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1. PRODUCT DESCRIPTION

The Torxis Linear Servo is the second generation of linear servos provided by GearWurx. This product features internal position sensing, and closed loop position control. The internal microcontroller constantly adjusts the position of the output shaft to maintain the position commanded by the input signal.

2. APPLICATIONS

- ◆ Robotics research projects
- ◆ Positioning of heavy loads
- ◆ Remote actuation

3. ENVIRONMENTAL SPECIFICATIONS

The Torxis Linear Servo meets the following environmental conditions:

3.1 TEMPERATURE RATING

Torxis Linear Servos are rated to operate from -25C to +60C at up to 25% duty cycle.

3.2 INGRESS RATING

Torxis Linear Servos are sealed against water and particle ingress to IP54.

4. FEATURES

- Total travel up to 17.5 inches of travel
- Lifts up to 150 pounds
- Rugged anodized aluminum outer housing
- Weighs 3 lbs
- 12VDC power
- Uses standard hobby RC PWM input signal for position
- Holds position with power off
- Limit switches at ends of travel
- Available with hobby style RC connector or M12 automation connector



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- Attachment pin diameter: .25"

5. APPLICABILITY

This document applies to the following part numbers:

P/N	Force (lbf)	Travel (in)	Speed (in/sec)	Connector Type
i05467	150	5.5	0.5 in/sec	RC PWM 3 Pin
i05477	150	11.5	0.5 in/sec	RC PWM 3 Pin
i05492	150	17.5	0.5 in/sec	RC PWM 3 Pin
i05876	40	5.5	1.0 in/sec	RC PWM 3 Pin
i05882	40	11.5	1.0 in/sec	RC PWM 3 Pin
i05883	40	17.5	1.0 in/sec	RC PWM 3 Pin

6. INPUT DETAILS

6.1 INPUT POWER REQUIREMENTS

Input power is 12 VDC, up to 3A peak, tolerant of input voltages between 10VDC-14VDC. During start and stop, current requirements of the motors surge. It is strongly recommended to use an inductive load rated power supply equivalent to our i04251. See GearWurx.com for details. Alternatively, a 12VDC battery is a good solution as well as long as it can handle the current surges.

6.2 CONNECTION DETAILS

Color	Signal
Red	+12VDC
Black (Large)	0VDC
Black (Small, in connector)	0VDC (Signal ground)
White (Small, in connector)	5VDC PWM Input Signal

DO NOT CONNECT 12VDC TO THE SMALL WHITE SIGNAL WIRE!

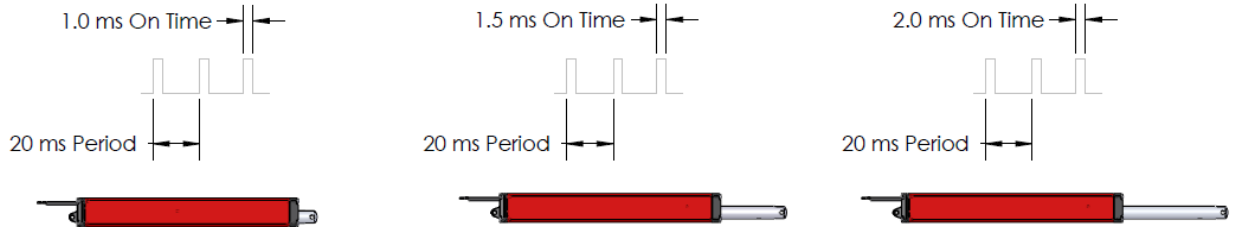
6.3 INPUT SIGNAL

The Torxis Linear Servo uses a 5 VDC digital input signal to control position. The signal is the same signal that is used on most RC hobby servos. It is a Pulse Width Modulated (PWM) signal where



