

## Model CX2450B Controller Electrical Specifications

**General Description:** A fully enclosed table top instrument with many safety interlock features and position sensor feedback terminations. It is designed to drive all safety interlock and processing shutters. An interlocking feature and reset feature meet the general convention for controlling and acknowledging a safety breach in typical laboratory environments.

**Intended Use:** Safety interlock shutter control and utility shutter processing control.

**Calibration:** Preset and labeled at factory for use with either a specific shutter model, or class of models.

**Shutter Compatibility:** All safety models, some modulation models but with reduced performance, not for use with LS055 or LS500.

**OEM Considerations:** Convenient turn-key package for low volume applications.

**Electrical Safety Issues:** All metal earth grounded case.

**Input Drive Signal & Connections:** TTL to 24 VDC, 2.0 K ohm input impedance. BNC coaxial connector for external drive, toggle switch for momentary exposure and latch position for long term hold.

**Output Power and Connections:** Shutter power delivered through LEMO Brand 6-pin receptacle, mating with shutter plug. If purchasing CX2450B separately and you already have a shutter with flying leads, make sure to ask for plug/cable to be added to shipment at no-charge. You can attach cable to your shutter.

**Power – Up Considerations:** Surge control is automatic.

**Line Voltage Considerations:** Taps are set and AC input receptacle is labeled for use with 100, 110, or 220 VAC. The calibration internally is slightly modified for differences between 100 and 110 VAC.

Nominal Power Source	100/100/220 VAC, via standard IEC 320/NEMA 5-15 power cord
Fusing	As required, ranges .25 to 1.0 A, 3 AG Slo-Blo
Auxiliary Voltage Available	5 VDC, on rear terminal strip
Physical Mounting	Table top, four rubber feet
Size	3.70 x 10 x 5 "+ cable exit allowances
Weight	3 lbs.

## **Operational Connections and Procedures:**

Review the terminal strip on the rear panel. It provides the interlock connection, auxiliary 5 VDC, and shutter position sensor feedback signals.

Pins 1 & 2 are the interlock. Jumper if feature is not desired. Route through door/panel switch. Do not ground or supply any voltage to these pins. They source their own current and float w/r to ground. The maximum voltage present is 28 VDC.

On standard models, pin 3 is a regulated 5.0 VDC source capable of 30 mA. The return is pin 6. On models with the mechanical position sensor option, this pin is used for other purposes.

Pin 4 & 5 are the logic position sensor feedback signals. They are referenced to ground, pin 6. They are totem pole buffered TTL outputs, designed to drive a nominal 10 K ohm load. Typical voltage output is about 4.0 volts, and they source a few mA. Trying to draw more than about 5 mA from these logic outputs will load the voltage down, eventually below TTL threshold.

Pin 6 is the controller system ground, used for TTL signal return and aux. 5 V return.

Mechanical Micro-switch Option: These models are labeled and use pins 3-6 for leads to the shutter micro-switches. They are simple contacts, capable of 2 A, but typically 10-50 mA at 24 VDC is used. They read infinite impedance when shutter is not in the labeled state, and less than 5 ohms when the shutter is in the labeled state.

Do Not make any cross connections to any pins other than those listed above or damage will occur, usually within the shutter sensor assembly.

Reset function can be defeated by jumper on internal board. Contact factory or see CX1100 Operational Connections.

## **Operation:**

- 1) Plug in shutter, make sure shutter is thermally mounted.
- 2) Make sure mechanical toggle switch is in the middle position (3 –way)
- 3) Turn on AC power, yellow LED will be lit.
- 4) Check that interlock connection (pins 1 &2 on terminal block) is closed (continuity).
- 5) Press the reset button, Armed green LED will be lit.
- 6) Now you can send a signal into the BNC connector or press the toggle switch to activate the shutter. The red LED on top of the unit will be lit when shutter is open.
- 7) Access signals on the rear panel to watch them change state as shutter is opened/closed. The toggle switch will override the BNC.