Wave™ enabled network. Z-Wave™ enabled devices displaying the Z-Wave™ logo can also be used with it regardless of the manufacturer, and ours can also be used in other manufacturer's Z-Wave™ enabled networks. Inclusion of this detector on other manufacturer's Wireless Controller menu allows remote operation of connected modules when the detector is triggered. Z-Wave node in the system also acts as a repeater, so as to re-transmit the RF signal to ensure that the signal is received by its intended destination by routing the signal around obstacles and radio dead spots.

The detector is designed to sense smoke that comes into the detector chamber. It does not sense gas, heat, or flame. The working principle is when the smoke detector detects a certain density of smoke, the horn of smoke detector will sound and in the meantime, the detector will emit the signals to the associated devices for further execution. It can provide precious time for you and your family to escape before a fire spreads.

Product Overview



| | |
|-----------------------------|-----------------------|
| ① Battery Compartment Cover | ⑤ LED |
| ② Link Key | ⑥ Test/Silence Button |
| ③ Tamper Switch | ⑦ Mounting Bracket |
| ④ Buzzer | ⑧ Bracket Fastener |

Adding to Z-Wave™ Network

Inside the detector, there is a link key which is used to carry out the function of inclusion, exclusion, association and reset. When battery is applied for the first time, the LED will flash on and off alternately and repeatedly for 4 minutes, implying that it has not been assigned a node ID and cannot work with Z-Wave enabled devices. The Smoke Detector will stay “awake” for 10 minutes when power is first applied to allow time for configuration. This unit supports the Auto Inclusion function when power is applied and no node ID is stored in the memory. The Detector may automatically execute the function of inclusion when...

Auto Inclusion

1. The power is applied for the first time and no node ID has been stored in the detector.
2. The execution of exclusion/reset is successful where the stored node ID is cleared.

Note: The duration for Auto Inclusion is 4 minutes during which period the node information of explorer frame will be emitted once every 5 seconds. Unlike the “inclusion” procedure shown in the table below, the execution of Auto Inclusion is automatic without the necessity of pressing the link key.

| Action/Status | Description | LED & Buzzer Indication |
|---------------|--|---|
| No node ID | The Z-Wave Controller does not allocate a node ID to the detector. | LED 2-second on, 2-second off |
| Inclusion | 1. Have the Z-Wave Controller enter inclusion mode. | LED flashes and buzzer sounds when link key is pressed. LED lights for 1 second and buzzer sounds for 1 second upon successful operation. |
| | 2. Pressing link key three times within 1.5 seconds will enter inclusion mode. | |
| | 3. Detector stays “awake” for 10 minutes. | |
| Exclusion | 1. Have the Z-Wave Controller enter exclusion mode. | LED flashes and buzzer sounds when link key is pressed. LED lights for 1 second and buzzer sounds for 1 second upon successful operation. |
| | 2. Pressing link key three times within 1.5 seconds will enter exclusion mode. | |
| | 3. Detector stays “awake” for 10 minutes. | |
| Reset | 1. Pressing link key three times within 1.5 seconds will enter exclusion mode. | LED flashes and buzzer sounds when link key is pressed. |
| | 2. Within 1 second, press link key again and hold until LED is off (about 5 sec.). | |
| | 3. Node ID is excluded, and the device reverts to factory default state. | |

| | | |
|---|---|---|
| Association | 1. Have the Z-Wave Controller enter association operation. | LED flashes and buzzer sounds when link key is pressed. LED lights for 1 second and buzzer sounds for 1 second upon successful operation. |
| | 2. Pressing link key 3 times within 1.5 seconds will enter association operation. | |
| | 3. Detector stays “awake” for 10 minutes. Refer to group support as described on page 5 for more details. | |
| ※ Failed or successful results in including/excluding the node ID can be viewed on the Z-Wave Controller. | | |

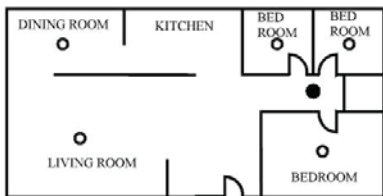
Choosing a Mounting Location

The detector is designed for use in a single residential unit only, such as a single family home or apartment. It is not meant to be used in lobbies, hallways, basements, or an other apartment in multi-family buildings, unless there are already working detectors in each family unit. Smoke detectors, placed in common areas outside of the individual living unit, such as on porches or in hallways, may not provide early warning to residents. In multi-family buildings, each family living unit should set up its own detectors.

