

TRW-PHOTO and TRW-ACCLIMATE

Wireless Intelligent Photoelectric Smoke Sensors

TRIGA Life Safety Systems, LLC
 7600 Olde Eight Rd.
 Hudson, Ohio 4426-1057
 Tel: +1 330-577-5199. Email: info@trigaglobal.com

SPECIFICATIONS

Operating Voltage Range:	3.3 VDC
Standby Current:	210µA @ 3.3 VDC (one communication every 23.8 seconds with LED blink enabled)
Maximum Alarm Current (LED on):	5 mA @ 3.3 VDC LED on
Maximum Transmit RF Power:	17dBm
Radio Frequency Range:	902-928 MHz
Operating Humidity Range:	10% to 93% Relative Humidity, Non-condensing
Operating Temperature Range:	32°F to 120°F (0°C to 49°C), TRW-PHOTO; 32°F to 100°F (0°C to 38°C), TRW-ACCLIMATE
Air Velocity:	0 to 4000 ft/min
Battery Type:	4 Panasonic CR123A or 4 Duracell DL123A
Battery Life:	2 year minimum
Battery Replacement:	Upon TROUBLE BATTERY LOW display and/or during annual maintenance
Height:	2.4" (61 mm) installed in TR-B210W Series Base
Diameter:	6.0" (152 mm) installed in TR-B210W Series Base
Weight:	9.2 oz. (261 g) installed in TR-B210W Series Base with 4 batteries

This sensor must be installed in compliance with the control panel system installation manual and the SWIFT® Wireless Gateway Manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

GENERAL DESCRIPTION

Models TRW-PHOTO and TRW-ACCLIMATE are plug-in type smoke sensors that combine a photoelectronic sensing chamber with wireless communication. The sensors transmit a digital representation of smoke density through a wireless mesh to a gateway. The gateway will send the information to the panel when requested. Rotary dial switches are provided for setting the sensor's address. (See Figure 1.)

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Model TRW-ACCLIMATE combines a photoelectronic sensing chamber and 135°F (57.2°C) fixed temperature heat detector. The TRW-ACCLIMATE also transmits an alarm signal due to heat (135°F/57.2°C fixed) per UL 521.

Triga panels offer different feature sets across different models. As a result, certain features of the TRW-PHOTO and TRW-ACCLIMATE may be available on some control panels, but not on others. The possible features available in the TRW-PHOTO and TRW-ACCLIMATE, if supported by the control panel are:

- The panel controls the LED operation on the sensor. Operational modes include red, green and amber colors in various solid or blink patterns.

Please refer to the operation manual for the UL listed control panel for specific operation of the TRW-PHOTO and TRW-ACCLIMATE.

The TRW-PHOTO and TRW-ACCLIMATE require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

SPACING

Triga recommends spacing sensors in compliance with NFPA 72. In low air flow applications with smooth ceilings, space sensors 30 feet (9.1 m) apart. When using the TRW-ACCLIMATE as a heat detector in FM3210 compliant applications, space sensors 20 feet (6 m) apart. For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72 or the System Smoke Detector Application Guide, available from System Sensor.

Wireless technologies can exhibit communication disruption if devices are spaced too close together. To avoid this form of disruption, SWIFT devices should not be placed closer than 2 feet (60 cm) apart without an intervening structure.

NOTE: Do not attach the base and detectors to temporary structures such as removable ceiling tiles such that the placement could be altered. To prevent changes in device placement, permanently secure the structure or mount the

detector across the ceiling panel support as shown in Figure 2.

BATTERY REPLACEMENT

Low battery levels on the wireless devices are displayed as a trouble on the FACP. Therefore when the message "TROUBLE BATTERY LOW" is displayed, replace the battery in the device. This message is an indication that approximately one week of battery life remains.

