

Features

Series 600 Optical Smoke Detector details:

- Superior performance and reliability
- Attractive new design
- Designed for fast and easy installation
- Unique 'park' position for commissioning and service procedures
- Interfaces seamlessly with a wide range of panels
- Compatible with Tyco® 600 Series for easy upgrade
- Low operating current, up to 32 detectors per zone
- Optional remote alarm indicating LED
- Low profile, discrete and unobtrusive
- Designed for EMI compatibility
- UL listed to Standard 268

Models available in two sensitivity settings:

- **601P-UL Standard Sensitivity**, nominal 2.11 to 3.8%/ft obscuration
- **601P-UL-L Special Application Sensitivity**, nominal 3.0 to 3.8%/ft obscuration

Functional chamber enclosure:

- Concentric baffle design enhances smoke capture by directing air flow to the smoke chamber

Description

Optical Detection. The optical detector uses a unique measuring system. Unlike most other optical scatter detectors the optical design does not use vertical chevrons to exclude ambient light, but uses concentric baffles. This approach gives a better signal to noise ratio.

This type of detector is very effective in detecting very low levels of visible smoke particulates (often at levels where they are not visible to the naked eye). Invisible smoke aerosol products, cannot however, be detected using current optical smoke detectors as these aerosols do not scatter or obscure light. This means that optical detectors favor the type of fire that we have described as slow burning.

Although this is true, some smoldering materials such as rubber will produce a predominantly black smoke, which has less scattering properties than white smoke and will be detected later than an equivalent density of white smoke.



601P-UL Optical Smoke Detector Mounted
in 5B Base with 6A-5B-UL Adapter

Series 600 Detector Features

The optical system consists of an infrared emitter and receiver arranged such that their optical axes cross in the sampling volume. The emitter produces a narrow beam of light which is prevented from reaching the receiver by the baffles. When smoke is present in the sampling volume a proportion of the light is scattered, some of which reaches the receiver. For a given type of smoke, the light reaching the photodetector is proportional to the smoke density.

The emitter is a GaAlAs solid state type operating in the near infrared at 880 nm, while the sensor is a matched silicon photodiode. These devices are held in place by the labyrinth mouldings. The design of the labyrinth is such that the presence of small insects should not cause false alarms.

Application Reference

Detector Locations (see table on page 4). Locations should be determined only after careful consideration of the physical layout and contents of the area to be protected. Refer to NFPA 72, the *National Fire Alarm Code*. On smooth ceilings, smoke detector spacing of 30 ft (9.1 m) may be used as a guide.

Sensitivity Selection. The 601P-UL standard sensitivity detector is recommended for most applications. When a special application for reduced sensitivity detector is required, the 601P-UL-L should be considered. Consult your local Simplex product supplier for assistance in determining the proper selection.

* Refer to page 2 for additional listing information. This product was not ULC or CSFM listed, or approved by FM or MEA (NYC) as of document revision date. Additional listings may be applicable; contact your local Simplex product supplier for the latest status. Listings and approvals under Simplex Time Recorder Co. are the property of Tyco Safety Products Westminster.

Product Selection

Model	Nominal Sensitivity	Description	Compatibility
601P-UL	2.11 to 3.8%/ft	Optical Smoke Detector	Compatible with 5B base; 5" (127 mm) diameter
601P-UL-L	3.0 to 3.8%/ft		

Compatible Bases

Model	Description	Details	Listing Reference
5B	2-Wire Base with connections for Remote Alarm LED Indicator	IDC and LED connections are screw terminals for input/output wiring; 18 to 14 AWG (1 mm ² to 1.5 mm ²)	UL listed under Thorn Security LTD

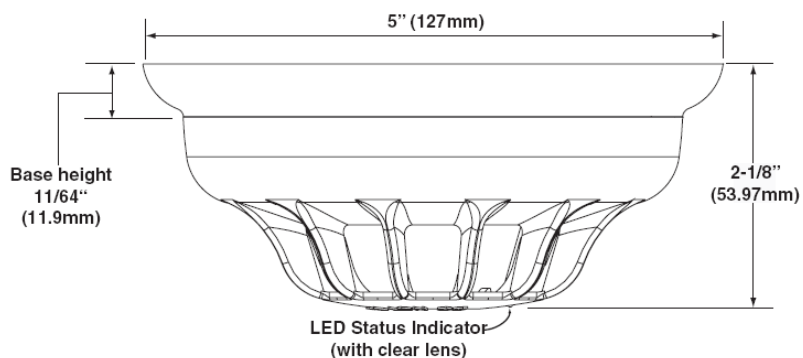
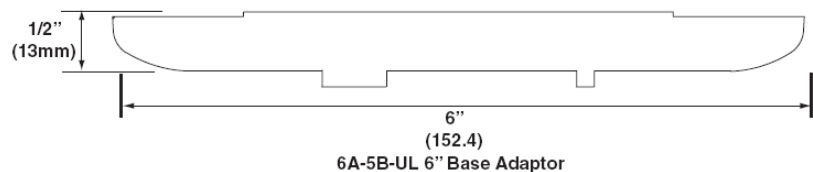
Detector Accessories

