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# **VS35** 35mm Uni-Stable Shutter Specifications

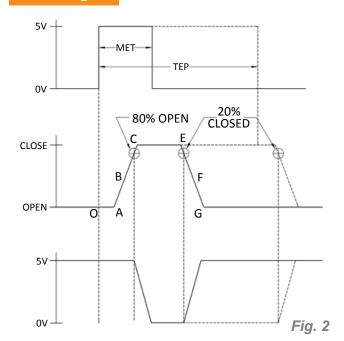
#### **Features**

- The UNIBLITZ® VS35 has been designed to give accurate, repeatable exposures for a wide variety of applications.
- The VS shutters have been successfully field tested in microscopy, video imaging, PMT protection, and photographic applications worldwide.
- 35mm diameter aperture
- Laser energy ratings up to 10W/mm2 with "Z" or "ZM" shutter blade coating options.
- Exposure repetition rates from DC 5Hz.
- Electronic synchronization system available.
- Housed and un-housed versions available.
- Can be equipped with the "R3" High Temperature Option.
- Available in a normally-open configuration.



Fig. 1 VS35 35mm Uni-stable Shutter

### **Timing**



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

	VS35	Time (msec.) <sup>1</sup>
O-A:	Delay time on opening after current is applied	5.0
A-C:	Transfer time on opening	13.0
O-C:	Total opening time	18.0
C-E:	Min. dwell time with min. input pulse	5.0
B-F:	Min. equivalent exp. time	20.0
E-G:	Transfer time on closing	12.0
A-G:	Total window time	30.0
MET:	Min. exposure time	20.0
TEP:	Typical exposure pulse	>23.0



#### **Electrical**

COIL RESISTANCE	PULSE VOLTAGE TO OPEN	HOLD VOLTAGE <sup>1</sup> (NOMINAL)
12 OHMS	+70 VDC	+7VDC/+5VDC <sup>2</sup>

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

The Electronic Synchronization System provides a feed-back 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.

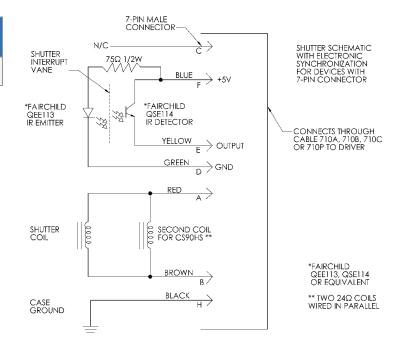


Fig. 3

#### Mechanical

SERIES	WEIGHT UNCASED	WEIGHT CASED	OPERATING TEMP. (DEGREES)	MAX. OPENING BOUNCE	MAX. CLOSING BOUNCE	MAX. FREQUENCY OF OPERATION <sup>2</sup>	NUMBER OF SHUTTER BLADES
VS35	2.33 oz (.07 kg)	14.35 oz (.41 kg)	0-80 ° C	15%	5%	5 Hz / 20 Hz	2

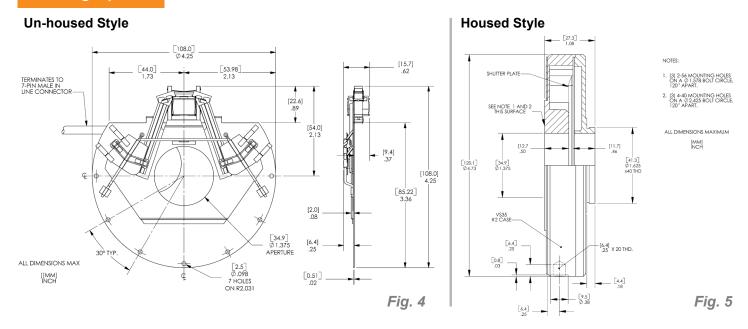
<sup>&</sup>lt;sup>2</sup> (CONT/BURST) CONTinuous frequency rating specified at shutter's minimum exposure pulse. BURST frequency rating specified for (4) four seconds maximum with (1) one minute minimum between bursts. Frequency measurements are taken in free air, 25°C ambient, actuator coil equipped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

<sup>&</sup>lt;sup>2</sup> Dual hold voltage level driver system included in UNIBLITZ<sup>®</sup> VMM/VCM shutter controller.





