

Model LSTXY-W8 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 redirected energy is diffused thru UV grade fused silica, then absorbed inside the shutter. The 40 msec switching speed allows it to extract single pulses from lasers pulse trains up to 10 Hz. 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 1.000" round dielectric optics on 1 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.

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.

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
Aperture Diameter	14.0 mm
Typical Beam Diameter used for Specs	10.0 mm
Maximum Shutter Repetition Rate	3 Hz
CW and Quasi-CW Optical Power Handling	300 W with chiller plate
Typical Damage Threshold	5-15 J/cm ²
Delay to Begin Opening after Command Open	10 msec
Opening Time Switching Speed	40 msec
Delay to Begin Closing after Command Close	10 msec
Closing Time Switching Speed	40 msec using CX3000B, 100 msec w/o dampening
Minimum FWHM Exposure Capability	60 msec using CX3000B
Thermal Power Dissipation Holding Open	6 W
Thermal Power Dissipation, Repetitive Cycling	15 W @ 3 Hz
Nominal Magnetic Winding Impedance	8 Ohms
Cable/Wire Type and Length	10 Feet, PVC Jacket Cable
Mounting Surface for Thermal Sinking	Base Plate or Bottom Output Aperture
Position Sensors	Independent Open/Close Micro-Switches Std.
Weight	2.5 lbs. with cable
Size (see mechanical drawing)	1.00 x 4.00 x 6.00 Inches + Base Plate