The detector is not meant to be used in non-residential buildings. Warehouses, industrial or commercial buildings, and special purpose non-residential buildings require special fire detection and alarm systems. This detector is not a suitable substitute for complete fire detection systems for places where many people live or work, such as hotels or motels. The same is true of dormitories, hospitals, nursing homes, or group homes of any kind, even if they were once single family homes.

For complete coverage in residential units, the detector should be installed in all rooms, halls, storage areas, basements and attics in each family living unit. Minimum coverage is one detector on each floor and one in each sleeping area. Useful tips are listed as the following:

1. Install a detector in the hallway outside every separate bedroom area as shown in FIGURE 1. Two detectors are required in homes with two bedroom areas as shown in FIGURE 2.



● SMOKE DETECTORS FOR MINIMUM SECURITY
○ SMOKE DETECTORS FOR MORE SECURITY

FIGURE 1

Locations for placing smoke detectors in single-floor residence with only one sleeping area.

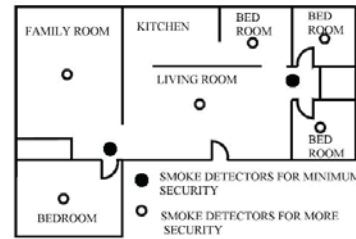


FIGURE 2

Locations for placing smoke detectors in single-floor residence with more than one sleeping areas.

2. Install a detector on every floor of a multi-floor home or apartment as shown in FIGURE 3.

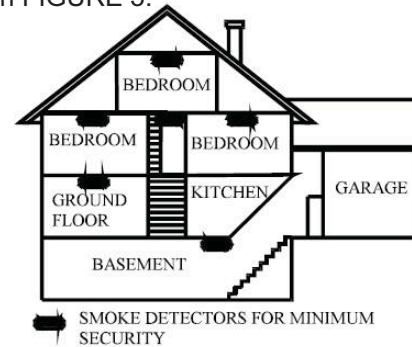


FIGURE 3

Locations for placing smoke detectors for a multi-floor residence.

3. Install a minimum of two detectors in any household.
4. Install a detector inside every bedroom.
5. Install smoke detectors at both ends of a bedroom hallway if the hallway is more than 40 feet (12 meters) long.
6. Install a detector inside every room where one sleeps with the door partly or completely closed, since smoke could be blocked by the closed door and a hallway alarm may not wake up the sleeper if the door is closed.
7. Install detectors as close to the center of the ceiling as possible. If this is not practical, put the detector on the ceiling, no closer than 4 inches (10 cm) from any wall or corner as shown in FIGURE 4.

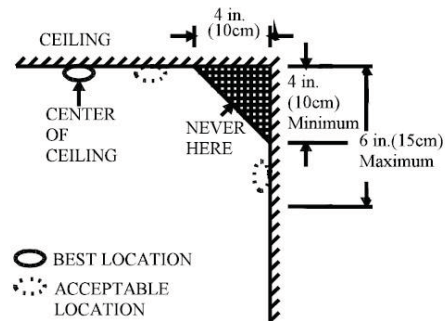


FIGURE 4

Recommended best and acceptable locations to mount smoke detectors.

8. If ceiling mounting is not possible, put wall-mounted detectors between 4 and 6 inches (10~15 cm) from the ceiling (FIGURE 4).
9. If some of your rooms have sloped, peaked, or gabled ceilings, try to mount detectors 3 feet (0.9 meter) measured horizontally from the highest point of the ceiling as shown in FIGURE 5.

