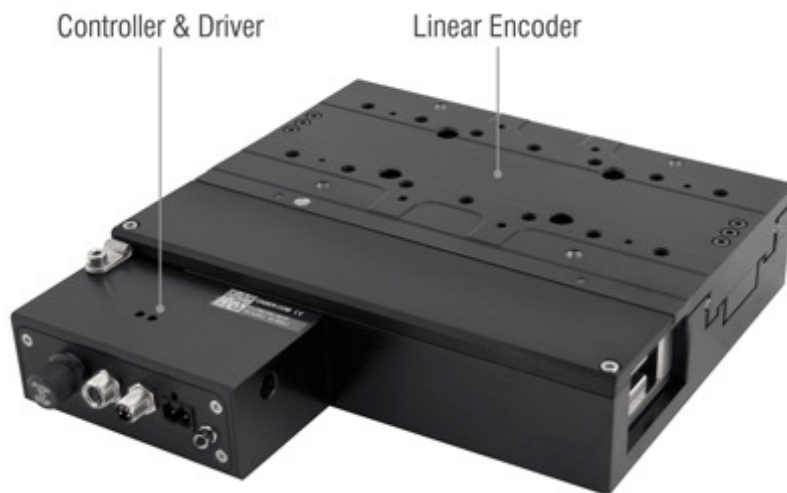


X-LDM-AE Series Datasheet



- 60, 110, 210 mm travel options
- Up to 1.2 m/s speed and up to 3.5 g acceleration
- High repeatability (80 nm) and accuracy (1 μ m), with 25 nm minimum incremental move
- Direct position measurement from 1 nm resolution linear encoder
- One digital input and two digital outputs
- Non-contact ironless linear motor for ultra precision, high dynamic performance and zero backlash
- Built-in controller; daisy-chains with other Zaber products
- Technical Article - Linear Motors: Overview and Selection Process

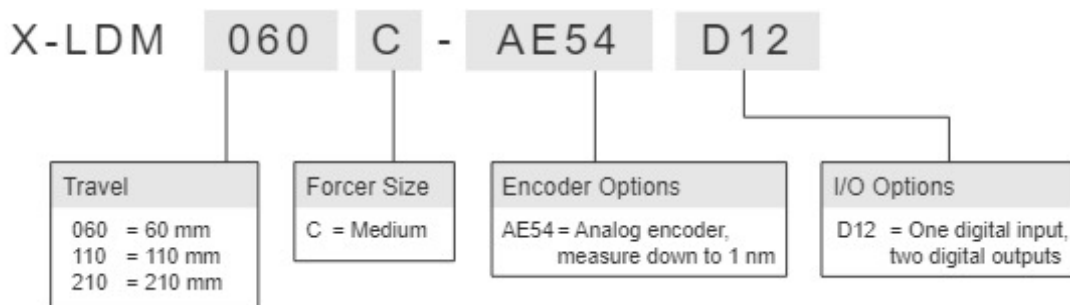
X-LDM-AE Series Overview

Zaber's X-LDM-AE Series devices are computer-controlled, motorized linear stages suited for applications demanding outstanding precision, throughput, and reliability. A centrally mounted linear encoder results in 1 μm position accuracy and consistent movement steps down to 25 nm. X-LDM-AE devices feature high efficiency ironless linear motors, providing high speed and acceleration, while minimizing heat generation to improve repeatability. Both the drive and encoder are non-contact and have no moving cables, resulting in an high lifetime system.

These stages 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 they 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-LDM-AE Series is designed to be 'plug and play' and very easy to set up and operate. X-LDM-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-LDM-AE>

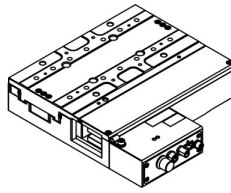
X-LDM-AE Series Part Numbering & Options



