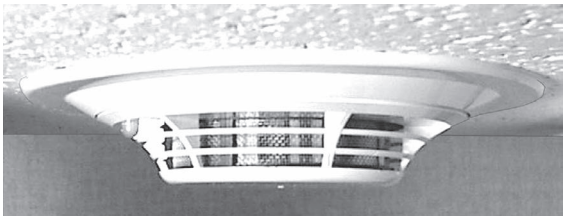
SS-L
Laser Smoke Detector



5306p1.jpg



5306p2.jpg



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SS-L with SS-B6 base (top), B501 base (middle), and RMK400 recessed mounting kit (bottom).

Description

The Gamewell Smart*Scan*™ SS-L Laser Detector provides a revolutionary advance in early warning smoke detection technology. The unique design of this detector, combined with enhanced algorithms in the Gamewell — control panels, allows smoke detection sensitivity that is 10 to 50 times higher than present photoelectric technology. Because of this high sensitivity, the SS-L can provide very early warning of slow smoldering fires. Its performance is comparable to present aspiration technology, at a substantially lower installed cost.

The SS-L uses an extremely bright laser diode, combined with special lens and mirror optics *(U.S. patent pending)*, to achieve a signal-to-noise ratio that is much higher than traditional photoelectric sensors. In addition, the tightly focused light beam, combined with algorithms, allow the system to differentiate between dust and smoke particles. Because of this differentiation, the SS-L can be set to extremely high sensitivity, yet can reject false signals caused by larger airborne particles such as dust, lint, and small insects *(U.S. patents pending)*.

Installation

The SS-L plug-in detector uses a separate base to simplify installation, service, and maintenance. A special tool allows maintenance personnel to plug-in and remove detectors without using a ladder.

Mount base on a box which is at least 1.5" (38.1 mm) deep. Suitable mounting base boxes include:

- 4" (101.6 mm) square box.
- 3-1/2" (88.9 mm) or 4" (101.6 mm) octagonal box.
- Single-gang box (except relay or isolator base).

Features

- Advanced laser light source and patented optical design.
- Sleek low-profile housing (1.66"/ 42.164 mm height).
- Sensitivity to 0.03%/foot.
- Rotary DECADE address switches. Set 01 – 99.
- Dual bi-color (red/green) LEDs flash green when Normal and are steady red in Alarm.
- Compatible with the 602, 610, 632, 654 and 658 with Smart*Scan*™ SLC.
- Dual LED design provides 360° viewing angle.
- Built-in magnetic test switch, or automatic test commanded from panel.
- Optional relay, isolator, or sounder bases.

Listings

Listings and approvals below apply to the SS-L Laser Smoke Detector. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL Listed: file S1195.

Gamewell™
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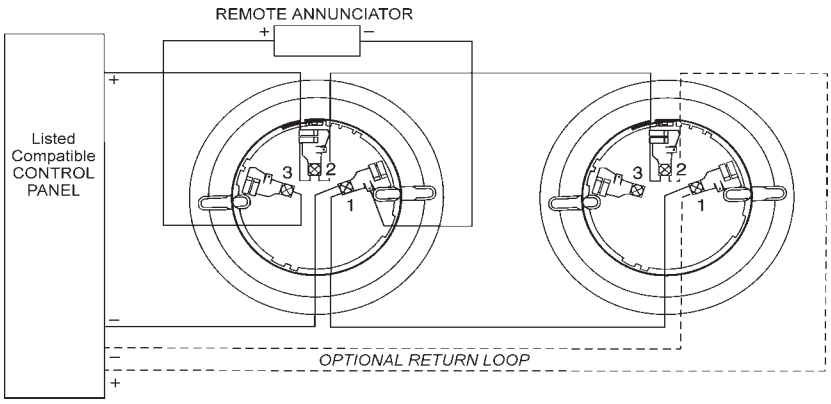
Recommended Coverage Per Detector

In order to support sophisticated smoke/dust discrimination algorithms (cooperating multi-detector), it is recommended that at least two SS-L detectors be installed in each room or enclosed area.

Recommended coverage per detector is 400 square feet (37.16 square meters).

Ordering Information

SS-L	Laser Detector. Intelligent laser sensor with Smart*Scan*™ capabilities. Mounts to one of the bases listed below.
BASES:	
SS-B6	Standard U.S. low-profile base.
B501BH	Sounder base, includes B501 base.
B224RB	Intelligent relay base.
B224BI	Intelligent isolator base. Isolates SLC from loop shorts.
ACCESSORIES:	
RA400Z	Remote LED annunciator. 3 - 32 VDC. Fits U.S. single-gang electrical box.
MOD400R	Detector sensitivity test tool. Use with most analog or digital multimeters. Satisfies requirement of NFPA72 for sensitivity testing.
M02-04-01	Test magnet.
M02-09-00	Test magnet with telescope stick.



Wiring Diagram (standard base)

SS-L Design

The SS-L incorporates an extremely bright laser diode and integral lens that focuses the light beam to a very small volume near the receiving photo sensor. The light then passes into a light trap and is absorbed. The photo sensor is activated by a scattering of smoke particles in this small-volume light beam.

