

Can I Interconnect Smoke Alarms and Carbon Monoxide (CO) Alarms?

Only BRK Brands, Inc. CO alarms or Smoke/CO combo alarms with a "smart interconnect" feature should be interconnected with compatible smoke and heat alarms. The smart interconnect sends a unique signal for smoke and CO alarms on one interconnect wire. With non-smart interconnect CO products, no electrical hazard is associated with such a connection of CO and smoke alarms. However, homeowner confusion can arise when an alarm condition exists when these two devices are interconnected as they have different horn patterns. In addition, the homeowner's response to fire or CO hazards usually requires opposite reactions. In a fire, the homeowner needs to exit the building immediately. In a CO condition the homeowner should shut off appliances and open the windows before leaving the building. Mistakenly identifying what condition caused the alarm can have tragic results. For example, if a fire actually caused the alarm condition and it is mistaken for a CO condition, opening windows and turning off appliances can actually feed the fire and cause the homeowner to be in the building for precious extra minutes they may not have. Conversely, if a CO condition is what initially caused the alarm, and the homeowner believes a fire condition exists and no fire is found, they could succumb to CO poisoning by remaining in the building. It is for these reasons that smoke alarms and carbon monoxide alarms should not be interconnected in a residential application unless the CO alarms have a smart interconnect feature.

How can First Alert® OneLink® alarms be relevant for Electrical Contractors who have existing home additions projects?

When dealing with new construction for existing home additions, the First Alert® OneLink® "Bridge" unit (SA520B) is a perfect solution. It is often difficult to connect to the existing alarm circuit when dealing with home additions. Concrete, steel, laminated beams, etc. are blocking easy access. Building codes state that the alarms must be hardwired for power, but do not have to be hardwired for interconnect. Therefore, the SA520B can be used in the new addition, where power can be obtained locally from a lighting or outlet circuit. In the existing part of the home, just replace one of the existing hardwired units with the SA520B. Link the two alarms to "bridge" the old and the new sections. Now all alarms will be interconnected, including other existing hardwired alarms that were interconnected in the old section.



First Alert® OneLink® smoke alarms will interconnect with most competitive smoke alarms, so retrofitting will not require replacement of existing competitive alarms. (Note: this is not true for competitive carbon monoxide alarms). In the new section, additional 9120B's or 7010B's can be used and in the old section, other First Alert® OneLink® battery operated alarms can be used to bring the bedrooms, hallways, etc. up to code. First Alert® OneLink® alarms are a cost effective solution to renovation and remodeling.

See our lineup of OneLink Wireless Battery and OneLink Wireless Hardwired Alarms.

How can Property Owners and Facility Managers benefit from installing First Alert® OneLink® alarms?

SA511B BoxProperty Owners and Facility Managers of existing buildings can save an average of \$150 - \$200 per alarm on installation when compared to hardwired alarms, when they do not have pay for the retrofitting costs of time, material and labor to connect to an existing alarm circuit and incur drywall repairs, painting, etc. This does not account for special cases requiring conduit (in some parts of the country), wire mold, concrete drilling, etc. Turnaround time is much faster. Case in point, Penn State University in State College, PA accepted First Alert® OneLink® alarms as a viable alternative to hardwiring alarms in existing off-campus housing. Code officials are recognizing the benefits of First Alert® OneLink® alarms.



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How Do I Install Hardwired BRK Alarms?

HOW TO INSTALL BRK HARDWIRED SMOKE, CARBON MONOXIDE AND HEAT ALARMS

BRK hardwired Smoke Alarms are designed to be mounted on any standard wiring junction box to a 4-inch (10 cm) size, on either the ceiling or wall. Read "Recommended Locations For Smoke Alarms" and "Locations to Avoid For Smoke Alarms" before you begin installation.

Tools you will need:

- Needle-nose pliers or utility knife
- Standard Flathead screwdriver.
- Wire Strippers (if you are interconnecting alarms)

THE PARTS OF THE ALARM

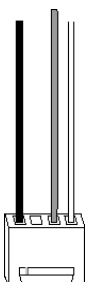
The Mounting Bracket:

To remove the mounting bracket from the Smoke Alarm base, hold the Smoke Alarm base firmly and twist the mounting bracket counterclockwise. The mounting bracket installs onto the junction box. It has a variety of screw slots to fit most boxes.

The Power Connector:

The power connector plugs into a power input block on the Smoke Alarm. It supplies the unit with AC power. It is universal for all current BRK and First Alert smoke, carbon monoxide and heat alarms.

- The black wire is "hot."
- The white wire is neutral.
- The orange wire is used for interconnect. It ships in the box without the wire pre-stripped. This is for safety reasons. If it is not used it will keep the wiring from possibly shorting out.

