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SHB05T - April 30, 2025

Item # SHB05T was discontinued on April 30, 2025. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

DIAPHRAGM SHUTTERS WITH CONTROLLER

- **Ø1/4", Ø1/2", and Ø1" Leaf Shutters**
- **Shutter Blades Open from the Center**
- **Uncoated or PTFE-Coated Stainless Steel Blades**
- **Manual or TTL Input Control**

Application Idea
An SHB1T Beam Shutter can be mounted to a CS235MU CMOS Camera with an SM1T2 Coupler.

US Patent 9,671,676

Shutter Controller Included
(Not to Scale)

SHB025T
Ø1/4" Shutter,
PTFE-Coated Blades

SHB05
Ø1/2" Shutter,
Uncoated Blades

SHB1T
Ø1" Shutter,
PTFE-Coated Blades

OVERVIEW

Features

- Diaphragm Design with Ø1/4", Ø1/2", or Ø1" Clear Aperture
- Available with Stainless Steel Blades Uncoated or PTFE-Coated for Low Reflectance
- Compact Shutter Controller Included
- Safety Features Include:
  - Interlock for Laser Safety Lockout and Other Applications
  - Shutdown Upon Detection of Blade Jam or Other Operation Failure
  - Over-Heating Protection
- Mounting Adapters Available for Lens Tube, 30 mm Cage, Camera, and Ø1/2" Post Compatibility

Shutter Selection Guide	
Diaphragm	**Single-Blade**
Ø1/4", Ø1/2", and Ø1" Motorized	Ø0.29" Manual
	Ø1/2" and Ø1" Motorized

Click to Enlarge
SHB1 shutter with aperture opened. The front features an engraving and SM1 threading.

Thorlabs' Diaphragm (Leaf) Optical Beam Shutters feature a Ø1/4", Ø1/2", or Ø1" clear aperture, uncoated or PTFE-coated blades that open from the center of the aperture, and compact housings. These patented (US Patent: 9,671,676) shutters have fast response times, include controllers, and can be operated either by manual pushbutton or external 0 to 5 V TTL signal control. Shutters with a Ø1/4" aperture have two stainless steel blades, while shutters with a Ø1/2" and Ø1" aperture have five. For versions with PTFE-coated blades, the coating is deposited on both sides of the blades to reduce reflections from the closed aperture while maintaining the performance of the uncoated shutter. A plot of the typical reflectance of the coating as a function of wavelength can be seen on the *Graphs* tab.

Operation
The shutter is open while the voltage signal from the controller is high, and the shutter is closed while the voltage signal is low. During manual operation, buttons on the controller are used to control the shutter state. During external modulation, the applied TTL signal controls the shutter state and can drive the shutters at burst frequencies higher than their continuous operation frequencies. Please see the *Controller* tab for additional details and the *Specs* tab for a detailed timing diagram.

Note that the blades on these shutters can move freely when turned off. Click here for fail-safe (safety) shutters that are closed by default and only open when a pulse

signal is sent to the shutter.

Click to Enlarge
Included Shutter Controller

Shutter Controller

The included controller offers a simple interface for operating the shutters. Power and Status LEDs indicate the shutter state, a BNC connector accepts an external TTL signal, and a 2.5 mm mono jack interlock output is provided. The 2.5 mm mono plug is not included but is available upon request. The controller has a compact 3" x 3.41" x 1.38" housing. A 35" cable connects the shutter to the controller. A universal power supply for 100 - 240 VAC, 47 - 63 Hz is provided, along with a location-specific AC power cord. For more details on the shutter controller, please see the *Controller* tab above.

Click to Enlarge
We offer mounting adapters for compatibility with Ø1/2" posts and 30 mm cage systems.

Third party controllers should not be used to control these shutters. The controller included with each shutter below is programmed for use with the accompanying shutter; the controllers are not interchangeable between different shutter sizes.

