

LS-10-12 SHUTTER MANUAL



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Declaration of Conformity

LASERMET LIMITED

Laser Beam Shutter

Part No:

LS-10-12

DECLARATION OF CONFORMITY

This is to declare that the above Laser Beam Shutter has been found to comply with the requirements of the following directives:

Machinery Directive 98/37/EC

And meets the following European Standard:

EN 60825-4 : 2006 + A2 2008 Safety of Laser Products, Part 4 – Laser Guards

The relevant Protective Exposure Limits are:

Irradiated Area

4 mm²

PEL (T2) 100 s

5.0 MW/m²

Supplier:-

Lasermet Limited

137 Hankinson Road, Bournemouth, BH9 1HR Dorset United Kingdom

Country of Origin: United Kingdom

Signed:



Paul Tozer
Managing Director



Date: 27th August 2013

General

The LS-10-12 is a laser beam shutter and beam dump designed specifically for safety applications. It can, however, also be used for beam control (i.e. turning a laser beam on and off). When used for safety applications the electrical power to the LS-10-12 must be supplied by an interlocked shutter supply such as the Lasermet ICS-5, ICS-6 or ICS-15. It will then provide fail safe interlocking of the laser beam to protect persons entering the laser area from the laser beam hazard.

The LS-10-12 is designed as a combined shutter and beam dump and will not reflect the beam back out of the shutter. Consequently there is no requirement for an

additional beam dump. When used for safety interlocking the shutter input tube should be butted up against the laser to totally enclose the beam and ensure that there is no accessible laser beam when the shutter is closed.

This beam shutter is gravity fed and not reliant upon springs, electrical power or any other drives or devices for return to the safe mode.

<u>Optical Specification</u>	<u>Electrical Specification</u>
Maximum Optical Power: 20W Ave	Power Supply: 12 to 24VDC (9 -25VDC)
Maximum Beam Diameter: 15mm	Current Consumption: 180mA max at 12VDC
Maximum Power Density as per DoC	Status Output Voltage: As incoming supply
	Status Output Current Rating: 100mA maximum, non-inductive

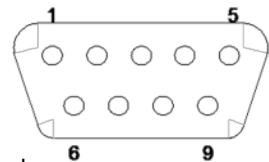
Mechanical Installation

Mount the LS-10-12 in front of the laser aperture with the 'Beam input' side facing the laser aperture. For safety interlocking applications, if there is any space between the laser aperture and the shutter input tube, metal tube must be used to enclose the beam. The shutter must be mounted vertically with its face perpendicular to the laser beam. There is an M6 thread in the base for mounting on an M6 optical stem.

Electrical Installation

The Shutter is equipped with a 9-way male 'D' connector. The pin connections on the shutter are as follows:

Pin	Function
1	+12 to 24V DC power to shutter
2	0V
3	Remote open input
4	Not Used (Internally connected to pin 1)
5	'Open' status output
6	'Closed' status output
7 - 9	Optional electrical Interlock option - see below.



A switched shutter power supply is required. Connect pin 1 to the +ve side of the supply and pin 2 to 0 Volts. The shutter can be opened and closed using its buttons when the supply is present. When the supply is removed, the shutter closes.

If using remote control with a switched supply, connect the switched supply + to pins 1 and 3 and – to pin 2. The shutter will open immediately the supply is turned on.

If using remote pushbuttons to control the shutter use a normally-closed button in series with the supply for the 'Close' function, and a normally-open pushbutton between pins 1 and 3 for the 'Open' pushbutton. Both switches need only switch for approximately 0.25 s to close or open the shutter. The existing pushbuttons will still work as normal. A remote switching unit with indication LED's (part number LS-RS) is available from Lasernet. While the switched supply is present, the shutter status is indicated on LED's on the unit and is available as an indication contact if the optional interlock option is ordered. Contact Lasernet for other control methods.

Normal Operation

When the power supply to pin 1 of the shutter comes on, the middle yellow LED will light. The green LED will also light indicating that the shutter is closed. Pressing the green button momentarily will open the shutter. The Orange LED will light indicating that the shutter is open and the beam is exposed. To manually close the shutter, press the red button. Loss of power to the shutter, such as when a door interlock switch trips the interlocked power supply, will also cause it to close.

Status Outputs – pins 5 and 6

When the shutter is open, the power supply voltage is output on connector pin 5. When the shutter is closed, the power supply voltage is output on connector pin 6. The maximum load that may be placed on these outputs is 100mA non-inductive. If connecting them to an inductive load such as a relay coil, a diode should be fitted across the load with the anode to 0V.

Optional Interlock - pins 7, 8 and 9

These connections are reserved for an optional internal electrical interlock board (part no: LS-10-IB) which provides two volt-free contacts indicating the state of the shutter. This factory-fitted option may be specified at time of ordering.

Outline Dimensions (mm)

