

EL-2603NA

Smoke Detector

INSTALLATION GUIDE



Electronics Line 3000 Ltd.

Introduction

The EL-2603NA is a smoke detector and transmitter designed for use with Electronics Line 3000's supervised wireless range of receivers. The EL-2603NA sends a status transmission to the receiver every hour to indicate that the transmitter is functional.

Smoke Detector/Base Lock discourages unauthorized removal of the transmitter or of the batteries by requiring a screwdriver to remove the detector from the base. Please read this guide thoroughly before proceeding with the installation.

Internal Signal Outputs

The smoke detector is listed with a transmitter that provides the following signals for interfacing:

- Alarm
- Alarm restore
- Low battery
- Supervision check-in

The following procedure explains the installation of the EL-2603NA wireless smoke detector and its registration to the receiver, selecting location, test procedures, attaching and removing, maintenance and specifications.

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 (NFA) Standard 72.

Where to Locate the Required Smoke Detectors 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 detector(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 detector(s) should be located as shown in Figure 1A.

In family living units with more than one bedroom area or with bedrooms on more than one floor, more than one smoke detector is required, as shown in Figure 1 B. In addition to smoke detectors outside of the sleeping areas, the installation of a smoke detector 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 detector should be installed in the living room or near the stairway to the upper level, or in both locations. The basement smoke detector should be installed in close proximity to the stairway leading to the floor above. Where installed on an open-jointed ceiling, the detector should be placed on the bottom of the joists. The detector 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 Detectors in New Construction

All of the smoke detectors specified in this section for existing construction are required and, in addition, a smoke detector is required in each bedroom.

Are more Smoke Detectors Desirable?

The required number of smoke detectors might not provide reliable early warning protection for those areas separated by a door from the areas protected by the required smoke detectors. For this reason, it is recommended that the householder consider the use of additional smoke detectors 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 detectors. The installation of smoke detectors in kitchens, attics (finished or unfinished), or garages is not normally recommended, as these locations occasionally experience conditions that can result in improper operation.



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

In addition to NFA 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.
- 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

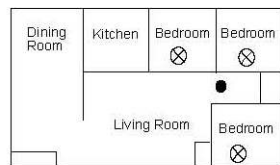


Figure 1A: One-Bedroom Area

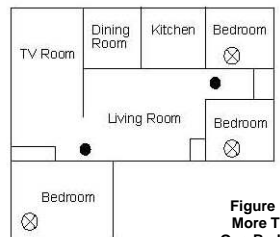


Figure 1B:
More Than
One Bedroom
Area

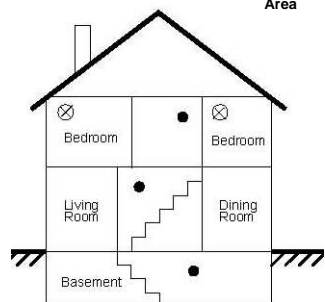


Figure 1C: More Than One Story

- 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.
- Locate away from large metallic objects.

Attaching and Removing

Attaching

Attach the mounting base to the ceiling using the screws provided. Attach the EL-2603NA to its mounting base. To do so, line up the raised tab on the lip of the detector with the slot/arrow on the lip of the mounting base. Insert the detector into the base and turn clockwise approximately 15 degrees. It should snap firmly into place.



The Detector cannot be attached to the mounting base if no batteries are installed because of the chance of false alarms from the detector:

LED

The LED on the Detector indicates the status of the alarm as follows:

Flashing – Flashes every 9 seconds to indicate normal operation.

ON – detects smoke.

OFF – Trouble or maintenance is required.

Removing

Remove the red plastic dust cover from the detector. The detector is shipped with a dust cover for protection on construction sites with dusty environments.

Remove the EL-2603NA smoke detector from its mounting base. To do so, 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 2

When to Replace the Batteries

The detector requires two 3V lithium A batteries as listed on the battery compartment cover, with the exception of the Energizer brand batteries. The required batteries are available where other batteries are sold. Battery life is a minimum of 1 year and varies depending on how often an alarm occurs. When the batteries are low, the detector extinguishes its LED and chirps every 30 seconds until the batteries are replaced. The sounder can be silenced for 24 hours by pushing the Test/Silence button.

Replacing the Batteries

Remove the detector from the mounting base. Slide the battery compartment cover away from the detector, unsnap it and lift it off. See Figure 3.

Remove the batteries and dispose of them properly. Observing correct polarity insert two new CR123 Lithium Battery (Duracell DL123A, Sanyo and Panasonic CR123A) into the battery compartment and replace the cover.

Perform Testing and Registration (See *Testing and Registration*).

