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commercial wireless systems international

Heat Detector with Transmitter
Model 320

Description:
The model 320 is a heat detector with an integral transmitter. The detector complies with UL521. The detector is fully supervised for tamper, low batteries and RF signal integrity. The detector is powered by 3 AAA batteries as listed under the specifications section of this manual and the label on the product. The Model 320 is intended to be used with a compatible Commercial Wireless Systems International, LLC Model Fire Alarm Control Panel. Refer to the FACP installation instructions for additional details.
IMPORTANT: Detectors must be tested and maintained regularly following NFPA 72 requirements. At a minimum, cleaning should be performed annually.

Programming:
The 320 must be enrolled into the Fire Alarm Control Panel before installing the device. **The Model 320 will not report Alarms, Supervisory or trouble signals unless it is enrolled into the control panel.** The detector can be enrolled at the control panel or any enrolled repeater. Place the FACP in enrollment mode then install the batteries in the detector observing polarity. The model 320 serial number will be displayed on the FACP. Refer to the control panel installation instructions for further details on enrollment and transmitter programming options. After the model 320 is enrolled, remove the batteries and reinstall them only at the transmitters intended mounting location.

Installation:
Select an accessible location that is not prone to tampering or accidental damage. **The Model 320 must be installed and maintained in accordance with the National Fire Protection Association's Standards (NFPA), the National Electrical Code and all local fire and electrical requirements.** The mounting surface should be relatively flat and capable of accepting screws or anchors. The detector is to be installed in an indoor dry location. Exposure to weather or corrosive conditions may damage the unit. These detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose. **Perform the signal test described in this manual prior to and after permanently mounting the unit. Note:** If the detector is mounted to a removable ceiling tile, the tile must be secured with the appropriate fasteners to prevent tile removal or mount the detector across a ceiling panel support as shown in figure 1. First install the mounting bracket using the screws supplied. Install the batteries in the battery holders. The polarity is marked on each holder. Attach the detector to the bracket by turning the detector in a clockwise direction until it clicks into place, then perform the signal test and fully test the unit for alarm as described in **Alarm Testing.**
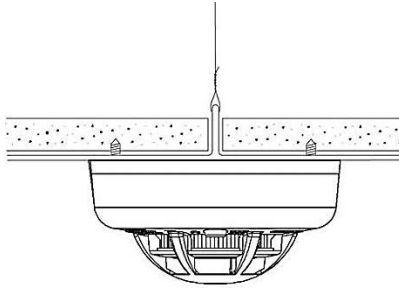
Figure 1 Proper Mounting to Ceiling Tile

Tamper-Resistant Feature

The detector includes a tamper-resistant feature that prevents removal from the mounting base without the use of a tool. To engage the tamper-resistant feature, cut the small plastic tab located on the mounting base (Figure 2), and then install the detector. To remove the detector from the base once it has been made tamper resistant, insert a small screwdriver in the hole located near the alignment mark, and turn the detector counterclockwise.
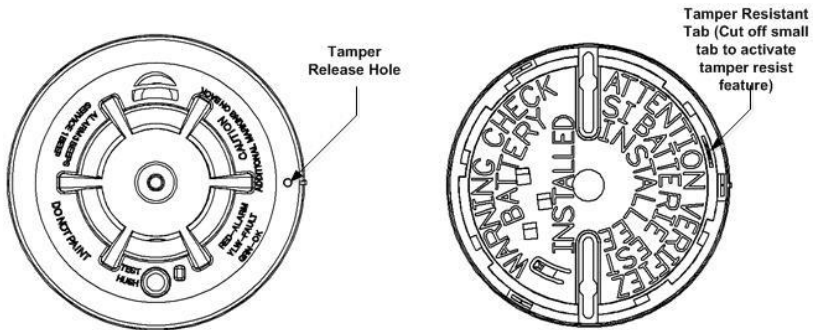

Figure 2 Tamper Resistant Feature

Cautions:

1. Make sure the batteries are firmly installed in the detector battery holders.
2. The unit must be secured tightly to the wall, so as to not be dislodged.
3. Test the unit after any service, changing the batteries or as often as local or national codes dictate.

Do NOT Install Detectors in the Following Areas:

- In or near areas where particles of combustion are normally present such as kitchens; in garages; near furnaces, hot water heaters, or gas space heaters.
- In very cold or very hot areas.
- In wet or excessively humid areas, or next to bathrooms with showers.
- In dusty, dirty, or insect-infested areas.
- Near fresh air inlets or returns or excessively drafty areas.

Consult NFPA 72, the local Authority Having Jurisdiction (AHJ), and/or applicable codes for specific information regarding the spacing and placement of detectors. Refer to technical bulletin part number IM-300-TB-RevB for more information.

Operation:

LED status indicators and Sounder

The 320 detector is equipped with a tricolored LED status indicator to provide local visual indication of the detector's status. The table below explains the LED and sounder functions.

