

Features

Series 600 High Performance 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
- Dual sensor, optical and heat
- 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:

- **601PH-UL Standard Sensitivity**, nominal 2.11 to 3.8%/ft obscuration
- **601PH-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

The High Performance Optical (HPO) detector uses a unique measuring system. Unlike most other optical scatter detectors, the HPO does not use vertical chevrons to exclude ambient light, but uses concentric baffles. This approach gives a better signal to noise ratio and allows the detector to be used in its high sensitivity enhanced mode.

These detectors react to the whole range of fire products from slow smoldering fires producing visible particles, to open flaming fires producing large numbers of very hot, smaller sized aerosols. It combines optical and heat detector technology to detect clear burning fire products which previously could only be easily detected by ionization technology detectors. For normal ambient conditions, the high performance optical detector behaves as a normal optical detector. Only when a rapid rise in temperature is detected does the sensitivity of the detector increase and the presence of smoke will confirm a fire condition. The HPO will not operate on a rate-of-rise of temperature alone.



601PH-UL High Performance Optical Smoke Detector Mounted in 5B Base with 6A-5B-UL Adapter

Series 600 Detector Features

The HPO detector has been designed to offer improved detection of such fires by detecting the rapid Rate-of-Rise of air temperature and under these conditions increasing the smoke detection sensitivity. This gives an earlier detection of such fires and a broader detection capability than a standard sensor.

The HPO detector has two sensing systems as follows:

- An optical chamber with associated electronics to measure the presence of smoke by light scatter.
- A thermistor bridge with its associated electronics to detect the presence of hot air currents.

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 601PH-UL standard sensitivity detector is recommended for most applications. When a special application for reduced sensitivity detector is required, the 601-PH-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
601PH-UL	2.11 to 3.8%/ft	High Performance Optical Smoke Detector	Compatible with 5B base; 5" (127 mm) diameter
601PH-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

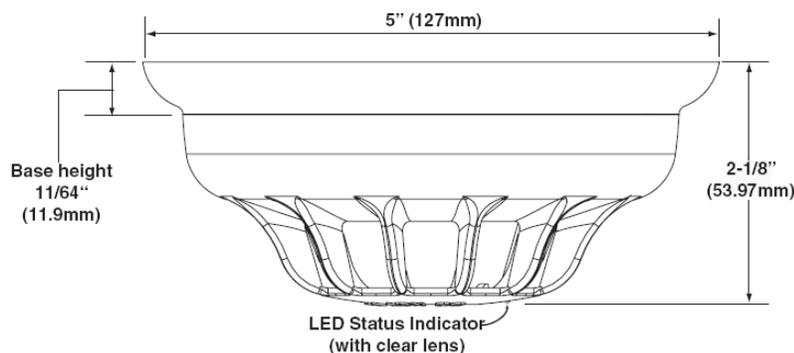
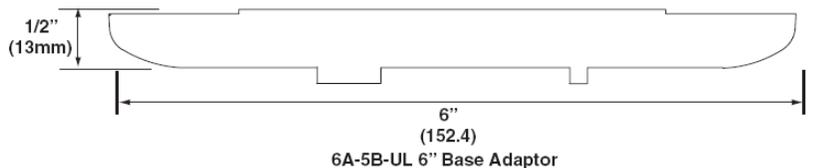
Detector Accessories

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



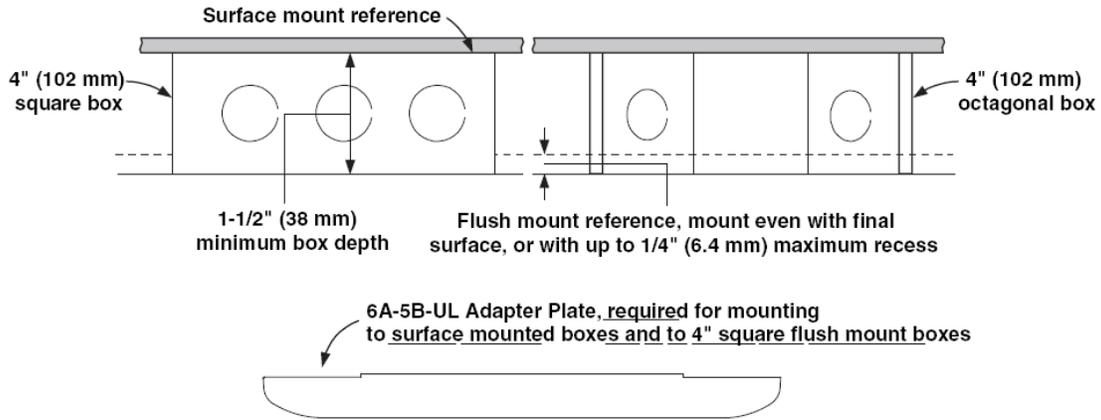
601PH-UL & 601PH-UL-L High Performance Optical Smoke Detector



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	85 μ A @ 24 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	
		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
Fire Loading		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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