ESL

449CTE SERIES

Self-Diagnostic, Four-Wire, Photoelectric Smoke Detectors

Model number: 449CTE

UL LISTED

- **Automatically reports trouble when dirty**

- **Integral power supervision**

- **Intelligent, self-diagnostic**

- **Field replaceable optical chamber**

- **Low-profile design**

- **Plug-in terminal block**

- **Advanced false alarm immunity**

The ESL 449CTE is a self-diagnostic, four-wire smoke detector with an extra relay that provides two added functions: power supervision and sensitivity status. The 449CTE Supervisory relay is normally energized, and will trip with loss of power, providing power supervision. The relay also trips if the detector's self-diagnostics detect an electronic failure, or if the detector is outside the UL listed sensitivity range for more than one day. This results in a trouble condition at the control panel, providing early warning that the detector needs cleaning or maintenance. This meets NFPA 72 field sensitivity testing requirements without the need for external meters.

Additional diagnostic information is activated by applying a magnet near the detector's integral reed switch. This initiates a self-diagnostic routine and provides visual indication of sensitivity level, or if service is required.

This series is easily cleaned by simply replacing ESL's proprietary field-replaceable optical chamber. All models are designed to reduce false alarms from dust, insects, RFI, and external light.

An integral combination rate-of-rise and fixed 135°F (57°C), 50-foot rated, heat sensor allows latching of the alarm for either smoke or heat.

ESL 449CTE Series Smoke Detectors

Architectural and Engineering Specifications

The ESL 449CTE Series is a low-profile, self-diagnostic, four-wire smoke detector with an extra relay that provides two added functions: power supervision and sensitivity status. The 449CTE works on the light scattering principle. A pulsed infrared light-emitting diode serves as the light source, and a high-speed photo-diode as the sensing element. When the amount of light reflected onto the photodiode reaches the sensitivity setting, the smoke sampling rate increases. Three (3) successive smoke sensings above the sensitivity setting are then required to sound an alarm. This design has superior protection against false alarms caused by dust, insects, RF and ambient-light.

A confirmed alarm causes the normally flashing power indicator LED to light continuously and the alarm relay to operate. A trouble indication is automatically displayed by flashing the LED every second. This meets NFPA 72 field sensitivity testing requirements.
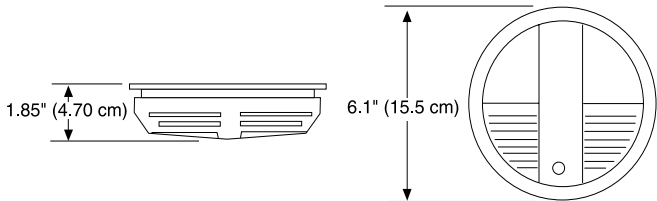
The optical sensing chamber is field replaceable, allowing quick and easy cleaning and maintenance.

The very low profile 449 Series detectors are equipped with a hinged cover, a concealed tamper-resistant latch, and insect screens.

All wiring terminates in plug-in, clamp-type screw terminals. The detectors mount to a standard single-gang electrical box, a four-inch octagonal, four-inch square electrical box, or WIREMOLD No. 5739 fixture box.

Smoke Detector Spacing

On smooth ceilings (as defined in NFPA 72), spacing of 30 feet (9.1 meters) may be used as a guide. Other spacing may be used depending on ceiling height, high air movement, and other conditions or response requirements.

1.85" (4.70 cm)   6.1" (15.5 cm)

Product Data

Sensitivity .... max .... 3.1 - 1.0%/ft.
min .... 3.1 + 0.50%/ft.
Operating temperature range .... 32°F to 100°F
0°C to 37.8°C
Operating humidity range .... 0 to 95% RH
Minimum voltage .... 8.5 V
Maximum voltage .... 33 V
Maximum ripple (peak to peak) 10%
Typical average standby current .... 10 mA
Field wiring size .... 14 - 24 AWG

Typical alarm current .... 25 mA
Max. avg. polarity reverse current .... 10 mA
Heat detector specifications - fixed temperature .... 135°F ± 5°F
(57.2°C ± 2.8°C)
- rate of rise .... 15°F/min. & > 105°F
(8.3°C/min. & > 40.6°C)
Relay specifications .... 2A @ 28 V DC or 120 V AC
Packaging .... 10 detectors are packed in a carton
Color .... white cover/white base
with UV inhibitor to prevent yellowing
Listing .... UL 268

Model Number	Description
449CTE	Self-diagnostic 4-wire photoelectric smoke detector with integrated fixed 135°F (57°C) and rate-of-rise heat detector, with built-in end-of-line power supervision relay
Accessories	
SM-200	Smoke in a Can!® canned smoke for functional testing of smoke alarms
SM-EXT1	Smoke in a Can!® extension accessory
211	Replacement optical chambers (set of 10)