In a typical photoelectric detector, the light beam is very wide and can reflect off the chamber walls into the photo sensor because dust accumulation changes the wall color from flat black to gray. With the SS-L, the concentrated light beam does not touch the walls, therefore it is much less susceptible to dust accumulation.

Smoke scatters light in all directions and, in a typical photoelectric detector, only a small portion of that scattered light reaches the photo sensor itself. In the SS-L, a special mirror reflects and concentrates most of the scattered light into the photo sensor. *See laser detail drawings on following page.*

Compared to smoke, airborne dust particles are very large and very sparse. Since *a)* they are in motion; *b)* the illuminated volume is very small; and *c)* the SS-L flashes the laser only every few seconds; then the occasional dust particle cannot remain in the light volume for more than one or two samples. This transient signal from dust is the key to the dust discrimination.

Specifications

Operating voltage range
15 to 28 VDC.

Maximum standby current
230 µA @ 24 VDC (no communication).

Maximum average standby current
255 µA @ 24 VDC (one communication every 5 seconds with LED blink enabled).

Maximum alarm current
6.5 mA @ 24 VDC (LED "ON").

Operating humidity range
10% to 93% Relative Humidity, non-condensing.

Operating temperature range
0° to 49°C (32° to 120°F).

Dimensions
Height: 1.66 inches (42.16 mm) installed in SS-B6 base. *Diameter:* 6.1 inches (154.94 mm) installed in SS-B6 base; 4.1 inches (104.14 mm) installed in B501 base. *Weight:* 3.6 oz. (102 g).

BASES AVAILABLE:

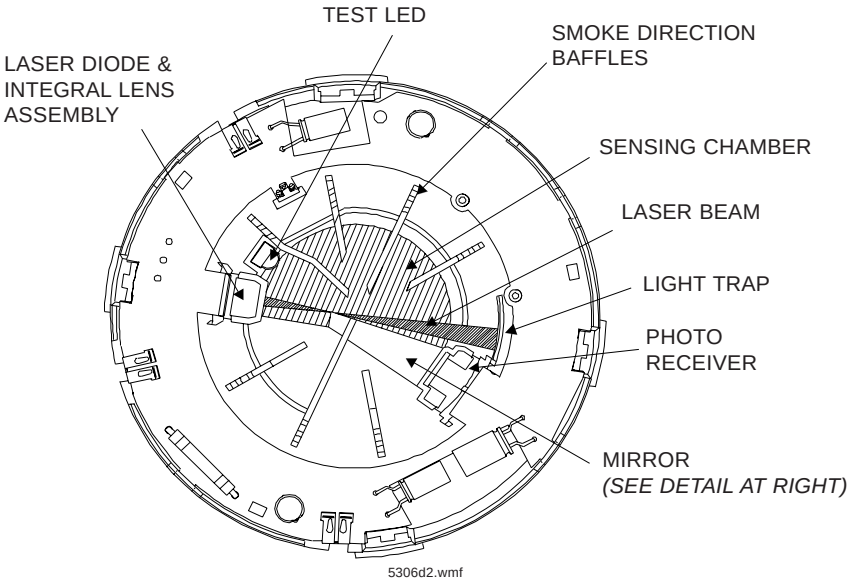
SS-B6: 6.1 inches (154.94 mm) diameter.

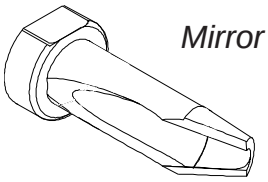
B501: 4.1 inches (104.14 mm) diameter.

B501BH: Sounder base assembly. Includes B501 base.

B224RB Relay Base: *Screw terminals:* Up to 14 AWG (2.00 mm²). *Relay type:* Form-C. *Rating:* 2 A @ 30 VDC resistive; 0.3 A @ 110 VDC inductive; 1.0 A @ 30 VDC inductive. *Dimensions:* 6.2 in. (157.48 mm) x 1.2 in. (30.48 mm).

B224BI Isolator Base: *Dimensions:* 6.2 in. (157.48 mm) x 1.2 in. (30.48 mm). *Maximum:* 25 devices between isolator bases.


TEST LED
SMOKE DIRECTION BAFFLES
LASER DIODE & INTEGRAL LENS ASSEMBLY
SENSING CHAMBER
LASER BEAM
LIGHT TRAP
PHOTO RECEIVER
MIRROR
(SEE DETAIL AT RIGHT)
5306d2.wmf


Mirror Detail
5306mir.wmf

PROTECTIVE HOUSING
SAFETY INTERLOCKS (4)
RF SHIELD
CHAMBER COVER
SMOKE SENSING CHAMBER COVER/SCREEN
BUG SCREEN
SMOKE SENSINGCHAMBER BASE
SPRING CONTACT TO BUG SCREEN
CIRCUIT BOARD
CONTACTS TO MOUNTING BRACK-ETS
PHOTO DIODE
SMOKE DETECTOR BASE
5306d1.wmf

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