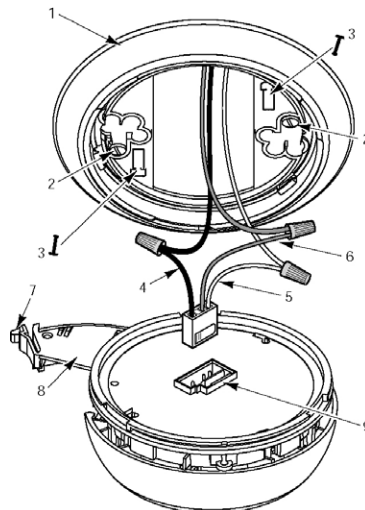


If you need to remove the power connector, insert a flat screwdriver blade between the power connector and the security tab inside the power input block. Gently pry back the tab and pull the connector free.

The Parts of The Alarm Identified.

Note this is used for illustration purposes only. The alarm you have may not match exactly the image shown. Alarm shown is a 9120B.

- 1 Mounting Bracket
- 2 Mounting Slots
- 3 Locking Pins (break out of bracket)
- 4 Hot (Black) AC Wire
- 5 Neutral (White) AC Wire
- 6 Interconnect (Orange) Wire
- 7 Latch to Open Battery Compartment
- 8 Swing-Out Battery Compartment
- 9 Quick-Connect Power Connector



FOLLOW THESE INSTALLATION STEPS

The basic installation of this Smoke Alarm is similar whether you want to install one Smoke Alarm, or interconnect more than one Smoke Alarm. If you are interconnecting more than one Smoke Alarm, you MUST read "Special Requirements For Interconnected Smoke Alarms" below before you begin installation.

DANGER!

ELECTRICAL SHOCK HAZARD.

Turn off power to the area where you will install this unit at the circuit breaker or fuse box before beginning installation. Failure to turn off the power before installation may result in serious electrical shock, injury or death.

1. Using wire nuts, connect the power connector to the household wiring.

WARNING!

Improper wiring of the power connector or the wiring leading to the power connector will cause damage to the Alarm and may lead to a non-functioning Alarm.

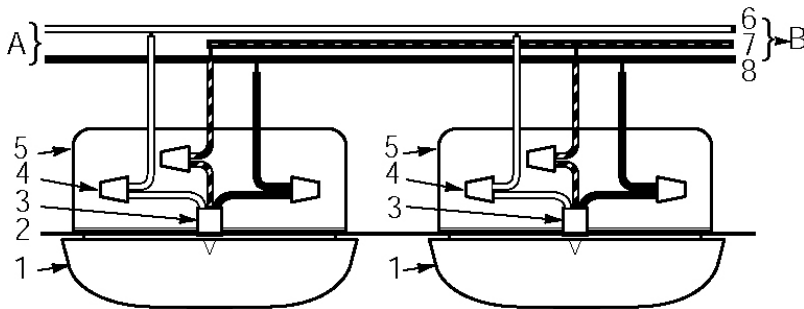
STAND-ALONE ALARM ONLY:

- Connect the white wire on the power connector to the neutral wire in the junction box.
Connect the black wire on the power connector to the hot wire in the junction box. Tuck the
- orange wire inside the junction box. It is used for interconnect only.

INTERCONNECTED UNITS ONLY:

Strip off about 1/2" (12 mm) of the plastic coating on the orange wire on the power connector.

- Connect the white wire on the power connector to the neutral wire in the junction box.
Connect the black wire on the power connector to the hot wire in the junction box. Connect the
- orange wire on the power connector to the interconnect wire in
- the junction box. Repeat for each unit you are interconnecting. Never connect the hot or
- neutral wires in the junction box to the orange interconnect wire. Never cross hot and neutral wires between Alarms.



**A. Unswitch
120VAC 60 Hz source**

**B. To additional units; Maximum = 18 tot
(Maximum 12 Smoke Alarms)**

1. Smoke Ala	4. Wire N	7. Interconnect Wire (Orang
2. Ceiling or Wa	5. Junction B	8. Hot Wire (Blac
3. Power Connect	6. Neutral Wire (Whit	

2. Remove the mounting bracket from the base, and attach it to the junction box.

3. Plug the power connector into the back of the Smoke Alarm.

4. Position the base of the Smoke Alarm over the mounting bracket and turn. The Alarm will remain secure over a wide rotation range to allow for perfect alignment. When wall mounting, this will allow fine-tuning on the positioning to compensate for misaligned wall studs and to keep the wording level. The Alarm can be positioned over the bracket every 120°. Rotate the Alarm until aligned properly.

5. Check all connections.

STAND-ALONE ALARM ONLY:

- If you are only installing one Smoke Alarm, restore power to the junction box.

INTERCONNECTED UNITS ONLY:

- If you are interconnecting multiple Smoke Alarms, repeat steps 1-5 for each Smoke Alarm in the series. When you are finished, restore power to the junction box.

