



2251CPI and 2251CPI-W

Intelligent Photoelectric Smoke Sensors

www.pertronic.co.nz
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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 every 5 seconds with amber LED solid on)
Operating Humidity Range:	10% to 93% Relative Humidity, Non-condensing
Operating Temperature Range:	-10°C to 50°C
Air Velocity:	0 to 1219.2 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 NZS4512

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

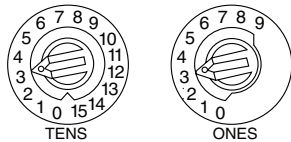
This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ).

GENERAL DESCRIPTION

2251CPI and 2251CPI-W are plug-in type smoke sensors that combine a photoelectric sensing chamber with addressable-analog communications.

The sensors transmit an analog representation of smoke density over a communication line to a control panel. Rotary dial switches are provided for setting the sensor's address. (See Figure 1.)

FIGURE 1. ROTARY ADDRESS SWITCHES



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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 models. As a result, certain features of the photoelectric sensors may be available on some control panels, but not on others. 2251CPI and 2251CPI-W support CLIP (Classic Loop Interface Protocol) mode. The possible features available if supported by the control panel 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 remote output may be synchronized to the LED operation or controlled independent of the LEDs.
3. Devices are point addressable up to 159 addresses.

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

Compatible bases: B501AUS-W/B501AUS-IV.

SPACING

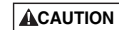
Pertronic recommends spacing sensors in compliance with AS 1670.1:2015 or NZ4512. All detectors should be spaced and installed in accordance with the requirements of the relevant authority having jurisdiction. For specific information regarding sensor spacing, placement, and special applications, refer to AS 1670.1:2015, NZ4512, 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.

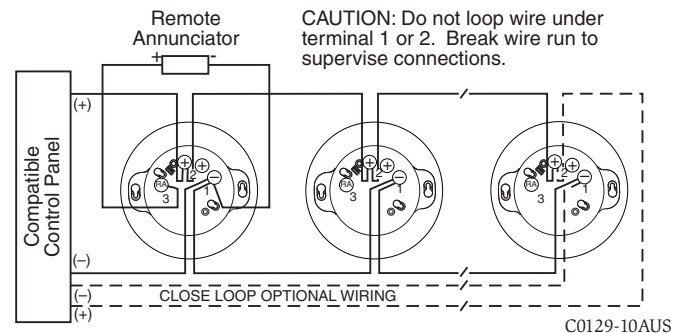
Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) as shown in the wiring diagram. (See Figure 2.)
2. Set the desired address on the sensor address switches. (See Figure 1.)
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 sensors 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.



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.

FIGURE 2. WIRING DIAGRAM



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TAMPER-RESISTANCE

Intelligent photoelectric smoke sensors include a tamper-resistant capability that prevents their 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).

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.

1. Hold the test magnet in the magnet test area as shown in Figure 3.
2. 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.

B. Smoke Entry

Sensitivity readings are available through the FACP. Refer to the manufacturer's published instructions for proper use.

Additionally, canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector.

When used properly, the canned smoke agent will cause the smoke detector to go into alarm. Refer to the manufacturer's published instructions for proper use of the canned smoke agent.

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.

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.

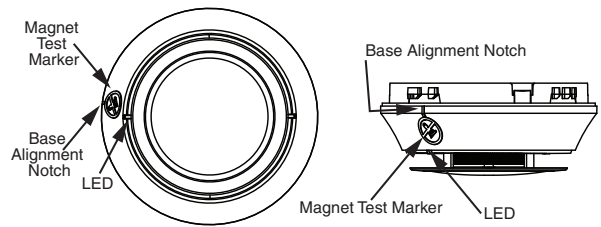
1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place. (See Figure 4.)
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to 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.
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

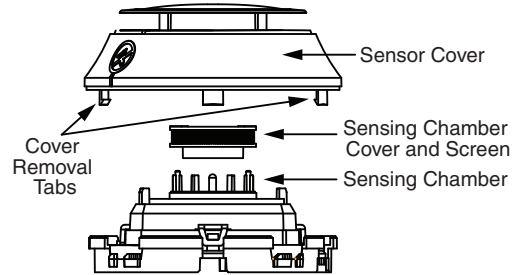
Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

FIGURE 3. FEATURES OF THE PHOTO DETECTOR



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FIGURE 4. CLEANING THE PHOTO DETECTOR



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ON-SITE SENSITIVITY ADJUSTMENT

The sensitivity for this device is set at FDCIE.

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



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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.