

LDA150A-AE53T10A Datasheet



- 25, 75, 150 mm travel options
- High repeatability (200 nm) and accuracy (1.5 μm), with 12 nm minimum incremental move
- Direct position measurement from 1 nm resolution linear encoder
- Up to 0.8 m/s speed and up to 4 g acceleration
- Non-contact ironless linear motor for high precision, high dynamic performance & reliability
- Designed for use with MCC controllers for coordinated multi-axis motion
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral

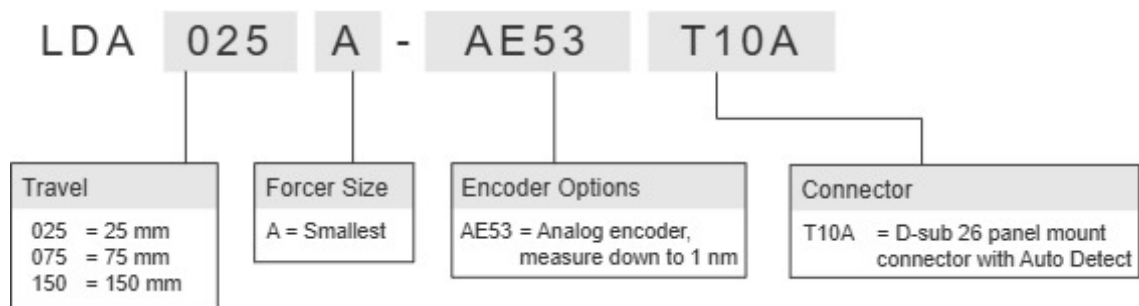
LDA-AE Series Overview

Zaber's LDA-AE Series devices are motorized linear stages delivering high speed, precision, and reliability in a compact package. A centrally mounted linear encoder results in up to 1 μm position accuracy and consistent movement steps down to 12 nm. LDA-AE devices feature non-cogging ironless linear motors, providing high speed and acceleration capabilities. Both the drive and encoder are non-contact and have no moving cables, resulting in an extremely robust system.

The stages are designed to connect directly to our MCC controllers using a single cable. Set-up is easy with AutoDetect. Once connected, the controller will automatically detect and configure the LDA-AE.

For more information visit: <https://www.zaber.com/products/linear-stages/LDA-AE>

LDA-AE Series Part Numbering & Options



LDA150A-AE53T10A Drawings

- [dimensions_LDA-AE \(Drawing for the LDA-AE\)](#)

