



# Uniblitz® MS150B

## 150mm Bi-Stable Optical Shutter

### Overview

The Uniblitz MS150B is a 150mm **bi-stable** shutter suitable for large scale imagers or where a large optical path needs to be reduced to zero transmittance. The shutter's lifetime is around 500,000 cycles - high for an aperture of its size - and its blades are low mass, highly emissive, and positioned to avoid collisions during operation. With the on-board drive circuit, a user must only provide a +12VDC power supply and a pulse width determined (+5V TTL) exposure pulse.

### Key Features

- Large 150mm aperture
- Operates in all orientations
- On-board drive circuit and dual synchronization system
- **RoHS Compliant**
- Stainless steel & aluminum construction
- Transfer time on opening: 200.0 milliseconds

### Specifications

#### Electrical Specifications

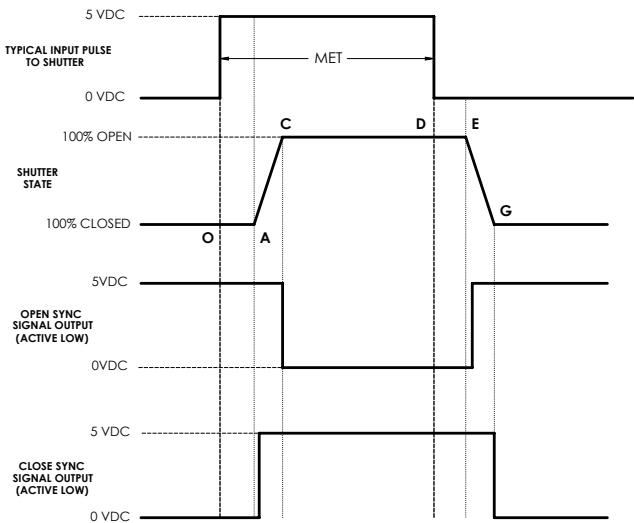
Supply Voltage Required	+12 VDC
Supply Current Recommended	2.5 A
Pulse Width Determined Exposure	Active High +5V TTL
Min. Pulse Width for Full Open	300 msec.

#### Mechanical Specifications

Weight	1701.0 g
Operating Temp.	-20 - +50 °C
Max. Freq. of Operation <sup>1</sup>	1 Hz
Number of Shutter Blades	6

<sup>1</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



MS150B (w/ "SP" blades) <sup>1</sup>		Time (msec.)
O - A	Delay time on opening after current applied	30.0
A - C	Transfer time on opening	200.0
D - E	Delay time on closing after current applied	15.0
E - G	Transfer time on closing	205.0
MET	Min. exposure time/Min. close time	300.0

<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.