Mounting Adapters

Mounting adapters for these shutters are available separately below. We offer an option for each shutter that includes an 8-32 (M4) tap for mounting onto Ø1/2" post assemblies and either through holes or 4-40 tapped holes to attach cage rods for integration into 30 mm cage systems. We also offer an adapter for the Ø1/2" shutter that provides these features in addition to internal SM05 (0.535"-40) threading for lens tube capability. An adapter option for the Ø1" shutter has internal C-Mount (1.00"-32) and SM30 (M30.5 x 0.5) threading, SM2 (2.035"-40) external threading, and 4-40 tapped holes for compatibility with 30 mm cage systems.

Diaphragm Shutters Selection Guide						
Item #	**SHB025**	**SHB025T**	**SHB05**	**SHB05T**	**SHB1**	**SHB1T**
Shutter Photo (Click to Enlarge)						
Aperture Size	Ø0.25" (Ø6.4 mm)		Ø0.508" (Ø12.9 mm)		Ø1.00" (Ø25.4 mm)	
Blade Coating	Uncoated	PTFE	Uncoated	PTFE	Uncoated	PTFE
Operating Frequency	0 - 50 Hz		0 - 25 Hz		0 - 15 Hz	
Minimum Exposure Pulse[a]	10 ms		29 ms		28 ms	
Typical Open / Close Time	3 ms / 3 ms		8 ms / 9 ms		10 ms / 9 ms	
Compatible Mounting Adapters	SHCP025(/M)		SHCP05(/M) and SHM05(/M)		SHM1(/M) and SHC1	

a. Measured from 50% open to 50% closed, when shutter is driven by its minimum drive pulse (MDP). See the Shutter Timing table and diagram on the *Specs* tab for more information.

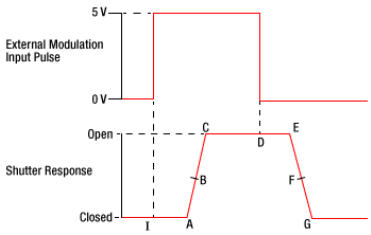
SPECS

Performance Specifications[a]							
Item #		**SHB025(T)**		**SHB05(T)**		**SHB1(T)**	
Operating Frequencies							
Operating Frequency Range		0 - 50 Hz		0 - 25 Hz		0 - 15 Hz	
Max Operating Frequency, Protected Mode[b]	**1 Minute**	16 - 50 Hz[d]		16 - 25 Hz[d]		-	
	10 Minutes	-		-		14 - 15 Hz	
	30 Minutes	-		-		11 - 13 Hz	
	Continuous[c]	15 Hz		15 Hz		10 Hz	
Max Operating Frequency, Unprotected Mode[b]	**Continuous[c]**	50 Hz[d]		25 Hz[d]		15 Hz	
Key Timings		**Typical**	**Max**	**Typical**	**Max**	**Typical**	**Max**
Minimum Exposure Pulse[e]		10 ms	12 ms	29 ms	31 ms	28 ms	30 ms

Physical Specifications			
Item #	**SHB025(T)**	**SHB05(T)**	**SHB1(T)**
Shutter			
Aperture Diameter	0.25" (6.4 mm)	0.508" (12.9 mm)	1.00" (25.4 mm)
Number of Blades	Two	Five	Five
Outer Diameter	1.00" (25.4 mm)	1.10" (27.9 mm)	2.25" (57.2 mm)
Thickness	0.29" (7.3 mm)	0.29" (7.3 mm)	0.38" (9.7 mm)
Mounting Through Holes	Two, Ø0.06" (Ø1.6 mm)	Two, Ø0.07" (Ø1.7 mm)	Three, Ø0.10" (Ø2.4 mm)
Controller			
Dimensions	3" x 3.41" x 1.38" (76.2 mm x 86.6 mm x 35.1 mm)		

