



# Uniblitz® LS2

## 2mm Uni-Stable Laser Shutter

### Overview

The Uniblitz LS2 is a high-performance laser shutter, ideal for precision exposure control, laser switching, and other applications that benefit from the precise, repeatable characteristics of the LS shutter series. These include low level laser chopping, and pulse gating, selection, and modulation to 400Hz. Uni-stable shutter devices, like the LS2, require power to hold the blades in the open state (though the device can be custom-configured for “normally open” operation).

### Key Features

- 2mm aperture
- Laser Energy Rating: **5 W/mm<sup>2</sup>** (with “ZM” blades)
- Configured for the [VCM-D1 Shutter Driver](#)
- **RoHS Compliant**
- Transfer time on opening: 0.3 milliseconds
- Transfer time on closing: 0.5 milliseconds

### Specifications

#### Electrical Specifications

Coil resistance	48 OHMS
Voltage to Open	+65 VDC
Hold Voltage (Nominal) <sup>1</sup>	+10 VDC

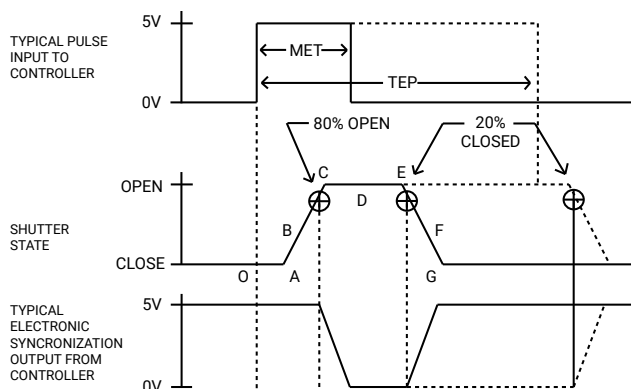
#### Mechanical Specifications

Weight Housed	210.0 g
Operating Temp.	0 - 80 °C
Max. Opening Bounce	15%
Max. Closing Bounce	5%
Max. Freq. of Operation <sup>2</sup>	100 Hz / 400 Hz
Number of Shutter Blades	1

<sup>1</sup> Voltage level required across actuator coil when being held in the open position.

<sup>2</sup> (Continuous/Burst) Continuous frequency rating specified at shutter's minimum exposure pulse. Burst frequency rating specified for four (4) seconds maximum with one (1) minute minimum between bursts.

## Shutter Timing Data



<sup>1</sup> Under no circumstances should any type of lubricant be applied to the shutter blade area. Lubricating the shutter blades will likely slow the shutter down and may eventually render it inoperable.

### LS2 (w/ VCM-D1 and "T" blades) <sup>1</sup>

### Time (msec.)

<b>O - A</b>	Delay time on opening after current applied	0.7
<b>A - C</b>	Transfer time on opening	0.3
<b>O - C</b>	Total opening time	1.0
<b>C - E</b>	Min. dwell time with min. input pulse	0.7
<b>B - F</b>	Min. equivalent exp. time	1.1
<b>E - G</b>	Transfer time on closing	0.5
<b>A - G</b>	Total window time	1.5
<b>MET</b>	Min. exposure time	1.0
<b>TEP</b>	Typical exposure pulse	>1.7

## Product Options

LS2 ② ③ ④ ⑤ ⑥ - ⑦ - ⑧

Ex: LS2S2ZM0-EC-21

### ① Shutter Series:

LS2

### ② Driver Compatibility:

**S:** Use with VCM-D1, VMM-D3/D4  
**E:** Use with V880, VED24, or D880C

### ③ Housing:

**1:** Un-Housed  
**2:** #2 Housing

### ④ Blades: <sup>2</sup>

**T:** Low Energy (Teflon®)  
**ZM:** High Energy (AlMgF2) <sup>3</sup>  
**Z:** High Energy (AlSiO) <sup>3</sup>

### ⑤ Electronic Sync:

**0:** Omitted  
**1:** Included

### ⑥ Connector:

**L:** 18" Flying Leads  
 Leave blank for 7-pin Wire Pro connector

### ⑦ Encapsulated Coil:

**EC:** Included  
 Leave blank if not required

### ⑧ Mount: <sup>4</sup>

**21:** Zeiss Axiovert    **105:** C-Mount (Male)  
**24:** Olympus BX/IX    **106:** C-Mount (Female)  
**27:** Nikon    Leave blank if not required