Model	Description	Details	Listing Reference
6A-5B-UL	6" (152 mm) Base Adapter	Increases the 5B surface area	UL listed under Thorn Security LTD
CW-5B	Detector Protective Cage	Robust protective cage for Series 600 detectors using the 5B base	Not listed
SA600	Line Shorting Adapter	Commissioning tool, shorts out base contacts to enable cable resistance checks to be carried out	Listing not applicable, service tool only

Detector Status LED Indicators

LED Indication	Status
Pulses approximately every 10 seconds	Normal
Steady On	Alarm

Dimensions and Reference Information



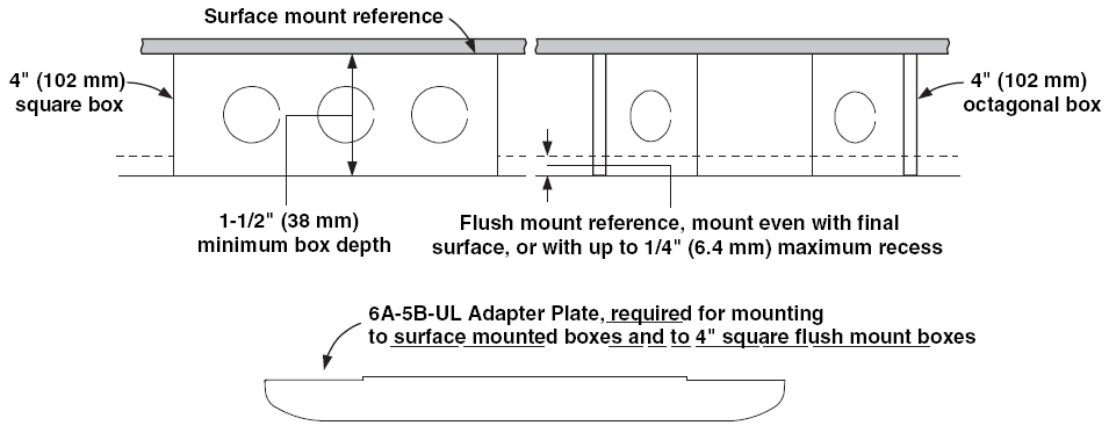
601P-UL & 601P-UL-L Optical Smoke Detector



C5-B Detector Cage

Mounting Information

Electrical Box Requirements:
 4" octagonal or 4" square, 1-1/2" deep
 Single gang, 2" deep



Specifications

Voltage	10.5 to 33 VDC from fire alarm control panel IDC
Standby Current	62 μ A @ 10.5 VDC
	65 μ A @ 24 VDC
	70 μ A @ 33 VDC
Alarm Current	Up to 68 mA maximum, exact current is determined by alarm current limiting of connected IDC
Storage Temperature Range	-13° F to 176° F (-25° C to 80° C)
Operating Temperature Range	32° F to 100° F (0° C to 38° C)
Humidity Range	Up to 95% non-condensing
Color	White 019
Dimensions	
In base	5" Dia. x 2-1/8" H (127 mm x 55 mm)
In base with base adapter	6" Dia x 2-9/16" H (152 mm x 66 mm)

Application of 600 Series Detectors

The table below is for guidelines only, specific situations are likely to require variations on the suggested detector types. Real situations may require detector combinations to cover all likely risks.

Environment		A	B	C	D	E	
		Very clean and dry	Benign moderately clean regulated temperature	Dirty - smoky	Dusty and/or humid	Unregulated temperature	
Fire Loading		For Example	Clean room data processing suite	Offices, light industrial, hospitals, residential, passenger accommodation	Loading bay/warehouse with diesel fork-lifts etc. Heavy industrial ferry (car deck)	Livestock pen mill, laundry, changing room	Kitchen, engine room, engine test beds
		Probable Risk					
1	Electronic equipment electrical switchgear electric motors cable conduit	Cable pyrolysis (toxic fumes) electrical arcs (ignition source) associated electrical dangers	601P-UL 601PH-UL 601I-ULC	601P-UL 601PH-UL 601I-ULC	601P-UL		
2	Fabrics, clothes soft furnishings paper, cardboard plastic foams animal bedding wood shavings etc.	Smouldering (difficult to locate - toxic fumes) likelihood of flashover (back-draught)		601PH-UL 601P-UL	601P-UL	601P-UL	
3	Flammable liquids paints, solvents flammable gasses unstable chemicals	Flaming fire (rapid build-up of dense smoke) high temperature fumes associated explosion dangers	601I-ULC 601PH-UL 601P-UL	601I-ULC 601PH-UL 601P-UL	601H-RF-UL 601I-ULC	601H-RF-UL	
4	Foodstuffs general organic waste animal fodder wooden structures solid fuels	Smoke and flame initially fairly slow but high temperatures once established		601PH-UL 601P-UL 601I-ULC	601PH-UL 601H-RF-UL	601P-UL 601H-RF-UL	601H-F-UL 631H-F-UL
5	Plastic, chemicals machinery building materials unknown contents	Type of fire risk may vary as can the type of fire (may require a mix of detection types)	601PH-UL 601P-UL 601I-ULC	601PH-UL 601I-ULC 601H-RF-UL	601P-UL 601I-ULC 601H-RF-UL	601P-UL	601H-F-UL 631H-F-UL

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