



# Smoke Detector with Transmitter Model 120A

## Description:

The Model 120A is a self-contained photoelectric smoke detector with a built in integrated transmitter used for reporting to wireless products manufactured by World Electronics, Inc.

This detector complies with UL 268 and must be installed and maintained in accordance with the National Fire Protection Association NFPA 72 National Fire Code.

## Transmitted Signal Outputs:

Initial Alarm, 30 Second Alarm Verification, 60 Second Alarm Verification, Alarm Restore, Test, Tamper, Low Battery, and Maintenance Alert.

## Installing the Detector:

1. Slide the battery compartment cover away from the detector to unsnap and lift it off. (fig. 3)
2. Observing proper polarity, insert two 3V lithium batteries provided into the detector battery compartment and replace the battery compartment cover.
3. Code the transmitter to the control panel Led location. (See coding the transmitter)
4. Place the control panel in test mode and send a signal to the control panel before permanently mounting the detector as follows:
  - \* Hold the detector against the surface where you plan to install it.
  - \* Pressing the test button on the detector for 4 seconds to send a signal.
  - \* Verify signal received was correct LED location on the control panel.
  - \* Verify receipt of the signal as set forth in the W.E.I. Signal Survey Manual.
5. Using the two screws and anchors provided, mount the base to a permanent surface.

**Caution: Do not mount the detector on a metal surface as this may cause the detector to erroneously transmit tamper signals.**

**Note:** If the detector is mounted to a suspended ceiling tile, the tile must be secured with the appropriate fastener to prevent tile removal.

6. Attach the detector to the mounting base by lining up the raised tab on the lip of the detector with the arrow on the mounting base. (See Attaching and Removing the detector)

**Note:** The detector can not be attached to the base without batteries installed.

7. Repeat verification of signal transmission again as in step 4 above.

**Important:** The detector should be tested using UL listed smoke in a can and verifying proper alarm transmission to the control panel.

### **Locations to Avoid:**

**Do not** install smoke alarms/detectors:

- \* in or near areas where combustion particles are normally present such as in kitchens, garages, near furnaces, hot water heaters, or gas space heaters.
- \* on the ceiling in rooms next to kitchens where there is no transom between the kitchen and such rooms.
- \* in damp or very humid areas or next to bathrooms with showers. Locate detectors at least 5 feet away from bathrooms.
- \* in very cold or very hot areas.
- \* in dusty, dirty, or insect infested areas.
- \* near fresh air inlets or returns or excessively drafty areas. Heating/air conditioning vents, fans, and fresh air intakes can drive smoke away from smoke alarms/detectors.
- \* in dead air spaces at the top of peaked ceilings or in corners where walls and ceiling meet. Dead air may prevent smoke from reaching a smoke alarm/detector.
- \* near fluorescent light fixtures. Locate smoke alarms/detectors at least 10 feet away from these fixtures.

### **Attaching and 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.

**Note:** Removal will result in a tamper signal being transmitted.

**To attach the smoke detector** to its mounting base, line up the raised alignment tab on the lip of the smoke detector with arrow on the mounting base (See fig. 4). Insert the smoke detector into the base and turn clockwise approximately 15 degrees. It should snap firmly into place.

**Note:** The detector can not be attached to the base without batteries installed.

### **Smoke Testing the Detector:**

Smoke detectors should be tested weekly using UL listed smoke in a can. Follow the directions on the can and verify receipt of alarm signal at the control panel.

**Note:** This will result in a alarm signal being transmitted.

### **Coding the Transmitter:**

The model 120A transmitter board contains two dip switches for coding the detector to the desired addressable control panel LED location. To access the transmitter board slide a flat blade screwdriver in the slot on the detector cap and gently push the handle down to pry the cap off. (fig. 5) The outer cover of the detector can now be removed by placing two thumbs in the center of the now exposed black chamber and fingers around the bottom edge of the outer cover (see fig. 2). Pull up with fingers while pushing down with thumbs and remove the cover to expose the transmitter. Refer to fig. 1 and set the dip switches to the desired LED location. Reassemble the detector and test as described in item 4 of **Installing the Detector**.