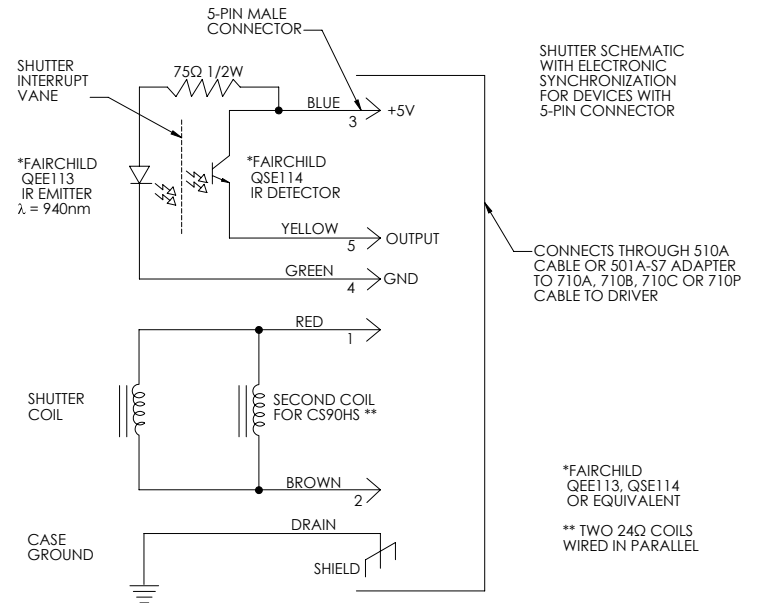
<sup>2</sup> Other blade coating options may be available by special order.

<sup>3</sup> Input side only; Teflon® coating is on opposite side to protect shutter blade surface. Light source must be input to the reflective side only.

<sup>4</sup> Mounts are only compatible if #2 housing is optioned as well.

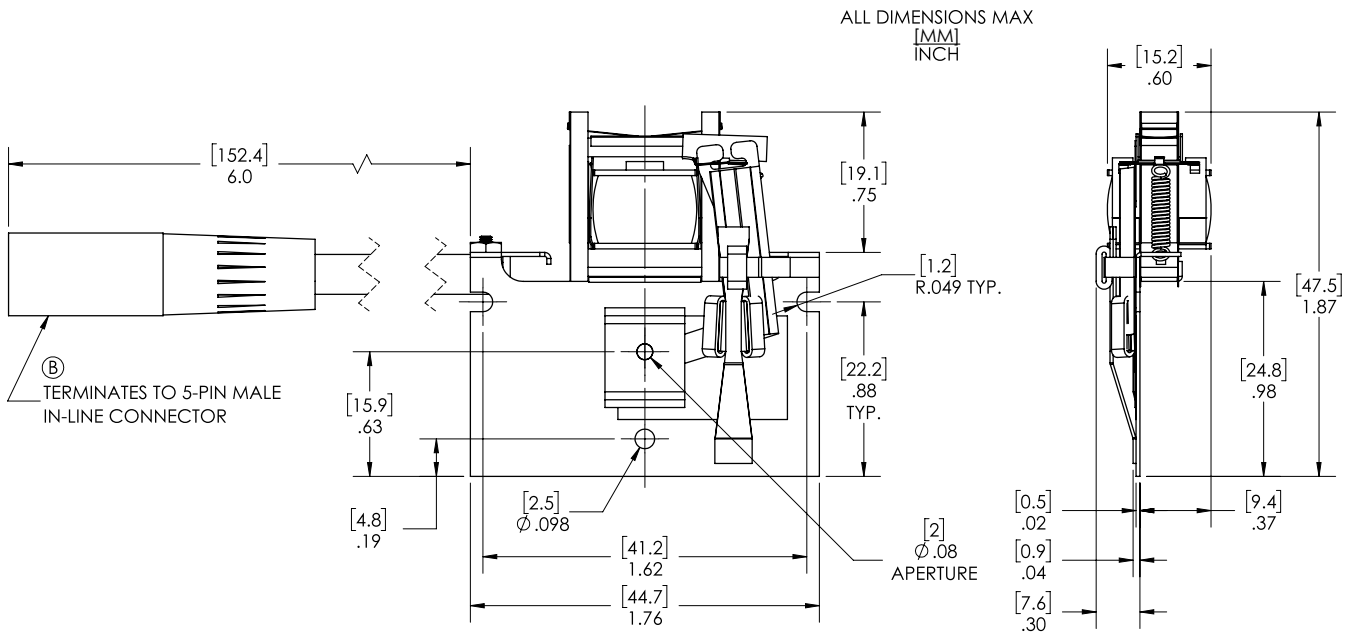
## Electronic Sync.

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. For the LS2, this system uses a similar activation flag attached to the mechanism, which triggers a reflective emitter/detector device. **No connection to the designated synchronization pins when no electronic sync. is selected.**