DANGER!

ELECTRICAL SHOCK HAZARD.

Do not restore power until all Smoke Alarms are completely installed. Restoring power before installation is complete may result in serious electrical shock, injury or death.

6. Make sure the Smoke Alarm is receiving AC power. Under normal operation, the Green power indicator light will shine continuously.

7. If the Green power indicator light does not light, **TURN OFF POWER TO THE JUNCTION BOX** and recheck all connections. If all connections are correct and the Green power indicator still does not light when you restore the power, the unit should be replaced immediately.

8. Single Station Alarms: Test each Smoke Alarm. Press and hold the Test/Silence button until the unit alarms.

Interconnected Alarms: Press and hold the Test/Silence button until the unit alarms. All interconnected Alarms should sound. The other Alarms sounding only tests the interconnect signal between Alarms. It does not test each Alarm's operation. **You must test each Alarm individually to check if the Alarm is functioning properly.**

DANGER!

If any unit in the series does not alarm, **TURN OFF POWER** and recheck connections. If it does not alarm when you restore power, replace it immediately.

9. For new construction, place supplied dust cover over Alarm to prevent damage from dust and construction debris. When construction is complete, remove cover.

WARNING!

**Smoke will not be able to reach smoke sensor while cover is in place.
Cover must be removed!**

SPECIAL REQUIREMENTS FOR INTERCONNECTED SMOKE ALARMS WARNING!

Failure to meet any of the above requirements could damage the units and cause them to malfunction, removing your protection.

AC and AC/DC Smoke Alarms can be interconnected. Under AC power, all units will alarm when one senses smoke. When power is interrupted, only the AC/DC units in the series will continue to send and receive signals. AC powered Smoke Alarms will not operate.

Interconnected units can provide earlier warning of fire than stand-alone units, especially if a fire starts in a remote area of the dwelling. If any unit in the series senses smoke, all units will alarm.

To determine which Smoke Alarm initiated an alarm:

During an Alarm:

On Initiating Alarm(s) Red LED(s) flashes (flash) rapidly.

On All Other Alarms the Red LED is Off.

After an Alarm (If Latching Feature is present): On Initiating Alarm(s) Green LED(s) On for 2 seconds/
Off for 2 seconds

On All Other Alarms Green LED(s) On, Red LED(s) is Off

Compatible Interconnected Units

Interconnect units within a single family residence only. Otherwise all households will experience unwanted alarms when you test any unit in the series. Interconnected units

will only work if they are wired to compatible units and all requirements are met. This unit is designed to be compatible with all current model First Alert and BRK alarms. Please refer to users manual or contact BRK Consumer Affairs for specific details.

Interconnected units must meet ALL of the following requirements:

- A maximum of 18 compatible units may be interconnected (Maximum of 12 Smoke Alarms).
- The same fuse or circuit breaker must power all interconnected units.
- The total length of wire interconnecting the units should be less than 1000 feet (300 meters). This type of wire is commonly available at Hardware and Electrical Supply stores.
- All wiring must conform to all local electrical codes and NFPA 70 (NEC). Refer to NFPA 72, NFPA 101, and/or your local building code for further connection requirements.

If you are in doubt about any of these requirements, contact an experienced Electrical Professional to complete the installation of these alarms.

How long and what is the warranty on my BRK/First Alert product?

The length of warranty varies by product. See specific product section on this website for warranty length by product.

Your warranty is outlined below with the exception of warranty length changing as specified above:

LIMITED WARRANTY

BRK Brands, Inc., ("BRK") the maker of First Alert® brand products warrants that for a period of (see specific product for details) years from the date of purchase, this product will be free from defects in material and workmanship. BRK, at its option, will repair or replace this product or any component of the product found to be defective during the warranty period. Replacement will be made with a new or remanufactured product or component. If the product is no longer available, replacement may be made with a similar product of equal or greater value. This is your exclusive warranty.

This warranty is valid for the original retail purchaser from the date of initial retail purchase and is not transferable. Keep the original sales receipt. Proof of purchase is required to obtain warranty performance. BRK dealers, service centers, or retail stores selling BRK products do not have the right to alter, modify or any way change the terms and conditions of this warranty. This warranty does not cover normal wear of parts or damage resulting from any of the following: negligent use or misuse of the product, use on improper voltage or current, use contrary to the operating instructions, disassembly, repair or alteration by anyone other than BRK or an authorized service center. Further, the warranty does not cover Acts of God, such as fire, flood, hurricanes and tornadoes or any batteries that are included with this unit.

BRK shall not be liable for any incidental or consequential damages caused by the breach of any express or implied warranty. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose is limited in duration to the duration of the above warranty. Some states, provinces or jurisdictions do not allow the exclusion or limitation of incidental or consequential damages or limitations on how long an implied warranty lasts, so the above limitations or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state or province to province.