Rise (Open) Time		3 ms	4 ms	8 ms	10 ms	10 ms	12 ms
Fall (Close) Time		3 ms	4 ms	9 ms	12 ms	9 ms	11 ms
Exposure Accuracy[f,g]		2 ± 0.5 ms		2 ± 0.5 ms		6 ± 0.5 ms	
Jitter (Rising or Falling Edge)	**≤10 Hz**	1.8 ms	4 ms	1.8 ms	4 ms	1.7 ms	4 ms
	10 to 11 Hz					-	-
	11 to 15 Hz					4 ms	8 ms
	15 to 16 Hz	-	-	-	-	N/A	N/A
	16 to 25 Hz	3.5 ms	8 ms	3.5 ms	8 ms	N/A	N/A
	25 to 50 Hz			N/A	N/A	N/A	N/A
Exposure Repeatability Jitter[g,h]		<4 ms					
General Specs							
Typical Lifetime		5 Million Cycles					
Operating Temperature		15 to 40 °C					

a. Unless otherwise indicated, all specifications were measured at 25 °C. The shutter blades for Item #s ending in 'T' have an anti-reflective PTFE coating. For reflectance data, as well as typical jitter performance over the lifetime of a shutter, please see the *Graphs* tab.
b. For definitions of Protected and Unprotected Modes, please see the *Controller* Tab. Note that overheating protection is disabled in Unprotected Mode.
c. Prolonged modulation of these shutters will eventually result in premature component wear and failure. This device is not intended for long-term continuous modulation.
d. The shutter can get very hot; allow 5 minutes for the shutter to cool before handling.
e. Measured from 50% open to 50% closed, when shutter is driven by its minimum drive pulse (MDP). See Shutter Timing Specifications table and diagram for more information.
f. Maximum deviation in the measured exposure referenced to the external input drive pulse.
g. Specified over the 4 to 15 Hz operating frequency range for the SHB025(T) and SHB05(T) and over the 3 to 10 Hz range for the SHB1(T).
h. Maximum exposure-to-exposure variation, measured 50 times repeatedly.



Click to Enlarge
Timing Diagram. Refer to the table to the right for details.

Weight	0.5 lbs (0.23 kg)
Cable Length	35" (889 mm)

Electrical Specifications			
Item #	**SHB025(T)**	**SHB05(T)**	**SHB1(T)**
Shutter			
Coil Resistance	8.2 Ω ± 2.5%		8.5 Ω ± 2.5%
Controller Drive Type	Pulse Width Modulation at 20 kHz		
Shutter Drive Voltage	7.0 VDC (Typical) 8.0 VDC (Max)		
Controller			
External Modulation Input Voltage (TTL)	Low: 0 - 0.8 VDC High: 2.0 - 5.0 VDC		
AC Line Voltage	100 - 240 VAC, 47 - 63 Hz		
AC Current	0.4 A		

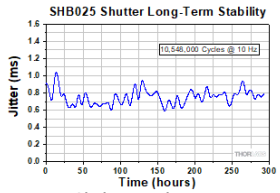
Interlock Output Specifications	
Operating Voltage	12 VDC (Max)
Current	1 A (Max)
Mating Connector	2.5 mm Mono Phono Jack

Shutter Timing Specifications							
Diagram Key[i]	**Description**	**SHB025(T)**		**SHB05(T)**		**SHB1(T)**	
		Typical	**Max**	**Typical**	**Max**	**Typical**	**Max**
I - A	Delay between input pulse rising edge and initialization of shutter opening	3.3 ms	4 ms	8 ms	10 ms	11 ms	13 ms
A - C	Rising edge to 100% open	3 ms	4 ms	8 ms	10 ms	10 ms	12 ms
I - C	Delay from input pulse rising edge to shutter being fully open	6.7 ms	7.5 ms	16 ms	19 ms	21 ms	25 ms
D - E	Delay from fall of input pulse to initialization of shutter closing	2.6 ms	3.5 ms	7 ms	10 ms	15 ms	17 ms
E - G	Falling Edge to 100% closed	3 ms	4 ms	9 ms	12 ms	9 ms	11 ms
D - G	Delay from fall of input pulse to shutter being fully closed	6 ms	7 ms	16 ms	18 ms	24 ms	26 ms
I - D[j]	Minimum Drive Pulse (MDP)	10 ms	12 ms	29 ms	31 ms	25 ms	26 ms