Test the detector. See *Smoke Testing the Detector*.

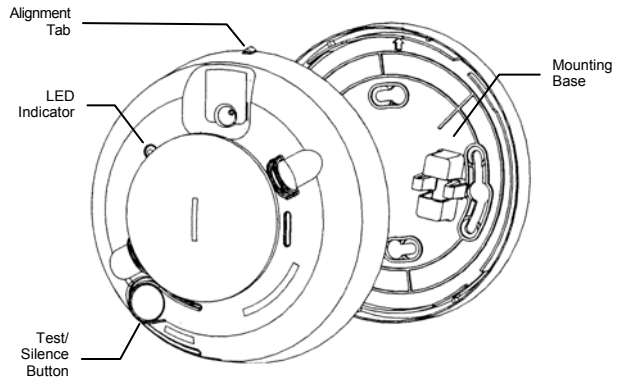


Figure 2: EL-2603NA and its Mounting Base

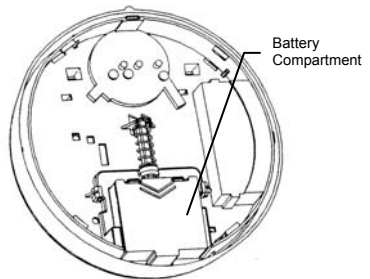


Figure 3: EL-2603NA (Rear View)

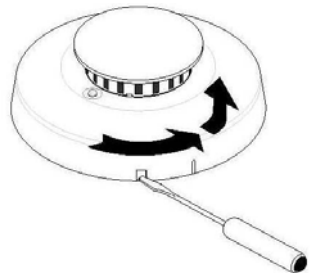


Figure 4: Smoke Alarm/Base Lock

Transmission Testing and Detector Registration



Before testing and registration, apply the battery power (See Attaching and Removing)

1. Set the receiver to Registration mode.
2. Press the test button (See Figure 2)
3. Make sure that the Registration procedure is completed (if necessary, press the test button again).
4. After registration, write the number of the zone to which the transmitter is registered on the sticker provided. Affix the sticker on the rear of the detector for future reference.
5. Before permanently mounting the unit, test the transmitter at the exact mounting position. If necessary, relocate the EL-2603NA to a better position for improved RF signal strength.

Smoke Testing the Detector

Smoke detectors should be tested in place annually using smoke or canned aerosol simulated smoke. Follow the instructions on the canned smoke or 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.



Be sure to properly extinguish the smoke source after testing!

The detector LED should remain on and the detector will sound a temporal rhythm until the Test/Silence button is pressed. The detector automatically resets when smoke is no longer present.

Testing the Alarm

The Test/Silence button on the detector performs the following three functions associated with detector sounding: testing (sounder test, which is pressing the button to make sure that the alarm sound works properly), silencing the sounder during the alarm – (it will be resumed after a few minutes if smoke is still present), silencing trouble chirp (it will be resumed after 24 hours if the trouble condition is not corrected).

Testing the Detector Sensitivity

The detector provides a sensitivity level test mode that allows you to check the detector sensitivity using the Test/Silence button and the LED indicator on the detector as follows:

1. Press the Test/Silence button on the smoke detector for 2 seconds. Once the test starts, the detector LED flashes one to nine times.
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.

Flashes	Obscuration %/ft (approx) UL	Indication	Action
1	N/A	Unserviceable hardware fault detected.	Reset unit and rerun sensitivity test. If the error persists, replace the unit.
2-3	N/A	Detector is not sensitive enough.	Clean the unit. Reset unit and rerun sensitivity test. If the error persists, replace the unit.
4	3.1	Detector is within normal sensitivity range.	N/A
5	2.6		
6	2.1		
7	1.6		
8, 9	N/A	Detector is too sensitive.	Verify that the smoke chamber is snapped down securely. Clean the unit and replace the smoke chamber.

After the flashes, if the sensitivity is within limits and all other tests pass, the detector goes into alarm and resets after 5 seconds. If the sensitivity is not within limits or an unserviceable hardware fault has been detected, the detector LED extinguishes until the detector is serviced.

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 smoke chamber as follows:

1. Remove the detector from its mounting base. See *Attaching and Removing the Detector*.
2. Remove the Batteries. See *Replacing the Batteries*.
3. Slide a flat-blade screwdriver in the slot on the detector cap and gently push the handle down to pry the cap up and off. See Figure 5.
4. Press in on the sides of the smoke chamber and pull it up and away from the detector and discard. See Figure 6.
5. Blow out or use a soft-bristled brush to remove dust and dirt from the smoke chamber base.
6. Line the new smoke chamber up with the smoke chamber base and snap it down into the detector cap as follows:
 - Line the cap up with the detector.
 - Insert the cap into the smoke detector and turn clockwise approximately 15 degrees. It should snap firmly into place.
7. Observing the proper polarity, put the batteries back in the detector and replace the battery compartment cover.
8. Reattach the detector to its mounting base. See *Attaching and Removing the Detector*.
9. Test the detector sensitivity. See *Testing the Detector Sensitivity*.