X-LDM-AE Series Drawings

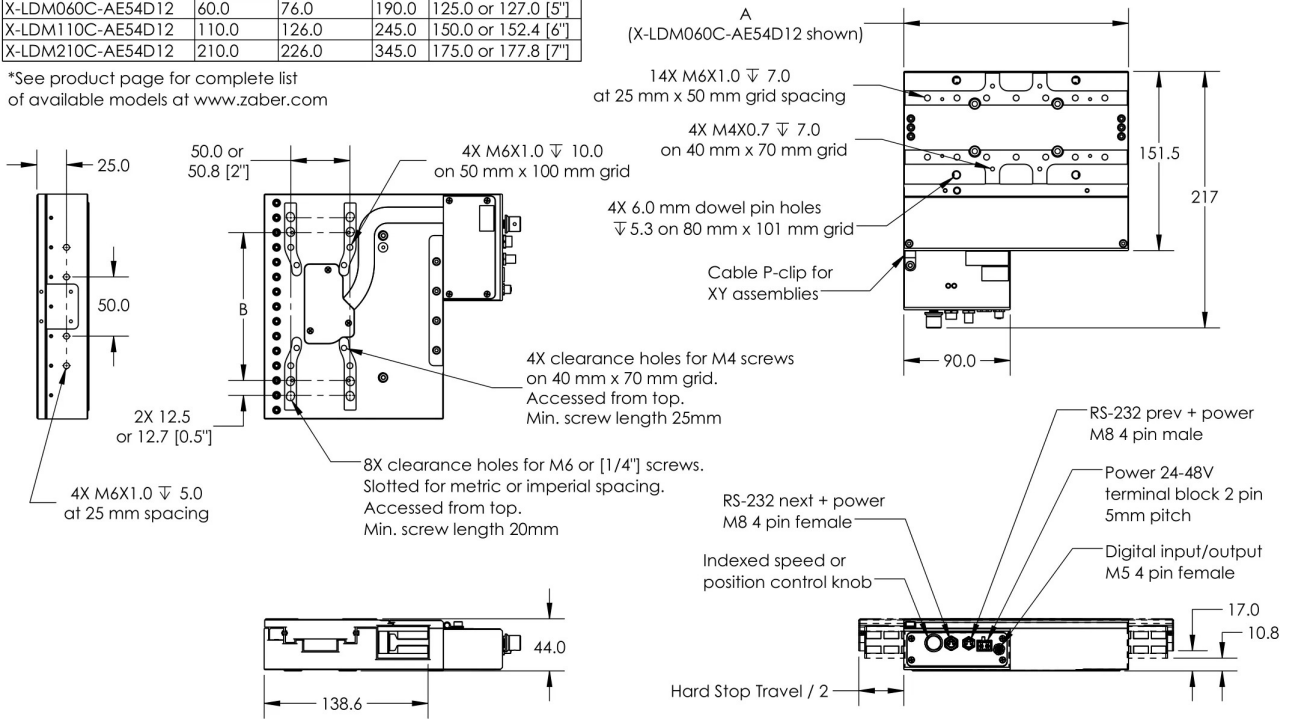
ZABER

X-LDM-AE Direct Drive Linear Stage
dimensions in mm



Model Number*	Nominal Travel	Hard Stop Travel	A	B
X-LDM060C-AE54D12	60.0	76.0	190.0	125.0 or 127.0 [5"]
X-LDM110C-AE54D12	110.0	126.0	245.0	150.0 or 152.4 [6"]
X-LDM210C-AE54D12	210.0	226.0	345.0	175.0 or 177.8 [7"]

*See product page for complete list of available models at www.zaber.com



DWG 2168 R01B

X-LDM-AE Series Specifications

Built-in Controller	
Accuracy (unidirectional)	1 μm (0.000039")
Repeatability	< 0.08 μm (< 0.000003")
Minimum Incremental Move	25 nm
Maximum Speed	1200 mm/s (47.244"/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	60 N (13.5 lb)
Maximum Continuous Thrust	35 N (7.8 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default)
Data Cable Connection	Locking 4-pin M8
Maximum Centered Load	120 N (26.9 lb)
Maximum Cantilever Load	1200 N-cm (1699.3 oz-in)
Guide Type	Crossed-Roller Bearing
Typical Velocity Stability	$\pm 0.11\%$ at 100 mm/s with a 1.0 kg payload
Power Supply	48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	3000 mA
Motor Type	Moving Magnet Track Linear Motor
Force Constant	15.8 N/A (3.5 lbs/A)
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
Digital Input	1
Digital Output	2
Operating Temperature Range	10 to 40 $^{\circ}\text{C}$