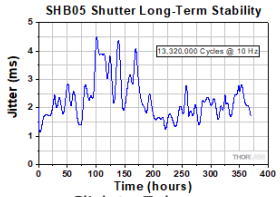
C - E[j]	Minimum exposure pulse at the top of the pulse	7.6 ms	8 ms	21 ms	22 ms	19 ms	21 ms
B - F[j]	Minimum exposure pulse at 50% of the pulse	10 ms	12 ms	29 ms	31 ms	28 ms	30 ms
A - G[j]	Minimum Exposure Pulse at the bottom of the pulse	14 ms	15 ms	37 ms	40 ms	35 ms	37 ms

a. The letters refer to the points shown in the diagram to the left.
b. These measurements use the MDP, which is the minimum pulse to drive the minimum open time (I - D).

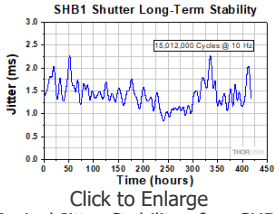
GRAPHS



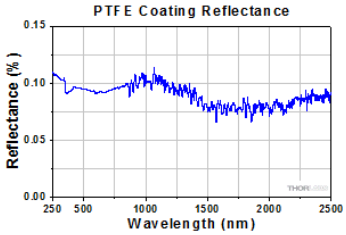
Click to Enlarge
Typical Jitter Stability of an SHB025 Shutter



Click to Enlarge
Typical Jitter Stability of an SHB05 Shutter



Click to Enlarge
Typical Jitter Stability of an SHB1 Shutter

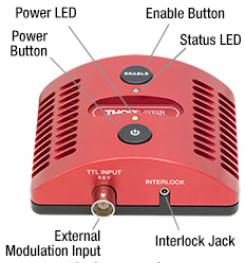


Click to Enlarge
The plot above gives the typical reflectance for the PTFE coating deposited on both sides of the shutter blades of Item #s SHB025T, SHB05T, and SHB1T. This data is not guaranteed and should be used only as a reference.

CONTROLLER

Shutter Controller

Each of these diaphragm shutters is provided with a controller capable of operating in two modulation modes: manual or external. In addition, when in external modulation mode, the shutter may be run in either protected or unprotected mode; in unprotected mode the over-temperature shut down is disabled. Descriptions of each of these modes, as well as the LED indicators displayed in each mode, are given below. For convenience, this information is detailed in the manual provided with the shutter and summarized on a quick reference guide on the bottom of the controller.



Click to Enlarge
Shutter Controller Front

Click to Enlarge
Shutter Controller Back

Manual Modulation Mode

The shutter can be controlled manually by pressing the ENABLE button on the top of the controller. If the shutter is closed, pressing the enable button once will open the shutter and turn the status LED green. Pressing the enable button again will close the shutter and the status LED will turn off. The shutter will stop operating, the status LED will turn red, and the interlock circuit will open if the blades become jammed.

External Modulation Modes

The shutter may also be controlled with an external 0 - 5 V TTL signal by connecting the TTL source and then powering on the controller. If the shutter does not begin operating, press and hold the enable button to enter external modulation mode. There are two external modulation modes, Protected and Unprotected, which are described below. In both, the shutter will stop operating, the status LED will turn red, and the interlock circuit will open if the blades become jammed.

Protected Mode
In protected mode, the shutter can operate at frequencies between the max protected and unprotected continuous frequencies for limited periods of time (bursts). The shutter will shut down if run for too long at these frequencies to protect the unit from overheating. The temperature is not monitored directly, but rather a time limit based on operating the shutter at room temperature without cooling is used. For details on these time limits, please see the *Specs* tab. The status LED will turn green when the shutter is open and will turn off when the shutter is closed.

