

LDA075A-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

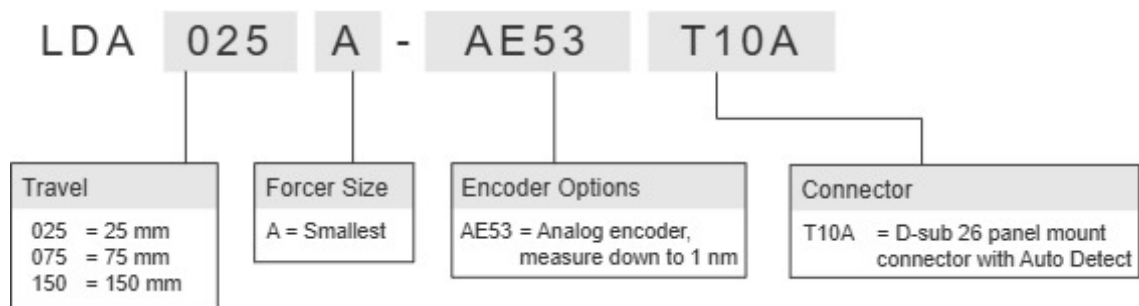
LDA-AE Series Overview

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



LDA075A-AE53T10A Drawings

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

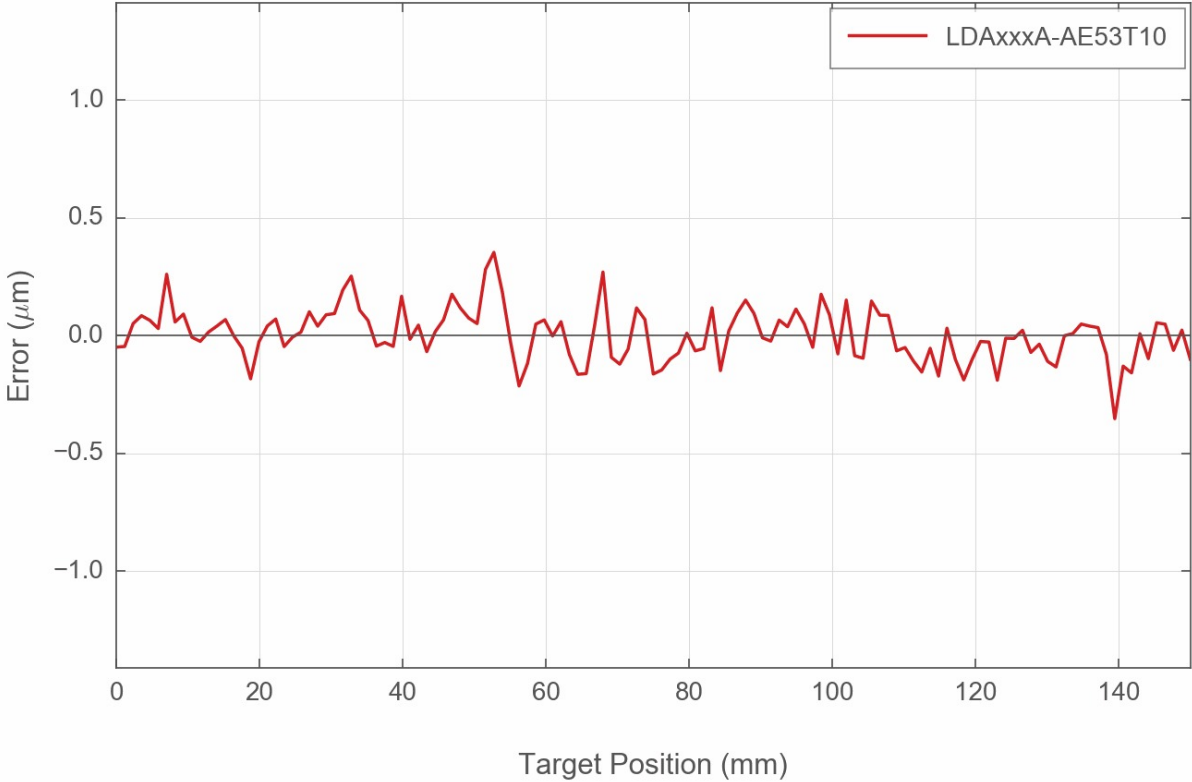
LDA075A-AE53T10A Specifications

Built-in Controller	
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Travel Range	75 mm (2.953")
Accuracy (unidirectional)	1.5 μm (0.000059")
Repeatability	< 0.2 μm (< 0.000008")
Minimum Incremental Move	12 nm
Maximum Acceleration	44.1 m/s ² (4.50 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	< 8 μm (< 0.000315")
Horizontal Runout	< 6 μm (< 0.000236")
Typical Velocity Stability	\pm 0.33% at 100 mm/s with a 1.0 kg payload