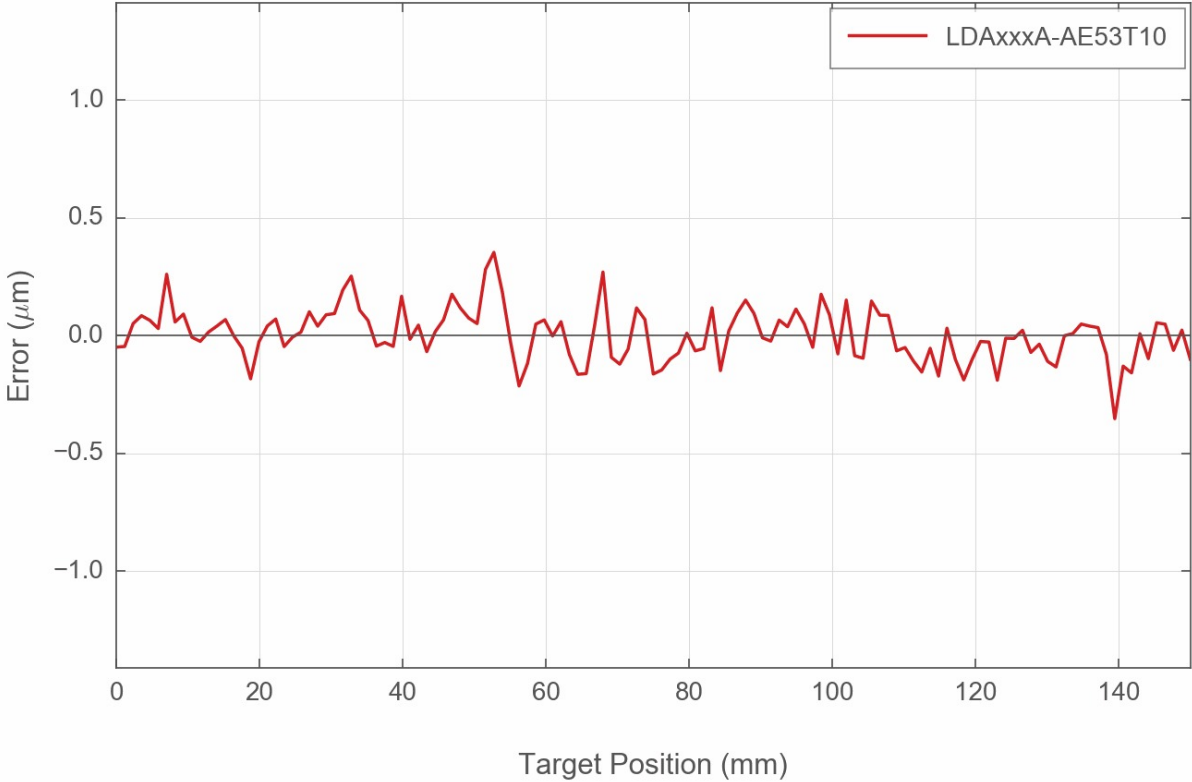
LDA150A-AE53T10A Specifications

Built-in Controller	
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Travel Range	150 mm (5.905")
Accuracy (unidirectional)	1.5 μm (0.000059")
Repeatability	< 0.2 μm (< 0.000008")
Minimum Incremental Move	12 nm
Maximum Acceleration	24.5 m/s ² (2.50 g)
Maximum Speed	800 mm/s (31.496"/s)
Minimum Speed	0.61 nm/s
Speed Resolution	0.61 nm/s
Encoder Type	Linear analog encoder
Encoder Count Size	1 nm
Peak Thrust	16 N (3.6 lb)
Maximum Continuous Thrust	6 N (1.3 lb)
Maximum Centered Load	100 N (22.4 lb)
Maximum Moment (Pitch)	500 N-cm (708.1 oz-in)
Maximum Moment (Roll)	500 N-cm (708.1 oz-in)
Maximum Moment (Yaw)	500 N-cm (708.1 oz-in)
Vertical Runout	< 15 μm (< 0.000591")
Horizontal Runout	< 10 μm (< 0.000394")
Typical Velocity Stability	\pm 0.33% at 100 mm/s with a 1.0 kg payload
Pitch	0.02° (0.349 mrad)
Roll	0.015° (0.262 mrad)
Yaw	0.005° (0.087 mrad)
Stiffness in Pitch	3000 N-m/° (6 $\mu\text{rad/N-m}$)
Stiffness in Roll	700 N-m/° (25 $\mu\text{rad/N-m}$)
Stiffness in Yaw	1750 N-m/° (10 $\mu\text{rad/N-m}$)
Motor Type	Moving Magnet Track Linear Motor
Motor Rated Current	1800 mA/phase
Force Constant	3.7 N/A (0.8 lbs/A)

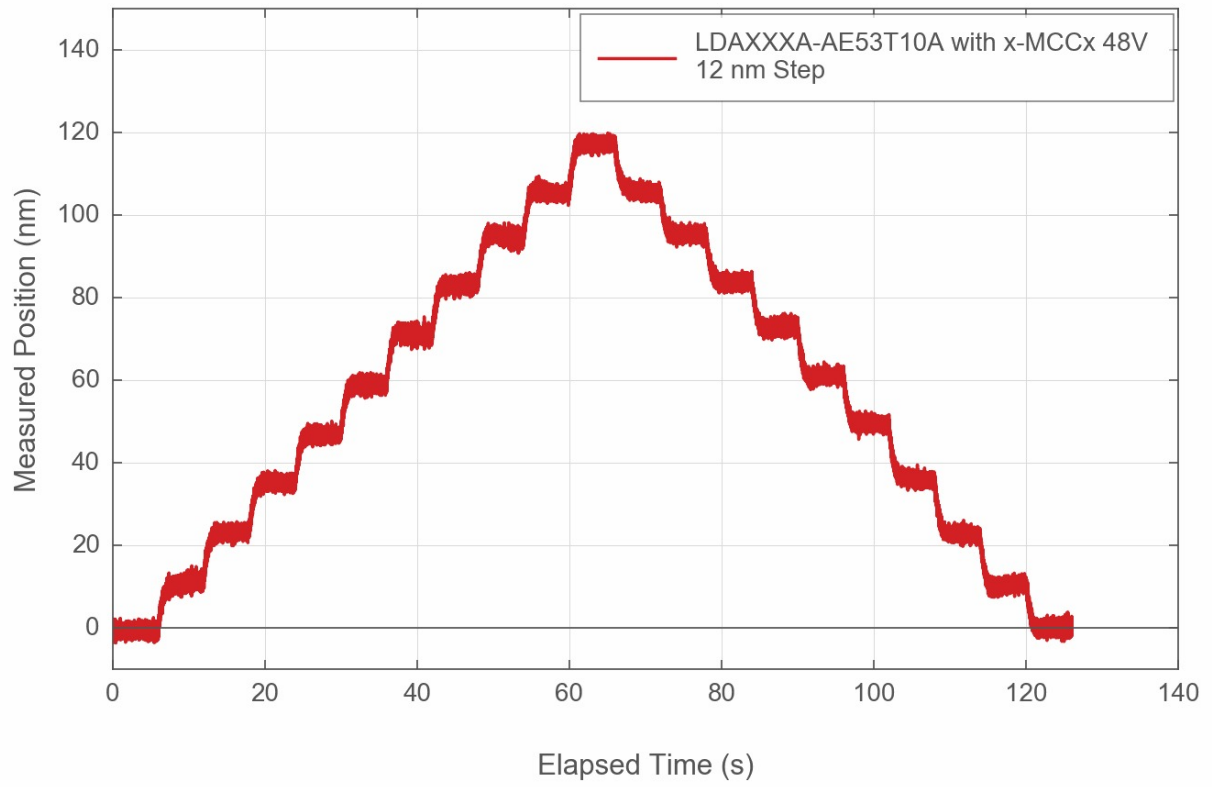
Built-in Controller	
Motor Winding Resistance	2.3 ohms/phase
Inductance	0.09 mH/phase
Motor Connection	D-sub 26
Guide Type	Crossed-Roller Bearing
Limit or Home Sensing	Optical Index Mark
Axes of Motion	1
Mounting Interface	M6 threaded holes
Moving Mass	0.67 kg (1.474 lbs)
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	1.78 kg (3.924 lb)