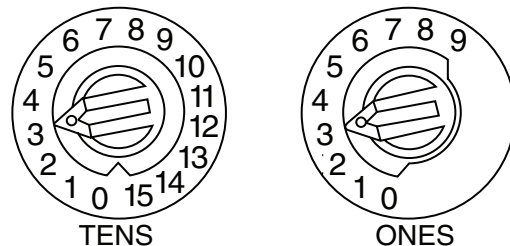
To replace the batteries in a wireless device use the following steps:

1. Have 4 CR123A (or DL123A) batteries available
2. Remove the detector from the base.
3. Open the battery compartment refer to Figure 3. Note: The battery compartment cover may be left attached at the hinges during battery replacement.
4. Remove the used batteries and replace with new batteries. The battery compartment is designed such that the batteries can only align in the appropriate direction. Do not force the batteries into the openings.
5. Replace the battery compartment cover.
6. Return the device to its original location.

CAUTION

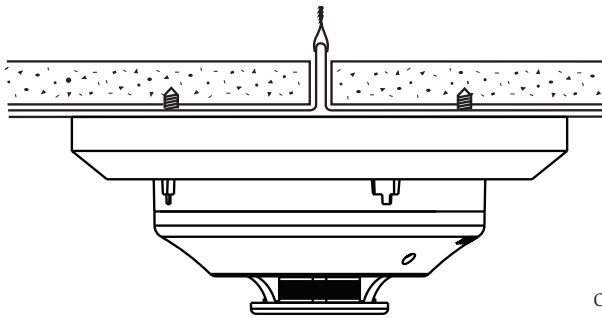
Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

FIGURE 1. ROTARY ADDRESS SWITCHES



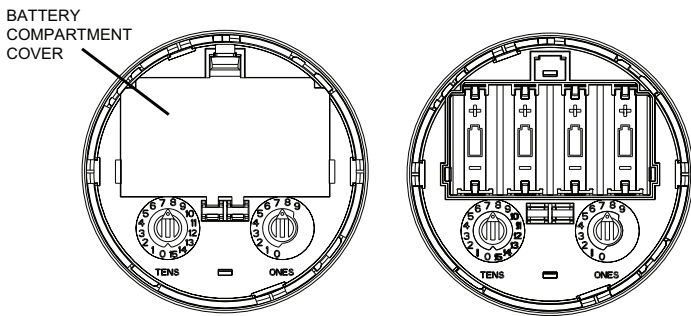
C0162-00

FIGURE 2. CEILING PANEL SUPPORT



C1091-00

FIGURE 3. BATTERY COMPARTMENT



C1092-00

TAMPER RESISTANCE

Models TRW-PHOTO and TRW-ACCLIMATE 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. The base also includes a magnet for tamper resistance. The magnet activates a supervisory tamper fault at the panel if the detector is removed from the base.

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). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.

The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-04-01 or M02-09-00)

This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, as well as tests the sensor electronics and connections to the control panel.

1. Hold the test magnet in the magnet test area as shown in Figure 4.
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

The GEMINI model 501 aerosol generator can be used for smoke entry testing. Set the generator to represent 4%/ft to 5%/ft obscuration as described in the GEMINI 501 manual. Using the bowl shaped applicator, apply aerosol until the panel alarms.

Additionally, canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector. Tested and approved aerosol smoke products are:

MANUFACTURER	MODEL
Home Safeguard Industries	25S and 30S
SDi	CHEK02 and CHEK06
SDi	SOLO A10
SDi	SMOKESABRE-01

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.

For TRW-ACCLIMATE, smoke entry testing should be performed immediately following the magnet test. Magnet test initiates an approximately 5 minute period when the detector's signal processing software routines are not active. Failure to first perform the magnet test will introduce a time delay before the detector alarms.

C. Direct Heat Method (Hair dryer of 1000-1500 watts).

TRW-ACCLIMATE only.

A hair dryer of 1000-1500 watts should be used to test the thermistors. Direct the heat toward either of the two thermistors, holding the heat source approximately 12 inches (30cm) 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 should be cleaned as described under CLEANING, and retested. If the sensor fails after cleaning, it must be replaced and returned for repair.

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.

