

# Two-Wire Self-Diagnostic Smoke Detectors

## 700 Series



### Overview

The Edwards photoelectric smoke detector is an interchangeable head and base detector with a light-scattering optical sensor that provides outstanding stability and excellent response to a wide range of fires.

A pulsed infrared LED light source and a high-speed photodiode sensing element are housed in an omnidirectional sensing chamber which is protected by an insect screen. The chamber is not affected by ambient light. For easy cleaning, the detector features a field-replaceable optical chamber.

The Model 711UT and 721UT photoelectric detectors include integral fixed temperature heat detectors. The 721UT provides remote alarm and trouble LED driver outputs.

Edwards 700 Series smoke detectors are the industry's first conventional self-diagnostic detectors specifically designed for the demands of commercial and industrial environments. If the detector drifts out of its UL Listed sensitivity range or fails internal diagnostics, the alarm LED flashes once a second to indicate trouble. 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. The magnet test causes the LED to blink. The number of blink counts corresponds to a smoke detector sensitivity range.

And, if they become dirty over time, the 700 Series detectors automatically adjust the alarm threshold through built-in drift compensation.

### Standard Features

- Self-diagnostic capability continually monitors operation
- Automatic drift compensation
- Field-replaceable optical chamber
- Low-profile design blends into the ceiling
- Advanced nuisance alarm immunity
- Extensive two-wire compatibility listings



## Detection & alarm since 1872

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## Engineering Specifications

The Edwards 700 Series photoelectric smoke detector, is a low-profile, self-diagnostic, two-wire detector that monitors its own sensitivity and operational status. The detector meets NFPA 72 field sensitivity testing requirements without the need for external meters. Built-in drift compensation automatically adjust the sensitivity if 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 initiate an alarm. The patented optical sensing chamber is field replaceable, allowing quick and easy cleaning and maintenance.

A manually operated switch between terminals 1 and 2 shall establish continuity across the alarm, initiating circuit at initial installation. The switch automatically opens when a detector head is plugged in. If a detector head is removed from service, the switch will be reset using a small screwdriver, thus re-establishing circuit continuity.

## Technical Specifications

### Electrical

|                               |                                                  |
|-------------------------------|--------------------------------------------------|
| Voltage                       | 8.5 — 33VDC, non polarity sensitive              |
| Maximum ripple (peak to peak) | 10% (Vp - p)                                     |
| Typical standby current (24V) | 70µA                                             |
| Typical alarm current (24V)   | up to 60 mA max, if not limited by control panel |
| Photoelectric Sensitivity     | 2.85%, + 0.37, - 1.00%                           |
| Operating temperature         | 32°F to 120°F (0°C to 49°C)                      |
| Operating humidity range      | 0 to 95% Non-condensing                          |
| RFI immunity                  | 20 V/m min; 0-1000 MHz                           |
| Remote LED output current     | 5 mA min, 8.5 mA max                             |
| Drift compensation adjustment | 1.0%/ft. max                                     |
| Compatibility                 | Heads: 711U; Bases 701U, 702U                    |

### Environmental

|                                      |                               |
|--------------------------------------|-------------------------------|
| Heat Sensor Ratings (721UT)          | Fixed 135°F/ Rate of rise 15° |
| Maximum wind velocity                | 300 ft/min or                 |
| Field wiring size                    | 12-18 AWG                     |
| Remote test input (721UT)            | 100 ohm max                   |
| Reset voltage                        | 2.5V max                      |
| Reset time                           | 1 second max                  |
| UL two-wire compatibility identifier | S10A (711U, 711UT, 721UT)     |

### Physical

|                               |                                                                        |
|-------------------------------|------------------------------------------------------------------------|
| Color                         | White head and base                                                    |
| Detector head dimensions      | 4" D x 1.75" (4.44 cm) H                                               |
| Base dimensions               | 702E: 4" D, 0.6" (10 x 1.3 cm) H<br>701U, 702U: 6" D, 0.6" x 1.3 cm) H |
| Total height, (head and base) | 1.98" (5 cm) H                                                         |

### Regulations

|         |                                |
|---------|--------------------------------|
| Listing | UL 268, FM, CSFM, MEA approved |
|---------|--------------------------------|

## Ordering Information

|                     |                                              |
|---------------------|----------------------------------------------|
| Photoelectric Heads | 711U, 711UT, 721UT                           |
| Photoelectric Bases | 701U, 702U                                   |
| 211G                | Replacement optical chambers (package of 10) |