Built-in Controller	
RoHS Compliant	Yes
CE Compliant	Yes
Vacuum Compatible	No

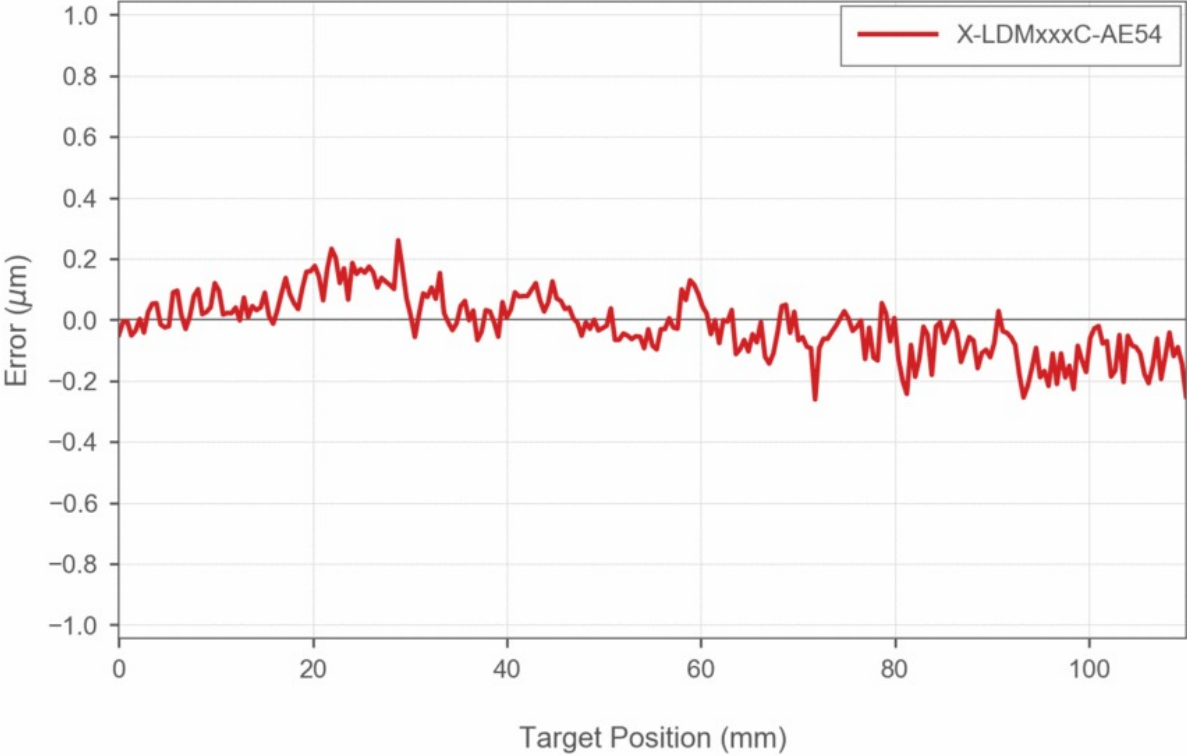
Part Number	Travel Range	Maximum Acceleration	Vertical Runout	Horizontal Runout
X-LDM060C-AE54D12	60 mm (2.362")	34.3 m/s ² (3.50 g)	< 4 µm (< 0.000157")	< 3 µm (< 0.000118")
X-LDM110C-AE54D12	110 mm (4.331")	24.5 m/s ² (2.50 g)	< 4 µm (< 0.000157")	< 3 µm (< 0.000118")
X-LDM210C-AE54D12	210 mm (8.268")	14.7 m/s ² (1.50 g)	< 8 µm (< 0.000315")	< 5 µm (< 0.000197")

Part Number	Pitch	Roll	Yaw	Moving Mass
X-LDM060C-AE54D12	0.003° (0.052 mrad)	0.002° (0.035 mrad)	0.002° (0.035 mrad)	1.74 kg (3.828 lbs)
X-LDM110C-AE54D12	0.005° (0.087 mrad)	0.005° (0.087 mrad)	0.002° (0.035 mrad)	2.29 kg (5.038 lbs)
X-LDM210C-AE54D12	0.01° (0.174 mrad)	0.005° (0.087 mrad)	0.005° (0.087 mrad)	3.17 kg (6.974 lbs)

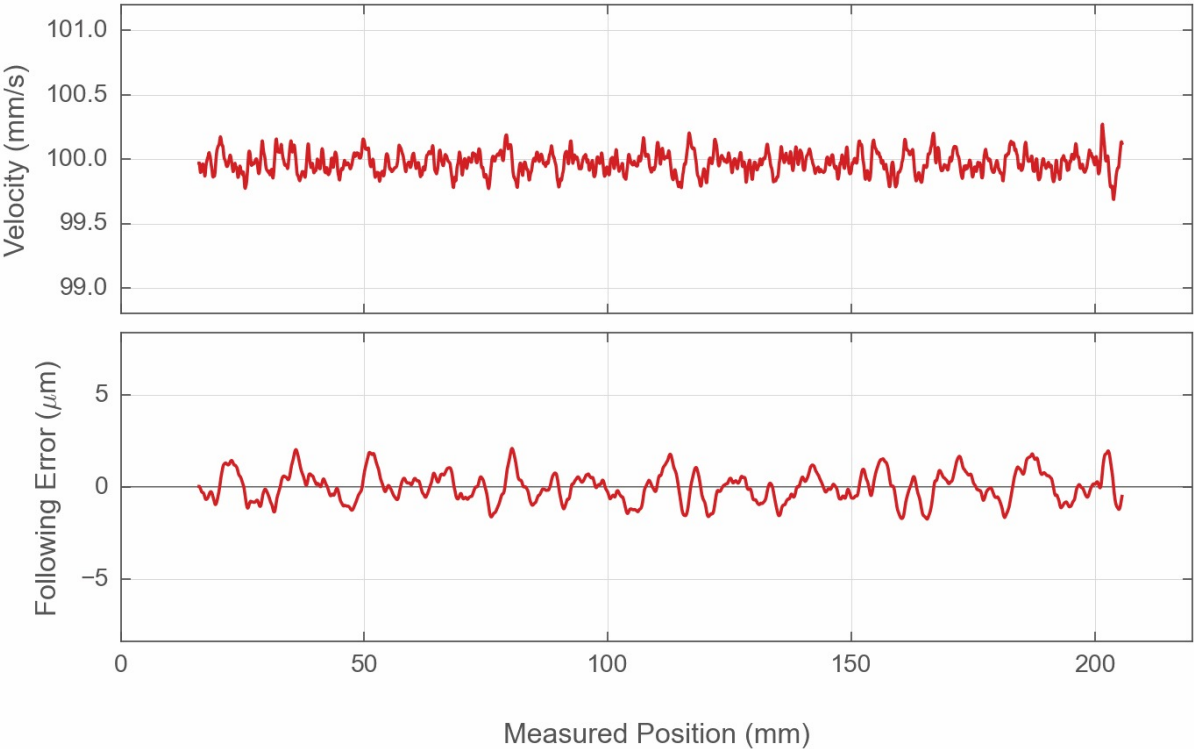
Part Number	Weight
X-LDM060C-AE54D12	3.76 kg (8.289 lb)
X-LDM110C-AE54D12	4.84 kg (10.670 lb)
X-LDM210C-AE54D12	6.60 kg (14.550 lb)