How long do CO and CO/Smoke combo alarms last?

ANSI/UL2034 specifications have changed to require all CO alarms and combination smoke/CO alarms to have an end of life feature. This is an industry wide change. This requirement went into effect for any production beginning on August 1, 2009. All BRK/First Alert carbon monoxide alarms manufactured on or after this date meet this requirement. This information is stated on the original packaging, label on the alarm and the manuals.

Recent breakthroughs in CO sensor technology and alarm design improvements allow most BRK CO alarms and combination smoke and CO alarms to have a 10-year alarm life, a 10-year CO sensor life, and a 10-year warranty. Many also have batteries that last for 10 years. The end of life timer built into the alarm is a simple counter that begins working once the unit is activated either by plugging it in, hardwiring or inserting the battery. Then after approximately 120 months of operation (or other timing as coded in the alarm which may be 60 or 72 months) the unit will begin to sound 5 chirps. See the individual CO product on the BRK website and click on the "sounds" tab to hear this alert. This silence feature can temporarily quiet the End of Life warning "chirp" for up to 2 days.

You can silence the End of Life warning "chirp" by pressing the Test/Silence button. The horn will chirp, acknowledging that the End of Life feature has been activated. After approximately 2 days, the End of Life "chirp" will resume. After approximately 2-3 weeks the End of Life warning cannot be silenced

How many First Alert® OneLink® alarms can be interconnected together?

As with hardwired units, NFPA states that up to 18 total units can be interconnected (RF Wireless or hardwired) with a maximum of 12 of those being smoke alarms.

How many smoke alarms can be interconnected?

Interconnected units must meet ALL of the following requirements:

- A maximum of 18 compatible units may be interconnected (Maximum of 12 Smoke Alarms).

- The same fuse or circuit breaker must power all interconnected units.

- The total length of wire interconnecting the units should be less than 1000 feet (300 meters). This

type of wire is commonly available at Hardware and Electrical Supply stores.

All wiring must conform to all local electrical codes and NFPA 70 (NEC). Refer to NFPA 72, NFPA 101, and/or your local building code for further connection requirements.

If you are in doubt about any of these requirements, contact an experienced Electrical Professional to complete the installation of these alarms.

The maximum number of smoke alarms that should be interconnected per NFPA 72 standards is 12. Always make sure the smoke alarms you are interconnecting are compatible. In addition to the 12 smoke alarms in the series, you can connect up to 6 compatible devices like door closers, bells, or lights.

I lost my User's Manual. How can I get a new one?

You can obtain a replacement manual in two ways:

- We will gladly send you a replacement user's manual or equivalent instructions. Please call Consumer Affairs and have the model number handy when requesting a replacement manual.

- You can also download current user's manuals on this website. Go to the "Products" section. Then find your product and click on the downloads tab.

How to Choose a Smoke Alarm

Your application or local codes will drive what type of alarms to choose. Whether you're replacing existing alarms or adding in new, follow these simple steps:

1 Determine Primary Application:

Battery Operated

- Existing Multi-family/single family (no code for wired-in alarms)
- Replacement of existing battery operated.
- Interconnected alarms not required

Wired-in

- Replacement of existing wired-in
- New construction or remodel (code driven)
- Need to have interconnected alarms either by choice or required by code.

Wireless

- Existing Multi-family/single family (no code for wired-in alarms).
Exception: Wireless alarms with both wireless and wired-in features.
- Need interconnected alarms but can't easily pull wires through existing walls or ceilings.
- Use to bridge between floors
- Use to bridge between old and new construction
- Use to bridge between wired-in and battery operated
- Generally more expensive per alarm but savings are realized through retrofitting costs savings in time, materials and labor.

2 Determine Battery Type:

Battery Operated

- Carbon Zinc (standard life) lasts at least 1 year
- Alkaline (extended life) lasts about 2 years
- Removable Lithium (long life) lasts 6-10 years
- Sealed Lithium (true 10 year) lasts at least 10 years

Wired-in

- AC only: Where codes allow such as some motel/hotel applications. Will not operate without AC power.
- AC with battery backup: Required by most codes today. Provides alarm function when power is out.

Wireless

Choose either

- Battery operated
- Wired-in with battery backup (bridge unit).

3 Determine Sensor Type:

Battery Operated

- **Ionization:** Widely used sensor for many applications, detects small particles produced by flaming fires.
- **Photoelectric:** Detects large particles produced by smoldering fires. Better for nuisance control around kitchens and baths. Required by code in some areas of country like Massachusetts.