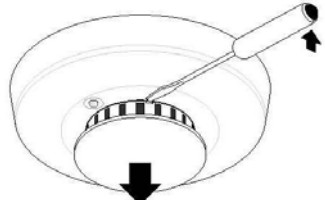


Figure 5: Removing Alarm Cap

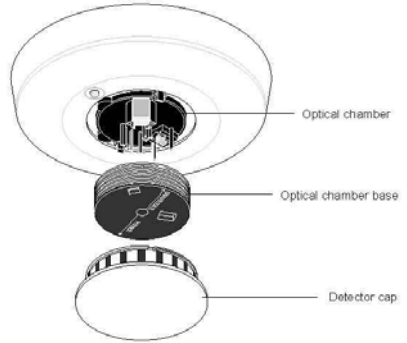


Figure 6: Alarm Parts

Maintaining the Detector

EL-2603NA 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 weekly. See *Smoke Testing the Detector and Transmission Test*.

Signal	Maintenance required
Low Battery	Batteries in the detector are low. Replace the batteries.
Sensitivity outside of normal range	Clean detector and replace, if need be

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 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.



Regulations pertaining to smoke detector installations vary from state to state. For more information, contact your local fire department or local authority having jurisdiction. In addition to NFA 72, use the following location guidelines to optimize performance and reduce the chance of false alarms from the detector:

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.

Specifications

Antenna: Built-in Internal Whip

Frequency: 418MHz FM

Voltage 3DVC

Power: 2 x 3V CR123 Lithium Battery (Duracell DL123A, Sanyo and Panasonic CR123A)

Typical average standby current 40 μ A

Typical Test Current: 30mA

Typical alarm current: 95mA

Battery life – 1 year minimum



Do not recharge, disassemble or heat above 212°F/100°C.

Fire, explosion and severe burn hazard!

Low battery threshold – low battery signal at 2.70V

Sounder – 85dBa at 10' temporal pattern

Low battery beep rate – 1 every 30 sec. \pm 2 sec.

Sensitivity – 2.3% \pm 0.8%

Operating Temperature: 40 to 100°F (4.4 to 37.8°C)

Operating humidity range 0 to 95% non-condensing

Color – white

Dimensions: ϕ 5.6" X 2.86"H (ϕ 142 x 73mm)

Drift compensation adjustment 0.5%/ft. max

Listings – UL 217, CSFM

FCC ID: RIYEL2603NA

The Limitations of this Smoke Detector

While this smoke detector /transmitter is a highly reliable device that is a part of an advanced wireless security system, it does not offer guaranteed protection against fire. While smoke detectors have played a key role in reducing residential fire deaths, they may not activate and provide early warning for a variety of reasons in as many as 35% of all fires. Some of the reasons smoke detector used in alarm systems may not work are as follows:

- Smoke detectors will not work without power. Battery-operated devices will not work without batteries, or if the batteries are not put in properly.
- Smoke detectors may have been improperly installed and positioned. Smoke detectors may not sense fires that start where smoke cannot reach the detectors, such as in chimneys, in walls on the roof, or on the other side of the closed doors. Smoke detectors also may not sense a fire on another level of a residence or building. A second-floor detector, for example, may not sense a first-floor fire or basement fire. In addition, smoke detectors have sensing limitations. No smoke detector can sense every kind of fire every time. In general, detectors may not always provide adequate warning about rapidly spreading fires caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, children playing with matches, or arson. Depending on the nature of the fire and/or location of smoke detectors, the detector, even if it operates as anticipated, may not provide sufficient warning to allow all occupants to escape in time to prevent injury or death.
- Alarm signals sent by the wireless transmitter in this device may be blocked or reflected by metal before they reach the alarm receiver. Even if the signal path has been recently checked during a weekly test, blockage can occur if a metal object is moved into the path.
- Alarm warning devise such as sirens, bells, or horns may not alert people or wake up sleepers if they are located on the other side of the closed or partly open doors. If warning devices are located on a different level of the residence from the bedrooms, then they are less likely to waken or alert people inside the bedrooms. Even persons who are awake may not hear the warning. If the alarm is muffled by the noise from the stereo, radio, air conditioner, or other appliances, or by passing traffic. Finally, alarm warning devices, however loud, may not warn hearing-impaired people or waken deep sleepers.
- The smoke detector/transmitter, like other electrical devices is subject to component failure. Even though this device is designed to last as long as 20 years, the electronic components in it should fail In any time. We recommend that smoke detectors be replaced every 10 years as a precautionary measure against component failure.

