

LS2 2mm Uni-Stable Shutter Specifications

Features

- The **UNIBLITZ**[®] LS2 series is a 2mm clear aperture especially well suited for laser use.
- Designed for low level chopping, pulse gating, selection, and modulation to 400Hz.
- Precision exposure control in the areas of holography and laser switching are additional applications that benefit from the precise, repeatable characteristics of the LS shutter series.
- Three aperture sizes available: 2mm, 3mm, and 6mm.
- Laser energy ratings up to 5W/mm² with "Z" or "ZM" shutter blade coating options.
- Exposure repetition rates from DC - 400Hz.
- Electronic Synchronization System available.
- Available in a normally-open configuration.
- Available in an un-housed configuration through special order.



Fig. 1 LS2 2mm Uni-Stable Shutter

Timing

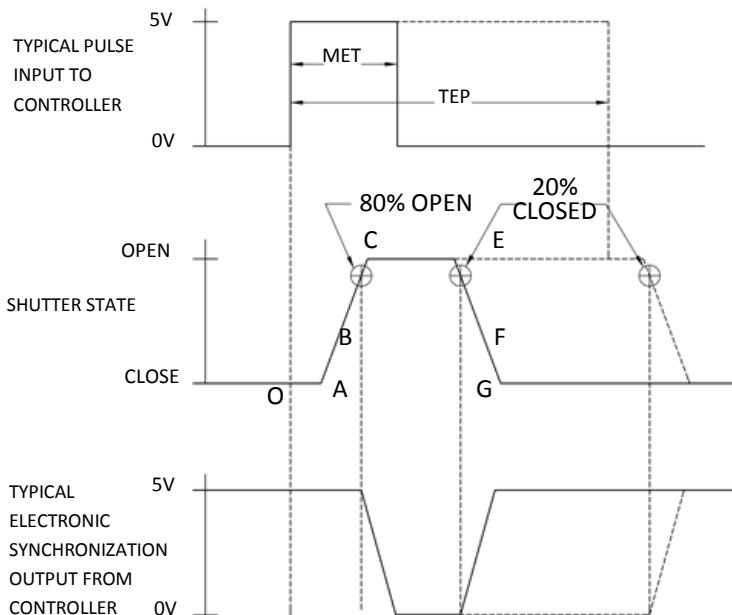


Fig. 2

¹Typical timing values (msec.) using UNIBLITZ[®] drive equipment and measured with UNIBLITZ[®] shutters equipped with standard black Teflon[®] coated shutter blades.

LS2		Time (msec.) ¹
O-A:	Delay time on opening after current is applied	0.7
A-C:	Transfer time on opening	0.3
O-C:	Total opening time	1.0
C-E:	Min. dwell time with min. input pulse	0.7
B-F:	Min. equivalent exp. time	1.1
E-G:	Transfer time on closing	0.5
A-G:	Total window time	1.5
MET:	Min. exposure time	1.0
TEP:	Typical exposure pulse	>1.7

Electrical

COIL RESISTANCE	PULSE VOLTAGE TO OPEN	HOLD VOLTAGE ¹ (NOMINAL)
48 OHMS	+65 VDC	+10 VDC

¹ Voltage level required across actuator coil when being held in the open position.

The Electronic Synchronization System provides a feedback signal (through the driver utilized) after the shutter transfers to the open state. The system incorporates an infrared emitting diode, an infrared sensitive detecting transistor, and an interrupting vane. The vane is attached to the shutter so as to block the light path between the emitter and detector in the closed position. When the shutter transfers to the 80% open position, the vane is removed from the infrared light path, allowing the emitter to switch the detector to the active state. **No connection to the designated synchronization pins when no electronic sync. is selected.**