Product Options

MS150B 2 3 4

Ex: MS150B1SP2

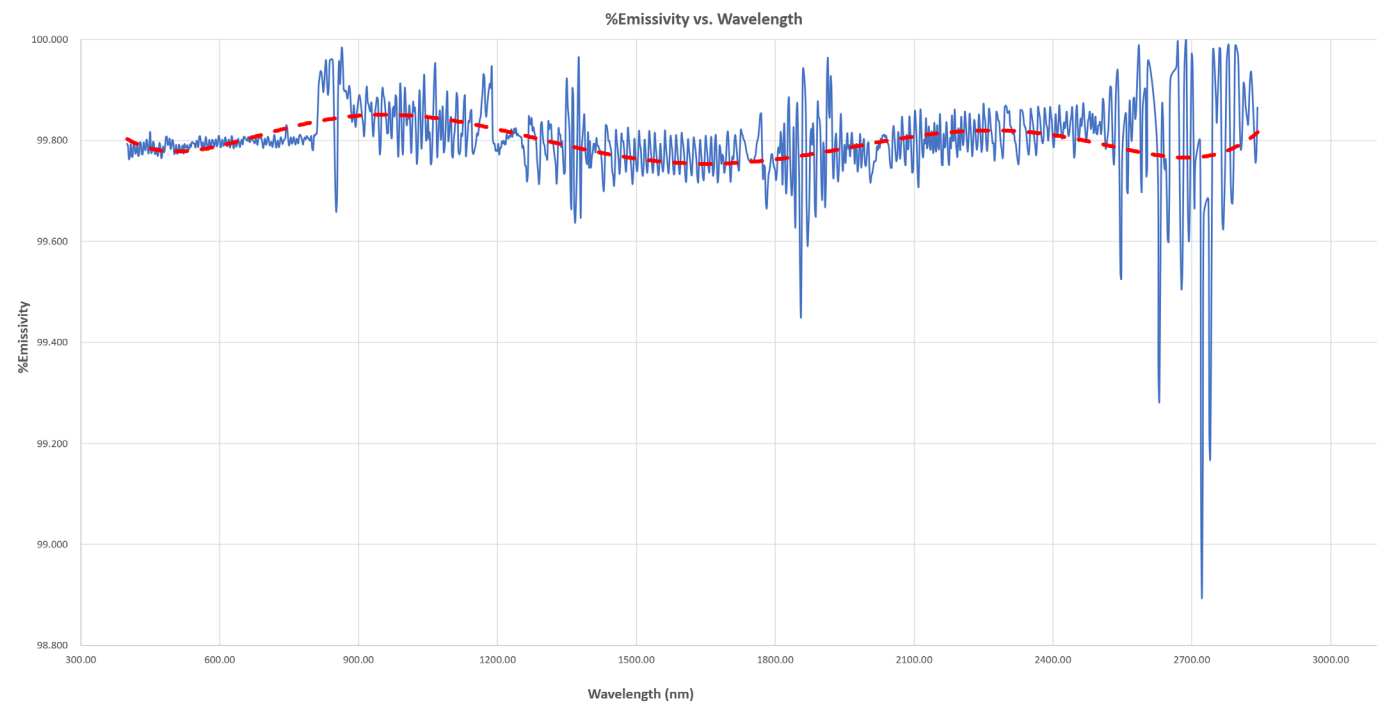
<p>1 Shutter Series:</p> <p>MS150B</p>	<p>2 Housing:</p> <p>1: Un-Housed</p>	<p>3 Blades: <sup>2</sup></p> <p>SP: Spring Steel (Teflon® coating)</p>	<p>4 Electronic Sync:</p> <p>2: Included (Dual Synchronization System)</p>
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<sup>2</sup> Other blade coating options may be available by special order.