LED Status

Condition	LEDs	Sounder	Transmitted Signal to FACP
Power up	Red, yellow, green flash sequence	One chirp at the end of power-up sequence	Power Up Reset
Standby	Off	Off	Test 90s
Heat Alarm/Test (320 Only)	Red flash every 1 second	Off	Alarm
Detector Trouble	Yellow flash every 4 seconds	Off	Hardware Fault
Low Batteries	Yellow flash every 12 seconds	Off	Low Battery Trouble
Tamper	Red, yellow, green flash sequence every 12 seconds	Off	Tamper Trouble

Table 1

Model 320 LED flashes locally during a freeze event, it ***does not*** transmit a Freeze Trouble signal to the panel.

Alarm Operation:

When the detector senses heat the Red LED flashes once a second and the following occurs:
1. An initial alarm signal is transmitted.
2. A 60 second delay occurs. If during this delay the alarm condition is reset, a restore signal is sent ending the alarm cycle.
3. The continued alarm condition causes a repeat alarm transmission.
4. Another 60 second delay as in step 2 occurs.
5. Step 4 repeats at 60 second intervals until reset.

Alarm Testing

Detectors must be tested after installation and following maintenance or batteries replacement. **NOTE: Before testing, notify the proper authorities that maintenance is being performed and the system will be temporarily out of service.** Place the control panel in test to prevent any unwanted alarms (refer to the FACP manual). Perform test A below to properly test the 320 detector. If a detector fails the test below, it should be cleaned as outlined in the Maintenance section. If the detector still fails, it should be replaced.

A. Direct Heat Test
1. Using a hair dryer or heat gun, direct the heat toward the thermistor, holding the heat source 12 inches away to avoid damage to the plastic housing.
2. The LED on the detector will flash and an alarm signal will be sent to the panel when temperature reaches the alarm set point. (135° F)

If all tests pass, remove the panel from test mode (Refer to the FACP manual) and notify the proper authorities when the system is back in service.
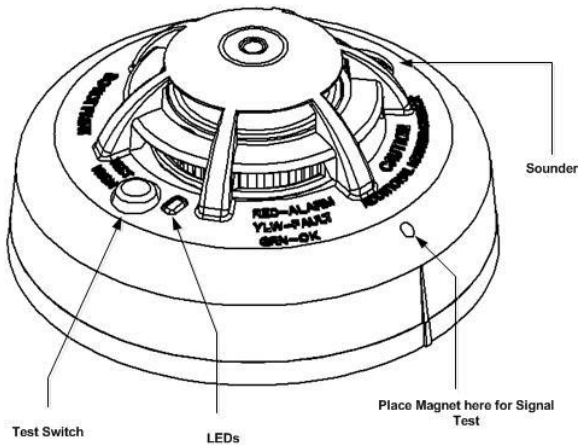
Figure 3 LEDS, Sounder, Test Switch and Signal Test Locations

Signal Test:
The test must be performed while the detector is held in its intended mounting location. Install batteries in the detector. Initiate the test by placing a strong magnet on the detector housing at the location shown in figure 3. The model 320 piezo sounder will beep once. A delay of up to 15 seconds will occur followed by either one or two beeps. One beep indicates an unacceptable location and two beeps indicate an acceptable location. If only one beep is heard then relocate the model 320 mounting position closer to the nearest repeater or control panel and perform the test again. Continue this procedure until 2 beeps are achieved. Do not mount the detector unless 2 beeps are heard when performing 5 consecutive signal tests. This test **must** be performed before and after transmitter installation. Note: A compatible CWSI repeater or Control Panel must be powered up, installed and enrolled before running this test.

Low batteries:
The Wireless Heat Alarm is powered by 3 AAA Duracell Procell or 3 AAA Energizer E92 batteries (included). The detector regularly checks for low batteries. If low batteries are detected, the transmitter sends a low battery message to the control panel, which displays the detector's ID. In addition, the yellow LED of the detector will blink every 12 seconds. Be sure to replace all of the batteries with fresh ones.

Batteries Installation and Replacement:
Warning: Always install three new batteries of one of the approved types as listed in the Specifications section of this manual and the product label. When batteries are first inserted, a low battery test is performed. If the batteries pass the test, the LED's should indicate the power up sequence. If the power up sequence is not indicated replace the batteries. If the issue still exists replace the detector.

To replace the batteries:
1. Place the Control Panel in Test mode to prevent any unwanted alarms. (Refer to the FACP manual)

2. Remove the detector from its mounting base by twisting the detector counterclockwise. Remove the batteries and dispose of properly. If the Tamper Resistant feature was implemented during installation then follow the instructions under that section for removing the detector.