Unprotected Mode
In unprotected mode, the shutter will continue to operate at frequencies between the max protected and unprotected continuous frequencies even if the time limit specified for the protected mode is exceeded. This mode is designed for users who actively mitigate the heat within a system containing the shutter. Please carefully note the values on the *Specs* tab for operating conditions, and be aware that operating in the unprotected mode may lead to shutter damage. The status LED will turn amber when the shutter is open and will turn off when the shutter is closed.

Change Mode to

Current State	Manual	External Protected	External Unprotected
Manual	-	Hold ENABLE button for 3 seconds.	Hold POWER and ENABLE buttons for 3 seconds.
External Protected	Press ENABLE button.	-	Hold POWER and ENABLE buttons for 3 seconds.
External Unprotected	Press ENABLE button.	Hold POWER and ENABLE buttons for 3 seconds.	-

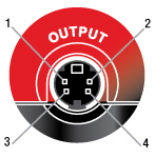
LED Status Indicator						
Mode \ LED State	**Shutter Closed**	**Shutter Open**	**Over-Temperature Warning**	**Over-Temperature**	**Max Frequency Exceeded**	**Blade Jammed**
Manual	a		No Change	No Change	No Change	
External Protected	a		b			
External Unprotected	a		c			

a. The LED is off.
b. The LED will turn amber 15 seconds prior to shut down. It will no longer turn on and off as shutter opens and closes.
c. The LED will turn amber 15 seconds prior to when shut down would occur in Protected Mode. However, in Unprotected Mode, the unit will not shut down.

PIN DIAGRAMS

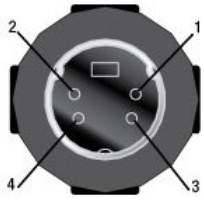
4-Pin Mini-DIN Shutter Interface Connector	
Pin	**Description**
1	Shutter Detect
2	Modulation +
3	+5 VDC
4	Modulation -
Shield	GND

External Modulation Input: TTL 0 to 5 V: Female BNC



Female Jack on Controller

Interlock Output: 2.5 mm Mono Phone Jack



Male Plug on 35" (889 mm) Long Shutter Cord

Ø1/4" Diaphragm Shutters with Controller

- Two Stainless Steel Blades:
  - SHB025: Uncoated Blades
  - SHB025T: PTFE-Coated Blades for Low Reflectance
- Shutter Housing Dimensions: Ø1.00", 0.29" Thick
- Includes Shutter, Controller, and Power Supply
- Adapter Available for Cage and Post Compatibility (Sold Separately)

Key Specifications[a]	
Operating Frequency	0 - 50 Hz
Minimum Exposure Pulse	10 ms
Open Time (Typical)	3 ms
Close Time (Typical)	3 ms
Mechanical Drawing (Click for Details)	
PTFE Coating Reflectance[b] (Click for Graph)	

a. Refer to the *Specs* tab for complete specifications.
b. Item # SHB025T Only

Thorlabs' SHB025 and SHB025T diaphragm shutters have two stainless steel leaves and offer a Ø0.25" aperture in a compact, Ø1.00", 0.29" thick housing. The leaves of the SHB025 shutter are uncoated, while the leaves of the SHB025T shutter are coated with PTFE for low reflectance. Each shutter includes a controller. For more details on the shutter controller, please see the *Controller* tab above.

Two Ø0.06" (Ø1.6 mm) through holes are provided around the edge of the housing that can accept #0 (M1.4) screws for custom and OEM mounting options. Only use non-magnetic screws; using regular screws may degrade shutter performance. For conventional mounting of these shutters to our selection of posts, or integration into cage systems, we offer the SHCP025(/M) Mounting Adapter, available below.