Optical Specifications

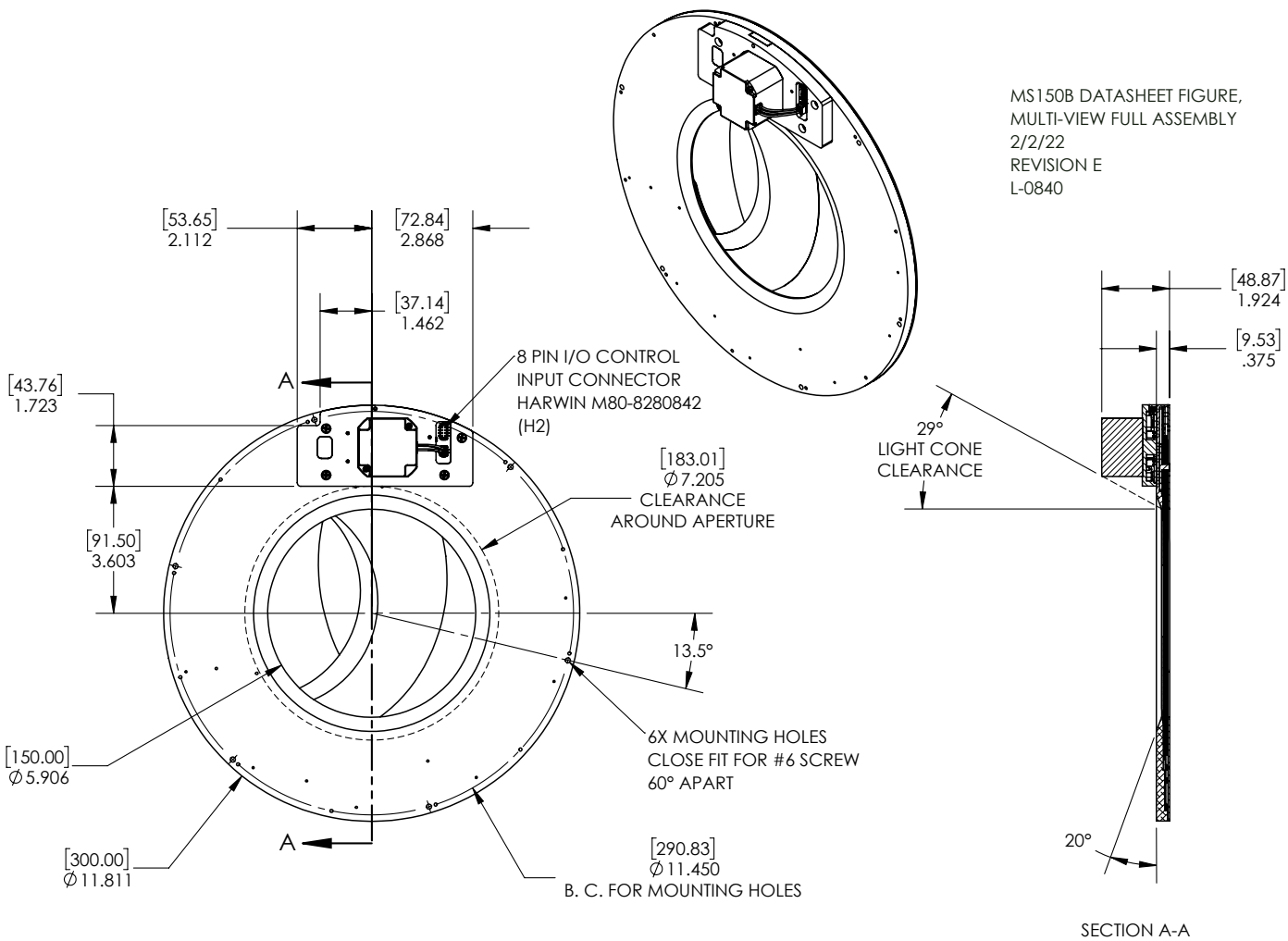
The MS150B’s six blades are constructed of spring steel and coated with an industrial Teflon® black coating. This provides a highly emissive (>98% from 400nm to 3000nm), low friction, and light-tight blade surface. The blades are reinforced to provide a movable optical surface that are highly reliable for an aperture of 150mm. The shutter blades are suited for optics applications requiring high emissivity and high optical density.

The chart below contains emissivity data for the MS150B’s SP blades. The red dotted line indicates the trend line through the data. The maximum blade surface temperature is limited by the Teflon coating and should not exceed 200°C.



