



CR1-Z7, CR1/M-Z7 Motorized Rotation Stage

Operating Manual



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Part 1. Overview

Features

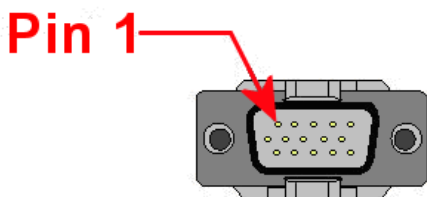
- 360° Continuous Motion Provided by Fine Pitch Worm Gear
- High Torque DC-Servo Motor with Gear Head and Optical Encoder
- High Count Optical Encoder (12,288 pulses/rev)
- Designed for Mounting MS1 and T12X Series Translation Stages (Using the CR1A Adapter Plate)
- Application Tested for Vertical Loads up to 25 lbs.

The CR1-Z7 motorized rotation stage with round strain relief cables offers high-precision continuous 360° motion in a sturdy, compact package. Utilizing a 256:1 gear reduction head, the rotator provides minute movements over the entire travel range. The reduced backlash worm gear design, coupled with a high-resolution optical encoder provides the rotational precision required in optical laboratories. The high torque 12 VDC servomotor supplies ample power for rotating vertical loads up to 25 lbs.

Recommended Driver

Thorlabs' TDC001 T-Cube controller is recommended for this product. The use of this controller ensures optimal performance. All performance specifications are guaranteed only with use of Thorlabs controllers and drivers.

Part 2. Connector Wiring Diagram



Color	Description	Pin Number
Brown	Motor (+)	5
Red	Vcc	10
Orange	Encoder Channel A	13
Yellow	Encoder Channel B	11
Green	Ground	1
Blue	Motor (-)	7
Shielding	Case Ground	
	39k Identification Resistor	9

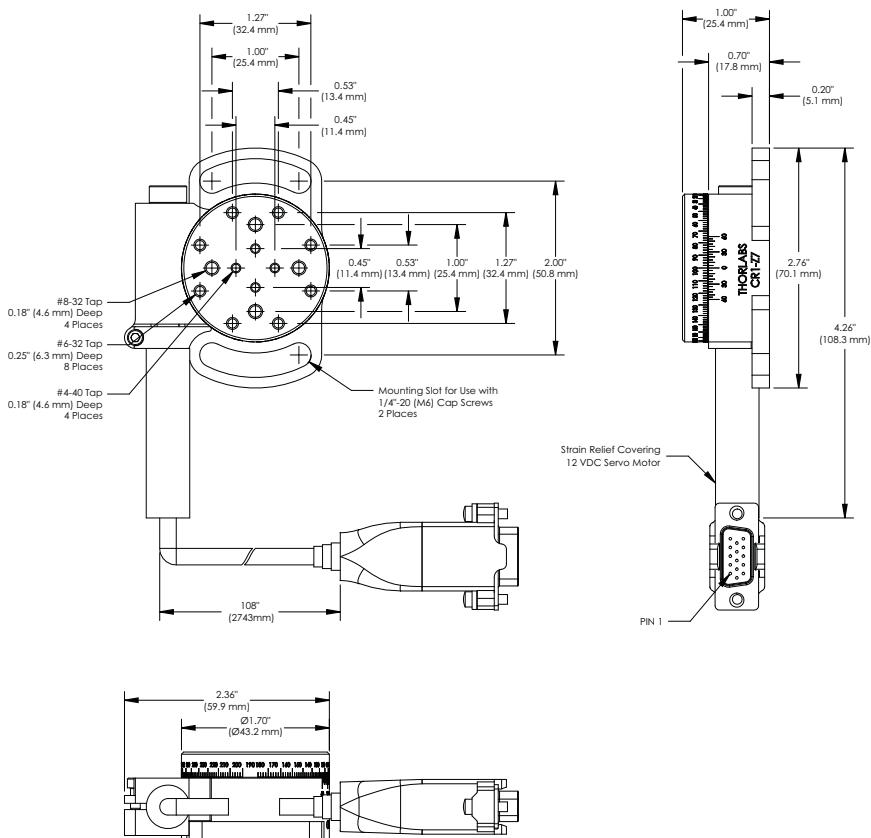
Description of Connections

Pin	Description
Motor (+)	This supplies the + voltage supply to the motor of the actuator. The max current should be set to 0.080 A.
Vcc	A connection should be made to a +5 VDC supply to power both channels A and B on the encoder.
Channels A and B	The Z700 series actuators use a Hall Effect encoder. Both channels A and B are supplied by the 5 VDC Vcc connection.
GND	This is the ground connection for the encoder.
Motor(-)	This supplies the - voltage supply to the motor of the actuator. The maximum current should be set to 0.080 A.

Part 3. Specifications

Item #	CR1-Z7, CR1/M-Z7
Motor Type	12 VDC Servo
Travel Range	360° Continuous Rotation
Gear Reduction	256:1
Worm Gear	96 teeth
Worm	Double Thread
Feedback	Motor Mounted Rotary Encoder, 48 pts/rev @ the Motor
Backlash	<0.05 arcsec
Min Incremental Motion	2.19 arcsec
Vertical Load Capacity	25 lbs
Speed Range	6 deg/sec to 22 arcsec/sec
Wobble	<2 arcsec
Repeatability	<1 arcmin

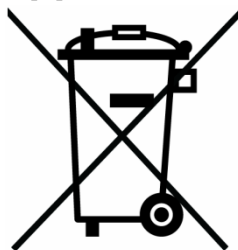
3.1. Mechanical Drawing



Part 4. Regulatory

As required by the WEEE (Waste Electrical and Electronic Equipment Directive) of the European Community and the corresponding national laws, Thorlabs offers all end users in the EC the possibility to return “end of life” units without incurring disposal charges.

- This offer is valid for Thorlabs electrical and electronic equipment:
- Sold after August 13, 2005
- Marked correspondingly with the crossed out “wheelie bin” logo (see right)
- Sold to a company or institute within the EC
- Currently owned by a company or institute within the EC
- Still complete, not disassembled and not contaminated



Wheelie Bin Logo

As the WEEE directive applies to self contained operational electrical and electronic products, this end of life take back service does not refer to other Thorlabs products, such as:

- Pure OEM products, that means assemblies to be built into a unit by the user (e.g. OEM laser driver cards)
- Components
- Mechanics and optics
- Left over parts of units disassembled by the user (PCB's, housings etc.).

If you wish to return a Thorlabs unit for waste recovery, please contact Thorlabs or your nearest dealer for further information.

4.1. Waste Treatment is Your Own Responsibility

If you do not return an “end of life” unit to Thorlabs, you must hand it to a company specialized in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site.

4.2. Ecological Background

It is well known that WEEE pollutes the environment by releasing toxic products during decomposition. The aim of the European RoHS directive is to reduce the content of toxic substances in electronic products in the future.

The intent of the WEEE directive is to enforce the recycling of WEEE. A controlled recycling of end of life products will thereby avoid negative impacts on the environment.

Part 5. Thorlabs Worldwide Contacts

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