## **Housing Options**



Drawings of the device in its normally open configuration are available under the 'Downloads' tab on our website.

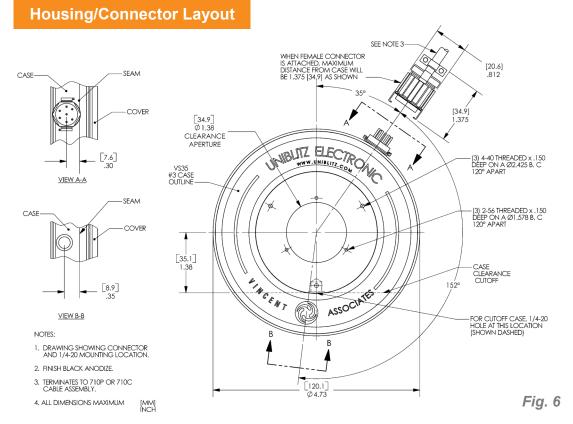


Fig. 6 illustrates the 7pin connector and 1/4-20 threaded hole layout for the VS35 series #3 case style.



## **Optical Blade Finish**

SHUTTER	ULTRAVIOLET .34μm (microns)			IBLE (microns)	INFRARED .75106μm (microns)		
MODEL	(Z) AISiO	(ZM) AIMgF <sub>2</sub>	(Z) AISiO	(ZM) AIMgF <sub>2</sub>	(Z) AlSiO	(ZM) AIMgF <sub>2</sub>	
VS35	N/A	5 W/mm <sup>2</sup>	10 W/mm <sup>2</sup>	5 W/mm <sup>2</sup>	10 W/mm <sup>2</sup>	5 W/mm <sup>2</sup>	

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

Blade Samples are available upon request.

## **Product Options**

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Part Number:	V\$35\$	<b>@</b>	<b>@</b>	<b>@</b>	<b>@</b>	@	@	<b>@</b>	<b>@</b>	@

Example Part Number: VS35S2ZM0R3-HS-EC-NL-100

Aperture Size\Type: VS35S: 35mm VS35E: 35mm (For use with D880C Driver) VSR35S: 35mm (Normally open) VSR35E: 35mm (Normally open, for use with D880C Driver)  4	<ul> <li>Housing: <ul> <li>1: Un-housed</li> <li>2: #2 Housing</li> </ul> </li> <li>Electronic Sync: <ul> <li>O: Omit Sync.</li> <li>1: Electronic Sync. Included</li> </ul> </li> </ul>	Blade Finish:  T: Teflon® Coated S.S. Blades  ZM: AlMgF2 Coated BeCu Blades  Z: AlSiO Coated BeCu Blades  3: AlSiO Coated BeCu Blades
<ul> <li>18" Flying Leads:</li> <li>L: 18 Inch Flying Leads Included<sup>2</sup></li> <li>For un-housed devices only</li> <li>Leave blank if not required</li> </ul>	<ul> <li>6 High Temp Mod:</li> <li>R3: High Temp. Modification<sup>2</sup></li> <li>■ Leave blank if not required</li> </ul>	Heat Sink:  HS: Actuator coil heat sink  Leave blank if not required  Optional for an un-housed device
8 Encapsulated Coil  EC: Encapsulated Coil Included  (For use with vacuum)  • Leave blank if not required	RoHS Compliant Version:     NL: RoHS Compliant <sup>2</sup> Leave blank if not required	<ul> <li>Included with #2 Housing—no designation required</li> </ul>

- Mounting Options (by type, #2 Housing Required):
  - Leave blank if not required
  - 17: VS14/25 F-C Video Adapter 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

For information regarding applicable intellectual property, please visit <a href="www.uniblitz.com/patents">www.uniblitz.com/patents</a>.

<sup>&</sup>lt;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.

Please visit our website for more information regarding this option.

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

<sup>&</sup>lt;sup>4</sup> If #2 Housing is selected, modification to housing is required.

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