LDA-AE Series Charts

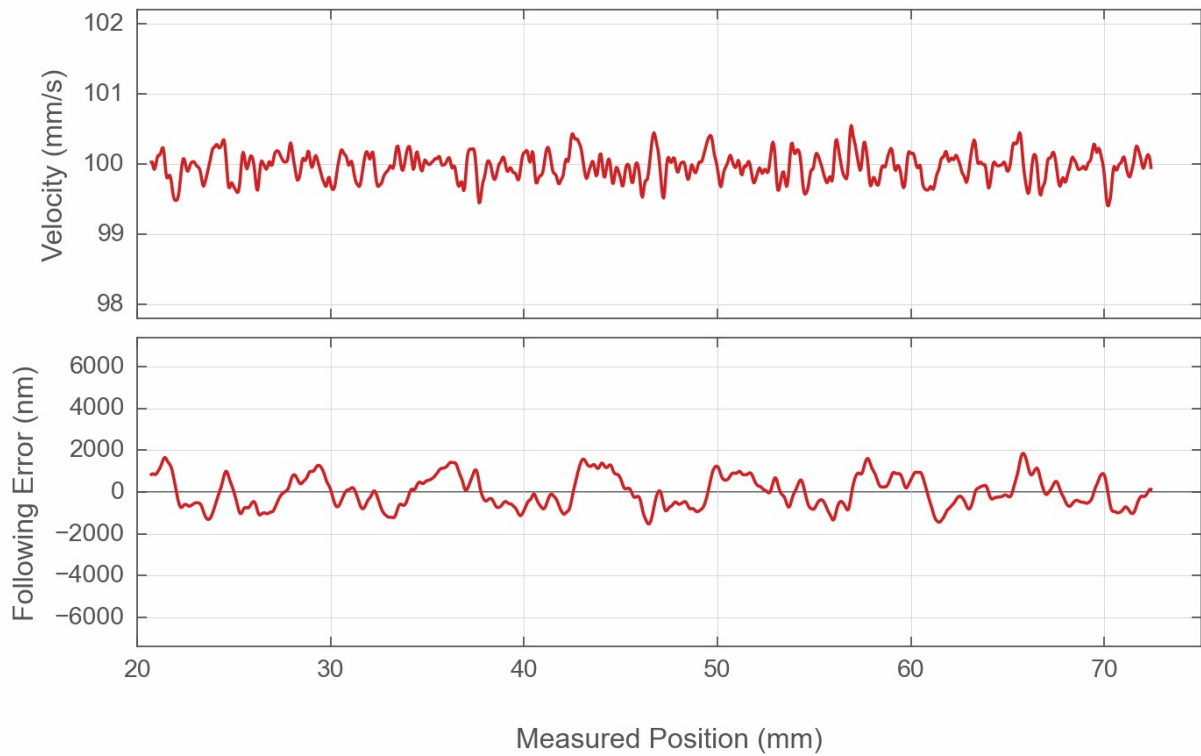
Typical Accuracy



Typical Minimum Incremental Move



Velocity Stability and Following Error



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