Zaber Technologies Inc.
#2 - 605 West Kent Ave.
Vancouver, BC

1-604-569-3780 *Direct*
1-888-276-8033 *Toll Free*
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LRU-E Series Datasheet



- 250, 500, 1000, 1500, 2000 mm travel
- 500 kg load capacity and up to 360 Nm moment load capacity
- Achieves thrust up to 2850 N and speeds up to 350 mm/s
- Large mounting platform with high moment stiffness
- Built-in, 500 CPR motor encoder provides slip/stall detection and recovery
- Designed for use with Zaber's X-MCC Series stepper motor controller or any 2-phase stepper motor controller
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral
- Optional integrated power-off brake for vertical applications

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LRU-E Series Overview

Zaber's LRU-E Series are motorized linear stages with built-in motor encoders . They support up to 500 kg loads and output up to 2850 N of thrust while having long lifetime capabilities. An optional power-off brake is available to protect against backdriving and other unwanted motion in a power-off state. They provide a large stage top and footprint. These stages integrate well with the T-slot ecosystem. They also share mounting patterns with other Zaber devices for easily building XY systems, gantries, or gimbals. These mounting patterns also support popular third party cobot arms. Some multi-axis configurations may require additional accessories; please contact Zaber Technical Support to ensure the correct ones are selected.

The built-in motor encoder allows for closed-loop operation and slip/stall recovery features. The stages are designed to connect directly to Zaber's X-MCC Series universal motor controllers, or they can be used with any high power 2-phase stepper motor controller. Set up is easy with AutoDetect. Once connected, the X-MCC controller will automatically detect and configure the LRU-E.

For more information visit: https://www.zaber.com/products/linear-stages/LRU-E

LRU-E Series Part Numbering & Options

LRU 0250 H 18 - B E01 T12A

Travel
- **0250** — 250 mm
- **0500** — 500 mm
- **1000** — 1000 mm
- **1500** — 1500 mm
- **2000** — 2000 mm

Drive Screw Options
- **H** — Medium pitch ball screw

Stage Width
- **18** — 180 mm
- **25** — 250 mm

Brake Option
- **None** — No Brake
- **B** — Brake

Encoder Options
- **E01** — Motor Encoder, 500 CPR

Connector
- **T11A** — D-sub 15 panel mount connector and M12 T-code connector with Auto Detect
- **T12A** — D-sub 26 panel mount connector and M12 T-code connector with Auto Detect

LRU-E Series Drawings

- LRUxH18-E (Drawing for the LRUxH18-E)
- LRUxH18-BE (Drawing for the LRUxH18-BE)
- LRUxH25-E (Drawing for the LRUxH25-E)
- LRUxH25-BE (Drawing for the LRUxH25-BE)
- View all drawings and documents at zaber.com

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LRU-E Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Axes of Motion	1

Positioning Performance

Specification	Value
Repeatability	<3 µm (<0.000118 ")
Backlash	<40 µm (<0.001575 ")
Microstep Size (Default Resolution)	0.78125 µm
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Peak Thrust	2850 N (639.1 lb)
Maximum Axial Brake Force	2850 N (640.7 lb)
Maximum Continuous Thrust	2850 N (639.1 lb)
Back-driving Force*	250 (± 30%) N (56.1 lb)
Maximum Centered Load	5000 N (1121.3 lb)
Stiffness (Pitch)	3700 N·m/°
Stiffness (Roll)	2600 N·m/°
Stiffness (Yaw)	3300 N·m/°

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Speed

Specification	Value
Minimum Speed	0.000476 mm/s (0.000019 "/s)
Speed Resolution	0.000476 mm/s (0.000019 "/s)

Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Encoder Resolution	500 CPR (2 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Linear Motion Per Motor Rev	10 mm (0.394 ")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	9470 mA/phase
Motor Winding Resistance	0.23 ohms/phase
Motor Winding Inductance	2.1 mH/phase