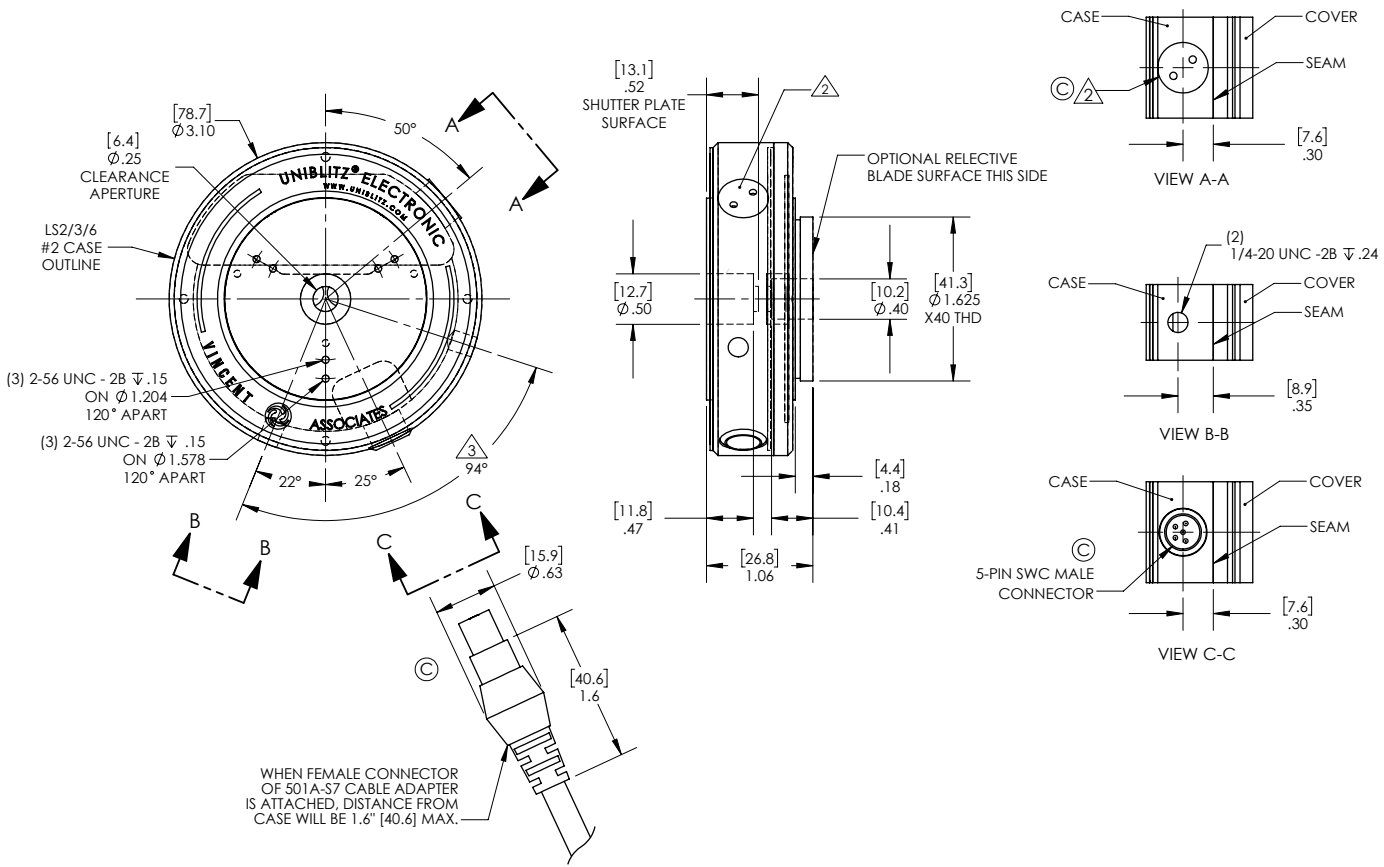


# Uniblitz® LS2 Technical Drawings

## Un-Housed



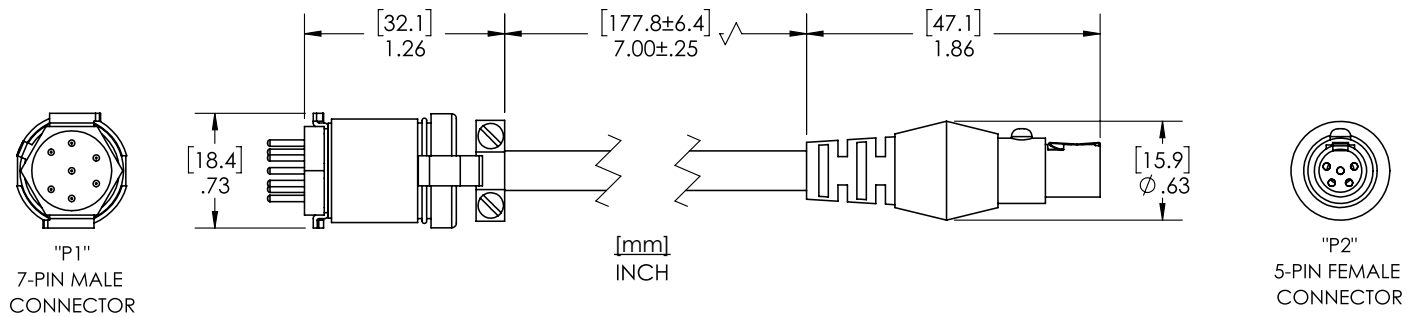
## Connector Layout





## Uniblitz® LS2 Technical Drawings

### 501A-S7 Adapter Cable<sup>1</sup> (Not included)



<sup>1</sup> 501A-S7 Shutter Adapter Cable is required for use with VMM-D3, VMM-D4, D880C and any VCM-D1 purchased prior to November 2022.