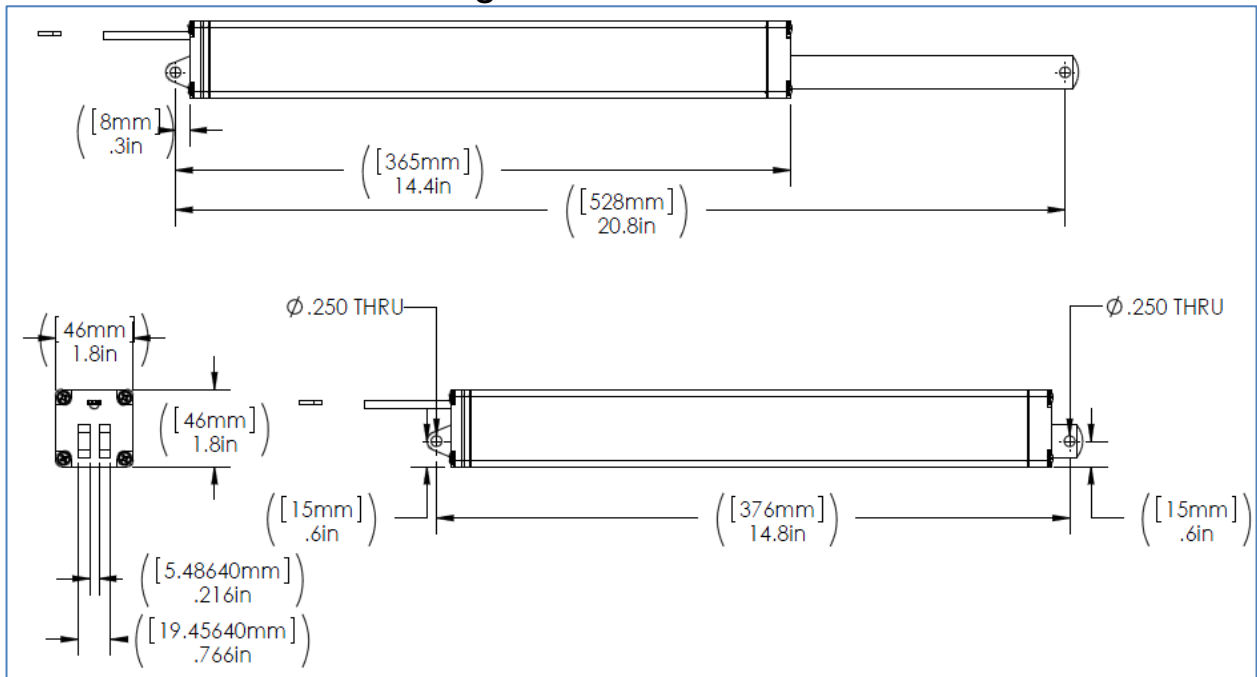
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the duration of the on time of the signal determines position of the servo. It uses a 50Hz (20 ms) period with on-time varying from 1.0ms to 2.0ms. Full retract occurs at 1.0ms, full extension at 2.0ms and 50% travel at 1.5ms.