Mechanical

Specification	Value
Guide Type	Recirculating ball linear guide
Mechanical Drive System	Precision ball screw

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Flatness of Travel
LRU0250H18-BE01T12A	250 mm (9.843 ")	16.5 kg (36.376 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")
LRU0250H18-E01T11A	250 mm (9.843 ")	15.5 kg (34.172 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")
LRU0250H25-BE01T12A	250 mm (9.843 ")	19.7 kg (43.431 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")
LRU0250H25-E01T11A	250 mm (9.843 ")	18.7 kg (41.226 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")
LRU0500H18-BE01T12A	500 mm (19.685 ")	19.5 kg (42.99 lb)	160 µm (0.006299 ")	<70 µm (<0.002756 ")
LRU0500H18-E01T11A	500 mm (19.685 ")	18.5 kg (40.785 lb)	160 µm (0.006299 ")	<70 µm (<0.002756 ")
LRU0500H25-BE01T12A	500 mm (19.685 ")	23.2 kg (51.147 lb)	160 µm (0.006299 ")	<70 µm (<0.002756 ")
LRU0500H25-E01T11A	500 mm (19.685 ")	22.2 kg (48.943 lb)	160 µm (0.006299 ")	<70 µm (<0.002756 ")
LRU1000H18-BE01T12A	1000 mm (39.37 ")	25.4 kg (55.997 lb)	250 µm (0.009842 ")	<140 µm (<0.005512 ")
LRU1000H18-E01T11A	1000 mm (39.37 ")	24.4 kg (53.793 lb)	250 µm (0.009842 ")	<140 µm (<0.005512 ")
LRU1000H25-BE01T12A	1000 mm (39.37 ")	30 kg (66.139 lb)	250 µm (0.009842 ")	<140 µm (<0.005512 ")
LRU1000H25-E01T11A	1000 mm (39.37 ")	29 kg (63.934 lb)	250 µm (0.009842 ")	<140 µm (<0.005512 ")
LRU1500H18-BE01T12A	1500 mm (59.055 ")	31.4 kg (69.225 lb)	350 µm (0.013779 ")	<180 µm (<0.007087 ")
LRU1500H18-E01T11A	1500 mm (59.055 ")	30.4 kg (67.02 lb)	350 µm (0.013779 ")	<180 µm (<0.007087 ")

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LRU1500H25-BE01T12A	1500 mm (59.055 ")	36.8 kg (81.13 lb)	350 µm (0.013779 ")	<180 µm (<0.007087 ")
LRU1500H25-E01T11A	1500 mm (59.055 ")	35.8 kg (78.925 lb)	350 µm (0.013779 ")	<180 µm (<0.007087 ")
LRU2000H18-BE01T12A	2000 mm (78.74 ")	38 kg (83.776 lb)	425 µm (0.016732 ")	<220 µm (<0.008661 ")
LRU2000H18-E01T11A	2000 mm (78.74 ")	37 kg (81.571 lb)	425 µm (0.016732 ")	<220 µm (<0.008661 ")
LRU2000H25-BE01T12A	2000 mm (78.74 ")	43.7 kg (96.342 lb)	425 µm (0.016732 ")	<220 µm (<0.008661 ")
LRU2000H25-E01T11A	2000 mm (78.74 ")	42.7 kg (94.137 lb)	425 µm (0.016732 ")	<220 µm (<0.008661 ")

Part Number	Straightness of Travel	Pitch Error	Roll Error	Yaw Error
LRU0250H18-BE01T12A	<35 µm (<0.001378 ")	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)
LRU0250H18-E01T11A	<35 µm (<0.001378 ")	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)
LRU0250H25-BE01T12A	<35 µm (<0.001378 ")	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)
LRU0250H25-E01T11A	<35 µm (<0.001378 ")	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)	0.03 ° (0.523 mrad)
LRU0500H18-BE01T12A	<70 µm (<0.002756 ")	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)
LRU0500H18-E01T11A	<70 µm (<0.002756 ")	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)
LRU0500H25-BE01T12A	<70 µm (<0.002756 ")	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)
LRU0500H25-E01T11A	<70 µm (<0.002756 ")	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)	0.06 ° (1.047 mrad)
LRU1000H18-BE01T12A	<140 µm (<0.005512 ")	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)
LRU1000H18-E01T11A	<140 µm (<0.005512 ")	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)
LRU1000H25-BE01T12A	<140 µm (<0.005512 ")	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)
LRU1000H25-E01T11A	<140 µm (<0.005512 ")	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)	0.09 ° (1.57 mrad)