3. To insure proper power down sequence, wait a minimum of 20 seconds before installing new batteries.

4. Install 3 new AAA batteries of a type listed in the specifications section of this manual in the batteries compartment following the polarity diagram inside the compartment. A power up reset trouble signal should be indicated on the Control Panel within 60 seconds of installing the new batteries on an enrolled detector. A tamper trouble will also be indicated if the alarm is not attached to the base.

5. Reinstall the detector onto the mounting base by turning the detector clockwise.

6. The LEDs should indicate Power up and then Normal Standby conditions as shown in the LED status and sounder table.

7. Test the detector for alarm operation described in the **Alarm Testing** section of this manual.

8. If the detector does not function as described in items 6+7 then start over at step 2. If it still doesn't operate correctly then replace the entire unit.

9. Remove the panel from test mode. (Refer to the FACP manual)

Tamper:
The Model 320 contains a built in contact that will cause a tamper signal to be transmitted if the detector is removed from its mounting position. Upon detector removal, a tamper signal is transmitted and repeated every 90 seconds until the detector is mounted on its base.

Power Up Reset:
The Model 320 will report this trouble when first powered up. This is normal. If a power up reset occurs any time after the initial indication then the transmitter is malfunctioning. Replace the unit.

Test Failure:
The Model 320 transmits a periodic test signal to the FACP. This trouble condition will be displayed within 200 seconds on the control panel if it does not receive the test transmission. The detector may be out of reception range of a repeater or Control Panel, or the detector itself may have an internal problem. Perform the signal test described in this manual to determine if there is a reception problem.

Hardware Fault:
The Model 320 monitors the integrity of the internal electronics. A Hardware Fault trouble will be displayed on the FACP if there is a failure with the internal circuitry or memory. If this occurs replace the detector.

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Maintenance

Perform maintenance yearly or whenever a Maintenance Req. Trouble signal is indicated.

NOTE: Before performing maintenance on the detector, notify the proper authorities that maintenance is being performed and the system will be temporarily out of service. Place the control panel in test mode to prevent any unwanted alarms. (Refer to the FACP manual)

1. Place the Control Panel in Test mode to prevent any unwanted alarms. (Refer to the FACP manual)

2. Remove the detector by turning counterclockwise.

3. Vacuum through the openings around the perimeter of the alarm or use canned air to remove any dust or debris. The outside of the alarm can be wiped with a damp cloth.

4. Reinstall the detector onto the mounting base by turning the detector clockwise.

5. Test the detector for alarm operation as described in the **Alarm Testing** section of this manual.

6. If the detector does not function as described in item 5 then start over at step 2. If it still doesn't operate correctly then replace the entire unit.

7. Remove the panel from test mode. (Refer to the FACP manual)

Specifications:
- Batteries Type: Three (3) AAA PC2400 Duracell Procell or three (3) AAA Energizer E92 batteries
- Batteries Life: 12 Months Minimum
- Batteries Replacement: Upon Low batteries report and/or during annual maintenance.
- Average Standby Current: 35uA
- Average Alarm Current: 35mA
- Max Current: 50mA
- Tamper Switch: On base
- Reset: Automatic
- Supplementary heat rating: 135°F
- Operating Temperature Range: 40°F to +100°F.
- Operating Humidity Range 15 to 95% RH.
- Testing: Follow this manual and NFPA 72 or local requirements.
- Transmission: In compliance with FCC part 15 for reception on equipment manufactured by Commercial Wireless Systems International, LLC.
- Test Transmission: Every 90 seconds.
- Mounting base diameter 5"
- Weight (including batteries) 8.57 oz.

FCC Statement

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

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.

COMMERCIAL WIRELESS SYSTEMS INTERNATIONAL, LLC
TWO YEAR LIMITED WARRANTY

Commercial Wireless Systems International, LLC ("Seller"), 10798 N.W. 53 Street, Sunrise, Florida 33351, warrants this product to be free from defects in workmanship for two years from date of purchase, under normal use and service. Seller's obligation is limited to repairing or replacing, at sellers option, free of charge for parts and labor any part proven to be defective in materials or workmanship. Seller shall have no obligation under this warranty otherwise if: (1) the product is altered, repaired or serviced by anyone other than the seller, (2) the product is damaged from accidents, acts of God, misuse, tampering or abuse, (3) product is not installed and operated in accordance with the instructions provided by the seller. In case of defect, contact the fire alarm professional who installed and maintains your fire alarm system or the seller for product repair.

This two year Limited Warranty is in lieu of all other express warranties, obligations, or liabilities. There are no express warranties that extend beyond the face hereof. In no case shall seller be liable to anyone for any consequential or incidental 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 the seller's own negligence or fault. Seller shall have no liability for any personal injury, property damage, or other loss based on a claim that the product failed to operate correctly. However, if the seller is held liable, whether directly or indirectly, for any loss or damage arising under this warranty or otherwise, regardless of cause of origin, Seller's maximum liability shall not in any case exceed the purchase price of the product, and shall be the complete and exclusive remedy against the Seller.

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