Simplex®

*UL Listed**

Series 600 Smoke Detectors

Series 600 Ionization Smoke Detectors for Two-Wire Bases

Features

Series 600 Ionization 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

Functional chamber enclosure:

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

Description

WARNING:
THESE DETECTORS CONTAIN A SMALL AMOUNT OF RADIOACTIVE MATERIAL - (Americium 241). DETECTORS ARE SAFE UNDER THE PRESCRIBED CONDITIONS OF USE BUT MUST NOT BE DISMANTLED BY UNAUTHORIZED PERSONS. STORAGE AND TRANSPORT OF DETECTORS MUST BE ARRANGED IN ACCORDANCE WITH GOVERNMENTAL SAFETY REGULATIONS.

Ionization Detection. Ionization chamber detectors operate due to air within the chamber being ionized by a very small americium source thus enabling a current to flow between two electrodes. This current will reduce by a measurable level when combustion aerosols enter the chamber and bind to the ionized air. Detectors based on the ionization chamber principle respond best to the invisible smoke combustion aerosols, i.e., those produced by the faster burning type of fire.

601I-ULC Ionization Smoke Detector Mounted in 5B Base with 6A-5B-UL Adapter

Series 600 Detector Features

Within the chamber is a perforated electrode known as the collector. This electrode will, under clean air conditions, assume a certain potential relative to the outer cover. This potential is due to the radioactive emissions ionizing the air and is relatively stable.

If smoke/aerosols are introduced into the chamber they effect the ionized air, such that an imbalance occurs increasing the potential of the collector. The magnitude of this potential is used to indicate the smoke density. The current that flows across the chamber is very small and the device used to sense the potential of the collector must, therefore, be of very high impedance.

To ensure high stability and resistance to corrosion, all metal parts of the chamber are of stainless steel and the critical insulators are of PTFE.

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 30ft (9.1m) may be used as a guide.

* 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	Description	Nominal Sensitivity	Compatibility
601I-ULC	Ionization Smoke Detector	0.59%/ft to 0.907%/ft	Compatible with 5B base; 5” (127 mm) diameter

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 mm2 to 1.5 mm2)	UL listed under Thorn Security LTD

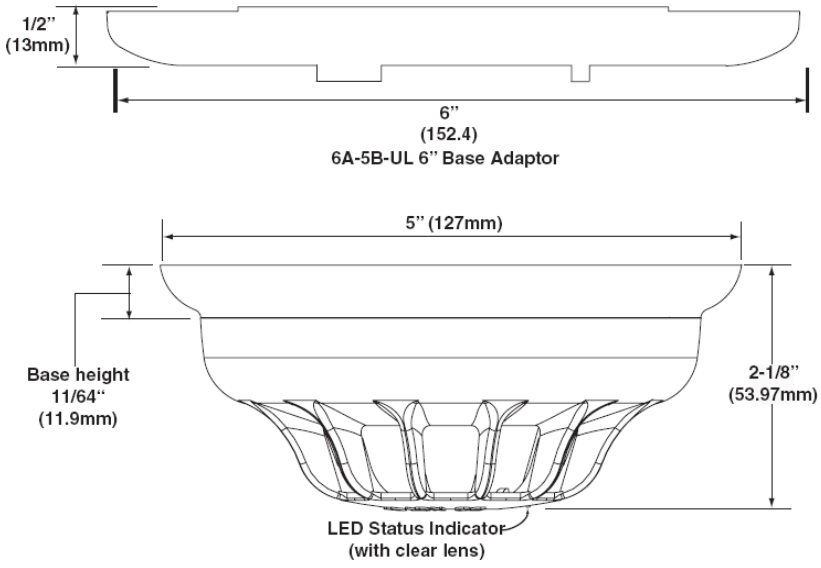
Detector Accessories

Model	Description	Details	Listing Reference
6A-5B-UL	6” Base Adapter (152 mm)	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

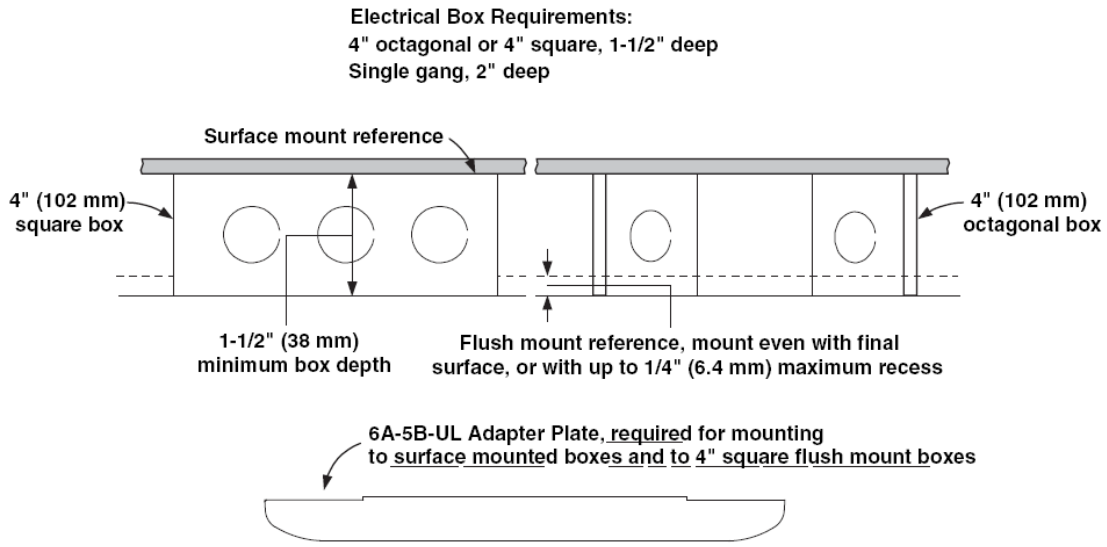
Dimensions and Reference Information



601I-ULC Ionization Smoke Detector

C5-B Detector Cage

Mounting Information



Specifications

Voltage	10.5 to 33 VDC from fire alarm control panel IDC
Standby Current	90 µA @ 24 VDC
Alarm Current	Up to 68 mA maximum, exact current is determined by alarm current limiting of connected IDC
Air Velocity Range	0-16.4 ft/sec (5 m/sec)
Altitude	Use only up to 2000 ft (1500 m)
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 Very clean and dry	B Benign moderately clean regulated temperature	C Dirty - smoky	D Dusty and/or humid	E 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 pyrolosis (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