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LRU1500H18-BE01T12A	<210 µm (<0.008268 ")	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)
LRU1500H18-E01T11A	<210 µm (<0.008268 ")	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)
LRU1500H25-BE01T12A	<210 µm (<0.008268 ")	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)
LRU1500H25-E01T11A	<210 µm (<0.008268 ")	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)	0.11 ° (1.919 mrad)
LRU2000H18-BE01T12A	<280 µm (<0.011024 ")	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)
LRU2000H18-E01T11A	<280 µm (<0.011024 ")	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)
LRU2000H25-BE01T12A	<280 µm (<0.011024 ")	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)
LRU2000H25-E01T11A	<280 µm (<0.011024 ")	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)	0.12 ° (2.094 mrad)

Part Number	Maximum Moment (Pitch)	Maximum Moment (Roll)	Maximum Moment (Yaw)	Maximum Speed
LRU0250H18-BE01T12A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	350 mm/s (13.78 "/s)
LRU0250H18-E01T11A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	350 mm/s (13.78 "/s)
LRU0250H25-BE01T12A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	350 mm/s (13.78 "/s)
LRU0250H25-E01T11A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	350 mm/s (13.78 "/s)
LRU0500H18-BE01T12A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	330 mm/s (12.992 "/s)
LRU0500H18-E01T11A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	330 mm/s (12.992 "/s)
LRU0500H25-BE01T12A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	330 mm/s (12.992 "/s)
LRU0500H25-E01T11A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	330 mm/s (12.992 "/s)
LRU1000H18-BE01T12A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	300 mm/s (11.811 "/s)
LRU1000H18-E01T11A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	300 mm/s (11.811 "/s)

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LRU1000H25-BE01T12A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	300 mm/s (11.811 "/s)
LRU1000H25-E01T11A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	300 mm/s (11.811 "/s)
LRU1500H18-BE01T12A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	200 mm/s (7.874 "/s)
LRU1500H18-E01T11A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	200 mm/s (7.874 "/s)
LRU1500H25-BE01T12A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	200 mm/s (7.874 "/s)
LRU1500H25-E01T11A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	200 mm/s (7.874 "/s)
LRU2000H18-BE01T12A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	120 mm/s (4.724 "/s)
LRU2000H18-E01T11A	240 N·m (177.1 lb·ft)	240 N·m (177.12 lb·ft)	240 N·m (177.12 lb·ft)	120 mm/s (4.724 "/s)
LRU2000H25-BE01T12A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	120 mm/s (4.724 "/s)
LRU2000H25-E01T11A	360 N·m (265.7 lb·ft)	360 N·m (265.68 lb·ft)	360 N·m (265.68 lb·ft)	120 mm/s (4.724 "/s)