Pitch	0.016° (0.279 mrad)
Roll	0.007° (0.122 mrad)
Yaw	0.005° (0.087 mrad)
Stiffness in Pitch	1000 N-m/° (17 $\mu\text{rad/N-m}$)
Stiffness in Roll	600 N-m/° (29 $\mu\text{rad/N-m}$)
Stiffness in Yaw	900 N-m/° (19 $\mu\text{rad/N-m}$)
Motor Type	Moving Magnet Track Linear Motor
Motor Rated Current	1800 mA/phase
Force Constant	3.7 N/A (0.8 lbs/A)

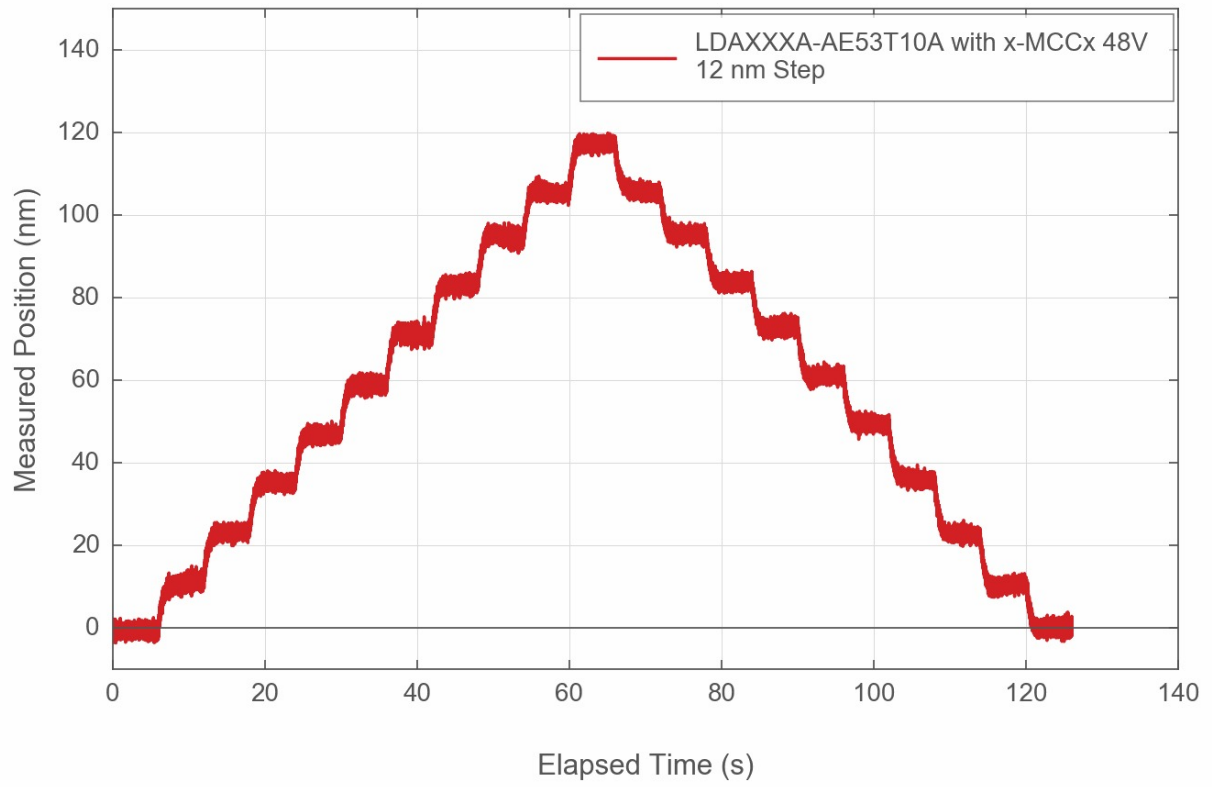
Built-in Controller	
Motor Winding Resistance	2.3 ohms/phase
Inductance	0.09 mH/phase
Motor Connection	D-sub 26
Guide Type	Crossed-Roller Bearing
Limit or Home Sensing	Optical Index Mark
Axes of Motion	1
Mounting Interface	M6 threaded holes
Moving Mass	0.43 kg (0.946 lbs)
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	1.23 kg (2.712 lb)

