

X-LDA075A-AE53D12 Datasheet



- 25, 75, 150 mm travel options
- Up to 0.8 m/s speed and up to 4 g acceleration
- High repeatability (200 nm) and accuracy (1 μm), with 20 nm minimum incremental move
- One digital input and two digital outputs
- Direct position measurement from 1 nm resolution linear encoder
- Non-contact ironless linear motor for high precision, high dynamic performance & zero backlash
- Built-in controller; daisy-chains with other Zaber products
- Technical Article - Linear Motors: Overview and Selection Process

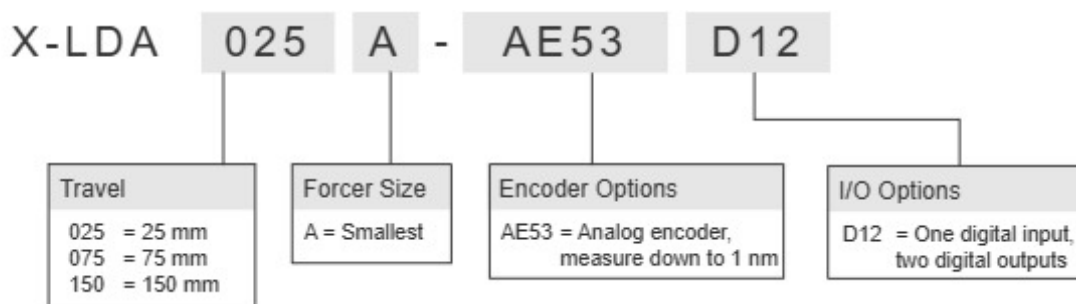
X-LDA-AE Series Overview

Zaber's X-LDA-AE Series devices are computer-controlled, 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 20 nm. X-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.

X-LDA-AE devices are stand-alone units requiring only a standard 48 V power supply. They connect to the RS-232 port or USB port of any computer, and can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply. Like all of Zaber's products, the X-LDA-AE Series is designed to be 'plug and play' and very easy to set up and operate. X-LDA-AE devices also include a digital input and two digital outputs for interfacing with external systems. An event-driven trigger system allows devices to be programmed for stand-alone operation based on I/O, time, or movement stimuli.

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

X-LDA-AE Series Part Numbering & Options



X-LDA075A-AE53D12 Drawings

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

X-LDA075A-AE53D12 Specifications

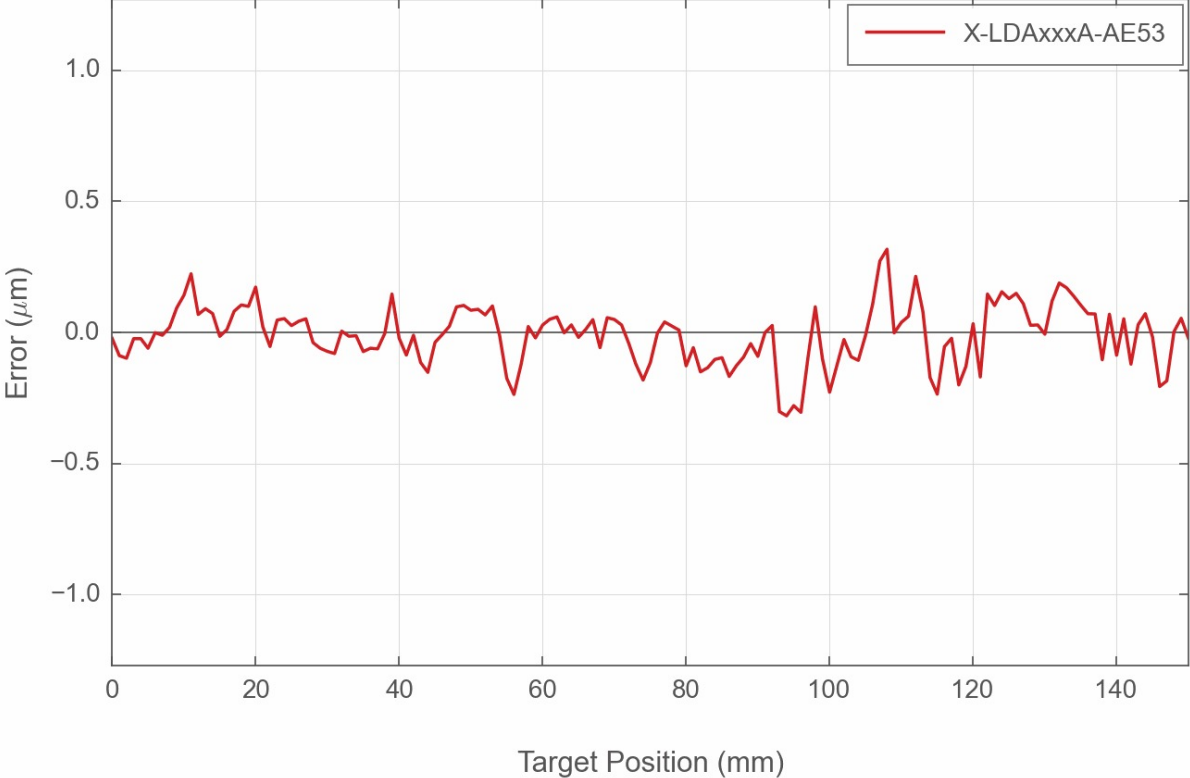
Built-in Controller	
Travel Range	75 mm (2.953")
Accuracy (unidirectional)	1.5 μm (0.000059")
Repeatability	< 0.2 μm (< 0.000008")
Minimum Incremental Move	20 nm
Maximum Acceleration	44.1 m/s ² (4.50 g)
Maximum Speed	800 mm/s (31.496"/s)
Minimum Speed	0.61 nm/s
Speed Resolution	0.61 nm/s
Encoder Type	Linear analog encoder
Encoder Count Size	1 nm
Peak Thrust	16 N (3.6 lb)
Maximum Continuous Thrust	6 N (1.3 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default)
Data Cable Connection	Locking 4-pin M8
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 $\mu\text{rad/N-m}$)