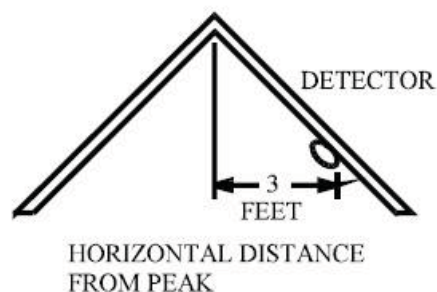


FIGURE 5
Recommended location to mount smoke detectors in rooms with sloped, gabled or peaked ceiling.

Locations Not To Install the Detector

Nuisance alarms take place when smoke detectors are installed where they will not work properly. To avoid nuisance alarms, do not install smoke detectors in the following situations:

1. Combustion particles are the by-products of something that is burning. Thus, in or near areas where combustion particles are present you do not install the smoke detectors to avoid nuisance alarms, such as kitchens with few windows or poor ventilation, garages where there may be vehicle exhaust, near furnaces, hot water heaters, and space heaters.
2. Do not install smoke detectors less than 20 feet (6 meters) away from places where combustion particles are normally present, like kitchens. If a 20-foot distance is not possible, e.g. in a mobile home, try to install the detector as far away from the combustion particles as possible, preferably on the wall. To prevent nuisance alarms, provide good ventilation in such places.
IMPORTANT: For any reason, do not disable the detector to avoid nuisance alarms.
3. When air streams passing by kitchens, the way how a detector can sense combustion particles in normal air-flow paths is graphically shown in FIGURE 6, which indicates the correct and incorrect smoke detector locations concerning this problem.

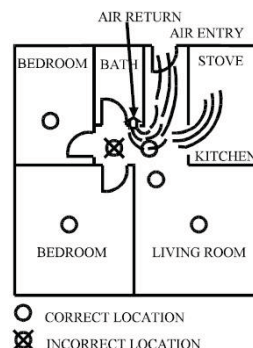


FIGURE 6
Recommended smoke detector locations to avoid air streams with combustion particles.

4. In damp or very humid areas, or near bathrooms with showers. Moisture in humid air can enter the sensing chamber, then turns into droplets upon cooling, which can cause nuisance alarms. Install detectors at least 10 feet (3 meters) away from bathrooms.
5. In very cold or very hot areas, including unheated buildings or outdoor rooms. If the temperature goes above or below the operating range of smoke detector, it will not work properly. The temperature range for your smoke detector is 0°C to 49°C (32°F - 120°F).
6. In very dusty or dirty areas, dirt and dust can build up on the detector's sensing chamber, to make it overly sensitive. Additionally, dust or dirt can block openings to the sensing chamber and keep the detector from sensing smoke.
7. Near fresh air vents or very drafty areas like air conditioners, heaters or fans, fresh air vents and drafts can drive smoke away from smoke detectors.
8. Dead air spaces are often at the top of a peaked roof, or in the corners between ceilings and walls. Dead air may prevent smoke from reaching a detector. Refer to FIGURE 4 and 5 for recommended mounting locations.
9. In insect-infested areas, it is probable that the insects may enter a detector's sensing chamber to cause a nuisance alarm. Where bugs are a problem, please get rid of them before putting up a detector.
10. Near fluorescent lights, electrical "noise" from fluorescent lights may cause nuisance alarms. Install smoke detectors at least 5 feet (1.5 meters) away from such lights.

WARNING: Never remove the battery to stop a nuisance alarm. Cooking smoke or a dusty furnace, sometimes called "friendly fires" can cause the alarm to sound. If this happens, open a window or fan the air around the detector to get rid of the smoke or dust. The alarm will turn itself off when the smoke is gone. If nuisance alarms persist, clean the detector as described in this Manual.

WARNING: Do not stand close to the detector when the alarm is sounding. The alarm is loud in order to wake you in an emergency. Too much exposure to the horn at close range may be harmful to your hearing.

Installation

Battery Installation

1. Open battery compartment (see item ① in product overview).
2. Install battery into compartment and make sure the “+” and “-” ends of each battery are aligned properly.
3. After battery is installed in compartment, you will hear a chirp which indicates the unit is receiving battery power.

