

X-LRT0500BL-E08C Datasheet



- 100, 250, 500, 750, 1000, 1500 mm travel
- Up to 700 mm/s speed and up to 1200 N thrust
- 300 kg load capacity
- High moment stiffness
- Ball screw and lead screw configurations
- Includes stainless steel dust covers
- Optional integrated power-off brake for vertical applications
- Built-in, 400 CPR, motor encoder provides slip/stall detection and recovery
- Built-in controller; daisy-chains with other Zaber products

X-LRT-EC Series Overview

Zaber's X-LRT-EC Series devices are computer-controlled, motorized linear stages with high torsional stiffness, load capacity, and long lifetime. They have low pitch, roll, yaw, and runout. A flexible stainless steel dust cover prevents the ingress of small objects. They are stand-alone units requiring only a standard 24 V or 48 V power supply. The built-in motor encoder allows closed-loop operation and slip/stall recovery features. An indexed knob provides convenient manual control for versatile operation even without a computer. An optional power-off brake is available to enable vertical applications with backdrivable screws.

These stages 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. Convenient locking, 4-pin, M8

connectors on the unit allow for secure connection between units.

Like all of Zaber's products, the X-LRT-EC Series is designed to be 'plug and play' and very easy to set up and operate. These stages can easily be mounted in XY or XYZ configurations with an angle bracket.

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

X-LRT-EC Series Part Numbering & Options



X-LRT0500BL-E08C Drawings

- [X-LRT-EC.png \(Drawing for the X-LRT-EC\)](#)

X-LRT0500BL-E08C Specifications

| | |
|--|--|
| Microstep Size (Default Resolution) | 0.49609375 μm |
| Built-in Controller | Yes |
| Travel Range | 500 mm (19.685") |
| Accuracy (unidirectional) | 125 μm (0.004921") |
| Repeatability | < 4 μm (< 0.000157") |
| Backlash | < 45 μm (< 0.001772") |
| Maximum Speed | 175 mm/s (6.890"/s) |
| Minimum Speed | 0.000303 mm/s (0.000012"/s) |
| Speed Resolution | 0.000303 mm/s (0.000012"/s) |
| Encoder Resolution | 400 CPR (1600 states/rev) |
| Encoder Type | Rotary quadrature encoder |
| Peak Thrust | 600 N (134.6 lb) |
| Back-driving Force* | (\pm 30%) 420 N (94.2 lb) |
| Maximum Continuous Thrust | 600 N (134.6 lb) |
| Communication Interface | RS-232 |
| Communication Protocol | Zaber ASCII |
| Data Cable Connection | Locking 4-pin M8 |
| Maximum Centered Load | 2940 N (659.3 lb) |
| Maximum Moment (Pitch) | 70 N-m (51.7 ft-lb) |
| Maximum Moment (Roll) | 120 N-m (88.6 ft-lb) |
| Maximum Moment (Yaw) | 70 N-m (51.7 ft-lb) |
| Vertical Runout | < 10 μm (< 0.000394") |
| Horizontal Runout | < 50 μm (< 0.001968") |
| Pitch | 0.015° (0.262 mrad) |
| Roll | 0.02° (0.349 mrad) |
| Yaw | 0.03° (0.523 mrad) |
| Stiffness in Pitch | 1400 N-m/° (12 $\mu\text{rad/N-m}$) |
| Stiffness in Roll | 700 N-m/° (25 $\mu\text{rad/N-m}$) |
| Stiffness in Yaw | 1200 N-m/° (15 $\mu\text{rad/N-m}$) |
| Power Supply | 24-48 VDC |
| Power Plug | 2-pin screw terminal |

| | |
|--|-------------------------------------|
| Microstep Size (Default Resolution) | 0.49609375 μm |
| Maximum Current Draw | 3600 mA |
| Linear Motion Per Motor Rev | 6.35 mm (0.250") |
| Motor Steps Per Rev | 200 |
| Motor Type | Stepper (2 phase) |
| Motor Rated Current | 3000 mA/phase |
| Inductance | 2 mH/phase |
| Default Resolution | 1/64 of a step |
| Guide Type | Recirculating Ball Linear Guide |
| Mechanical Drive System | Precision lead screw |
| Limit or Home Sensing | Magnetic home sensor |
| Manual Control | Indexed knob with push switch |
| Axes of Motion | 1 |
| LED Indicators | Yes |
| Operating Temperature Range | 0 to 50 °C |
| CE Compliant | Yes |
| Vacuum Compatible | No |
| Weight | 5.758 kg (12.694 lb) |

