



ELECTRO-OPTICAL PRODUCTS CORP.

P.O. BOX 650441 . FRESH MEADOWS, NY 11365 . TEL: (718) 456-6000 . FAX: (718) 456-6050 . www.EOPC.com

LASER BEAM SAFETY (INTERLOCK) SHUTTER SH-10 SHUTTER

FEATURES AND ADVANTAGES:

- *Integrated return spring
- * 0.5" (13mm) aperture, larger optional
- *Small size 1.7"W x 2.3"L x 1.2"D
 Boxed: 1.9"W x 2.8"L x 1.3"D
- *Low cost
- *High reliability, long life
- *STANDARD or CUSTOM blade
- *Returns to "OFF" position with a power failure
- *5V, 12V or 15V, or 24V dc operation
- *Simple drive circuit for TTL input commands
- *Special pricing for OEM applications.
- *RoHS compliant.



Patent No.: US 6,215,575 B1

DESCRIPTION:

The **SH-10** shutter consists of a blade mounted on a rotary solenoid with a limited rotation angle. When the shutter is powered, the blade moves to an "ON" position and clears the path for a laser beam. When the power is turned off, the return spring of the shutter moves the blade to an "OFF" position and blocks the laser beam. The standard blade material is 0.01" thick anodized aluminum to meet laser specifications. Other materials and thickness are available for uses like plasma, X-ray and laser light, VIS, IR and UV. The following models are offered for the SH-10 laser beam safety shutter:

Model **SH-10** shutter comes with two studs for mounting and allows horizontal and vertical mounting.

Model **SH-10-M** shutter comes with a mounting plate and allows horizontal and vertical mounting.

Model **SH-10-MP** shutter can be mounted directly to an optical table.

Model **SH-10-B** shutter is boxed with a 0.42" diameter through hole for laser light.

Model **SH-10-PI** shutter has position indicators to verify the status of the shutter (open or close) and can be mounted directly to an optical table

Model **SH-10-PI-B** shutter has position indicators to verify the status of the shutter (open or close). The shutter is boxed and can be mounted directly to an optical table.

The above products have a life operation of 2 million cycles min. We also offer long life (**-L**) laser safety shutter for a life operation of 50 million cycles min.(e.g.: **SH-10-L**, **SH-10-M-L**, **SH-10-MP-L**, **SH-10-PI-L** or **SH-10-B-L**)

The **DSH-10-110** or **DSH-10-220** or **DSH-10-110/220** driver activates the shutter and offers a TTL input signal option.

The **DSH-10-110-BNC** or **DSH-10-220-BNC** or **DSH-10-110/220-BNC** driver offers a BNC connector for TTL input signal option.

The **DSH-10-TIMER-S** is a preset timer to open the laser safety shutter for a specific time from the range of 0.1sec to 10 minutes.

Used only with the SH-10-24, operating from 110V or from 220V

The **DSH-10-TIMER-L** is a preset timer to open the laser safety shutter for a specific time from the range of 0.1 min to 10 hours.

Used only with the SH-10-24, operating from 110V or from 220V

When ordering without a driver, please indicate power requirements: 5V, 12V or 15V or 24V dc.

To drive two SH-10 laser safety shutters simultaneously - open and close both shutters at the same time - you can use the following drivers:

DSH-20-110 or **DSH-20-220** is a cased driver 5.3" x 5.3" x 2" operating from a line voltage of 110Vac or 220Vac (please specify DSH-20-110 or DSH-20-220).

DSH-20-110-BNC or **DSH-20-220-BNC** is a cased driver 5.3" x 5.3" x 2" operating from a line voltage of 110Vac or 220Vac (please specify DSH-20-110 or DSH-20-220) with a BNC connector for TTL input.

DSH-20-110/220 is a cased driver 5.3" x 5.3" x 2" with a selector switch for operating from a line voltage of 110Vac or 220Vac.

DSH-20-110/220-BNC is a cased driver 5.3" x 5.3" x 2" with a selector switch for operating from a line voltage of 110Vac or 220Vac with a BNC connector for TTL input.

SPECIFICATIONS:

APERTURE SIZE: 0.5 inch

POWER REQUIREMENTS: 5V dc, 700 mA. Optional: 12V dc, 300 mA and 24V dc, 160 mA

RESPONSE TIME: 15 mSec

EXPECTED LIFE: Model **SH-10**: 2 million cycles min.

