

PRM1Z8E - March 15, 2016

Item # PRM1Z8E was discontinued on March 15, 2016. For informational purposes, this is a copy of the website content at that time and is valid only for the stated product.

MOTORIZED PRECISION ROTATION MOUNT

- ▶ **Continuous 360° Motorized Rotation**
- ▶ **25 arcsec Minimum Incremental Motion**
- ▶ **Rotational Velocity: 25 Degree/s**
- ▶ **Compatible with Our SM1 Lens Tubes and 30 mm Cage Systems**



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OVERVIEW

Features

- 1° Graduations on Main Dial
- 25 deg/sec Rotation Velocity
- Compact Design is Only 23 mm Thick
- Home Limit Switch
- Post Mountable (See *Mounting Tab*)
- Compatible with SM1 (1.035"-40) Accessories
- Accepts Ø1" Optics up to 0.50" (12.5 mm) Thick
- Recommended Driver: KDC101 DC Servo Controller

The PRM1Z8 is a small, compact, motorized rotation mount and stage that accepts Ø1" optics and SM1-threaded components. Rotation is driven via a DC servo motor that provides 1 arcsecond of resolution over the entire 360° of rotation. The user can measure the angular displacement by using the Vernier dial in conjunction with the graduation marks that are marked on the rotating plate in 1° increments. This rotation stage/mount is also equipped with a home limit switch to facilitate automated rotation to the precise 0° position, allowing absolute angular positioning thereafter. The limit switch is designed to allow continuous rotation of the stage over multiple 360° cycles.

The KDC101 DC Servo Controller is the ideal companion for achieving smooth, continuous motion that can be automated via the software interface. Older units will require a firmware upgrade before they can be used with the Z8 series motors. An upgrade is included with the latest APT software, which can be

Specification	Value
Bidirectional Repeatability	±0.1°
Backlash	±0.3°
Max Rotation Velocity	25 deg/sec
Horizontal On-Axis Load Capacity	1.5 kg
Vertical On-Axis Load Capacity	0.5 kg
Achievable Incremental Motion (Min)	25 arcsec
Repeatable Incremental Motion (Min)	0.03°
Absolute On-Axis Accuracy	0.1%
Max Percentage Accuracy	0.08%
Home Location Accuracy	±0.2°
Range	Continuous

downloaded here. The stage/mount and controller are sold together with the Item #'s PRM1Z8E and PRM1/MZ8E.

The PRM1Z8 is supplied with 19.6" (0.5 m) of cable. An 8 ft (2.5 m) extension cable (PAA632) is available separately.

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PIN DIAGRAM

Motor Connector Pin Out

The PRM1Z8 is supplied with 19.6" (0.5 m) of cable. An 8 ft (2.5 m) extension cable (PAA632) is available separately.

Pin	Description	Pin	Description
1	Ground (Limit and Vcc)	8	Reserved For Future Use
2	Reverse Limit	9	Ident Resistor ^a
3	Forward Limit	10	5 V
4	Reserved For Future Use	11	Encoder Channel B
5	Motor (+)	12	Reserved For Future Use
6	Reserved For Future Use	13	Encoder Channel A
7	Motor (-)	14, 15	Reserved For Future Use



D-type Male



- Used to identify the stage when it is connected to a Thorlabs controller

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MOUNTING

Post Mounting Options

Normally the PRM1Z8 is mounted horizontally. The stage can be fixed directly to the work surface using the counter-bored 1/4"-20 (M6) holes in the main body. For complete flexibility, the stage/mount can be mounted vertically using the 8-32 (M4) threaded holes in various locations (as shown below), including the option to mount in a vertical inclined orientation. When in the vertical orientation, the reduced thickness of the stage is extremely beneficial for optical path applications where space is limited.