The most common cause of an alarm system not functioning when a fire occurs is inadequate maintenance. The alarm system should be tested weekly to make sure all smoke detectors and their transmitters are working properly. Detectors must be repaired or replaced when they do not function properly.

Installing the alarm system may make the owner eligible for lower insurance rates, but an alarm system is not a substitute for insurance. Homeowners, property owners, and renters should continue to act prudently in protecting themselves and continue to insure their lives and property.

We continue to develop new and improved protection devices. Users of alarm systems owe it to themselves and their loved ones to learn about these developments.

LIMITED WARRANTY

1. EL 3000 represents and warrants that the Products will be free from defects in materials and workmanship for the following periods:

a) All Products in the price list, excluding the Products specified in subparagraph 1(b) below – twelve (12) months

b) Wired PIRs - thirty six (36) months

(the "**Warranty Period**"), under normal use and service in accordance with this **Exhibit F**. Batteries and software are expressly not covered by this warranty. EL 3000's obligation is limited to repairing or replacing, at its option, free of charge for parts, EL 3000's labor costs, and return transportation to Distributor for any Product proven to be defective in materials or workmanship under normal use and service during the relevant Warranty Period. EL 3000 shall have no obligation under this warranty or otherwise if the Product is altered, tampered or improperly repaired or serviced by anyone other than EL 3000 or an entity or individual approved by EL 3000 in writing. Additional limitations are set forth below in this **Exhibit F**.

EL3K grants permission to solely use batteries for which EL3K has approved their compliance within EL3K's product specifications.

The use of non-approved batteries is not allowed. Any early low battery notification, irreversible damage or any other malfunctions of any kind in or to any or all of the product functionalities caused by the use of non-approved batteries will not be covered by EL3K's warranty. Moreover, EL3K will not be liable for any injuries or damages to any persons or tangible or intangible property resulting from the use of non-approved batteries.

2. EL 3000 does not represent that the Product may not be compromised or circumvented; nor that the Product will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; nor that the Product will in all cases provide adequate warning or protection. Distributor understands that a properly installed and maintained alarm may only reduce the risk of a burglary, robbery, fire, or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury, property loss or damage as a result. Neither EL 3000, nor its directors, officers, shareholders, partners, principles, agents, servants or employees or their successors, predecessors, assigns, heirs and personal representatives is an insurer or guarantor. CONSEQUENTLY, EXCEPT FOR INTENTIONAL MISCONDUCT, EL 3000 SHALL NOT HAVE ANY LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON A CLAIM THAT THE PRODUCT WAS DEFECTIVE OR FAILED TO GIVE WARNING. HOWEVER, EXCEPT FOR INTENTIONAL MISCONDUCT, IF EL 3000 IS HELD LIABLE, WHETHER DIRECTLY OR INDIRECTLY, FOR ANY LOSS OR DAMAGE ARISING UNDER THIS LIMITED WARRANTY OR OTHERWISE, REGARDLESS OF CAUSE OR ORIGIN, RESULTING FROM THE USE OF AN INDIVIDUAL PRODUCT, THEN EL 3000'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE OF THE PRODUCT, WHICH SHALL BE THE COMPLETE AND EXCLUSIVE REMEDY AGAINST EL 3000.

3. OTHER THAN THE WARRANTIES SET FORTH IN THIS AGREEMENT, THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. IN NO CASE SHALL EL 3000 BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, OR UPON ANY OTHER BASIS OF LIABILITY WHATSOEVER, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY EL 3000'S NEGLIGENCE OR FAULT.

4. Return of Products. Distributor will notify EL 3000 of nonconforming Product(s). Such notification shall include serial numbers and reason for nonconformance. Nonconforming Products will be repaired or replaced at EL 3000's discretion. EL 3000 will be responsible for the repair or replacement and transportation charges for all Products returned to Distributor and Distributor shall be responsible for return of Products to EL 3000.

Note: 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 or more of the following measures:

1. Reorient or relocate the receiving antenna, 2. Increase the separation between the equipment and the receiver, 3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, 4. Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this equipment not expressly approved by the party responsible for compliance (Electronics Line 3000 Ltd.) could void the user's authority to operate the equipment.



Electronics Line 3000 Ltd.

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