Part Number	Description	Price	Availability
SHB025	**Ø1/4" Stainless Steel Diaphragm Optical Beam Shutter with Controller**	**$1,029.93**	**Today**
SHB025T	**Ø1/4" Low-Reflectance Diaphragm Optical Beam Shutter with Controller**	**$1,029.93**	**2 Weeks**

Ø1/2" Diaphragm Shutters with Controller

- Five Stainless Steel Blades:
  - SHB05: Uncoated Blades
  - SHB05T: PTFE-Coated Blades for Low Reflectance
- Shutter Housing Dimensions: Ø1.10", 0.29" Thick
- Includes Shutter, Controller, and Power Supply
- Compatible with SM05 Lens Tubes
- Adapters Available for Cage and Post Compatibility (Sold Separately)


Click to Enlarge
SHB05 Shutter Attached to an SM05 Lens Tube in an SM05RC Lens Tube Slip Ring

Key Specifications[a]	
Operating Frequency	0 - 25 Hz
Minimum Exposure Pulse	29 ms
Open Time (Typical)	8 ms
Close Time (Typical)	9 ms
Mechanical Drawing (Click for Details)	
PTFE Coating Reflectance[b] (Click for Graph)	

a. Refer to the *Specs* tab for complete specifications.
b. Item # SHB05T Only

Thorlabs' SHB05 and SHB05T diaphragm shutters have five stainless steel leaves and offer a Ø0.508" aperture in a compact, Ø1.10", 0.29" thick housing. The leaves of the SHB05 shutter are uncoated, while the leaves of the SHB05T shutter are coated with PTFE for low reflectance. Each shutter includes a controller. For more details on the shutter controller, please see the *Controller* tab above.

One side of the aperture is internally SM05 (0.535"-40) threaded to easily interface with all of our SM05 lens tubes and other SM05-threaded components. For integration within cage or post assembly systems, consider the SHCP05(/M) or SHM05(/M) adapters, available below. For custom and OEM mounting options, two Ø0.07" (Ø1.7 mm) through holes are provided around the edge of the housing that can accept #0 (M1.4) screws. Only use non-magnetic screws; using regular screws may degrade shutter performance.

Part Number	Description	Price	Availability

SHB05	Ø1/2" Stainless Steel Diaphragm Optical Beam Shutter with Controller	$1,029.93	Today
SHB05T	Ø1/2" Low-Reflectance Diaphragm Optical Beam Shutter with Controller	$1,090.50	2 Weeks

Ø1" Diaphragm Shutters with Controller

- Five Stainless Steel Blades:
  - SHB1: Uncoated Blades
  - SHB1T: PTFE-Coated Blades for Low Reflectance
- Shutter Housing Dimensions: Ø2.25", 0.38" Thick
- Includes Shutter, Controller, and Power Supply
- Compatible with SM1 Lens Tubes
- Adapters Available with Additional Thread Standards and Cage Compatibility (Sold Separately)

Click to Enlarge
SHB1 Shutter Attached to an SM1 Lens Tube in an SM1RC Lens Tube Slip Ring

Key Specifications[a]	
Operating Frequency	0 - 15 Hz
Minimum Exposure Pulse	28 ms
Open Time (Typical)	10 ms
Close Time (Typical)	9 ms
Mechanical Drawing (Click for Details)	
PTFE Coating Reflectance[b] (Click for Graph)	

a. Refer to the *Specs* tab for complete specifications.
b. Item # SHB1T Only

Thorlabs' SHB1 and SHB1T diaphragm shutters have five stainless steel leaves and offer a Ø1.00" aperture in a compact, Ø2.25", 0.38" thick housing. The leaves of the SHB1 shutter are uncoated, while the leaves of the SHB1T shutter are coated with PTFE for low reflectance. Each shutter includes a controller. For more details on the shutter controller, please see the *Controller* tab above.