Unit Installation

1. At the place where you are going to install the detector, draw a horizontal line six inches long.
2. Remove the mounting bracket from the detector by rotating it counterclockwise.
3. Place the bracket so that the two longest hold slots are aligned on the line. In each of keyhole slots, drawing a mark to locate a mounting plug and screw.
4. Remove the bracket.
5. Using a 3/16-inch (5mm) drill bit, drill two holes at the marks and insert plastic wall plugs. Put the detector away from getting plaster dust on it when you drill holes for mounting.
6. Using the two screws and plastic wall plugs supplied, fix the bracket to the wall.
7. Line up the slot of the bracket with the detector. Push the detector onto the mounting bracket and turn it clockwise to fix it into place. Pull outward on the detector to make sure it is securely attached to the mounting bracket. (FIGURE 7)

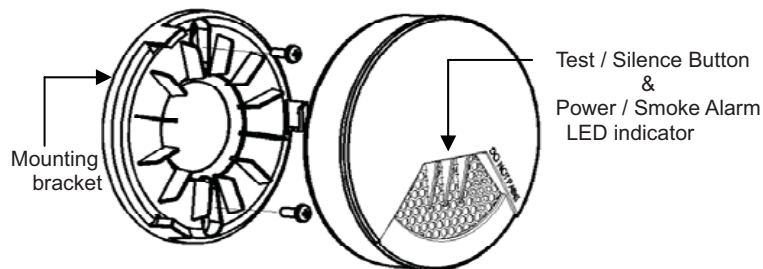


FIGURE 7

CAUTION: This smoke alarm comes with cover latches that will prevent the

smoke alarm cover from closing if battery is not installed. This tells you that the smoke alarm will not work until a new battery is properly installed.

NOTE: alarm horn will beep once after the detector is installed with battery and mounted with bracket 2-4 seconds. This means the smoke alarm is working normally and also indicates that the battery is positioned properly. Close cover, and then press the test button, holding it down for about 3 seconds until the horn sounds. The horn should sound a loud, pulsating alarm. This means the unit is working properly.

Operation

Standby Mode

The red LED, as the ALARM indicator, can be seen through the clear test button on the cover of the unit. When the red LED flashes once every 33 seconds, it indicates the smoke detector is under normal operation. When the detector senses smoke, the unit will instantly sound an audible alarm with 3 beeps, pause, and then 3 beeps. The red LED will also flash continuously and rapidly.

Silence Feature

The silence function can temporarily quiet an alarm for up to 10 minutes. To use this feature, press the test/silence button on the cover when it alarms. However, if the smoke concentration around the detector is still at alarming level after 10 minutes of silence, the unit will re-alarm immediately.

Low Battery Warning Signal

If the alarm horn begins to beep once in 43 seconds with LED flashing, this signal means that the detector's battery is weak. This low battery warning signal should last for up to 30 days, but you should replace the battery immediately to secure your protection.

Tamper Switch Feature

If the smoke detector is not mounted into the bracket properly within 5 minutes after battery is installed, the tamper function is triggered and the Yellow LED is steadily on. If the smoke alarm is still not mounted into the bracket properly 5 minutes after battery is installed, you will hear temporal three sounds with yellow LED steadily on until smoke alarm is mounted back into bracket properly.

Malfunction (Error) Signal

If you hear 3 beeps with yellow LED flashing 3 times in 43 seconds, it indicates that the unit does not work properly. Please have it repaired or serviced.

Testing Your Smoke Detector

Test the alarm weekly by pushing firmly on the test button with your finger for around 4 seconds until the horn sounds. The sound pattern is 3 beeps, pause, and then 3 beeps with red LED flashing continuously and rapidly. If the smoke alarm beeps three times with yellow LED flashing three times in 43 seconds, it indicates the smoke alarm is not working properly and that it needs to be repaired or serviced.

WARNING: Never use an open flame to test your detector. You may set fire to damage the detector, as well as your home.

