# 2351PTIRAUS and 2351PTIRAUS-IV Multi-Criteria Photoelectric, Thermal and Infrared Sensor

SYSTEM SENSOR®
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SPECIFICATIONS

| | |
|---|---|
| Operating Voltage Range: | 15 to 32 VDC |
| Operating Current @ 24 VDC: | 200 uA (one communication every 5 seconds with green LED blink on communication) |
| Maximum Alarm Current: | 2 mA @ 24 VDC (one communication every 5 seconds with red LED solid on) |
| Maximum Current: | 4.5 mA @ 24 VDC (one communication e very 5 seconds with amber LED solid on) |
| Operating Humidity Range: | 15% to 90% Relative Humidity, Non-condensing |
| Operating Temperature Range: | -10°C to 50°C |
| Air Velocity: | 0 to 91.4 m/min. |
| Height: | 51 mm installed in B501AUS-W/B501AUS-IV Base |
| Diameter: | 104 mm installed in B501AUS-W/B501AUS-IV Base |
| Weight: | 95 g |
| Isolator Load Rating: | 0.0063* |
| Applicable Standards: | AS 7240.7 and AS 7240.5 (Class A2S) |

*Please refer to your isolator base/module manual for isolator calculation instructions.

This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Au thority Having Jurisdiction (AHJ).

GENERAL DESCRIPTION

2351PTIRAUS and 2351PTIRAUS-IV are plug-in type multi-criteria smoke sen sors that offer a photoelectric sensing chamber combined with a fixed tem perature heat detector and infrared (IR) sensors.

All sensors transmit an analog representation of smoke density over a commu nication line to a control panel. Rotary dial switches are provided for setting the sensor's address. (See Figure 2.)

Two LEDs on the sensor are controlled by the panel to indicate sensor status. An output is provided for connection to an optional remote LED annunciator (P/N RA100Z).

Fire Alarm and Control panels offer different feature sets across different mod els. As a result, certain features of the photoelectric sensors may be available on some control panels, but not on others.

2351PTIRAUS and 2351PTIRAUS-IV will support only CLIP (Classic Loop In terface Protocol) mode. The possible features available in the multi-criteria smoke sensors, if supported by the control unit are:

1. The sensor' s LEDs can operate in three ways—on, off, and blinking—and they can be set to red, green, or amber. This is controlled by the panel.
2. The r emote output may be synchronized to the LED operation or con trolled independent of the LEDs.
3. Devices are point addressable up to 99 addresses.

Please refer to the operation manual for the control panel for specific opera tion. The photoelectric sensors require compatible addressable communica tions to function properly. Connect these sensors to listed-compatible control panels only.

Compatible bases: B501AUS-W/B501AUS-IV.

SPACING

System Sensor recommends spacing sensors in compliance with AS 1670.1:2015. All detectors should be spaced and installed in accordance with the requirements of the relevant authority having jurisdiction. For spe cific information regarding sensor spacing, placement, and special applica tions, refer to AS 1670.1:2015 or the Smoke Detector Application Guide.

WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color-coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

1. Wir e the sensor base (supplied separately) per the base wiring diagram. (See Figure 1.)
2. Set the desir ed address on the sensor address switches. (See Figure 2.)
3. Install the sensor into the sensor base . Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensor s have been installed, apply power to the control panel and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

FIGURE 1. WIRING DIAGRAM

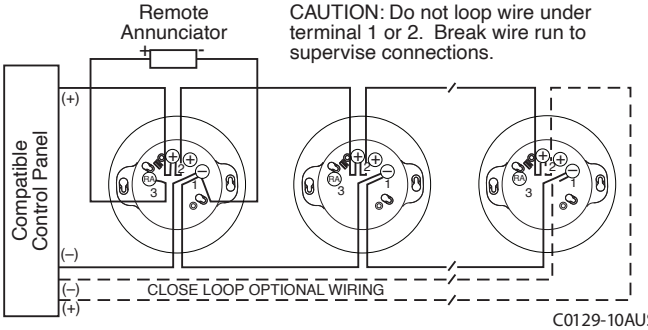


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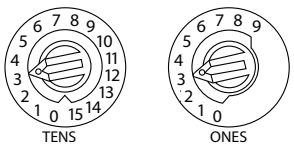
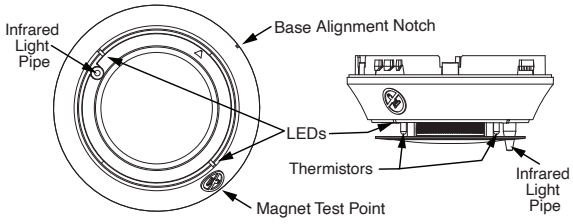
FIGURE 2. ROTARY ADDRESS SWITCHES