## **The Detector LED (Functions)**

Indicates the status of the detector as follows:

FLASH = Every 8 seconds indicates normal operation.

ON = Detects smoke and sending alarm.

OFF = Trouble or maintenance required.

## **The Detector test button (Functions)**

1. Press for 4 seconds for sensitivity test, tamper and signal survey transmission.
2. Silence internal trouble chirp. Resumes in 24 hours if not corrected.

## **Alarm Operation:**

When smoke is detected an initial alarm signal is sent and repeated every 30 seconds until the detector self restores to normal condition.

## **Tamper Alert:**

A tamper signal is generated when the smoke detector is removed from the mounting base. This signal will be repeated every 30 seconds until the detector is reattached to the mounting base.

## **Low Battery Alert:**

Battery life is a minimum of 1 year and varies depending on factors such as how often the detector is tested. Battery voltage is continuously monitored. In the event that a battery voltage of less than 2.70V is detected, the detector sends a low battery signal. This signal will be repeated every 1.2 hours, and the horn will chirp every 45 seconds until the batteries are replaced. The chirp can be silenced for 24 hours by pressing the test button on the detector.

## **Maintenance Alert:**

The smoke detectors are designed for easy field service and maintenance. When the detector requires maintenance, it extinguishes its LED and sends a problem signal to the control panel. This signal will be repeated every 1.2 hours until the detector is cleaned (see Cleaning the Detector). If the smoke detector continues to send a problem signal after cleaning and replacing the chamber then it must be replaced.

## **Replacing the Batteries:**

**Use only the 3 volt lithium batteries as listed on the battery compartment cover.**

1. Remove the detector from the mounting base (see Attaching and Removing the detector).
2. Slide the battery compartment cover away from the detector to unsnap it and lift it off. Refer to figure 3 for battery compartment cover location.
3. Remove the old batteries. Observing polarity, insert two new batteries into the battery compartment and replace the cover.
4. Reattach the detector to the mounting base (see Attaching and Removing the detector).
5. Test the detector for proper operation (see Smoke Testing the Detector).

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

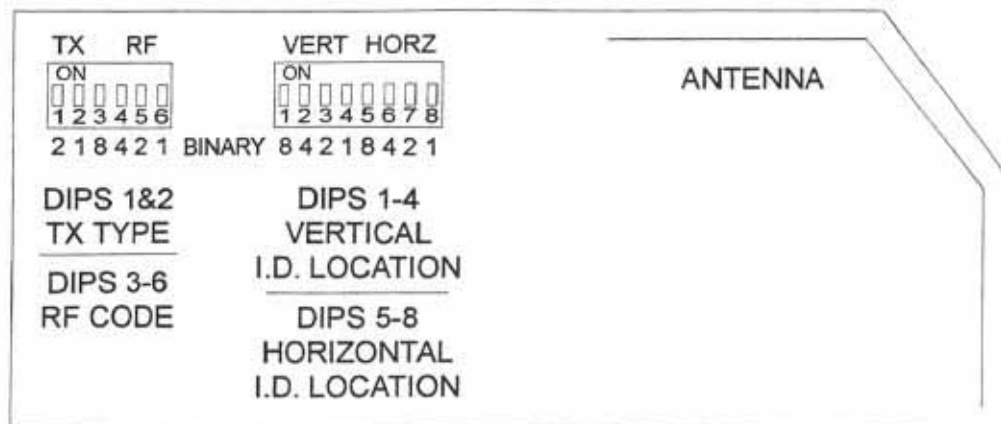
## Cleaning the Detector:

Clean the detector cover with a dry or damp 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 fig. 5).
4. Squeeze the black smoke chamber where indicated by the arrows and pull it up and away from the detector and discard (see fig. 6).
5. Blow out or use a soft-bristled brush to remove dust dirt from the smoke chamber base.
6. Line the new smoke chamber up with the optical base by lining up the arrows on the smoke chamber to the latches on the optical base and snap down into place (see fig. 6).
7. Replace the detector cap by inserting the cap into the smoke detector and turning clockwise approximately 15 degrees. It should snap firmly into place. Observing 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).

