



## 541 SERIES

### Low Profile, Self-Diagnostic, Four-Wire, Photoelectric Smoke Detector

UL Model numbers: 541C, 541CXT

ULC Model numbers: 548C, 548CXT



California State Fire Marshal Approved

- **On-site maintenance alert**
- **SmartHeat™ fixed/rate of rise heats work with photo chamber to catch fires faster**
- **Built-in drift compensation reduces false alarms**
- **Field replaceable optical chamber makes servicing a snap**
- **Small, low profile design blends in with any environment**

The **ESL 541 Series self-diagnostic, four-wire smoke detectors** are the industry's first conventional direct-wire smoke detectors with analog features such as drift compensation and multi-criteria detection.

The 541 Series continually monitor their own sensitivity and operational status, and provide a visual indication if they drift out of the sensitivity range or fail internal diagnostics. 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 indicates if service is required.

Time between cleaning detectors is dramatically increased because of the 541's built-in drift compensation. This feature, usually only available in analog systems, allows the detector to automatically adjust its sensitivity over time as it becomes dirty, increasing dust life.

And when the 541 indicates that cleaning is necessary, it's literally a snap with ESL's patented field-replaceable optical chamber.

The SmartHeat™ model 541CXT photoelectric smoke detector/fixed rate of rise heat detector includes fast response algorithms for a quick response to both flaming and smoldering fires. Fast response algorithms allow the heat detectors to work intelligently together with the photoelectric smoke detector. As soon as the heat sensor detects a rapid rise in temperature, the sensitivity of the photoelectric sensor increases. This increase allows the sensor to detect smaller particles of combustion quicker.

# 541 Series ESL Photoelectric Smoke Detectors

## Architectural and Engineering Specifications

The ESL 541 Series photoelectric smoke detector is a low profile, self-diagnostic, four-wire detector that monitors its own sensitivity and operational status. This detector meets NFPA 72 field sensitivity requirements without the need for external meters. Built-in drift compensation automatically adjusts the sensitivity as the detector gets dirty. Normal sensing occurs every 9 seconds. This rate doubles when a signal exceeding the alarm threshold value is sensed. Two additional successive signals above the threshold level will initiate an alarm.

See installation instructions for information about correct installation and maintenance.

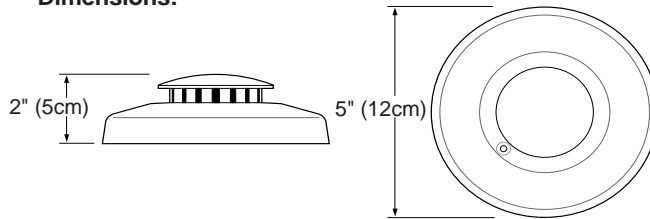
The proprietary optical sensing chamber is field replaceable, allowing quick and easy cleaning and maintenance.

## Specifications:

### Product Data

Voltage ..... 8.5 – 33 V DC  
 Maximum ripple (pk to pk) ..... 10% ( $V_{p-p}$ )  
 Typical average standby current (24V) ..... 70  $\mu$ A  
 Typical alarm current (24V) ..... 15 mA  
 Alarm contacts ..... 500mA @36 V DC (resistive)  
 Sensitivity — photoelectric ..... 3.1% + 0.50 – 1.00%  
 Operating temperature ..... 32°F to 100°F (0° to 37°C)  
 Operating humidity range ..... 0 to 95% Non-condensing  
 RFI Immunity ..... 20 V/m minimum; 0-1000 MHz  
 Color ..... White head and base  
 Field wiring size ..... 12-24 AWG  
 Detector packaging ..... 10 detectors per carton  
 Heat detector specifications ..... Rate of rise — 15°F/min  
 and >105°F (8.3°C/min and > 40.6°C)  
 Fixed — 135°F (57°C)  
 Drift compensation adjustment ..... 1.0%/ft. max  
 Detector head dimensions ..... 5" (12 cm) diameter  
 2" (5 cm) height  
 Mounting dimensions ..... 4.75" (12.5 cm) diameter;  
 0.3" (0.8 cm) height  
 Reset time ..... 1 second minimum  
 Listings ..... UL, ULC, CSFM

### Dimensions:



Model No.	Description
541C	4-wire, photoelectric, 12-24 V DC, UL listed
541CXT	4-wire, photoelectric, 12-24 V DC, multi-criteria algorithms, fixed/rate of rise heat, UL listed
548C	4-wire, photoelectric, 12-24 V DC, ULC listed
548CXT	4-wire, photoelectric, 12-24 V DC, multi-criteria algorithms, fixed/rate of rise heat, ULC listed
541C-10PK	541C 10-Pack, not individually boxed
541CXT-10PK	541CXT 10-Pack, not individually boxed
<b>Accessories</b>	
401	Test magnet in plastic shell for pole mounting
SM-200	Smoke! in a Can® (canned smoke) for functional testing of smoke detectors
211	Replacement optical chambers (set of 10)

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