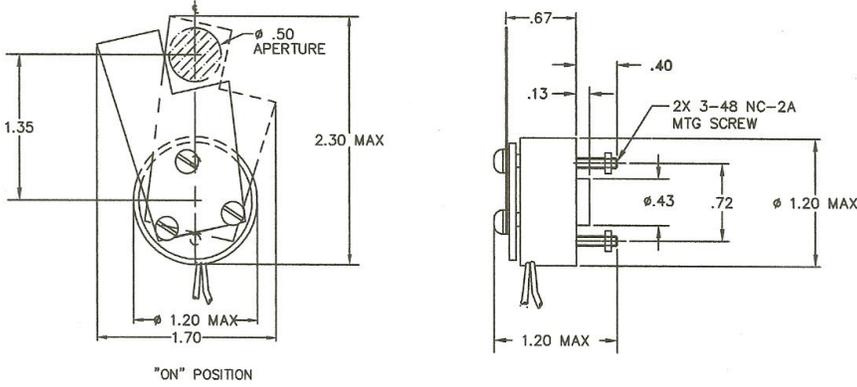
Model **SH-10-L** shutter offers long life operation: 50 million cycles min.

RETURN SPRING TORQUE: 0.0055 to 0.009 Nm

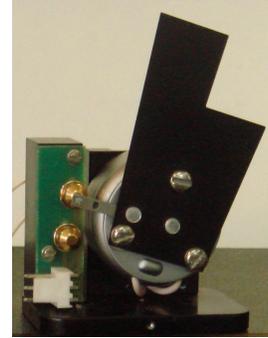
SHUTTER DIMENSIONS: 1.7"W x 2.3"L x 1.2"D (1.9"W x 2.8"L x 1.3"D boxed)

SHUTTER WEIGHT: 60 grams

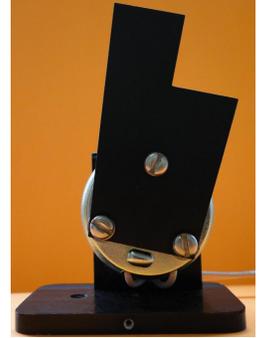
MAX. OPERATING TEMPERATURE: 75°C



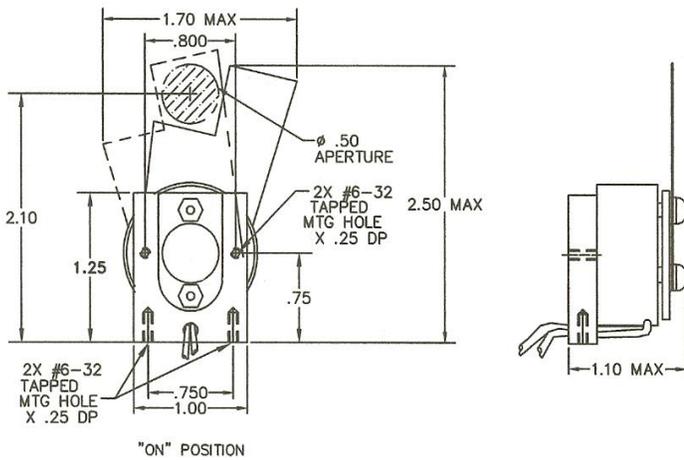
SH-10 OUTLINE DRAWING



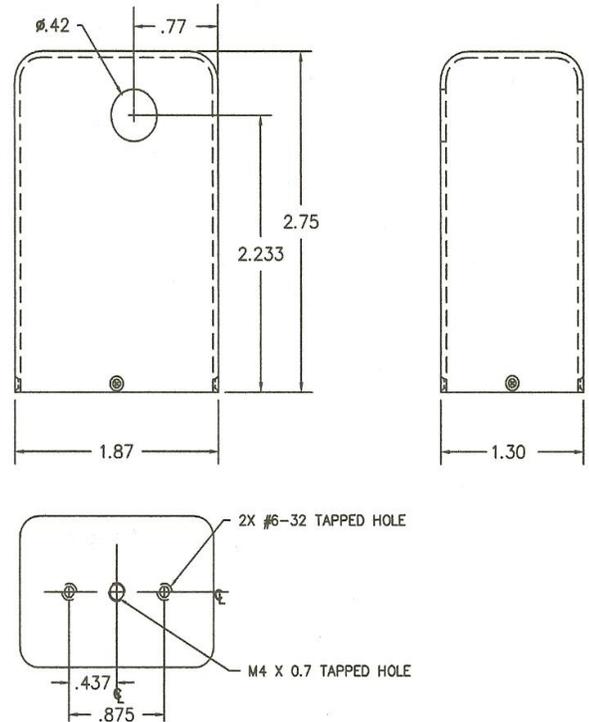
SH-10-PI



SH-10-MP



SH-10-M OUTLINE DRAWING



SH-10-B OUTLINE DRAWING

DIMENSIONS ARE IN INCHES
METRIC MOUNTING HOLES ARE OPTIONAL