

Two- and Four-Wire¹ Head & Terminal Base Smoke Detectors

700 Series

Overview²

700 Series conventional photoelectric smoke detectors are interchangeable head and base detectors with a light-scattering optical sensors that provide 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 protected by an insect screen. For easy cleaning, the detector features a field-replaceable optical chamber.

Model 721UT photoelectric detectors include integral fixed temperature and rate-of-rise heat detectors. The 721UT provides remote alarm and trouble LED driver outputs. Also available is the 713-5U electronic heat detector head for areas too dusty for smoke detection.

700 Series smoke detectors were 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 a trouble condition. 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. If the detector ever does need to be cleaned, the patented field replaceable optical chamber makes cleaning a snap.

Standard Features⁹

- Self-diagnostic capability continually monitors operation
- Meets NFPA 72 sensitivity test requirements
- Head and terminal base design (base sold separately)
- Automatic drift compensation
- Field-replaceable optical chamber
- Low-profile design blends into the ceiling
- Advanced alarm verification nuisance alarm immunity
- Continuity switch in base to ease installation
- Extensive two-wire compatibility listings

Engineering Specifications¹¹

The 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. The 700 Series features an alarm verification feature to further reduce the chance of a nuisance alarm. 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 establishes continuity across the alarm initiating circuit at initial installation of the base simplifying testing without the smoke head in place. The switch automatically opens when a detector head is plugged in.

Technical Specifications ¹

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, 713-5U)	Fixed 135°F/ Rate of rise 15°F/min., >105°F (8.3°C/min., >40.6°C)
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, 721UT, 713-5U) S11A (731U)
Physical	
Color	White head and base
Detector head dimensions	4" D x 1.75" H (10cm x 4.44cm)
Base dimensions	701U, 702U: 6" D x .06" H (15.24 cm x 1.3 cm)
Total height, (head and base)	1.98" (5 cm) H
Regulations	
Listing	UL 268, FM, CSFM, MEA approved

Ordering Information ³

		Compatibility	
		Heads	Bases
711U	Smoke detector head only, photoelectric, two-wire	711U	701U, 702U
721UT	Smoke detector head only, photoelectric, two-wire w/integral heat, output for remote LED	731U	702RU
731U	Smoke detector head only, photoelectric, two-wire, use 702RU base for aux. relay functionality	741U	702U
741U	Smoke detector head only, photoelectric, four-wire	713-5U	701U
701U	Smoke detector base, 3 terminals, 6" dia.	Note: Bases sold separately	
702U	Smoke detector base, 6 terminals, 6" dia.		
702RU	Smoke detector base, 6 terminals, aux. relay, 6" dia.		