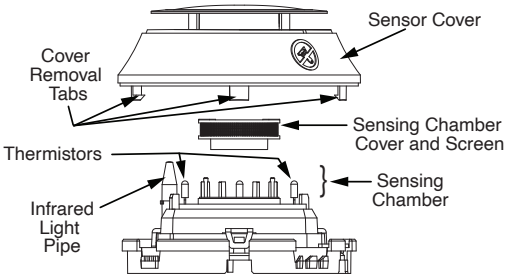

C0162-00

FIGURE 3. FEATURES OF THE PTIR DETECTOR




C2050-00

FIGURE 4. CLEANING THE PTIR DETECTOR




C2044-00

**⚠CAUTION**

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

TAMPER RESISTANCE

2351PTIRAUS and 2351PTIRAUS-IV includes a tamper-resistant capability that prevents removal from the base without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensitivity readings are available through the fire alarm control panel (FACP). Refer to the manufacturer's published instructions for proper use.

The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-09-00)
   This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the sensor electronics and connections to the control panel.

   a. Hold the test magnet in the magnet test area as shown in Figure 3.
   b. The sensor should alarm the panel.

   Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED status operation and expected delay to alarm.

   NOTE: The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

B. Smoke Entry
   Canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector.

   The multi-criteria smoke sensor uses algorithms to process signals received from multiple sensors to determine alarm conditions and reduce false alarms. Therefore, a single burst of canned smoke will not immediately place the detector into an alarm condition because the detector algorithms correctly determine a burst of canned smoke is not fire. In order to perform functional testing of the photoelectric sensor, the device must be placed into test mode. Test mode allows the detector to isolate the individual sensors for testing. The device can be placed into test mode through either of the following methods.

   a. Put the device into test mode by holding a test magnet in the magnet test area as shown in Figure 3 for 6-12 seconds.

   NOTE: If the magnet is held in place for too long the fire alarm test function will be triggered. (See Magnet Test, above.) Reset the panel and proceed with testing the smoke entry portion of the device.

   b. Perform smoke entry testing immediately following the magnet test. The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

   Once in test mode, test the smoke detector using one of the tested and approved aerosol smoke products. Refer to the manufacturer's published instructions for proper use of the canned smoke agent. When used properly, the canned smoke agent will cause the smoke detector to go into alarm.

**⚠CAUTION**

Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

C. Direct Heat Method (Hair Dryer of 1000-1500 watts)
   A hair dryer of 1000-1500 watts should be used to test the thermistors. Direct the heat toward the thermistor, holding the heat source approximately 30 cm from the detector in order to avoid damaging the plastic housing. The detector will reset only after it has had sufficient time to cool. Make sure both thermistors are tested individually.

A sensor that fails any of these tests may need to be cleaned as described under CLEANING, and retested. When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

CLEANING

Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place.
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by sliding the edge over the sensing chamber. Turn until it is firmly in place.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place. Make sure that the thermistors do not become bent under the cover.
8. Reinstall the detector.
9. Test the detector as described in TESTING.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

Note: Dispose of electronic waste according to national and local regulations when scrapping or replacing a device. Do not discard as general trash.

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

ON-SITE SENSITIVITY ADJUSTMENT

The sensitivity for this device is set at FDCIE.

For the AFP-3030 panel, alarm sensitivity levels 2-8 meet the sensitivity level requirement of the AS 7240.7 & AS 7240.5 standards. Sensitivity level 9 is thermal only and complies with the requirement of AS 7240.5 standard.

For more information on sensitivity settings refer to the manufacturer's Fire Alarm Control Panel manual.

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Certified Product™

Australian
Standard
Lic. SMK40640-2
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DEVICE AND SYSTEM SECURITY

Before installing this product ensure that the tamper seal on the packaging is present and unbroken and the product has not been tampered with since leaving the factory. Do not install this product if there are any indications of tampering. If there are any signs of tampering the product should be returned to the point of purchase.
It is the responsibility of the system owner to ensure that all system components, i.e. devices, panels, wiring etc., are adequately protected to avoid tampering of the system that could result in information disclosure, spoofing, and integrity violation.