WARNING: When you are not testing the unit and the alarm horn sounds a loud continuous sound, this means the detector has sensed smoke or combustion particles in the air. Be sure that the alarm horn is a warning of a possible serious situation that requires your immediate attention.

Programming

1. Z-Wave's Group (Association Command Class Version 2)

The Smoke Detector supports association Group1 for 1 node and Group2 for up to 3 nodes. This has the effect that when the detector is triggered, the device(s) associated with the detector will receive the relevant reports. Please refer to the sections below for more details on the reports that the detector will emit when event occurs.

Group1 Commands

1.1 Smoke Event Report

Once the detector is triggered by smoke, the detector will send `SENSOR_ALARM_REPORT` command (Sensor Type = 0x01, Sensor State = 0xFF) to the node of Group1 to inform there is a smoke event. The command will be re-sent if the node of Group1 does not receive the signal. When the event is cleared, the detector will send `SENSOR_ALARM_REPORT` command

(Sensor Type = 0x01, Sensor State = 0x00) to the node of Group1.

1.2 Tamper Trigger Report

When the tamper is triggered (that is, the detector is opened with tamper switch being released), the detector will emit `ALARM_REPORT` command (Alarm Type = 0x03, Alarm Level = 0x01) to the node of Group1.

1.3 Low Battery Report

When the battery level of the detector drops to an unacceptable level, the detector will send `ALARM_REPORT` command (Alarm Type = 0x01, Alarm Level = 0x01) to the node of Group1. The detector will detect the battery condition once every 6 hours. If the Low Battery condition remains, the command signal will be sent to the node of Group1 once every 6 hours.

Group2 Commands

1.4 Commands for other devices

When the detector is triggered by smoke, the detector will send Basic Set command (Value = 0xFF) to the nodes of Group2 to inform there is a smoke event. When the event is cleared, the detector will send Basic Set command (Value = 0x00) to the nodes of Group2.

2. Command Classes

The Smoke Detector supports Command Classes including...

- * `COMMAND_CLASS_BASIC`
- * `COMMAND_CLASS_SENSOR_ALARM`
- * `COMMAND_CLASS_ASSOCIATION_V2`
- * `COMMAND_CLASS_MANUFACTURER_SPECIFIC`
- * `COMMAND_CLASS_VERSION`
- * `COMMAND_CLASS_BATTERY`
- * `COMMAND_CLASS_ALARM`
- * `COMMAND_CLASS_WAKE_UP_V2`

Troubleshooting

| Symptom | Possible Cause | Recommendation |
|---|---|--|
| LED not illuminating, the detector not working | Run out of battery power; check if reverse battery polarity | Replace a new battery |
| | Check if the detector is out of order | Do not open the detector; send it to the local retailer. |
| LED cannot display and the detector not working when pressing the test button | Reverse battery polarity or poor battery connections | Refit the battery with correct polarity |
| | Run out of battery power | Replace a new battery |
| | Button pressing time is not long enough; it should be pressed and held for more than 1 second | Press and hold the button for longer than 1 second |
| The detector does not stay awake for 10 minutes when power is first supplied | Check if detector is out of order | Remove the battery, press link key several times to release the existing battery power and wait for approx. 10 seconds before replacing the battery. |

Specifications*

| | |
|-----------------------|----------------------------------|
| Operating Frequency | 908.42 MHz |
| Battery Type | 3V CR17345 battery x 1 |
| Battery Life | 2 years** |
| Alarm Audibility | 85db@3m |
| Operating Range | 30 meters open space (indoor) |
| Alarm Temperature | 57°C - 65°C (134°F - 149°F) |
| Operation Temperature | 0°C - 49°C (32°F - 120°F) |
| Relative Humidity | 10 - 85% |
| Size | 120mm (diameter) x 5.3mm (depth) |

*Specifications are subject to change without notice

**1 trigger per day

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WARNING:

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities.

Contact your local government for information regarding the collection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being.

When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

Federal Communication Commission Interference 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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.