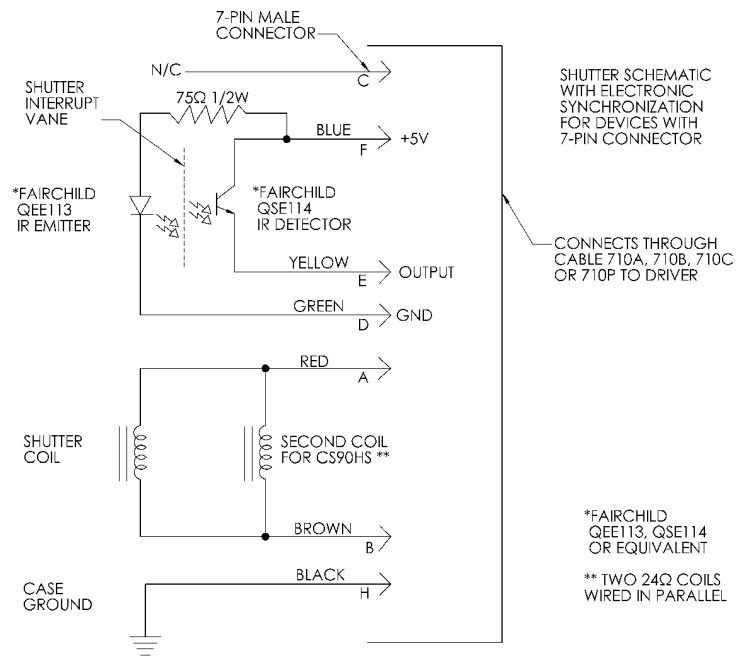


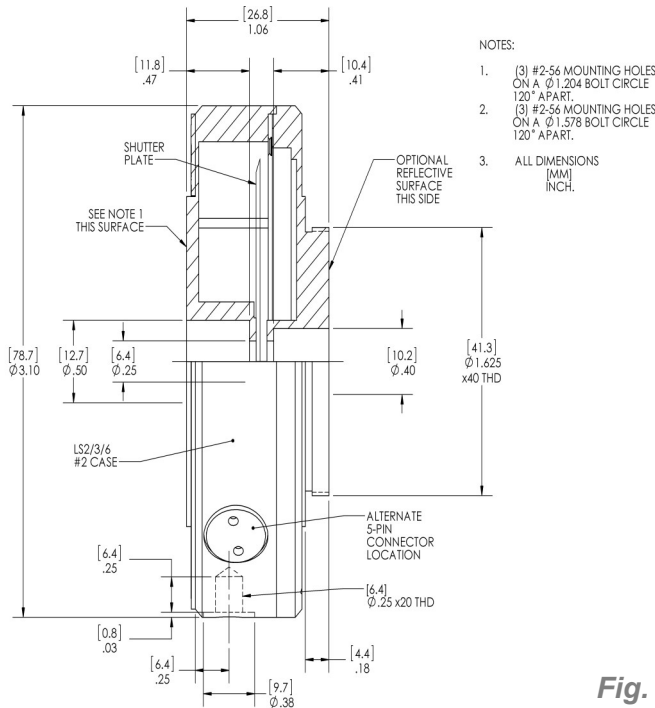
Fig. 3

Mechanical

SERIES	WEIGHT UNCASED	WEIGHT CASED	OPERATING TEMP. (DEGREES)	MAX. OPENING BOUNCE	MAX. CLOSING BOUNCE	MAX. FREQUENCY OF OPERATION ²	NUMBER OF SHUTTER BLADES
LS2	N/A	7.41 oz. (.21 Kg)	0-80 ° C	15%	5%	100 Hz / 400 Hz	1

² (CONT/BURST) CONTinuous frequency rating specified at shutter's minimum exposure pulse. BURST frequency rating specified for (4) four seconds maximum with (1) one minute minimum between bursts. Frequency measurements are taken in free air, 25°C ambient, actuator coil equipped with heat sink. For additional information on maximum sustained frequencies obtainable, please contact one of our technical representatives.

Housing



- The LS #2 case style allows a number of mounting configurations.
- A 1/4-20 threaded hole is provided for post mounting.
- The 1.625 in x 40TPI external thread, rear side, and the six 2-56 threaded holes, front side, can be interfaced directly into your application or fitted with a variety of specific mounting options.
- See "MICROSCOPE & VIDEO MOUNTING SYSTEMS" data sheet for additional information.
- The unit terminates with a 7-pin male connector.
- **Drawings of the device in its normally open and un-housed configuration are available under the 'Downloads' tab on our website.**