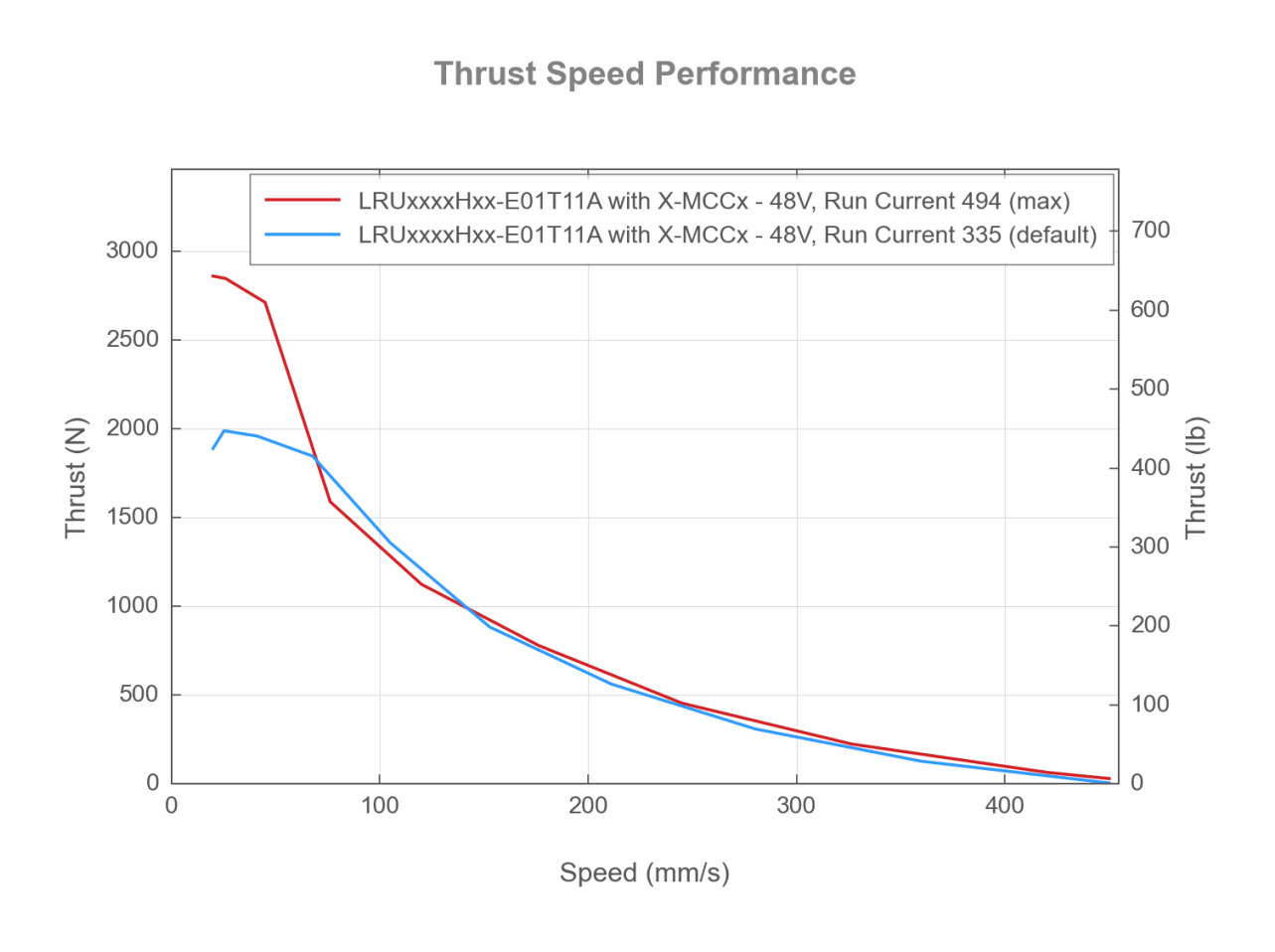
Part Number	Motor Connection
LRU0250H18-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU0250H18-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU0250H25-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU0250H25-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU0500H18-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU0500H18-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU0500H25-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU0500H25-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)

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LRU1000H18-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU1000H25-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU1000H25-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU1500H18-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU1500H18-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU1500H25-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU1500H25-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU2000H18-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU2000H18-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)
LRU2000H25-BE01T12A	M12 T-code (motor) and D-sub 26 (sensors)
LRU2000H25-E01T11A	M12 T-code (motor) and D-sub 15 (sensors)

LRU-E Series Charts

LRUxxxxHxx E01T11A Thrust Speed Performance



Contact

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