Wired-in

- Photoelectric or Ionization (see above)

Wireless

- Photoelectric or Ionization (see above)

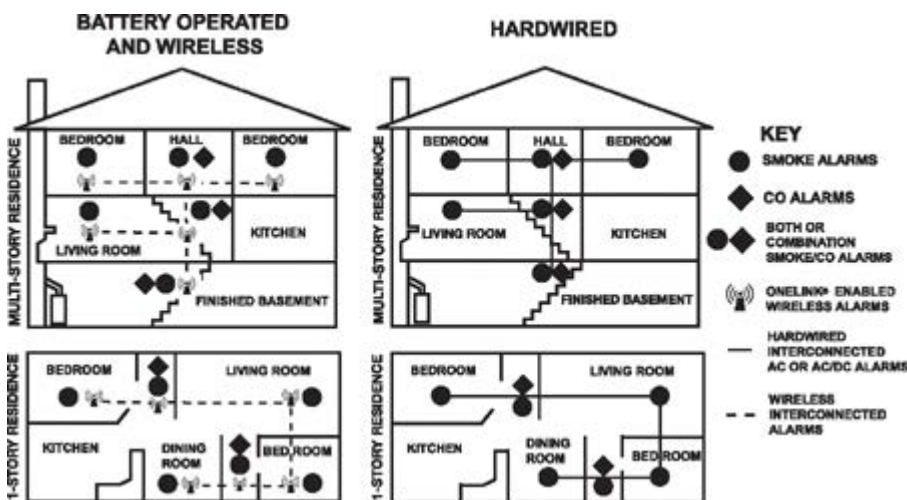
Recommended locations for Smoke Alarms

Installing Smoke Alarms in Single-Family Residences

The National Fire Protection Association (NFPA), recommends one Smoke Alarm on every floor, in every sleeping area, and in every bedroom. In new construction, the Smoke Alarms must be AC powered and interconnected. See "Agency Placement Recommendations" for details. For additional coverage, it is recommended that you install a Smoke Alarm in all rooms, halls, storage areas, finished attics, and basements, where temperatures normally remain between 40° F (4° C) and 100° F (38° C). Make sure no door or other obstruction could keep smoke from reaching the Smoke Alarms. More specifically, install Smoke Alarms:

- On every level of your home, including finished attics and basements.
- Inside every bedroom, especially if people sleep with the door partly or completely closed.
- In the hall near every sleeping area. If your home has multiple sleeping areas, install a unit in each.
- If a hall is more than 40 feet long (12 meters), install a unit at each end. At the top of the first-to-second floor stairway, and at the bottom of the basement stairway.

IMPORTANT! Specific requirements for Smoke Alarm installation vary from state to state and from region to region. Check with your local Fire Department for current requirements in your area. **It is recommended AC or AC/DC units be interconnected for added protection.**



INSTALLING SMOKE ALARMS IN MOBILE HOMES

For minimum security install one Smoke Alarm as close to each sleeping area as possible. For more security, put one unit in each room. Many older mobile homes (especially those built before 1978) have little or no insulation. If your mobile home is not well insulated, or if you are unsure of the amount of insulation, it is important to install units on inside walls only. Smoke Alarms should be installed where temperatures normally remain between 40° F (4° C) and 100° F (38° C).

AGENCY PLACEMENT RECOMMENDATIONS

NFPA 72 (National Fire Code) Chapter 11 "For your information, the National Fire Protection Association's Standard 72 reads as follows:

11.5.1 One- and Two-Family Dwelling Units.

11.5.1.1 Smoke Detection. Where required by applicable laws, codes, or standards for the specified occupancy, approved single- and multiple-station Smoke Alarms shall be installed as follows: (1) In all sleeping rooms. Exception: Smoke Alarms shall not be required in sleeping rooms in existing one- and two-family dwelling units. (2) Outside of each separate sleeping area, in immediate vicinity of the sleeping rooms. (3) On each level of the dwelling unit, including basements. Exception: In existing one- and two family dwelling units, approved Smoke Alarms powered by batteries are permitted.

A.11.8.3 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, unfinished attics, or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation."

California State Fire Marshal (CSFM) Early warning detection is best achieved by the installation of fire detection equipment in all rooms and areas of the household as follows: A Smoke Alarm installed in each separate sleeping area (in the vicinity, but outside bedrooms), and Heat or Smoke Alarms in the living rooms, dining rooms, bedrooms, kitchens, hallways, finished attics, furnace rooms, closets, utility and storage rooms, basements, and attached garages.

What are my options for a 10-year smoke alarm?

"10-year smoke alarms" are available, which feature extended life batteries or power cells designed to provide up to 10 years of service without battery changes. Regardless of the manufacturer's suggested battery life, it is important to replace batteries (or smoke alarm) as soon as the low battery alert is activated! Many factors, including temperature, installation location, and how well smoke alarms are cleaned and maintained, can shorten battery (or smoke alarm) life.