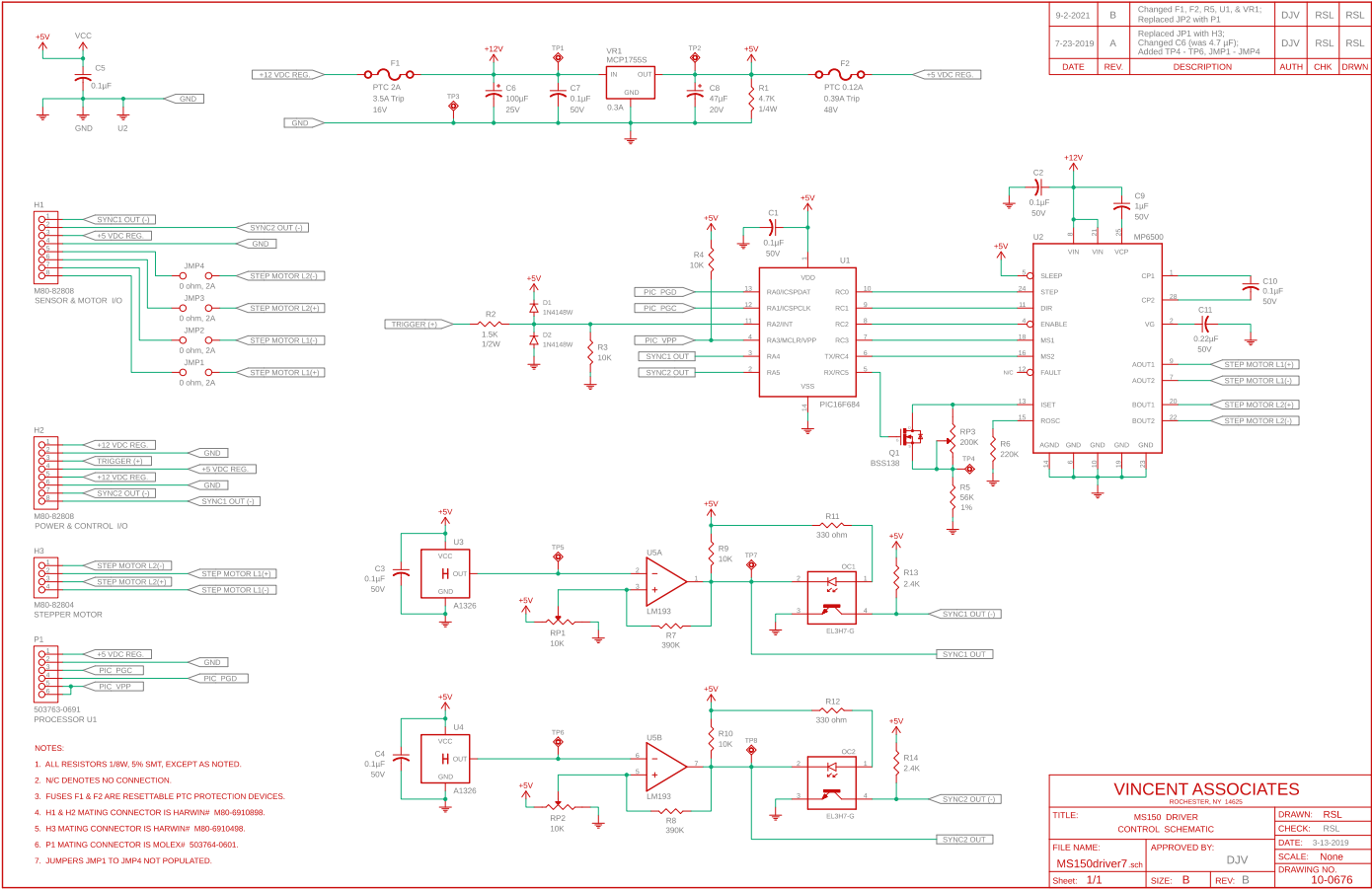
# Uniblitz® MS150B Technical Drawings

## Full Assembly



# Uniblitz® MS150B Technical Drawings

## Control Schematic

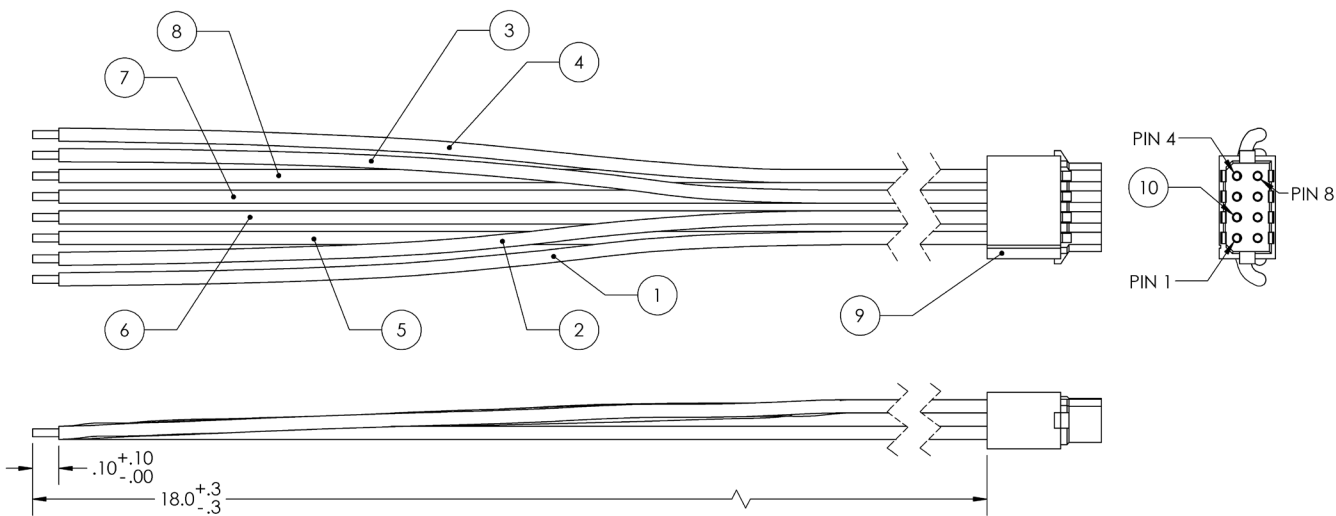


The above figure represents the schematic of the internal integrated driver. This shows the internal circuitry of the driver control board. The board is located under the actuator mount. This area also houses the open and close sensors. The sensors are Hall Effect type and determine the full-open and full-close status, while also doubling as the sync outputs that provide open and close signals.

For more information, please see [MS150B Connection and Operation Information](#).

# Uniblitz® MS150B Technical Drawings

## MS150B 8H18 Wire Harness (Included)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-0349	WIRE, #28 AWG, PTFE INSULATION, RED	19in
2	23-0346	WIRE, #28 AWG, PTFE INSULATION, GREEN	19in
3	23-0348	WIRE, #28 AWG, PTFE INSULATION, YELLOW	19in
4	23-0347	WIRE, #28 AWG, PTFE INSULATION, BLUE	19in
5	23-0349	WIRE, #28 AWG, PTFE INSULATION, RED	19in
6	23-0346	WIRE, #28 AWG, PTFE INSULATION, GREEN	19in
7	23-0351	WIRE, #28 AWG, PTFE INSULATION, BLACK	19in
8	23-0352	WIRE, #28 AWG, PTFE INSULATION, WHITE	19in
9	24-0422	HARWIN M80-6910898 8-PIN CONNECTOR HOUSING	1
10	25-0136	HARWIN M80-2840045 CRIMP TERMINAL	8

- NOTES:
1. TRIM WIRES TO LENGTH SPECIFIED, STRIP AND TIN
  2. WIRE TO BE RATED 250V, MIL-W-16878/6 OR BETTER

