

# LAT-1-x Laser Alignment Tool

Visible Laser Device for Aligning Light Screen and Grid Systems



- Self-contained visible-beam laser tool simplifies the alignment of any opposed-mode sensor pair, especially in applications that include long distances or corner mirrors
- Reduces the time required to align light screen systems and corner mirrors; eliminates much trial-and-error guesswork when working with infrared beams
- Uses one common 9-volt battery (included)
- Built-in circular bubble level
- One 4" x 4" square of high-grade retroreflective target material included for easy viewing of the laser spot at long distances
- Mounting clip (available separately or as part of a kit; see below) snaps squarely onto the housings of Banner safety light screen/grid emitters and receivers

Emitter/Receiver Housing	LAT-1 with Clip(s) Kit	Clip Only
	Model	Model
MINI-SCREEN®	LAT-1-MS	MSA-LAT-1
MICRO-SCREEN®	LAT-1-US	USA-LAT-1
EZ-SCREEN™	LAT-1-SS	EZA-LAT-2
EZ-SCREEN™ Type 2	LAT-1-LS	LSA-LAT-2
MINI-SCREEN® H.D., EZ-SCREEN™ Grid or Point	LAT-1-HD	EZA-LAT-1
EZ-SCREEN™ LP	LAT-1-LP	LPA-LAT-2
All of the Above	LAT-1	-
EZ-SCREEN™ Type 2 Heavy Duty	LAT-1-LSHD	LSHDA-LAT-2
PICO-GUARD™ SFP12 Safety Points	LAT-1-SFP12	-
PICO-GUARD™ SFP30 Safety Points	LAT-1-SFP30	-

LASER LIGHT **BANNER** LAT - 1  
DO NOT STARE INTO BEAM. CLASS 2 LASER PRODUCT.

Peak Power: 2.8mW, 640-660nm  
33kHz 25% duty cycle  
COMPLIES WITH 21 CFR PART 1040.10 AND EN60825-1; 1994

AVOID EXPOSURE - LASER LIGHT  
EMITTED FROM THIS APERTURE

REQUIRES ONE 9V BATTERY  
REMOVE TWO PHILLIPS SCREWS FOR BATTERY ACCESS BELOW

## CAUTION: Laser Light Can Damage Your Eyes

- View only the diffuse image of the laser beam where it strikes the alignment target.
- Always view the laser image from behind the LAT-1.
- Never look directly into the laser lens or into a mirror reflection of the laser light beam.

See alignment procedure for more information. Failure to follow these guidelines can result in vision damage.



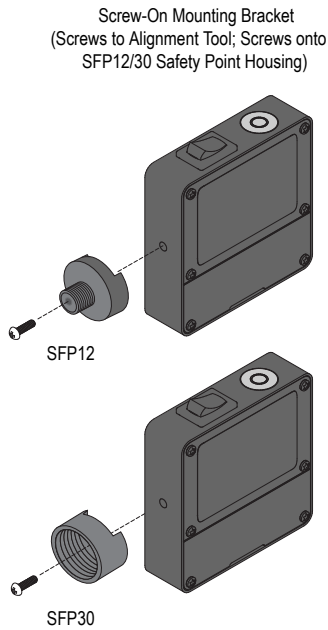


Figure 1. Screw-On Mounting Bracket

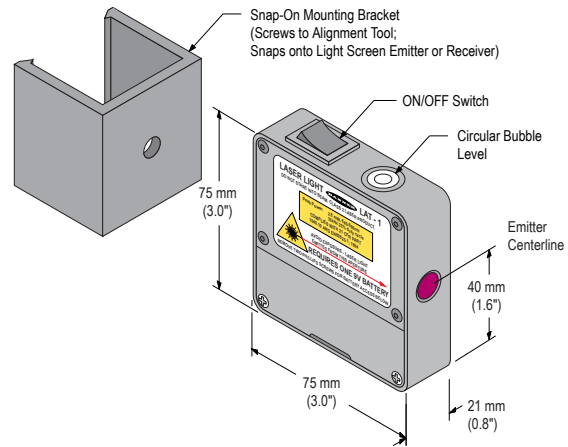


Figure 2. Dimensions

## Specifications

### Supply Voltage and Current

One standard 9V battery, included (replaceable); approximately 20 hours of continuous operation

### Construction

Aluminum housing; black anodized finish  
Black polypropylene cover with flexible hinge for battery access

### Environmental Rating

NEMA 1; IEC IP50

### Operating Conditions

Temperature: 0° to +40°C (+32° to 104°F)  
Maximum Relative Humidity: 90% @ +50°C (non-condensing)

### Application Notes

See Caution on page 1 regarding safe use of laser beam.

### Sensing Beam

Class 2 laser, 640-660 nm visible red IEC  
Pulse Width: 7  $\mu$ s  
Rep rate: 30  $\mu$ s  
Peak output power: 2.8 mW, 33kHz, 25% duty cycle

### Beam Size at Aperture

Approximately 2 mm (0.08") diameter

### Beam Divergence

$\pm 1.0$  milliradian within specified temperature range  
 $\pm 0.5$  milliradians at room temperature

### Beam Placement

Within  $\pm 4$  milliradians (approximately  $\pm 0.25$  degrees) of parallel to front, back, top and bottom of housing

### Laser Classification

U.S. Safety Standards 21 CFR 1040.10  
European Standards EN 60825-1:1994

## Alignment Procedure

To align a safety light screen using the LAT-1:

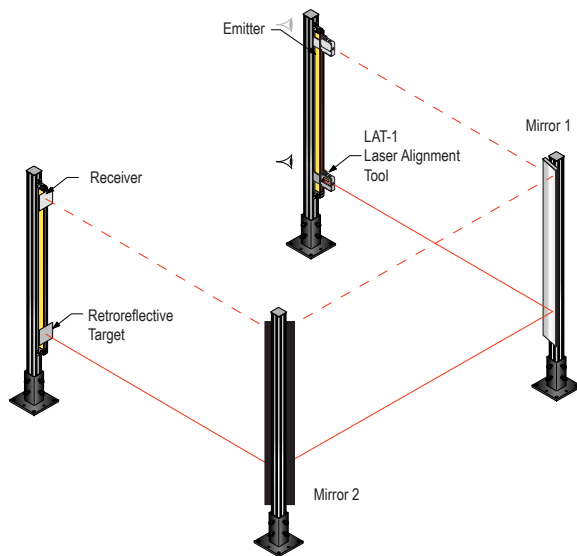


Figure 3. Aligning a corner-mirror light screen application using the Laser Alignment Tool

1. Mount all sensors and corner mirrors per the instructions in the appropriate manual. Leave the hardware slightly loose to allow for positioning adjustment.
2. Assemble the appropriate clip to the LAT-1; snap it onto the light screen emitter or receiver, and slide it to one end of the sensor. (HINT: Check the receiver for plumb first, before attaching the LAT-1 to the emitter for alignment.) Attach a retroreflective target to the corresponding end of the opposite sensor.
3. If the sensors are mounted vertically, check the circular bubble level for plumb orientation.
4. Standing behind the Alignment Tool, view the retroreflective target from behind the sensor (see Figure 2). Adjust either or both sensors and/or the corner mirrors as needed to place the laser image at the desired spot on the opposite sensor.
5. Move the Alignment Tool and the retroreflective target to the opposite ends of the sensors and repeat step 4.
6. Repeat steps 4 and 5 until the image falls at the desired spot at both the top and bottom of the opposite sensor; then tighten all mounting hardware.

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