One side of the aperture is internally SM1 (1.035"-40) threaded to easily interface with all of our SM1 lens tubes and other SM1-threaded components. For integration within other lens tube, cage, or post assembly systems, consider the SHC1 or SHM1(/M) adapters, available below. For custom and OEM mounting options, three Ø0.10" (Ø2.4 mm) through holes are provided around the edge of the housing that can accept #2 (M2) screws. Only use non-magnetic screws; using regular screws may degrade shutter performance.

Part Number	Description	Price	Availability
SHB1	Ø1" Stainless Steel Diaphragm Optical Beam Shutter with Controller	$1,029.93	2 Weeks
SHB1T	Ø1" Low-Reflectance Diaphragm Optical Beam Shutter with Controller	$1,090.50	2 Weeks

Mounting Adapter for Ø1/4" Diaphragm Shutters

- 8-32 (M4) Tap for Mounting on a Ø1/2" Post
- Four Cage Rod Through Holes for Mounting Within a 30 mm Cage System
- Shutter Secured Using Top-Located 8-32 Nylon-Tipped Setscrew
- Compact Design: 0.35" Thick

The SHCP025(/M) Mounting Adapter is designed to make our Ø1/4" diaphragm shutters compatible with Ø1/2" posts and 30 mm cage systems. The adapter features a double bore that accepts the outer diameter of the shutter and a notch allows its cord to pass freely, as shown in the photograph to the right. The top of the adapter has an 8-32 nylon-tipped setscrew for securing the shutter, which mounts with three points of contact.

Click to Enlarge
The double bore of the SHCP025 accepts the outer diameter of the shutter.

Click to Enlarge
The adapter allows the SHB025 shutter to be mounted within a 30 mm cage system.

The adapter allows the shutter to be placed anywhere within a 30 mm cage system by providing four through holes for use with Ø6 mm cage rods. Four side-located 8-32 setscrews (5/64" [2.0 mm] hex) secure the cage rods. A Ø1/2" post can be attached to the bottom of the adapter using the 8-32 (M4) tapped hole.

Part Number	Description	Price	Availability
SHCP025/M	30 mm Cage and Post Mounting Adapter for SHB025(T) Optical Beam Shutter, M4 Tap	$46.33	Today
SHCP025	30 mm Cage and Post Mounting Adapter for SHB025(T) Optical Beam Shutter, 8-32 Tap	$46.33	Today

Mounting Adapters for Ø1/2" Diaphragm Shutters

8-32 (M4) Tap for Mounting on a Ø1/2" Post

- SHCP05(/M) Mounting Adapter
  - Four Cage Rod Through Holes for Mounting Within a 30 mm Cage System
  - Shutter Secured Using Top-Located 8-32 Nylon-Tipped Setscrew
  - Compact Design: 0.35" (8.9 mm) Thick
- SHM05(/M) Mounting Adapter
  - 4-40 Tapped Holes Provide Terminal 30 mm Cage System Compatibility
  - Internal SM05 (0.535"-40) Threading for Ø1/2" Lens Tube Compatibility
  - Shutter Secured using 8-32 Nylon-Tipped Setscrew or Two 0-80 Tapped Holes
  - Compact Design: 0.38" (9.5 mm) Thick


Click to Enlarge
The SHM05 adapter's double bore accepts the outer diameter of the shutter.


Click to Enlarge
The SHCP05 adapter allows the shutter to be mounted within a 30 mm cage system.

These mounting adapters are designed to make our Ø1/2" diaphragm shutters compatible with Ø1/2" posts and 30 mm cage systems. Each adapter features a double bore that accepts the outer diameter of the shutter and a notch that allows the controller cord to pass freely, as shown in the photograph to the right. The top of each adapter has an 8-32 nylon-tipped setscrew for mounting with three points of contact. A Ø1/2" post can be attached to the bottom of the adapters using the 8-32 (M4) tapped hole. The SHM05(/M) adapter also offers three 0-80 taps that can be used to secure the shutter for vibration-sensitive applications.