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

## MODEL 120A SMOKE ALARM TRANSMITTER CODING



**FIGURE 1**

## Testing the Detector Sensitivity

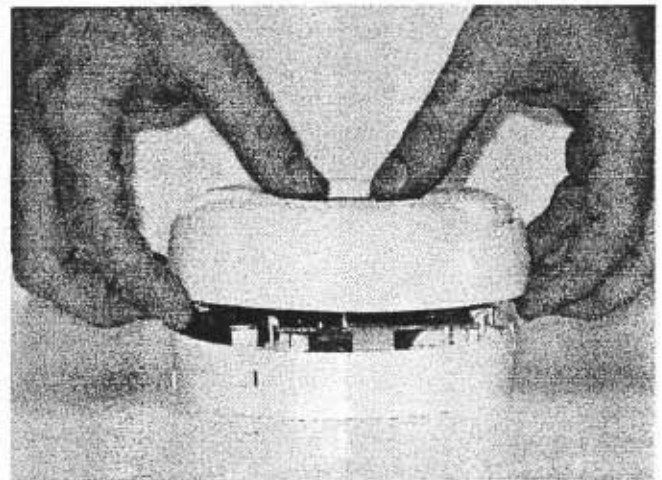
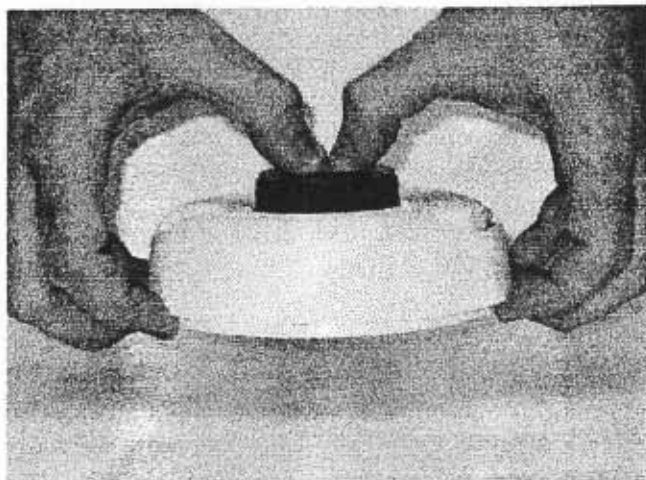
The detector provides a sensitivity level test mode that allows you to check the detector sensitivity using the Test button and the LED indicator on the detector as follows:

1. Press the Test button on the detector for 4 seconds. Once the test starts, the 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.

**Note:** Pressing the Test button will cause the detector to send tamper and signal survey transmissions.

Flashes	Indication	Action
1	Hardware fault	Reset unit and rerun sensitivity test. If error persists, replace the detector.
2,3	Detector is becoming insensitive	Clean the unit rerun sensitivity test. If error persists replace the detector
4-7	Detector sensitivity within normal range	N/A
8,9	Detector is too sensitive	Verify that the smoke chamber is snapped down securely. Clean the unit and replace the chamber

If the detector is sensitivity is within limits the detector goes back to normal. If the sensitivity is not within limits, or a hardware fault has been detected, the LED extinguishes until the detector is serviced and the transmitter sends a "problem" signal to the control panel.