Cage System Mounting



The PRM1Z8 can be aligned within a 30 mm cage system by using two LCP02 30 mm to 60 mm cage plate adapters, a CPR1 rotating cage segment plate, and three ER3 Cage Rods. This creates a motorized rotation mount within a rigid optical assembly. For more details on how the PRM1Z8 and CPR1 work together, please see the animation to the right.

Motorized Rotation Stage/Mount



The central aperture of the PRM1Z8 rotation mount has a standard SM1 internal thread, for compatibility with a range of optics. Two SM1RR retaining rings are included to secure optical components in this aperture. The rotating platform features four 4-40 holes, four 8-32 (M4) holes and four 6-32 (M3) holes to allow for the addition of accessories. Please see the *Mounting* tab for all of the possible mounting options.

The PRM1Z8 is supplied with 19.6" (0.5 m) of cable. An 8 ft (2.5 m) extension cable (PAA632) is available separately.

Part Number	Description	Price	Availability
PRM1/MZ8	Ø1" Motorized Precision Rotation Stage (Metric)	\$873.00	3-5 Days
PAA632	APT DC Servo Motor Cable for Z8 Motors, DE15 Male to DE15 Female, 2.5 m	\$54.40	Today
PRM1Z8	Ø1" Motorized Precision Rotation Stage (Imperial)	\$873.00	Today

Motorized Rotation Stage/Mount and Controller



The PRM1Z8E (PRM1/MZ8E) bundles the PRM1Z8 (PRM1/MZ8) Motorized Rotation Mount with our previous generation TDC001 T-Cube DC Servo Motor Controller, an ideal companion for smooth, continuous motion that can be automated via the software interface. Older units will require a firmware upgrade before they can be used with the Z8 series motors. An upgrade is included with the latest APT software, which can be downloaded here. The bundle ships complete with a power supply, which includes a location-specific adapter.

The PRM1Z8E (PRM1/MZ8E) are supplied with 19.6" (0.5 m) of cable. An 8 ft (2.5 m) extension cable (PAA632) is available separately.

Part Number	Description	Price	Availability
PRM1/MZ8E	Ø1" Motorized Precision Rotation Stage (Metric) with Servo Motor Driver	\$1,340.00	3-5 Days
PRM1Z8E	Ø1" Motorized Precision Rotation Stage (Imperial) with Servo Motor Driver	\$1,340.00	Today

PRM1Z8 Adapter Plates

The rotating platform features several accessories. The central aperture has a standard SM1 internal thread, for compatibility with a range of optics. Four #4-40 holes are provided so that the PRM1Z8 can be incorporated into a cage system. Additional threaded mounting holes allow for the addition of accessories or post mounting.

The **PRM1SP1** (PRM1SP1/M) accessory plate is fixed to the rotating top plate by two 6-32UNC (M3) bolts (supplied), allowing any of Thorlabs' standard 3 mm tongue & groove accessories (optic mounts, diode holders, fiber chucks etc) to be used. Using this plate, the total deck height becomes 1.1" (28 mm).



The **PRM1SP2** base plate is used to provide a more stable installation solution, with a deck height of 1.15" (29 mm). If used together with the PRM1SP1 described above, the deck height is 1.32" (34 mm).



The **PRM1SP3** base plate is similar to the PRM1SP2 described opposite, but delivers a total deck height of 2.26" (57.5 mm). If used together with the PRM1SP1 described above, the deck height is 2.43" (62.5 mm) and is compatible with our range of 3-axis stages (NanoMax, MicroBlock, PiezoBlock and RollerBlock).



Please see the PRM1Z8 product page for more details.

Part Number	Description	Price	Availability
PRM1SP1/M	Grooved Adapter Plate, Metric	\$43.30	Today
PRM1SP2	Horizontal Mounting Plate (Imperial and Metric)	\$49.40	Today
PRM1SP3	Horizontal Mounting Riser Plate	\$39.80	Today
SM1RR	SM1 Retaining Ring for Ø1" Lens Tubes and Mounts	\$4.50	Today
PRM1SP1	Grooved Adapter Plate	\$43.30	Today