Built-in Controller

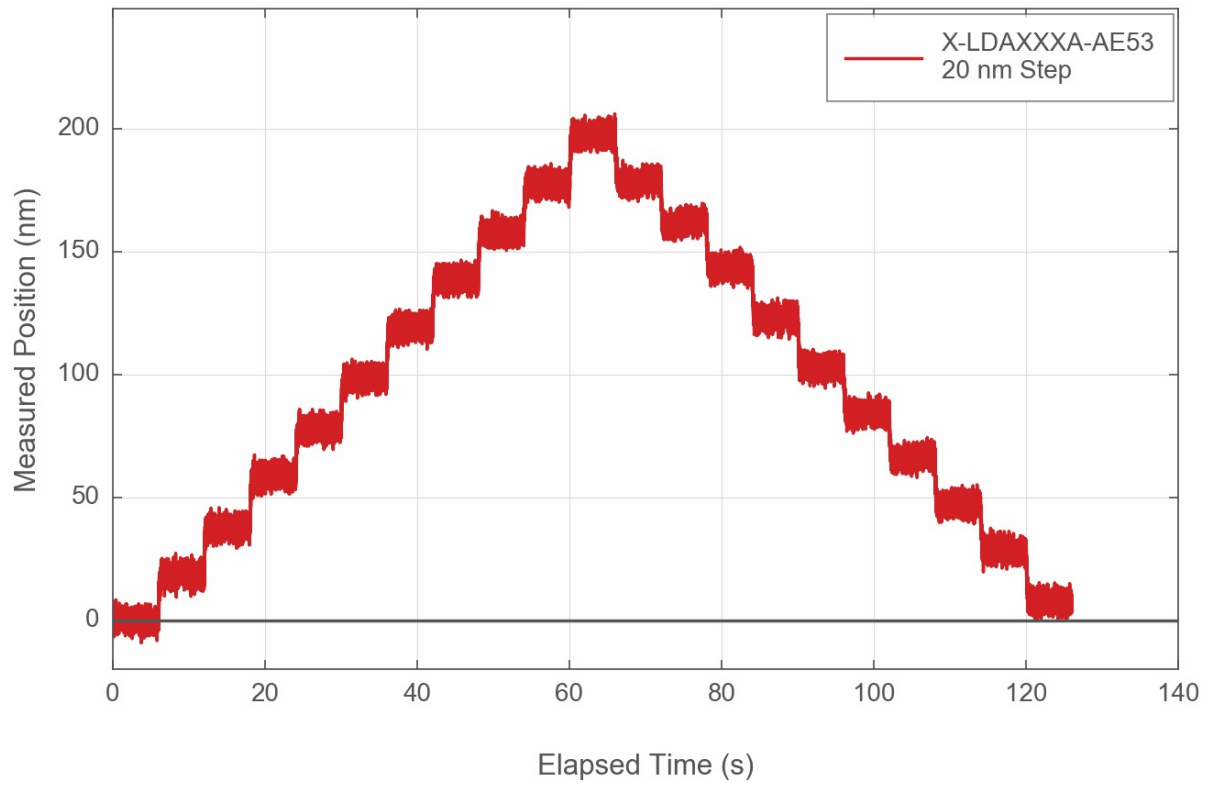
Stiffness in Yaw	900 N-m/° (19 μ rad/N-m)
Power Supply	48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	3000 mA
Motor Type	Moving Magnet Track Linear Motor
Force Constant	3.7 N/A (0.8 lbs/A)
Guide Type	Crossed-Roller Bearing
Limit or Home Sensing	Optical Index Mark
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes
Mounting Interface	M6 threaded holes
Moving Mass	0.43 kg (0.946 lbs)
Digital Input	1
Digital Output	2
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	1.26 kg (2.778 lb)