PIN	COLOR	DESCRIPTION
1	RED	12V POWER IN
2	GREEN	GROUND
3	YELLOW	TRIGGER IN
4	BLUE	5V POWER OUT
5	RED	12V POWER IN
6	GREEN	GROUND
7	BLACK	SYNC 2 OUT
8	WHITE	SYNC 1 OUT

Pin-out of H2 Connector and Wire Colors of the provided 8H18 Harness are provided below for control of the MS150B. The #28AWG Teflon® wires are 18 inches in length, and must be connected as indicated to ensure proper operation of the device. Please note that the H1 connector position is for a pass-through connection and its location within the drive circuit is provided for future design requirements. H1 is not required for standard operation of the shutter and the connector is not populated on the driver PCB – which is located under the actuator mount.

When connecting the MS150B for operation, be sure to connect your +12V (2.5A) supply to both RED wires (Pin #1 and Pin #5). Connect the +12V Return to both GREEN wires (Pin #2 and Pin #6). Connect your signal returns to the GREEN wires. Connect the signal (Sync) returns to the GREEN wires as well. Be sure the BLUE wire is insulated as it carries +5V from the Driver board (if not used, it is recommended to remove it from the harness or insulate it completely). Additionally, as with the +5V wire, be sure the SYNC output wires are insulated (or removed) if they are not utilized by your system.

For more information, please see [MS150B Connection and Operation Information](#).