**FIGURE 2**

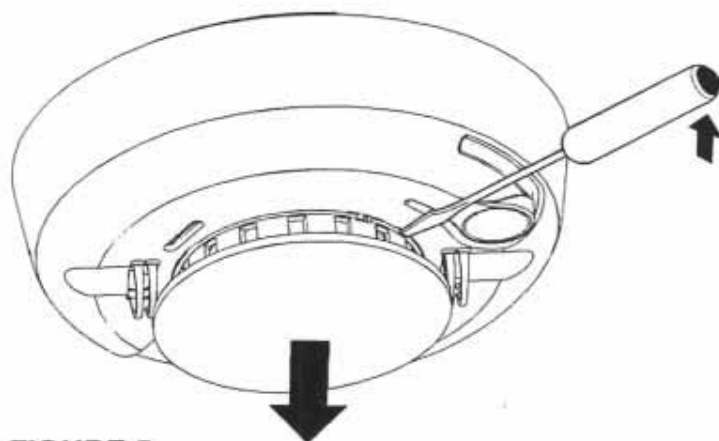
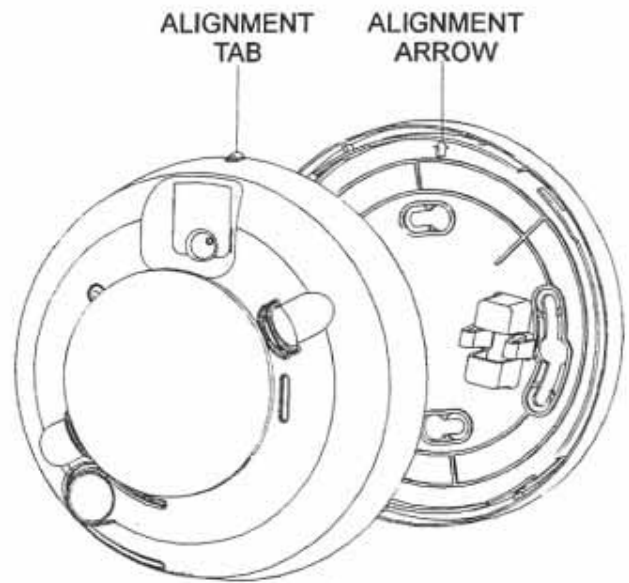




**FIGURE 3**

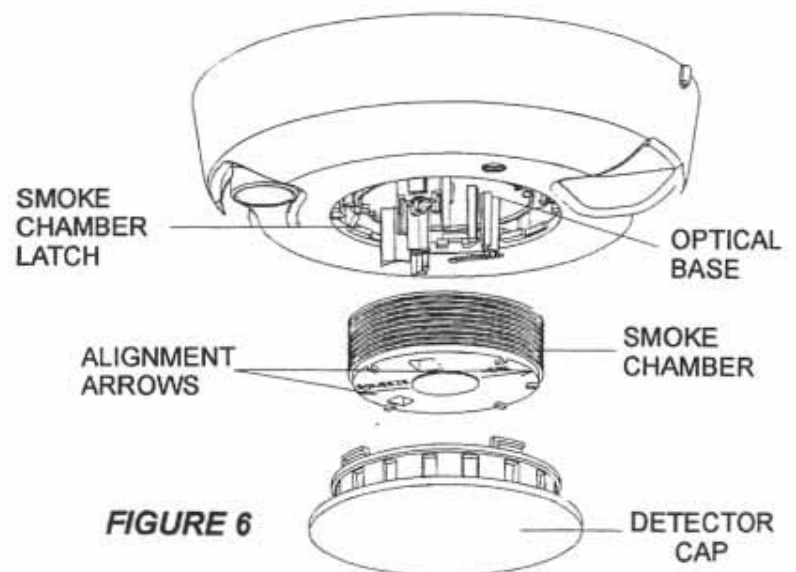
BATTERY  
COMPARTMENT

**FIGURE 4**



**FIGURE 5**

REMOVING  
DETECTOR  
CAP



**FIGURE 6**

## **SPECIFICATIONS:**

Battery Life: 1 year minimum

Battery Type: 3 Volt Lithium, as listed on the battery compartment cover

Battery Replacement: Upon low battery report and/or during annual cleaning

Operating Temperature Range: 40° -100° F ( 4.4° -38.7° C)

Operating Humidity Range: 0 to 95% non-condensing

Testing: Weekly or per local requirements

Transmission: In compliance with FCC Part 15 for reception on equipment manufactured by World Electronics Inc.

Test Transmission: Every 1.2 hours

Format: World Electronics frequency shift tone encoded with enhanced carrier shifting

Compatibility: World Electronics products as per individual data sheet

Sensitivity to Smoke: 0.88 - 3.63%

Sounder: 85db at 10' temporal pattern

Reset: Automatic

Indicator LED: Standby-Flashing Alarm-Steady

Low Battery Threshold: 2.70V

Low Battery Transmission: Automatic every 1.2 hours for 7 days minimum

Low Battery Audible Signal: One chirp every 45 seconds for not less than 7 days

Detector dimensions: 5.6" x 2.4"

Base dimensions: 5.4" x 0.46"

US Patent #4,862,514

**The user is hereby notified that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**