

X-LDM-AE Series Datasheet

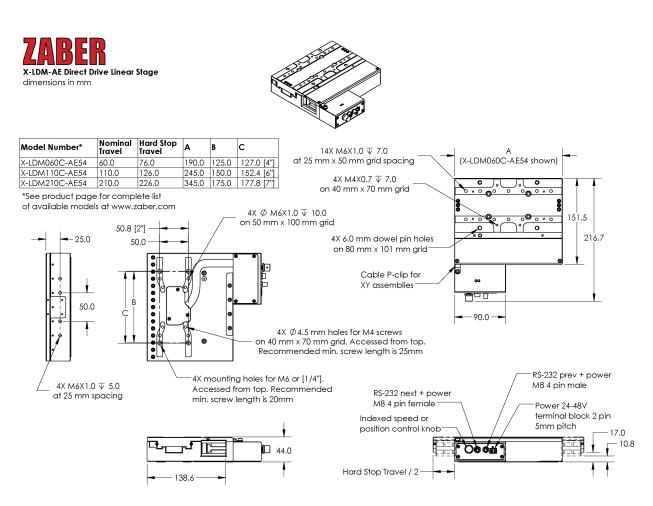


- High repeatability (80 nm) and accuracy (1 μm), with 25 nm minimum incremental move
- Direct position measurement from 1 nm resolution linear encoder
- Up to 1.2 m/s speed and up to 3.5 g acceleration
- 60, 110, 210 mm travel options
- Built-in controller; daisy-chains with other Zaber products
- Non-contact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

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.

Drawings



OWG 2168 RO

Specifications

| Specification | Value | Alternate Unit |
|-----------------------------|----------------------------------|----------------|
| Built-in Controller | Yes | |
| 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 |
| Encoder Count Size | 1 nm | |
| Encoder Type | Linear analog encoder | |
| Peak Thrust | 60 N | 13.5 lb |
| Maximum Continuous Thrust | 35 N | 7.8 lb |
| Communication Interface | RS-232 | |
| Communication Protocol | Zaber ASCII (Default) | |
| Maximum Centered Load | 120 N | 26.9 lb |
| Maximum Cantilever Load | 1200 N-cm | 1699.3 oz-in |
| Guide Type | Crossed-Roller Bearing | |
| Maximum Current Draw | 3000 mA | |
| Power Supply | 48 VDC | |
| Power Plug | 2-pin screw terminal | |
| Motor Type | Moving Magnet Track Linear Motor | |
| Motor Rated Current | 2400 mA/phase | |
| Inductance | 1.24 mH/phase | |
| Data Cable Connection | Locking 4-pin M8 | |
| 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 | |
| Vacuum Compatible | No | |
| Operating Temperature Range | 10 to 40 °C | |
| RoHS Compliant | Yes | |
| CE Compliant | Yes | |

| Part Number | Travel Range | Maximum Acceleration | Vertical Runout | Horizontal Runout |
|----------------|-----------------|-------------------------|--------------------------|--------------------------|
| X-LDM060C-AE54 | 60 mm (2.362 ") | 34.3 m/s2 (3.50 g) | < 4 µm (< 0.000157 ") | < 3 μm (< 0.000118 ") |
| X-LDM110C-AE54 | 110 mm | 24.5 m/s2 | < 4 µm | < 3 μm |
| | (4.331 ") | (2.50 g) | (< 0.000157 ") | (< 0.000118 ") |
| X-LDM210C-AE54 | 210 mm | 14.7 m/s2 | < 8 µm | < 5 μm |
| | (8.268 ") | (1.50 g) | (< 0.000315 ") | (< 0.000197 ") |

| Part Number | Pitch | Roll | Yaw | Moving Mass |
|----------------|--------------|--------------|--------------|-------------|
| X-LDM060C-AE54 | 0.003 ° | 0.002 ° | 0.002 ° | 1.74 kg |
| | (0.052 mrad) | (0.035 mrad) | (0.035 mrad) | (3.828 lbs) |
| X-LDM110C-AE54 | 0.005 ° | 0.005 ° | 0.002 ° | 2.29 kg |
| | (0.087 mrad) | (0.087 mrad) | (0.035 mrad) | (5.038 lbs) |
| X-LDM210C-AE54 | 0.01 ° | 0.005 ° | 0.005 ° | 3.17 kg |
| | (0.174 mrad) | (0.087 mrad) | (0.087 mrad) | (6.974 lbs) |

| Part Number | Weight |
|----------------|---------------------|
| X-LDM060C-AE54 | 3.76 kg (8.289 lb) |
| X-LDM110C-AE54 | 4.84 kg (10.670 lb) |
| X-LDM210C-AE54 | 6.60 kg (14.550 lb) |

Charts