7. DRAWING

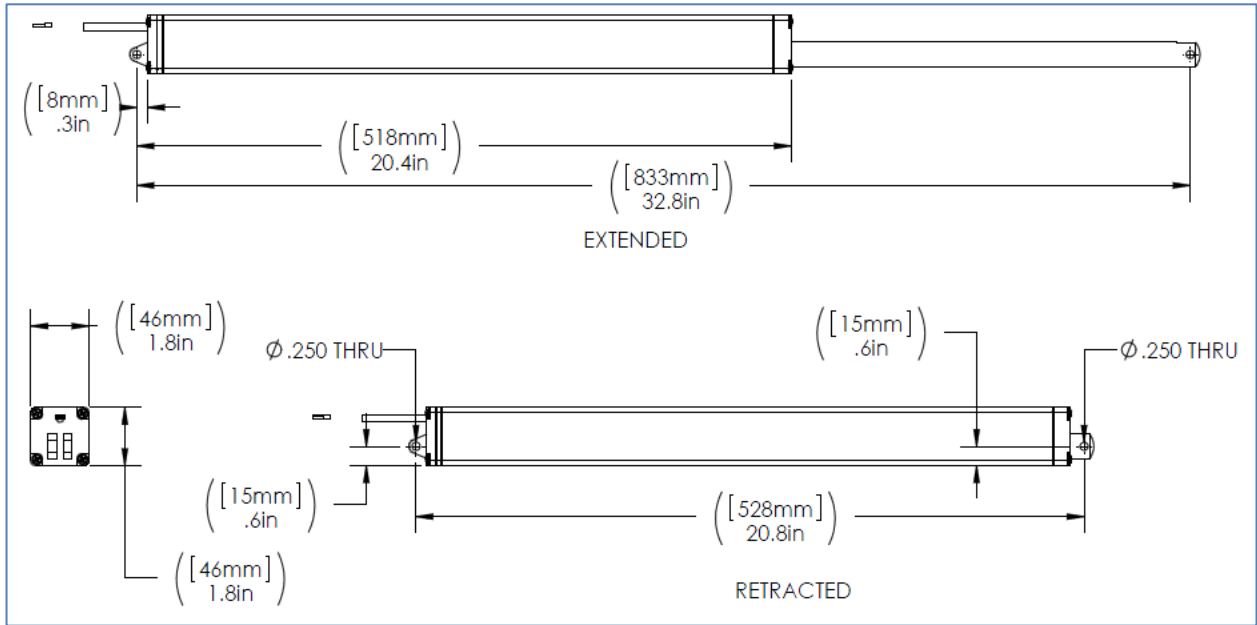
Drawing for i05467 and i05876



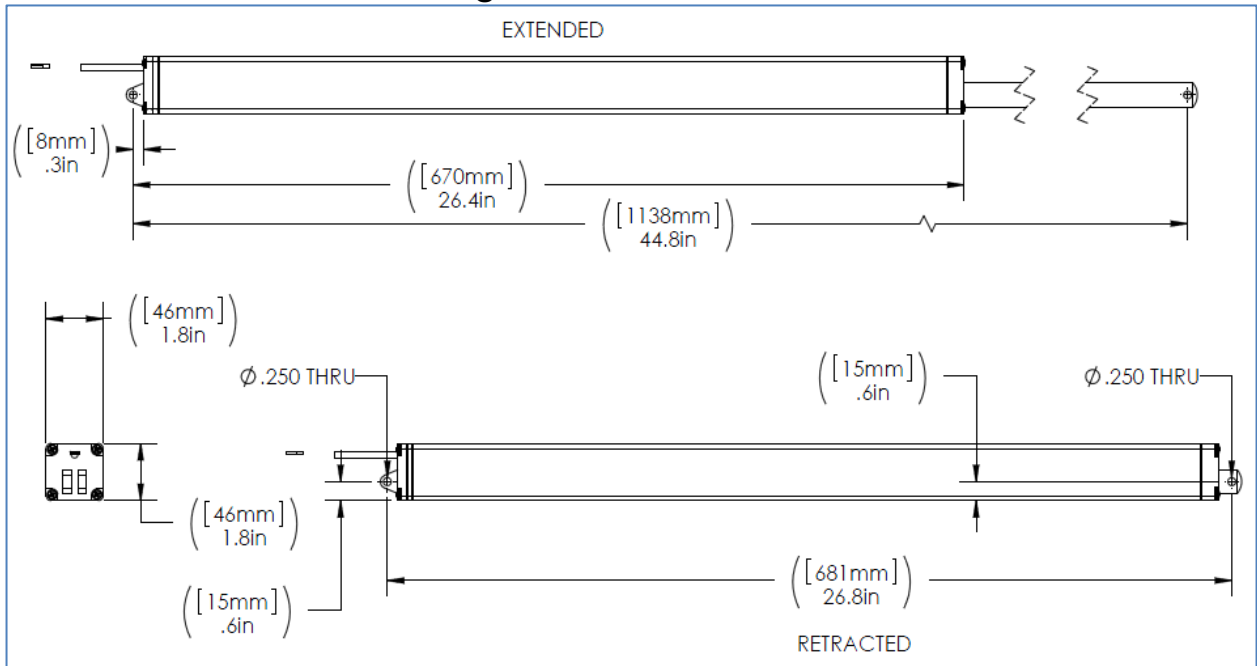
Drawing for i05477 and i05882



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Drawing for i05492 and i05883





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8. OPTIONAL EQUIPMENT

The following products are related to or accessories for this product.

Part Number	Description
i04251	AC to DC Inductive Rated Power Supply
i03813	6 Channel Simple Slider Controller
i03901	USB Maestro programmable controller

- Power Supply (Part Number i04251). Inductive rated power supply provides 12VDC at 4A continuous with peak surge to 12A. Input is 100-240 VAC 50-60Hz, 1.5A. Note that most bench top lab supplies will not handle the surges caused by the motors on the ARM.
- Simple Slider 6 Channel Controller (Part Number i03813)- This device allows precise control of the servos using equalizer style slide controls. Very intuitive. A wide range of slider and joystick controllers are also available at GearWurx.com
- Maestro USB Controller (Part Number i03901). USB control interface with ability to create and save programs and sequences of movement.

9. PACKAGING DETAILS

The following items are included in the package:

- Torxis Linear Servo
- No power supply is included in the package.



GEARWURX

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10. CHANGE LOG

Revision	Date	Description of Changes
01	160601	Document Initial Release