First Alert® model SA340 Smoke Alarm. This model has three non-removable Lithium power cells sealed into the battery pack. This makes the unit tamper-proof. Once the power cells are installed in the alarm they are activated. They provide up to 10 years of continuous service. Since they are power cells - not traditional batteries - they cannot be used in other battery-powered devices, which deters unauthorized removal. Once the power cells become weak, the smoke alarm must be replaced. Long-life lithium batteries.

Some manufacturers offer long-life Lithium batteries, which provide a longer service life than carbon zinc or alkaline batteries, possibly up to 10 years depending on type of alarm, temperature conditions over the life of the alarm, how often the unit is in alarm, how often tested, etcetera. These can be used in most battery powered and AC/DC smoke alarms.

What are the locations to avoid for smoke alarms?

LOCATIONS TO AVOID FOR SMOKE ALARMS

For best performance, AVOID installing Smoke Alarms in these areas:

- Where combustion particles are produced. Combustion particles form when something burns. Areas to avoid include poorly ventilated kitchens, garages, and furnace rooms. Keep units at least 20 feet (6 meters) from the sources of combustion particles (stove, furnace, water heater, space heater) if possible. In areas where a 20-foot (6 meter) distance is not possible – in modular, mobile, or smaller homes, for example – it is recommended the Smoke Alarm be placed as far from these fuel-burning sources as possible. The placement recommendations are intended to keep these Alarms at a reasonable distance from a fuel-burning source, and thus reduce “unwanted” alarms. Unwanted alarms can occur if a Smoke Alarm is placed directly next to a fuel-burning source. Ventilate these areas as much as possible.
In air streams near kitchens. Air currents can draw cooking smoke into the sensing chamber of a Smoke Alarm near the kitchen.
In very damp, humid or steamy areas, or directly near bathrooms with showers. Keep units at
- least 10 feet (3 meters) away from showers, saunas, dishwashers, etc.
Where the temperatures are regularly below 40°F (4° C) or above 100° F (38° C) including
- unheated buildings, outdoor rooms, porches, or unfinished attics or basements.
In very dusty, dirty, or greasy areas. Do not install a Smoke Alarm directly over the stove or range. Clean a laundry room unit frequently to keep it free of dust or lint.
- Near fresh air vents, ceiling fans, or in very drafty areas. Drafts can blow smoke away from the unit, preventing it from reaching sensing chamber. In insect infested areas. Insects can clog openings to the sensing chamber and cause unwanted alarms.
- Less than 12 inches (305 mm) away from fluorescent lights. Electrical “noise” can interfere with the sensor.
In “dead air” spaces. “Dead air” spaces may prevent smoke from reaching the Smoke Alarm.
- AVOIDING DEAD AIR SPACES “Dead air” spaces may prevent smoke from reaching the Smoke Alarm. To avoid dead air spaces, follow the installation recommendations below. On ceilings,
- install Smoke Alarms as close to the center of the ceiling as possible. If this is not possible, install the Smoke Alarm at least 4 inches (102 mm) from the wall or corner. For wall mounting
- (if allowed by building codes), the top edge of Smoke Alarms should be placed between 4 inches (102 mm) and 12 inches
- (305 mm) from the wall/ceiling line, below typical “dead air” spaces. On a peaked, gabled, or cathedral ceiling, install the first Smoke Alarm within 3 feet (0.9 meters) of the peak of the ceiling, measured horizontally. Additional Smoke Alarms may be required depending on the length, angle, etc. of the ceiling's slope. Refer to NFPA 72, A.11.8.3 for details on requirements for sloped or peaked ceilings.

What is the difference between Photoelectric and Ionization smoke alarms?

Ionization Smoke Alarms - Generally are more effective at detecting flaming fires, which consume combustibles quickly and spread rapidly. Sources of these fires include paper burning in a wastebasket, or grease fires on a stove.

Photoelectric Smoke Alarms - Generally are more effective at detecting smoldering fires, which smolder for hours before bursting into flame. Sources of the fires include cigarette smoldering in couches or bedding.

For maximum protection, install both types of smoke alarms on every level of the home.

What Levels of CO Cause an Alarm

UNDERWRITERS LABORATORIES INC. UL2034

WHAT LEVELS OF CO CAUSE AN ALARM?

Underwriters Laboratories Inc. Standard UL2034 requires residential CO Alarms to sound when exposed to levels of CO and exposure times as described below. They are measured in parts per million (ppm) of CO over time (in minutes). UL2034 Required Alarm Points*:

- If the Alarm is exposed to 400 ppm of CO, IT MUST ALARM BETWEEN 4 and 15 MINUTES
- If the Alarm is exposed to 150 ppm of CO, IT MUST ALARM BETWEEN 10 and 50 MINUTES.
- If the Alarm is exposed to 70 ppm of CO, IT MUST ALARM BETWEEN 60 and 240 MINUTES.