X-LRT-EC Series Charts

Typical Microstepping Accuracy



Typical Microstepping Accuracy



Typical Microstepping Accuracy



Typical Microstepping Accuracy



Thrust Speed Performance



Thrust Speed Performance



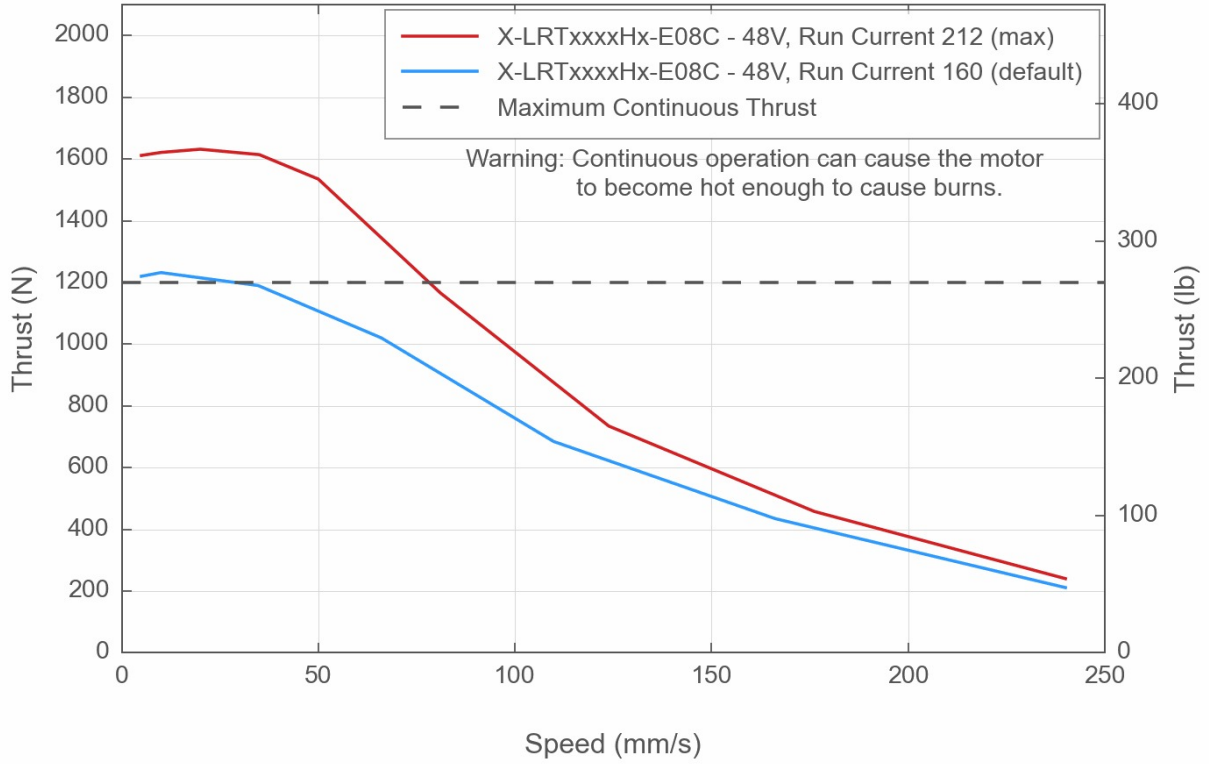
Thrust Speed Performance



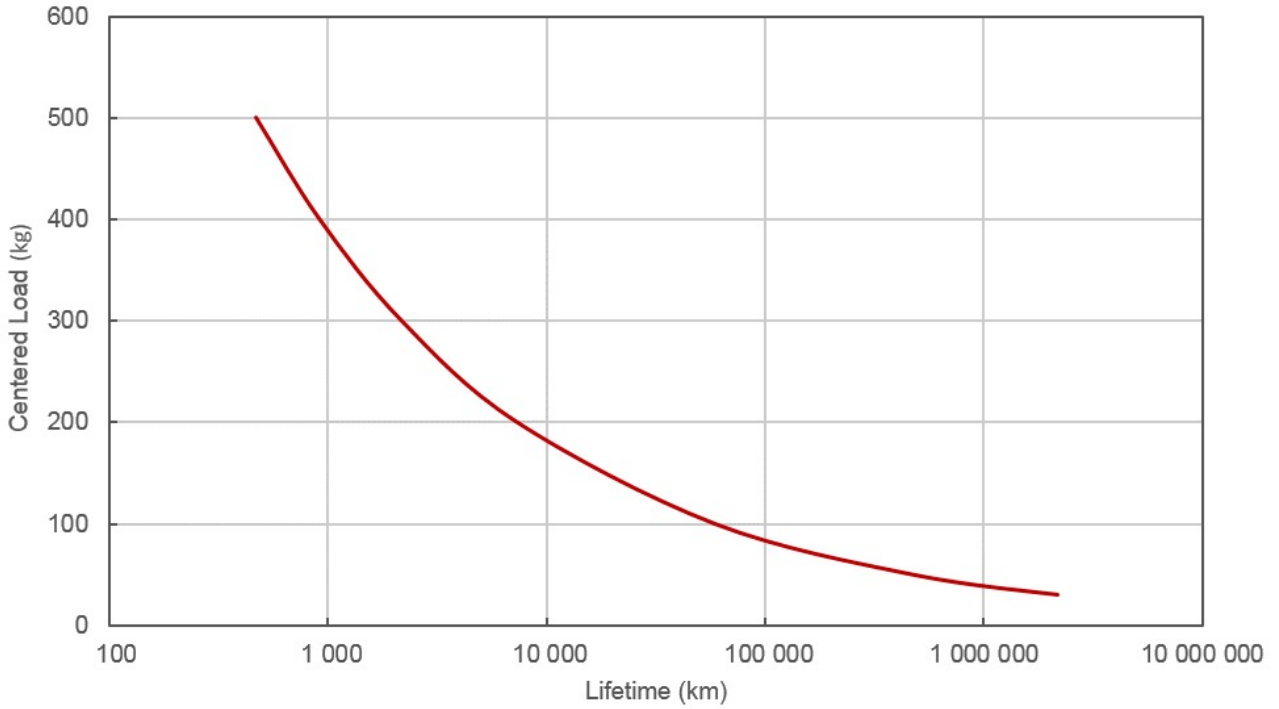
Thrust Speed Performance



Thrust Speed Performance



Typical LRT Bearing Lifetime



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