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 µm), with 4 nm minimum incremental move
- Direct position measurement from 1 nm resolution linear encoder
- Non-contact ironless linear motor for ultra-precision, high dynamic performance & zero backlash
- Designed for use with an X-MCC Series controller for coordinated motion
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral
- Technical Article - Linear Motors: Overview and Selection Process

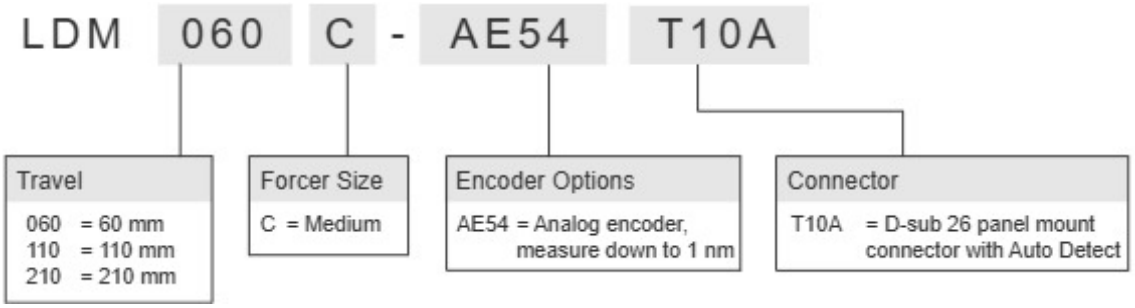
LDM-AE Series Overview

Zaber's LDM-AE Series devices are 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 4 nm. LDM-AE devices feature oversized 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 extremely robust system.

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

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

LDM-AE Series Part Numbering & Options



LDM-AE Series Drawings

- dimensions_LDM-AE (Drawing for the LDM-AE)

LDM-AE Series Specifications

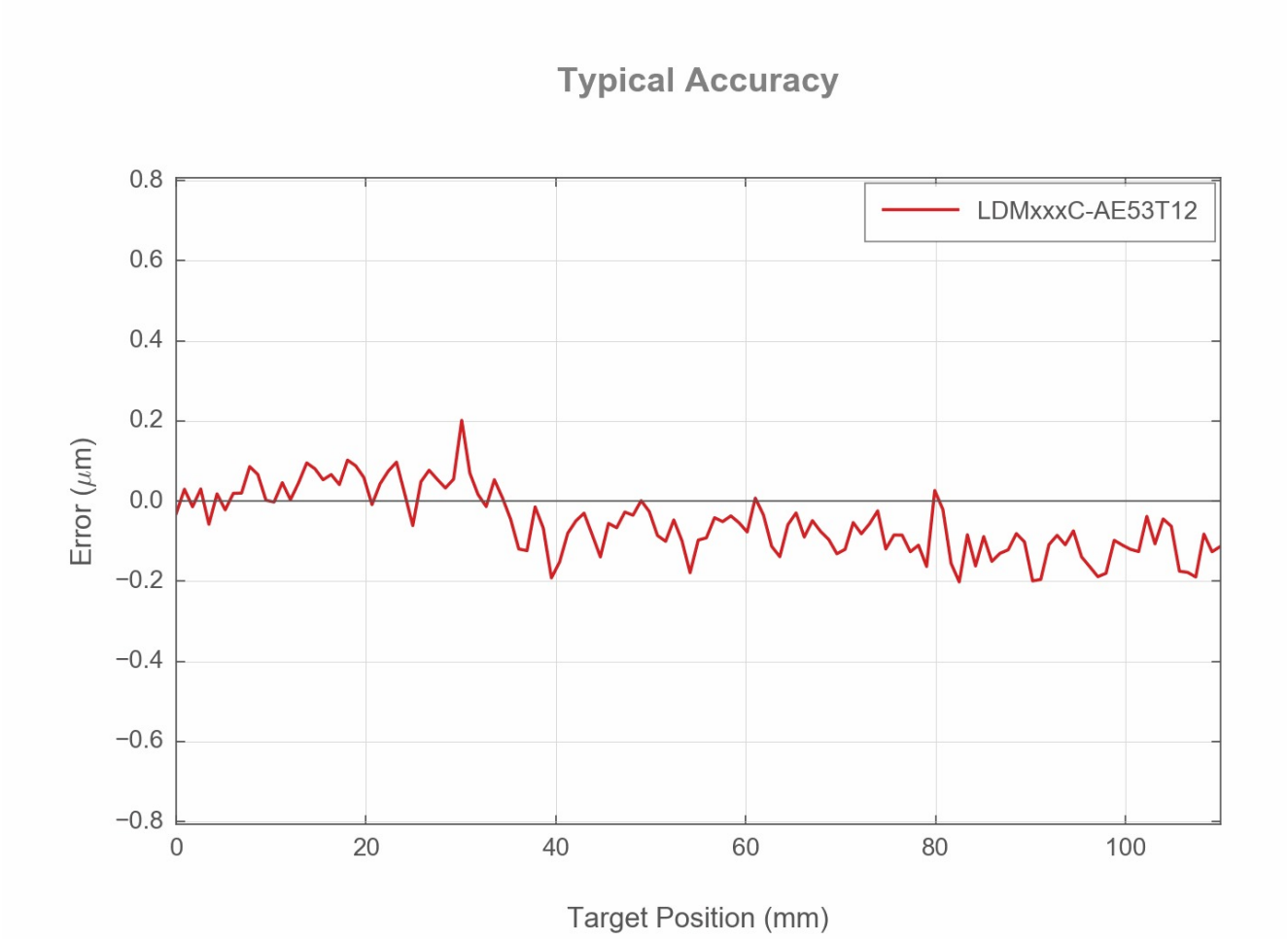
Built-in Controller	
Recommended Controller	X-MCC (48 V) Recommended
AutoDetect	Yes
Accuracy (unidirectional)	1 µm (0.000039")
Repeatability	< 0.08 µm (< 0.000003")
Minimum Incremental Move	4 nm
Maximum Speed	1200 mm/s (47.244"/s)
Minimum Speed	0.61 nm/s
Speed Resolution	0.61 nm/s
Encoder Type	Linear analog encoder
Encoder Count Size	1 nm
Peak Thrust	100 N (22.4 lb)
Maximum Continuous Thrust	35 N (7.8 lb)
Maximum Centered Load	185 N (41.5 lb)
Maximum Moment (Pitch)	1200 N-cm (1699.3 oz-in)
Maximum Moment (Roll)	1200 N-cm (1699.3 oz-in)
Maximum Moment (Yaw)	1200 N-cm (1699.3 oz-in)
Typical Velocity Stability	± 0.11% at 100 mm/s with a 1.0 kg payload
Motor Type	Moving Magnet Track Linear Motor
Motor Rated Current	2400 mA/phase
Force Constant	15.8 N/A (3.5 lbs/A)
Motor Winding Resistance	6.4 ohms/phase
Inductance	1.24 mH/phase
Guide Type	Crossed-Roller Bearing
Axes of Motion	1
Mounting Interface	M6 threaded holes
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Maximum Acceleration	Vertical Runout	Horizontal Runout
LDM060C-AE54T10A	60 mm (2.362")	34.3 m/s2 (3.50 g)	< 4 µm (< 0.000157")	< 3 µm (< 0.000118")
LDM110C-AE54T10A	110 mm (4.331")	24.5 m/s2 (2.50 g)	< 4 µm (< 0.000157")	< 3 µm (< 0.000118")
LDM210C-AE54T10A	210 mm (8.268")	14.7 m/s2 (1.50 g)	< 8 µm (< 0.000315")	< 5 µm (< 0.000197")

