

# ***Technical Note***

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## ***Test Lamps use in Flame Detection Applications***

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As with Gas Detectors, there must be a method of validating Flame Detector Performance in the application where the units are installed. Most Flame Detection manufacturers perform an automatic self-test that verifies the cleanliness of the optics as well as verifying that the sensor array and its associated electronic circuitry is functioning properly. While this is important, it does not validate that the Flame Detector has a clear and unobstructed view of the threat area, nor does it map the field of view of the unit.

Using an external test lamp is the only non-hazardous and safe method to test any flame or fire detector's sensors, internal electronics and its alarm activation software, viewing window lens cleanliness, terminal wiring integrity, actual relay activation, and the proper functionality of any other outputs that are used. Also, since most detectors are installed in a fire alarm system, this is the only method to test the complete fire alarm system, ensuring all the system wiring and cabling and system control panel are properly installed.

Additionally, using an external test lamp eliminates the following detector conditions:

1. The fire or flame detector(s)' window lens being covered up (such as paint over spray, hanging garments, etc.),
2. Improper positioning and/or orientation for coverage of the threat area,
3. Partial or full blockage of the detector's line of sight by one or more objects (i.e., recently installed air ducts or pipes, storage boxes, vehicles, etc.) such that the threat area is not fully protected. Since all optical fire and flame detectors are line-of-sight sensors, they must be properly positioned and oriented with an unobstructed view of the threat area so that they can detect flames/fires.

### **Procedure:**

Disable control room outputs (including other external devices that may initiate suppression), as a full functional test includes activating the ALARM outputs on the Flame Detector. A Honeywell Analytics Test Lamp must be used for this test. Point the Test Lamp directly at the front of the Detector (on axis as much as possible, within the recommended distance for the Test Lamp). Activate the Test Lamp by pressing and holding its pushbutton. While watching the red ALARM LED on the face of the Detector, slowly move the Test Lamp's boresight to ensure the Detector receives its full intensity.

NOTE: Practicing this technique may help to optimize testing of the FSX Detectors.

The Detector's red ALARM LED will illuminate, usually within three (3) to ten (10) seconds. Also, the ALARM Relay outputs will activate and the 4-20 mA analog output will change to 20 mA ( $\pm 0.6$  mA). EXCEPTION: FS20X will output 16mA ( $\pm 0.6$  mA) initially then after the Verify time length is satisfied, 20mA ( $\pm 0.6$  mA).

If the Detector fails to respond within ten (10) seconds, do the following:

1. Wait ten (10) to twenty (20) seconds before performing another test.
2. Check the Distance: verify that the testing distance is between one (1) and twenty-five (25) feet from the FSX Detector(s).
3. Check Aiming Accuracy: verify that the proper testing technique (as described above) is followed.

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