X-LDM-AE Series Charts

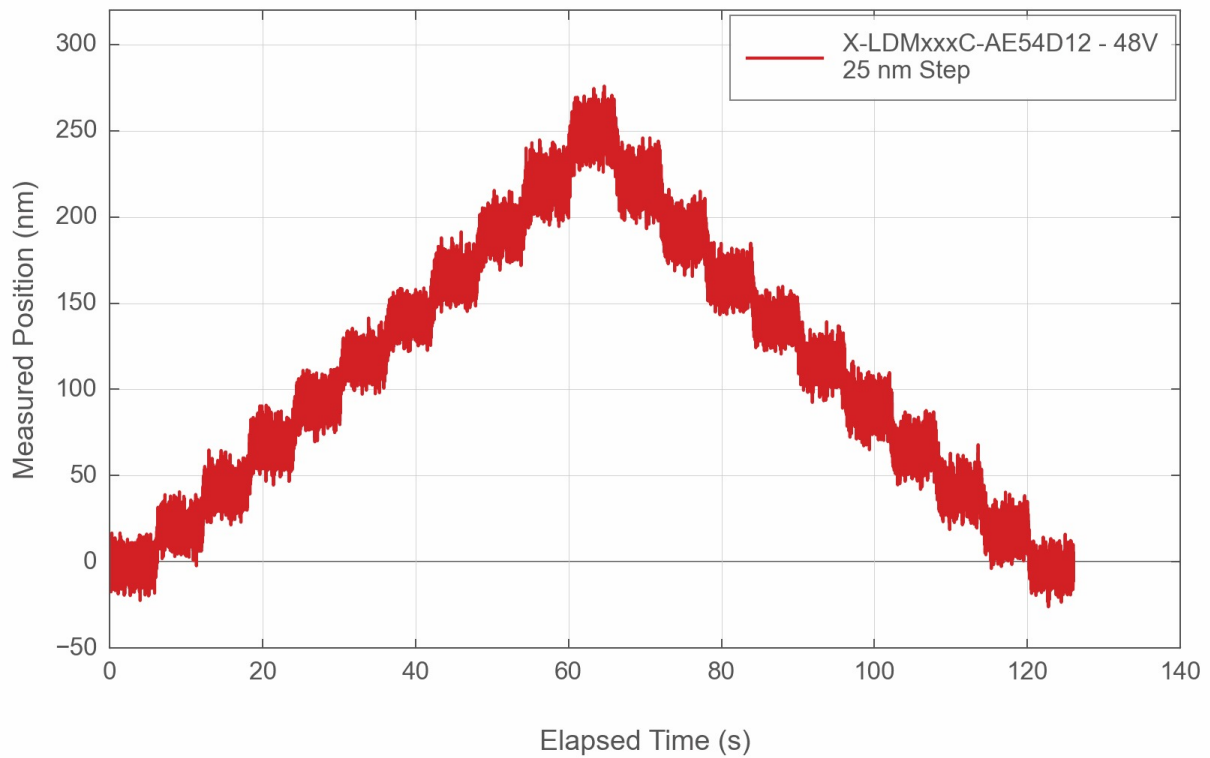
Typical Accuracy



Typical Velocity Stability and Following Error



Typical Minimum Incremental Move



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