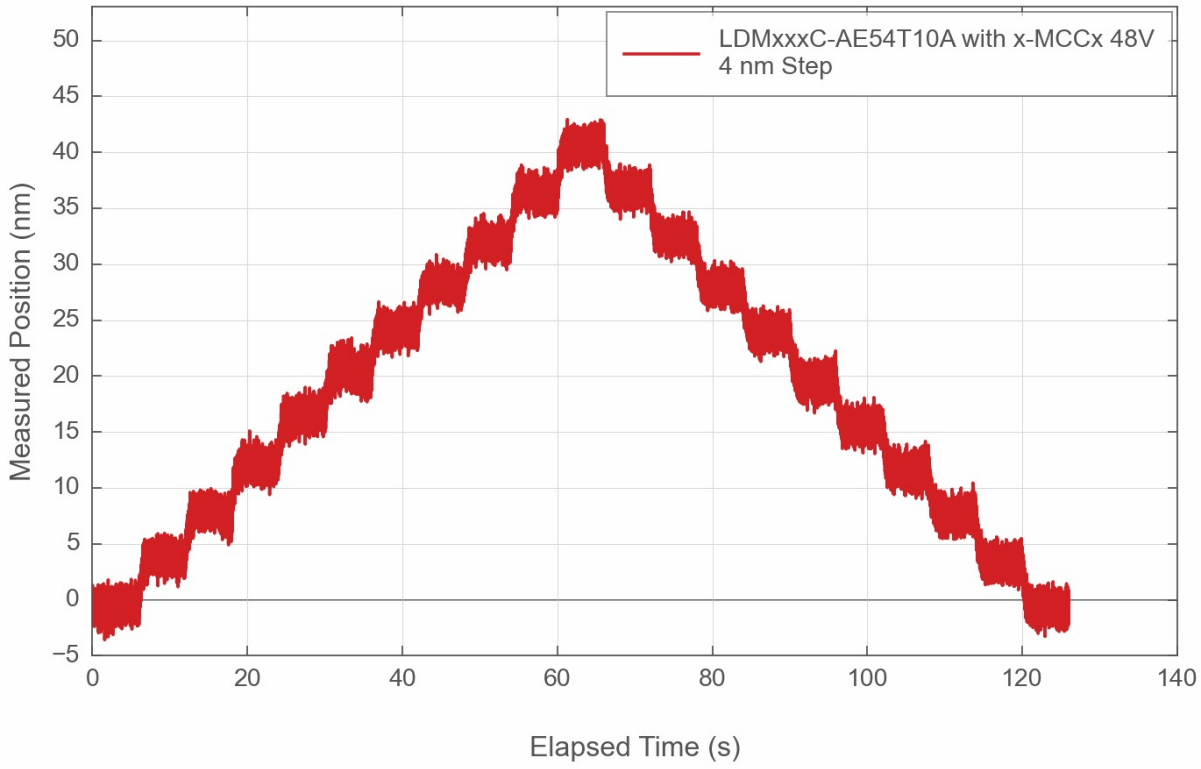
Part Number	Pitch	Roll	Yaw	Moving Mass
LDM060C-AE54T10A	0.003° (0.052 mrad)	0.002° (0.035 mrad)	0.002° (0.035 mrad)	1.74 kg (3.828 lbs)
LDM110C-AE54T10A	0.005° (0.087 mrad)	0.005° (0.087 mrad)	0.002° (0.035 mrad)	2.29 kg (5.038 lbs)
LDM210C-AE54T10A	0.01° (0.174 mrad)	0.005° (0.087 mrad)	0.005° (0.087 mrad)	3.17 kg (6.974 lbs)