Note* Approximately 10% COHb exposure at levels of 10% to 95% Relative Humidity (RH). The unit is designed not to alarm when exposed to a constant level of 30 ppm for 30 days.

IMPORTANT!

CO Alarms are designed to alarm before there is an immediate life threat. Since you cannot see or smell CO, never assume it's not present.

- An exposure to 100 ppm of CO for 20 minutes may not affect average, healthy adults, but after 4 hours the same level may cause headaches. An exposure to 400 ppm of CO may
- cause headaches in average, healthy adults after 35 minutes, but can cause death after 2 hours.

What replacement batteries can I use?

Check your User's Manual or the label on the back of the alarm. Never use rechargeable batteries!

Why can't I use rechargeable batteries?

Never use rechargeable batteries because they do not always provide a consistent charge and are not approved for use in our alarms at this time.

Why can smoke alarms go into alarm when no smoke is present?

Any of these situations can cause unwanted alarms:

- **Cover or Sensor Chamber is Covered by Dust or Dirt.**

Alarms may look clean, but dust can accumulate inside the cover, especially in newly built homes. Gently vacuum smoke alarms regularly using the soft brush attachment. Be sure electricians install the provided dust cover to keep alarm clean during construction.

- **Insects Covered or Clogged the Sensor Chamber.**

- Clean the smoke alarm with the soft brush attachment on your vacuum. **Alarm was Triggered from Another Part of the Home**

- In a system of interconnected AC or AC/DC alarms, the unit triggering the alarm is in another part of the home - smoke may be present, but you can't see it.

- **Power Interruptions to AC/DC Smoke Alarms**

Smoke alarms may alarm briefly when power is interrupted, then restored. Power interruptions

- are common in areas where utility companies switch grids in the early hours of the morning.

- **A Loose Electrical Connection on AC or AC/DC Smoke Alarms**

In AC or AC/DC smoke alarms, a loose hot wire connection can intermittently disconnect power to the smoke alarm. The effect is the same as a power failure. When power is restored, the

- units may alarm briefly. Note: A loose or disconnected neutral wire may cause the alarm to chirp or go into alarm. For residential applications, connecting stranded 18 AWG wire from the smoke alarm to solid 14 AWG wire can be difficult. Be sure wire is making a reliable connection.

- **Are there any appliances on the same circuit as the alarms?**

A large current load, like a vacuum cleaner, on the same circuit may cause nuisance alarms.

This situation is aggravated if the load is located at the end of the wiring run, that is, electrically far away from the circuit box, and if the resistance of the wiring to the load is large.

- The voltage drop of the wiring to the load will be imposed on the interconnect wire thus causing the alarm to sound. Note: According to the NEC smoke alarms are required to be tied to general lighting or outlet circuits in bedrooms. This was done so it would be more likely a homeowner would recognize their circuit breaker had tripped and power was interrupted to their alarms versus when alarms were on dedicated circuits where they would have to recognize the power light was off on their alarm. Unfortunately this may increase the chance for nuisance alarms.

- **When the Furnace is Turned on for First Use:**

- Oil and residue is present on and in furnaces and ductwork from the factory to protect the metal surfaces. This can cause smoke to be emitted for a period of time and possibly set off smoke alarms.
- Dirt, drywall dust and construction debris is often present in ductwork. First use of the furnace can cause fine particles to be blown through the house possibly causing nuisance alarms. This is why the homeowner may be in the house for several months without incident and why nuisance alarms tend to increase during the Fall.

- **Humidity**

Ionization smoke alarms are more susceptible to nuisance alarms when placed near a bathroom or other potentially high humidity area.

- **Near Cold Air Returns**

Smoke alarms placed near a cold air return are more susceptible to nuisance alarms because dusty air can be blown through the alarm sensing chamber.

- **Smoke Alarm May Need to be Relocated**

If possible, install smoke alarms at least 20 feet from appliances like furnaces and ovens, which produce combustion particles. Alarms should be at least 10 feet from high humidity areas like showers and laundry rooms, and at least 3 feet from heat/AC vents and fluorescent lights whenever possible. In areas where a 20-foot (6 meter) distance is not possible – in modular, mobile, or smaller homes, for example – it is recommended the Smoke Alarm be placed as far from these fuel-burning sources as possible. The placement recommendations are intended to keep these Alarms at a reasonable distance from a fuel-burning source, and thus reduce

“unwanted” alarms. Unwanted alarms can occur if a Smoke Alarm is placed directly next to a fuel-burning source. Ventilate these areas as much as possible.

Why do I hear the low battery "chirp" if the battery is new?

Any of these situations can cause a low battery chirp:

Does your smoke alarm have a separate silence button? If so, the button may have been pressed by mistake. The alarm will now "chirp" once a minute for up to 15 minutes.

