

# TS2B 2mm Bi-Stable Shutter Specifications

## Features

- The TS2B from **UNIBLITZ**® has eliminated the external protruding actuator and contains no other interfering components.
- Single bladed design.
- Shutter mechanism has a flag mounted internally and has the aperture on center.
- Innovative actuator system radically reduces moving parts to increase reliability.
- Machined flat surfaces on both sides of the device.
- Small form factor, 2mm aperture, 1.150" outer diameter and .190" thick.
- Reflective blades available for high energy light sources.
- Low voltage/current operation
- Fast exposure operation, opening times shorter than 1ms
- Frequency of operation as fast as 100Hz
- Terminated to a 2-pin JST connector (S2B-PH-SM4-TB) via a 4 inch flex interconnect

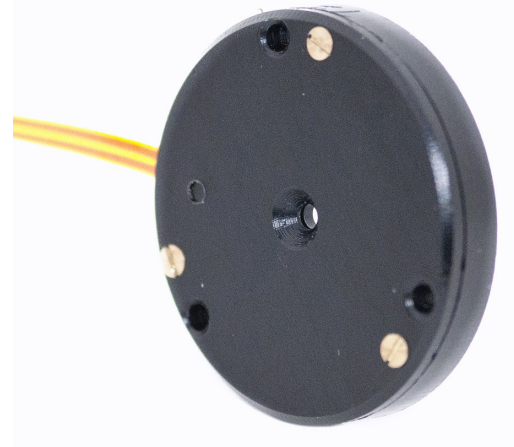


Fig. 1 TS2B 2mm Bi-Stable Shutter

## Timing

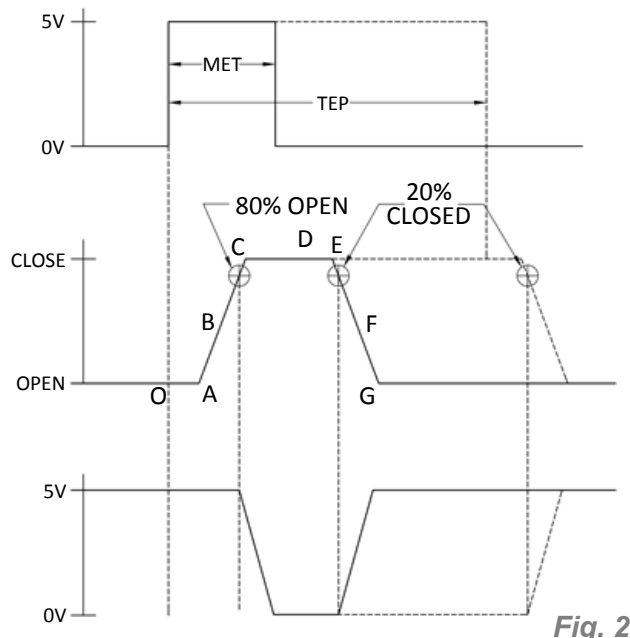


Fig. 2

<sup>1</sup> Timing data recorded with ED12DSS driver with drive pulse equal to MET.

TS2B		Time (msec.) <sup>1</sup>
<b>O-A:</b>	Delay time on opening after current is applied	0.70
<b>A-C:</b>	Transfer time on opening	0.68
<b>O-C:</b>	Total opening time	1.38
<b>C-E:</b>	Min. dwell time with min. input pulse	1.0
<b>B-F:</b>	Min. equivalent exp. time	1.68
<b>D-E:</b>	Delay time on closing after current is applied	0.75
<b>E-G:</b>	Transfer time on closing	0.56
<b>A-G:</b>	Total window time	2.24
<b>MET:</b>	Min. exposure time	2.0
<b>TEP:</b>	Typical exposure pulse	>3.0