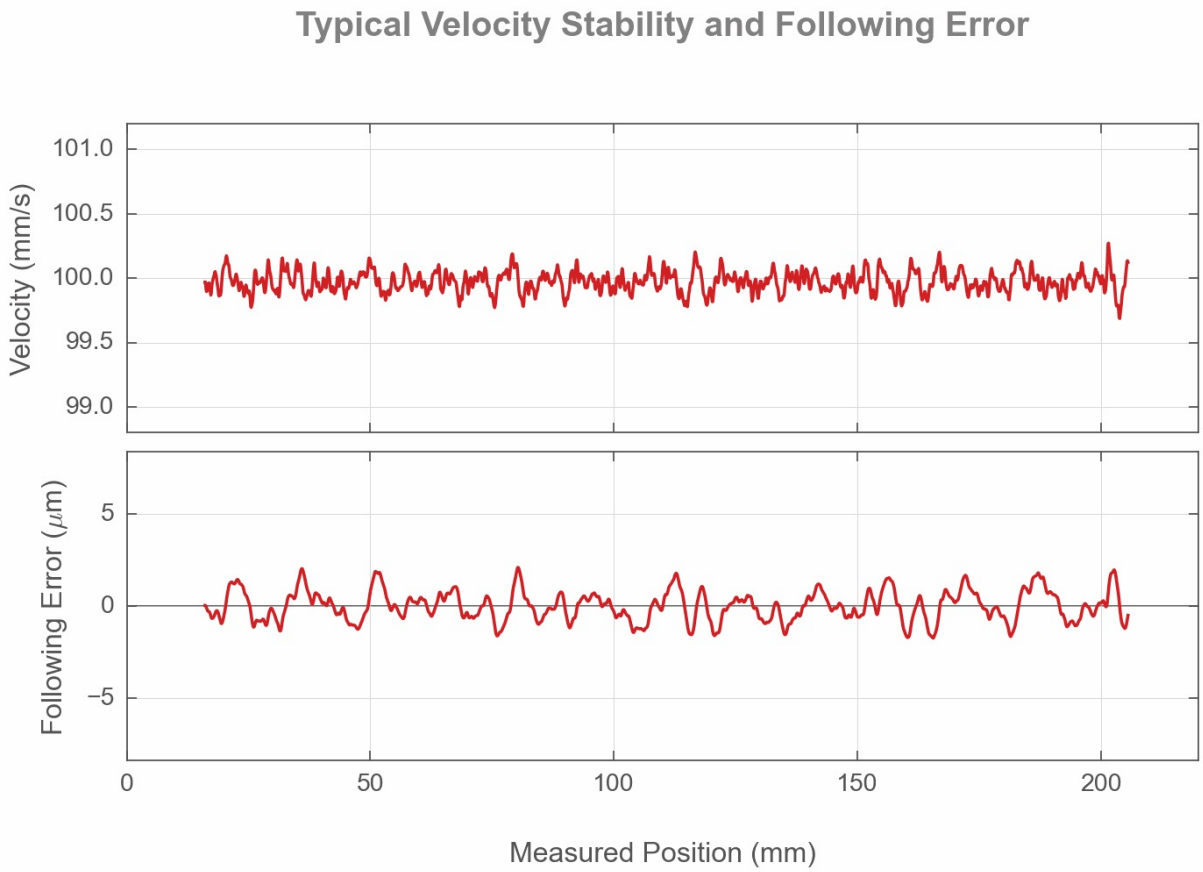
Part Number	Weight
LDM060C-AE54T10A	3.73 kg (8.223 lb)
LDM110C-AE54T10A	4.81 kg (10.604 lb)
LDM210C-AE54T10A	6.57 kg (14.484 lb)

LDM-AE Series Charts



Typical Minimum Incremental Move





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