Fig. 4

Housing/Connector Layout

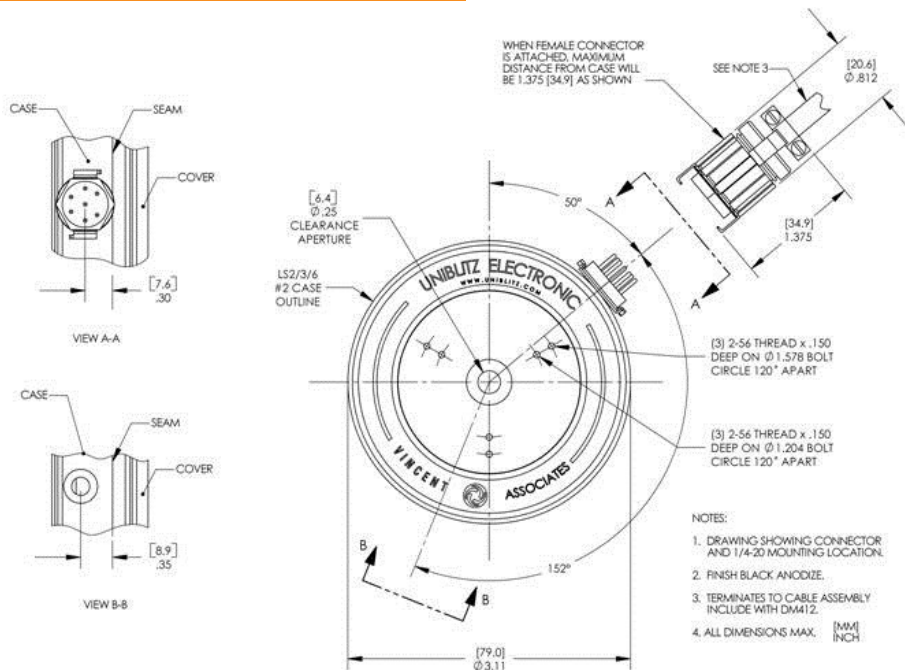


Fig. 5 illustrates the 7-pin connector and 1/4-20 threaded hole layout for the LS2/3/6 series #2 case style.

Fig. 5

Optical Blade Finish

SHUTTER SERIES	ULTRAVIOLET .3-.4µm (microns)		VISIBLE .4-.75µm (microns)		INFRARED .75-10.6µm (microns)	
	(Z) AISiO	(ZM) AlMgF ₂	(Z) AISiO	(ZM) AlMgF ₂	(Z) AISiO	(ZM) AlMgF ₂
LS2	N/A	2.5 W/mm ²	5 W/mm ²	2.5 W/mm ²	2.5 W/mm ²	2.5 W/mm ²

Blade Samples are available upon request.

For reflectance graph, please visit <http://www.uniblitz.com/optical-shutters-comparison-chart.aspx>

Product Options

Part Number: **LS2S**     -  -  - 

1
2
3
4
5
6
7
8

Example Part Number:
LS2S2T0R3-EC-NL-100

<p>1 <u>Aperture Size\Type:</u> LS2S: 2mm (Normally Closed) LS2E: 2mm (For use with D880C Driver) LSR2S: 2mm (Normally open)⁴ LSR2E: 2mm (Normally open, for use with D880C Driver)⁴</p>	<p>2 <u>Housing:</u>⁵ 2: #2 Housing</p> <p>4 <u>Electronic Sync:</u> 0: Omit Sync. 1: Electronic Sync. Included</p>	<p>3 <u>Blade Finish:</u>³ T: Teflon® Coated S.S. Blades ZM: AlMgF₂ Coated BeCu Blades¹ Z: AISiO Coated BeCu Blades¹</p>
<p>5 <u>High Temp Mod:</u> R3: High Temp. Modification² ▪ Leave blank if not required</p>	<p>6 <u>Encapsulated Coil</u> EC: Encapsulated Coil Included² (For use with vacuum) ▪ Leave blank if not required</p>	<p>7 <u>RoHS Compliant Version:</u> NL: RoHS Compliant² ▪ Leave blank if not required</p>
<p>8 <u>Mounting Options</u> (by type, #2 Housing Required): • Leave blank if not required • 21: Zeiss Axiovert Type • 22: Nikon SBX Type • 23: Olympus BH/IMT Type • 24: Olympus BX/IX Type • 26: Leica Type • 27: Nikon Type • 28: Olympus IX Transmitted Type • 29: Nikon TE Type • 30: Leica DM/DMIR/DMIRB Type • 31: Nikon Confocal Type • 32: Nikon 80i Type • 100: Mounting Ring • 105: C-Mount Adapter (Male) • 106: C-Mount Adapter (Female) • 110: T-Mount Adapter</p>		

¹ Input side only, Teflon® coating is on opposite side. Intended to protect the shutter blade surface, light source must be input to the reflective side only.

² Please visit our website for more information regarding this option.

³ Other blade options are available through special order.

⁴ Modification to #2 housing is required.

⁵ An un-housed configuration is available through special order.

For information regarding applicable intellectual property, please visit www.uniblitz.com/company-info/patents.

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