Model LSTXY-S1 Laser Shutter Specifications

This model is designed for use primarily as a safety interlock shutter for YAG and similar solid-state lasers with high Q-Switched energy per pulse. It uses dielectric optics from world-leading coating suppliers, providing damage thresholds of 5 J/cm2 at 355 nm to 15 J/cm2 at 1064 nm for low ns laser pulses. The closing settling time depends on orientation w/r to gravity. For fastest closure, use the CX3000B controller PCB.

Compatible system controllers include user circuits based on 24 VDC and our controller models CX3000B, CX1100, and CX2450B.

Options are available using a suffix code system. Many options cannot be installed after manufacture, so choose carefully. Standard 1.500" round dielectric optics on 3 mm substrates are used from major industry suppliers. Mirrors are bonded into moving assembly. Use suffix –1 for 1064 nm, -2 for 532 nm, -3 for 355 nm, -4 for 266 nm, and –12 for 532+1064 harmonic mirror (lower damage threshold). Use –C2 for CO2 use. Additional mirrors are available for specific laser lines. Contact our application engineers. Referring to the plane of the Base Plate, the CX3000B controller can be calibrated for horizontal or vertical calibration. Horizontal is the default (as shown in product photo). Circuits not using dampening on closure will generate longer settling times for closure spec, up to 100 msec maximum. An integral chiller plate is available with suffix –H2OS. It is specially designed for this model.

See the "Mechanical Drawing" tab for dimensions. Also see the "Application Notes" tab on the home page menu for important operational issues including: thermal mounting, user-built circuits, polarization, lifetime, jitter, vacuum operation, and contamination. See the "Accessories" tab for useful system components.

Special Considerations for this model include precautions to use proper laser with installed mirror, and add chiller plate accessory for loads over 50 watts. Beam tube abutment to input/output is typical; back-scatter is a little higher on this model than on others due to compact thickness compared to aperture size.

Restricted use for this model include mirror choice compatible with laser, and observance of gravity mounting orientation for critical timing applications.

Recommended Controller to Achieve Specs	=	CX3000B, CX2450B
Aperture Diameter	=	20.0 mm
Typical Beam Diameter used for Specs	=	15.0 mm
Maximum Shutter Repetition Rate	=	2 Hz
CW and Quasi-CW Optical Power Handling	=	300 W with chiller plate
Typical Damage Threshold	=	5-15 J/cm2
Delay to Begin Opening after Command Open	=	20 msec
Opening Time Switching Speed	=	60 msec
Delay to Begin Closing after Command Close	=	20 msec
Closing Time Switching Speed	=	50 msec using CX3000B, 100 msec w/o dampening
Minimum FWHM Exposure Capability	=	100 msec using CX 3000B
Thermal Power Dissipation Holding Open	=	6 W
Thermal Power Dissipation, Repetitive Cycling	=	15 W @ 2 Hz
Nominal Magnetic Winding Impedance	=	7 Ohms
Cable/Wire Type and Length	=	10 Feet, PVC Jacket Cable
Mounting Surface for Thermal Sinking	=	Base Plate
Position Sensors	=	Independent Open/Close Micro-Switches Std.
Weight	=	3 lbs. with cable
Size (see mechanical drawing)	=	4.25 x 7.30 x 1.50 Inches