Are you sure it's the smoke alarm? Other devices have similar low battery chirps or warning tones. The source of a single chirp is often hard to pinpoint. Be sure to check wall outlets that may have other devices like carbon monoxides alarms in use.

Even "new" batteries may not be fresh. If batteries are stored, especially in cold areas like refrigerators, they lose their charge more quickly. Always check the freshness date on the package when buying new batteries.

Why do smoke alarms chirp intermittently?

The "chirp" will only be caused by issues surrounding the battery or miss-wiring. However, a homeowner may confuse the chirp with an intermittent alarm. Try and get the homeowner to be specific as to what they are hearing. A "chirp" will have a higher pitched tone and sound in equal intervals about once every minute. An intermittent alarm will be random, sound usually for several seconds and have a lower pitched tone. Any of these situations can cause unwanted chirps:

- **Battery Pull-tab is Still in the Alarm**

The battery pull-tab must be removed after AC power is provided to the alarm.

- **The Battery Drawer is Open**

The battery drawer must be completely closed for the battery to make contact with the terminals.

- **Battery Pull-tab is Still in the Alarm**

The battery pull-tab must be removed after AC power is provided to the alarm. **The Battery**

- **Drawer is Open**

The battery drawer must be completely closed for the battery to make contact with the terminals.

- **Low Battery**

As the battery in a smoke alarm becomes weak, the smoke alarm will "chirp" about once a minute to alert you that the battery needs to be replaced. Note: Only the alarm with a low battery will chirp. No signal is sent through the interconnect wire. The other alarms will be silent.

- **Tip for Builder Service Managers**

During extended periods prior to occupancy where power is off, Builder Service Managers who maintain new homes prior to sale should be sure to open the battery drawer on alarms to keep the battery from draining. If power is restored temporarily (e.g. to show the home) the alarm will chirp if the drawer is open. The alarm now senses there is no battery.

- **Battery is Present but Part of the Terminal is Obstructed**

The battery may not be fully making contact with the terminals in the alarm. Check to be sure the battery pull-tab or some other obstruction is completely removed.

- **A Different Device or Appliance**

Security systems, monitors, carbon monoxide alarms, and other devices have similar low battery or alert signals.

Why does the alarm sound when I install a battery or turn on the AC power?

- **Normal Operation**

It is normal for some smoke alarms to sound briefly (up to 5-10 seconds) when they are powered up, especially older models. Newer models such as 9120B in most cases will remain silent upon power up. If the alarm continues to sound and no smoke is present, the cause may be:

- **Insufficient Battery or AC Power**

Very low batteries or insufficient electrical power (brown out) may cause a continuous weak sounding alarm. Temporarily disconnect power at the service panel until the brown out is over. If you do not restore the AC power, your smoke alarms cannot warn you of a fire.

- **Incompatible Warning Device**

- If an incompatible alarm or auxiliary device is linked into a series of AC or AC/DC smoke alarms it may cause the system to alarm.

Why does the National Fire Protection Association (NFPA) recommend that home smoke alarms be replaced after 10 years?

Like all devices with electronic components, smoke alarms have a limited effective service life. As electronic devices, smoke alarms are subject to random failures. In 10 years there is roughly a 30% probability of failure before replacement. After 15 years, the chances are better than 50/50 that your alarm has failed. That is too big a risk to take. Replacing alarms after 10 years protects against the accumulated chance of failure, but monthly testing is still your first, best means of making sure your alarm will work.

Why won't a smoke alarm sound when I push the test button?

Try the following before assuming the alarm is not responding:

- Make sure you didn't accidentally press the silence button. (Older models like 4120SB have separate silence and test buttons).
 - You may have accidentally pushed the silence button. This temporarily disables the test function on some alarms. You can tell the unit is in silence mode if the red light is flashing, and the alarm "chirps" about once a minute for up to 15 minutes. The test function will return to normal when the smoke alarm is no longer in silence mode. Newer models like the [BRK 9120 Series](#) and [7010 Series](#) can be tested while in "Silence" mode.
- Hold the test button down longer. Try holding the test button down for up to 10 seconds (20 seconds on photoelectric models.)
- Check the power supply. Make sure the battery is installed properly and snapped all the way in place. Even if the alarm sounded briefly when the battery touched the terminals, you still need to make sure it is snapped securely in place. If the battery is loose, it cannot power the smoke alarm properly. See "The Battery Drawer is open"
- Make sure the AC power is on. AC and AC/DC units will have a power indicator light (red or green) that shines continuously when they are receiving electrical power.
 - 10-Year Models O
 - [Model SA340](#): Be sure the battery pack is installed.
- Models SA10YR or 4010YR: The smoke alarm may not have been properly activated. If the tab broke away before the alarm was activated, you can use a toothpick to move the switch over to activate the alarm.