LDA-AE Series Charts

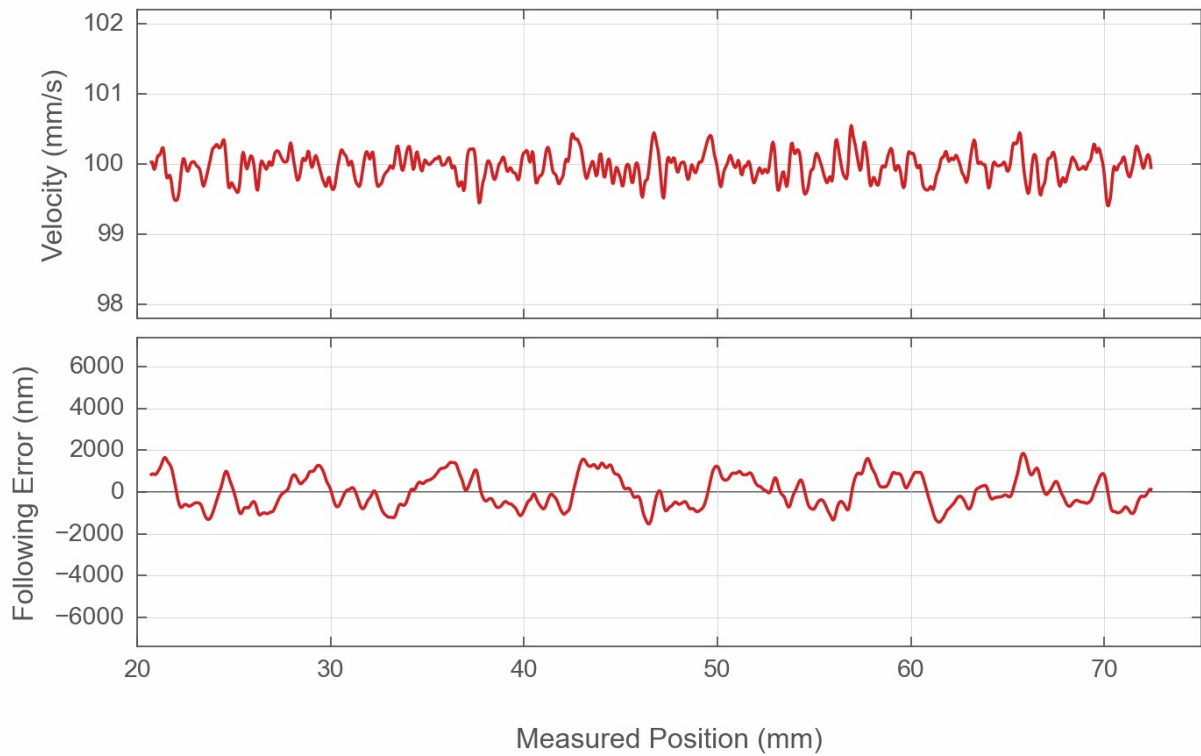
Typical Accuracy



Typical Minimum Incremental Move



Velocity Stability and Following Error



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