The SHCP05(/M) adapter allows the shutter to be placed anywhere within a 30 mm cage system by providing four through holes for use with Ø6 mm cage rods. Four side-located 8-32 setscrews (5/64" [2.0 mm] hex) secure the cage rods.

The SHM05(/M) adapter features four 4-40 tapped holes that allow the shutter to be installed as the terminating element in a 30 mm cage system. The clear aperture of the adapter has internal SM05 threads, which allows lens tubes to be attached to both sides of a shutter/adapter combination.

Part Number	Description	Price	Availability
SHCP05/M	**30 mm Cage and Post Mounting Adapter for SHB05(T) Optical Beam Shutter, M4 Tap**	**$46.33**	**Today**
SHM05/M	**Post Mounting Adapter for SHB05(T) Optical Beam Shutter, M4 Tap**	**$66.82**	**Today**
SHCP05	**30 mm Cage and Post Mounting Adapter for SHB05(T) Optical Beam Shutter, 8-32 Tap**	**$46.33**	**Today**
SHM05	**Post Mounting Adapter for SHB05(T) Optical Beam Shutter, 8-32 Tap**	**$66.82**	**Today**

Mounting Adapters for Ø1" Diaphragm Shutters

- 4-40 Tapped Holes Provide 30 mm Cage System Compatibility
- SHM1(/M) Mounting Adapter
  - 8-32 (M4) Tap for Mounting on a Ø1/2" Post
  - Internal SM1 (1.035"-40) Threading for Ø1" Lens Tube Compatibility
  - Shutter Secured using 8-32 Nylon-Tipped Setscrew or Three 2-56 Tapped Holes
  - Compact Design: 0.43" (10.8 mm) Thick
- SHC1 Threaded Enclosure
  - Internal C-Mount (1.00"-32) Threading on Lid
  - Internal SM30 (M30.5 x 0.5) Threading on Enclosure
  - External SM2 (2.035"-40) Threading on Both Sides for Ø2" Lens Tube Compatibility
  - Shutter Secured using Three M2 Tapped Holes


Click to Enlarge
The SHM1(/M) provides 30 mm cage compatibility via 4-40 taps on one side.


Click to Enlarge
The double bore of the SHM1(/M) allows the SM1 threads of the shutter to be freely accessed.

The SHM1(/M) Mounting Adapter provides a range of mounting options. It features four 4-40 tapped holes on one side for attaching a 30 mm cage system, a 8-32 (M4) tapped hole on the bottom for mounting on a Ø1/2" post, and internal SM1 threads to the back side for lens tube integration. The adapter offers two methods for mounting a Ø1" diaphragm shutter. For faster insertion and removal, the top of the adapter has an 8-32 nylon-tipped setscrew, which secures the shutter with three points of contact inside the double bore. Alternatively, three 2-56 taps can be used to secure the shutter for vibration-sensitive applications.

The SHC1 Threaded Enclosure provides extended lens tube compatibility, with external SM2 threads on either side of the assembled adapter. The lid that encloses the shutter also provides internal C-Mount threads, while the rear of the enclosure offers internal SM30 threads. Both sides of the assembled adapter feature four 4-40 tapped holes for compatibility with 30 mm cage systems.

To install the shutter in the SHC1 adapter, remove the lid and secure the shutter using three included M2 screws (1.5 mm hex key included). Once in place, the lid is attached using four included M2 screws to enclose the shutter (as shown in the animation to the left). The lid can be removed to access the SM1 threads of the shutter on one side while maintaining SM2 compatibility on the other.

Part Number	Description	Price	Availability

SHM1/M	Post Mounting Adapter for SHB1(T) Optical Beam Shutter, M4 Tap	$83.75	Today
SHC1	Mounting Adapter Enclosure for SHB1(T) Optical Beam Shutter, External SM2 Threads	$203.82	Today
SHM1	Post Mounting Adapter for SHB1(T) Optical Beam Shutter, 8-32 Tap	$83.75	Today