## Electrical

COIL RESISTANCE	PULSE VOLTAGE TO OPEN	HOLD VOLTAGE <sup>1</sup> (NOMINAL)
8 OHMS	10.7 VDC	3 VDC

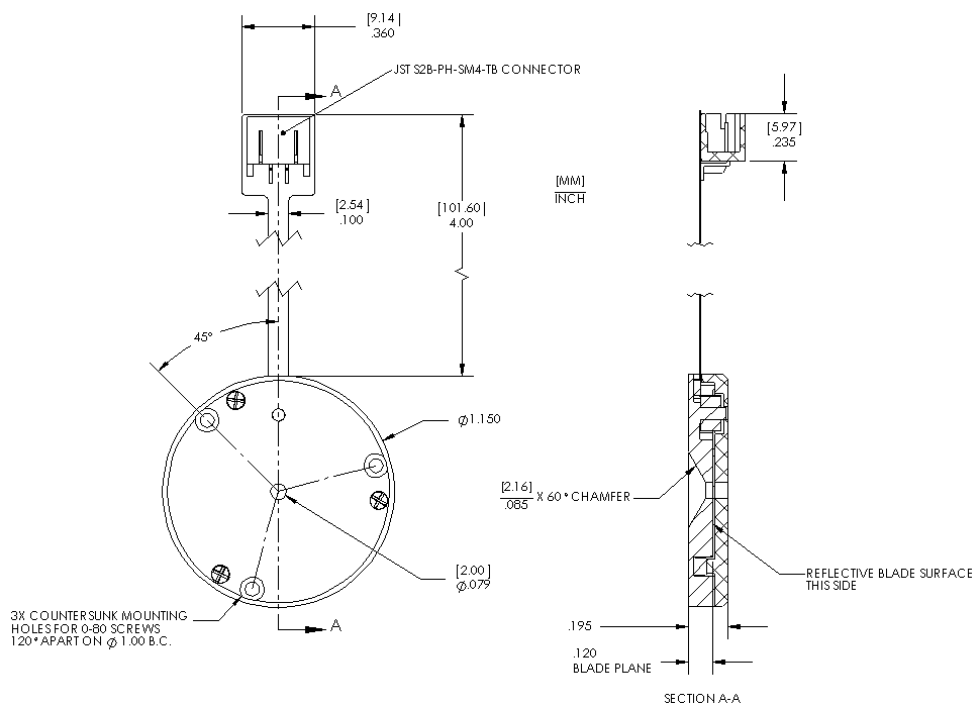
<sup>1</sup> Voltage level required across actuator coil when being held in the open position.

## Mechanical

SERIES	WEIGHT	OPERATING TEMP. (DEGREES)	MAX. OPENING BOUNCE	MAX. CLOSING BOUNCE	MAX. FREQUENCY OF OPERATION <sup>2</sup>	NUMBER OF SHUTTER BLADES
TS2B	5.5g	0-80°C	5%	5%	30 HZ /100 HZ	1

<sup>2</sup> (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.

## Un-Housed Style



- Three countersunk mounting holes are provided for use with 0-80 FH screws.
- The body of the shutter measures 1.150" in diameter and only .190" thick.
- There are no protrusions from either mounting surface
- A standard shutter is terminated by a 2-pin JST header (S2B-PH-SM4-TB). The connector is mounted on a 4" flexible circuit (can be purchased with 18" flying leads (30 AWG) attached to the end of the 4" flexible circuit ("L" specification))
- The 203D cable is required when controlling the TS2B with the ED12DSS which is included with the ED12DSS driver.

Fig. 3

## Optical Blade Finish

SHUTTER MODEL	ULTRAVIOLET .3-.4µm (microns)		VISIBLE .4-.75µm (microns)		INFRARED .75-.106µm (microns)	
	(Z) AISiO	(ZM) AlMgF <sub>2</sub>	(Z) AISiO	(ZM) AlMgF <sub>2</sub>	(Z) AISiO	(ZM) AlMgF <sub>2</sub>
TS2B	N/A	2.5 W/mm <sup>2</sup>	5 W/mm <sup>2</sup>	2.5 W/mm <sup>2</sup>	2.5 W/mm <sup>2</sup>	2.5 W/mm <sup>2</sup>

Blade Samples are available upon request.

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

## Product Options

Part Number: **TS2B**      - 

Example Part Number:  
TS2B1T0L-NL

<b>1</b> Aperture Size\Type: TS2B: 2mm	<b>2</b> Housing: 1: Un-housed	<b>3</b> Blade Finish: <sup>3</sup> T: Teflon® Coated S.S. Blades ZM: AlMgF <sub>2</sub> Coated BeCu Blades <sup>1</sup> Z: AISiO Coated BeCu Blades <sup>1</sup>
	<b>4</b> Electronic Sync: 0: Omit Sync.	
<b>5</b> Connector: L: 2 Wire bare leads attached to 4" flex connector ▪ <b>Leave blank</b> for 2-Pin JST Connector with 4" flex harness	<b>6</b> RoHS Compliant Version: NL: RoHS Compliant <sup>2</sup> ▪ <b>Leave blank</b> if not required	

<sup>1</sup> 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.

<sup>2</sup> Please visit our website for more information regarding this option.

<sup>3</sup> Other blade options are available through special order.

For information regarding applicable intellectual property, please visit [www.uniblitz.com/patents](http://www.uniblitz.com/patents).

803 Linden Avenue • Rochester, NY 14625 • 585-385-5930 tel • 800-828-6972 toll-free • 585-385-6004 fax • [www.uniblitz.com](http://www.uniblitz.com)

Due to our ongoing product development program, Vincent Associates reserves the right to discontinue or change specifications or designs at any time, without incurring any obligations. Teflon is a registered trademark of E.I. DuPont. Drawings shown for illustrative purposes only. Updated 04/13. *Specification sheet Ver. 4.1*