

## Model CX3000B Controller Electrical Specifications

General Description: PCB level controller powered by DC source and delivering custom power waveform to the inductive load shutter. Features motion dampening via magnetic forces. Small footprint, high performance at low cost.

Intended Use: Where switching performance is needed, especially on larger aperture shutters, providing performance rarely achieved on user-built circuits. Can drive all safety/process shutters and many modulation shutters.

Calibration: Unit is factory set via trim-pots for use with a particular shutter model, and in the case of large optic shutters, calibrated additionally for gravity affects. Label on product denotes mating shutter model.

Shutter Compatibility: Nearly all of our shutters can be driven with the CX3000B, with exception of the LS200, LS500, LS055, and some custom items. With higher performance shutters, the ultimate switching and repetition rate specs usually are compromised due to lower voltages used by the CX3000B.

OEM Considerations: The small package integrates well into OEM machines. The nominal 24 VDC supply is common to many machines. Custom headers for input and output can be specified.

Electrical Safety Issues: The elimination of AC voltages makes electrical safety certification in systems much easier. Nominal voltage in use is 24 VDC.

Input Drive Signal & Connections: The input control signal can be TTL to 24 VDC. Positive polarity opens the shutter. The current path is a 3.3 K Ohm limiting resistor through an opto-isolater LED with a 1 V drop. Users should make sure the control signal can source appropriate current. For TTL this is about 1 mA. For 24 V, such as from a PLC, the current would be about 7 mA. Polarity markings shown on mechanical drawing page.

Output Power and Connections: The output power is an inductive load waveform. Nominally 24 V is applied to the load for timed period of 1 to 50 msec, then PWM activity lowers the hold voltage to a long term level, typically 5-15 V. The shutter inductor is not part of the switching circuit, only an inductive load.

Power – Up Considerations: The user's power supply should be able to surge current into the CX3000B capacitor bank on power up conditions. In operation, surge current to the shutter load comes from the capacitor bank. If the available power supply is of minimal current rating, a soft start buffer should be considered. Input pads for power are spaced at 5 mm, with hole diameter of .065 inches.

Line Voltage Considerations: Not applicable for this model.

Nominal Power Source	24-28 VDC
Fusing	Not on CX3000B
Auxiliary Voltage Available	N/A
Physical Mounting	Four Clearance Holes, 0.150" dia.
Size	5.05 x 2.70 x 1.10 high (varies w/app.)
Weight	4 Oz.

### Operational Connections and Procedures:

- 1) Mount PCB with minimum 0.25 inch standoffs on board bottom. Keep standoff, washer, and screw head diameters within limits to avoid contacting traces on board.
- 2) Connect DC Power source. Build in fusing or surge control buffering if desired.
- 3) Attach signal source to header.
- 4) Attach shutter wires to Output header. Make sure shutter is thermally mounted.
- 5) Turn on power to DC Power source, apply input signal, shutter will be driven open.