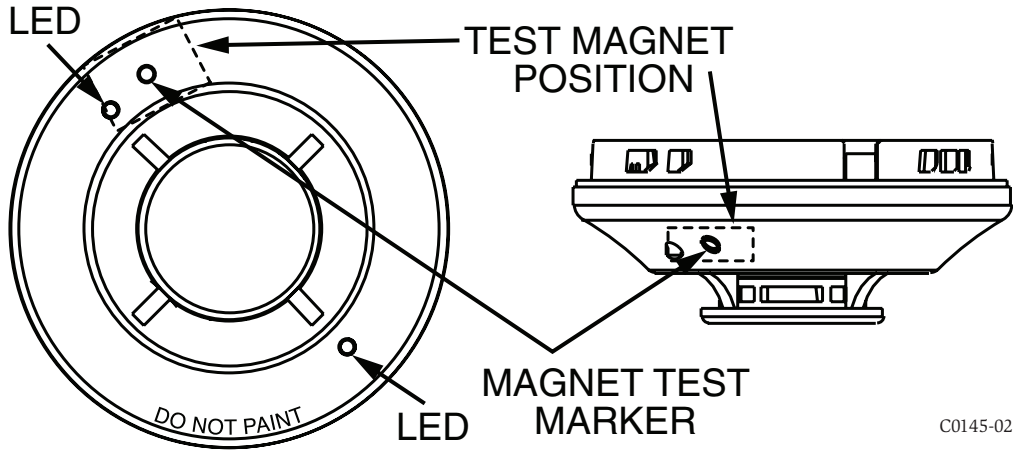
Disable the zone or system undergoing maintenance to prevent unwanted alarms.

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 5.)
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 on the TRW-ACCLIMATE model.
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.

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

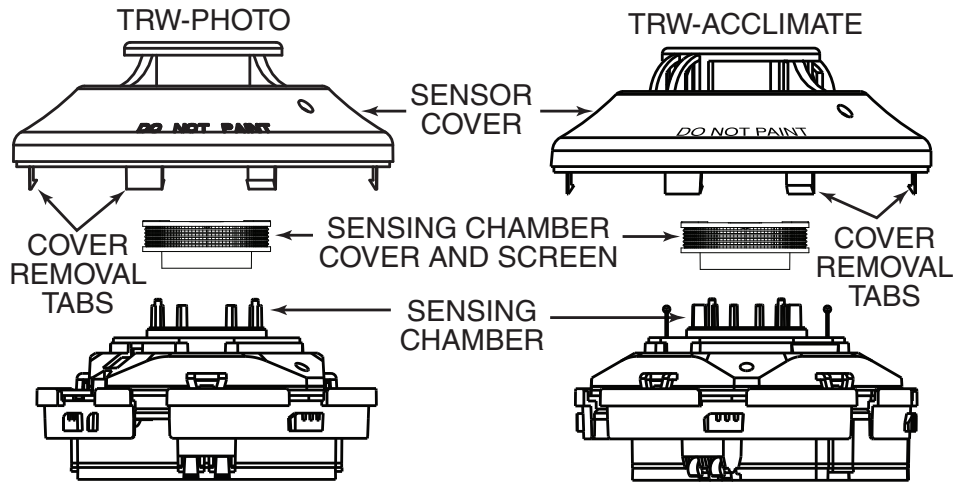
Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

FIGURE 4. MAGNET TEST MARKERS



C0145-02

FIGURE 5. DETECTOR COMPONENTS



C2011-05

SUPPLEMENTAL INFORMATION

For Limitations of Fire Alarm Systems,
please go to:
[http://www.systemsensor.com/
en-us/Documents/156-1558.pdf](http://www.systemsensor.com/en-us/Documents/156-1558.pdf)



Limitations of
Fire Alarm Systems

FCC STATEMENT

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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

LICENSING STATEMENT

Use of these products in combination with non-Honeywell products in a wireless mesh network, or to access, monitor or control devices in a wireless mesh network via the internet or another external wide area network, may require a separate license from Sipco, LLC. For more information, contact Sipco, LLC or Ipco, LLC at 8215 Roswell Rd., Building 900, Suite 950, Atlanta, GA 303350, or at www.sipcollc.com or www.intusiq.com.