ESL

PRODUCT INFORMATION BULLETIN

449/448 SERIES

Self-Diagnostic, Four-Wire, Photoelectric Smoke Detectors

Model numbers:
449AT, 449C, 449CT, 449CRT, 449CST, 449CSTE, 449CSRT, 449CSRH, 449CTE

UL LISTED FM APPROVED ULC

California State Fire Marshal Approved
MEA (New York City) Approved

ULC model numbers:
448AT, 448C, 448CT, 448CST, 448CSRH, 448CTE

- *Intelligent, self-diagnostics*
- *On-site maintenance alert*
- *Field replaceable optical chamber*
- *Low-profile design*
- *Plug-in terminal block*
- *Advanced false alarm immunity*

The ESL 449/448 Series self-diagnostic, four-wire smoke detectors continually monitor their own sensitivity and operational status, and provide a visual trouble indication if they drift out of sensitivity range or fail internal diagnostics. This unique, patented technology 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 is available with all "T" model detectors (see selection guide), allowing latching of the alarm for either smoke or heat. The 449CSRH includes an isolated alarm output for heat and activates an internal non-latching sounder (local alarm) for smoke, making it ideal for motel/hotel and dormitory rooms where smoking is permitted.

continued

ESL 449 Series Smoke Detectors

Architectural and Engineering Specifications

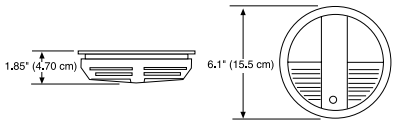
The ESL 449 Series low-profile, self-diagnostic, four-wire smoke detectors work on the light scattering principle. A pulsed infrared light-emitting diode serves as the light source, and a high-speed photodiode as the sensing element. When the amount of light reflected onto the photodiode reaches the sensitivity setting, the smoke sampling rate increases. Three (3) successive smoke sensings above the sensitivity setting are 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. An internal 85 dB horn (available in "S" models) emits a temporal 3 when the detector alarms and a steady tone when power polarity is reversed.

The proprietary optical sensing chamber is field replaceable, allowing quick and easy cleaning and maintenance.
Models with auxiliary relays are approved for releasing service.
This low profile product is equipped with a hinged cover, a concealed tamper-resistant latch, and insect screens.
Wiring terminates in plug-in, clamp-type screw terminals.
Detectors mount to a standard single-gang electrical box, a four-inch octagonal, four-inch square electrical box, or WIREMOLD 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.



Product Data

Sensitivity ..... 3.1 - 1.0%/ft. (max.)
3.1 + 0.50%/ft. (min)
Operating temp. range ..... 32°F to 120°F (0°C to 50°C)
Operating humidity range ..... 0 to 95% RH
Minimum voltage - C, CT, CRT, CST, CSRT, CSRH ,
- CSTE 8.5V
- AT 5.1V
Maximum voltage - C, CT, CRT, CST, CSRT, CSRH,
- CSTE 33V
- AT 27V
Maximum ripple (peak to peak) 10%
Typical average standby current 70µA
- CSTE 23mA
Typical alarm current - C, CT and AT 15mA
- CRT 31mA
- CST 40mA
- CSRT, CSRH, CSTE 51mA
Typical avg. polarity reverse current
- CST, CSRT, CSTE, and CSRH 10mA
Sounder specifications ..... 85 dB at 10'
Heat detector specifications
- fixed temperature ..... 135°F (57.2°C)
- rate of rise .... 15°F/min. & >105°F (8.3°C/min. & >40.6°C)
Auxiliary relay contacts 2A @ 28 VDC or 120 VAC (resistive)
Alarm contacts ..... 500 mA @ 36 VDC (resistive)
Field wiring size ..... 14 - 24 AWG
Packaging ..... 10 detectors are packed in a carton
Color ..... white cover/white base
with UV inhibitor to prevent yellowing
Listing ..... UL 268, ULC FM, CSFM and MEA

Selection Guide

Designator	Feature	Description
H	Isolated Fixed Temp. alarm and Rate of Rise Heat Detector	Isolated fixed 135°F (57°C) and rate of rise heat detector, independently trips the LED and output. Smoke detector activates internal sounder (local alarm) and auxiliary relay, but does not latch. Approved as both single station smoke alarm and system heat detector. Ideal for hotel, motel and dormitory rooms where smoking is allowed.
R	Auxiliary Relay	Used to activate other devices such as elevator recall, door holders, strobes, etc. Listed for releasing service.
S	Built-in Sounder	85dB built-in sounder alarms when smoke is detected or when power wiring polarity is reversed.
T	Intergrated Fixed Temp. and Rate of Rise Heat Detector	Intergrated Fixed 135°F (57°C) temperature and rate of rise heat detector. Either heat detector or smoke detector can trip and latch LED and alarm protection. relay outputs.
E	Built-in end of line power supervision relay	Relay is normally energized and will trip with loss of power. Can also provide notification when detector needs maintenance.

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