X-LDA-AE Series Charts

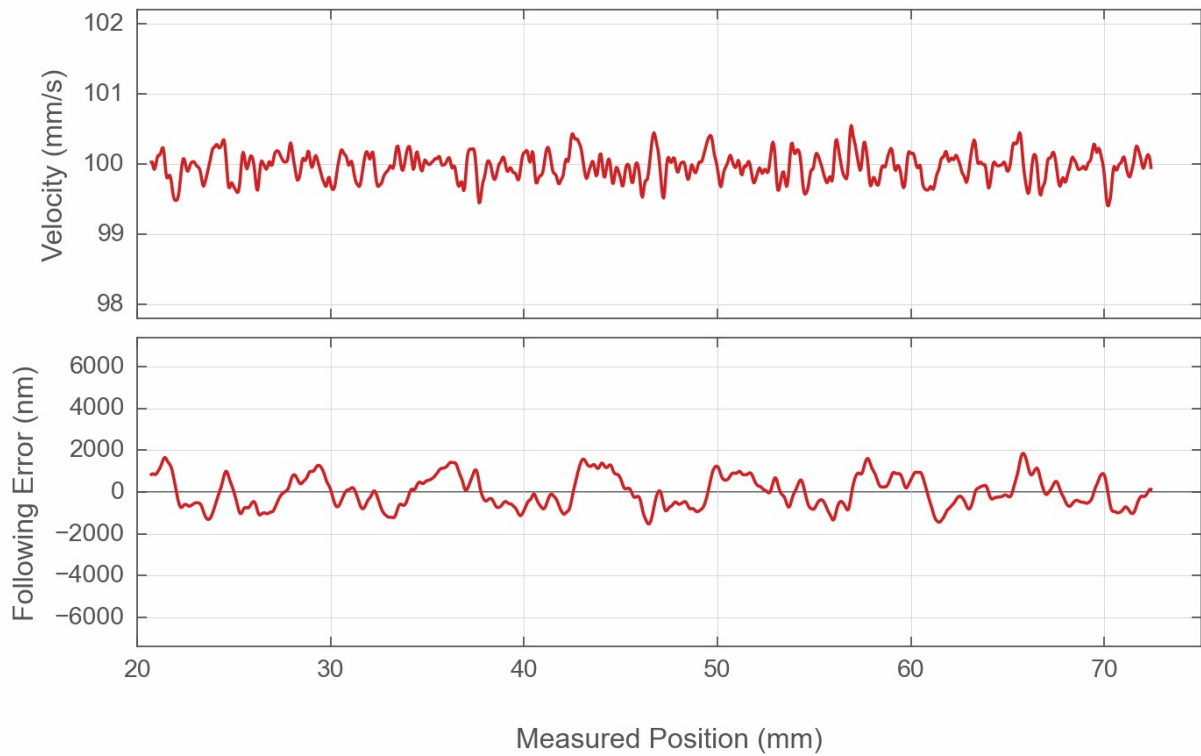
Typical Accuracy



Typical Minimum Incremental Move



Velocity Stability and Following Error



Contact

Email: contact@zaber.com

Phone (toll free Canada/USA): 1-888-276-8033

Phone (direct): 1-604-569-3780

Fax: 1-604-648-8033

Zaber Technologies Inc.

#2 - 605 West Kent Ave. N.

Vancouver, British Columbia

Canada, V6P 6T7

<https://www.zaber.com>