T-LSM Series Datasheet

- 25, 50, 100, 150 and 200 mm travel
- 10 kg load capacity
- Up to 29 mm/s speed and up to 55 N thrust
- Our most compact motorized stage with built-in controllers
- Built-in controller; daisy-chains data and power with other T-Series products

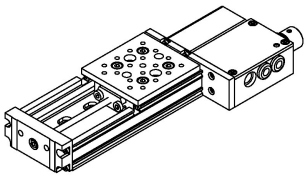
Zaber's T-LSM Series devices are computer-controlled motorized linear stages with high thrust and speed capabilities and a very compact size. They are stand-alone units requiring only a standard 15 V power supply. An optional knob provides smooth manual control at variable speeds in both directions for versatile operation even without a computer.

These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other T-Series products. The daisy-chain also shares power, making it possible for multiple T-Series products to share a single power supply. Convenient 6-pin mini din cables on the unit allow for direct interconnection between units in close proximity. For longer distances, a standard cable extension can be used.

At only 21 mm high, these miniature stages are excellent for applications where a small profile is required. The T-LSM's innovative design allows speeds up to 29 mm/s and loads up to 10 kg. Like all of Zaber's products, the T-LSM Series is designed to be 'plug and play' and very easy to set up and operate. If you are considering a multi-axis system, in the XY configuration, these stages make excellent microscope stages. Adding a X-JOY3 joystick controller allows manual control of both X and Y or XYZ axes from a single interface as well as allowing microscope stage positions to be saved and recalled at the touch of a button.

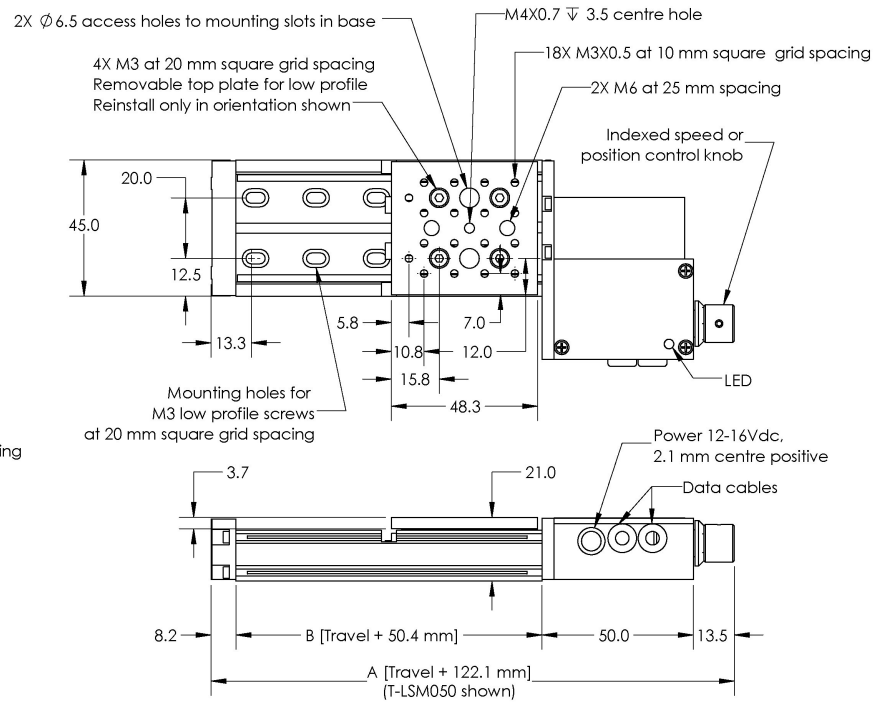
Drawings

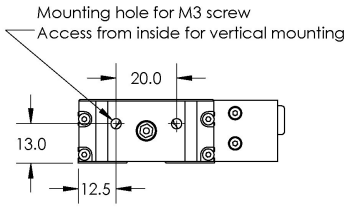
T-LSM Miniature Motorized Linear Stage
dimensions in mm



Model Number*	Travel	A	B
T-LSM025	25.4	147.5	75.8
T-LSM050	50.8	172.9	101.2
T-LSM100	101.6	223.7	152.0
T-LSM150	152.4	274.5	202.8
T-LSM200	203.2	325.3	253.6

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





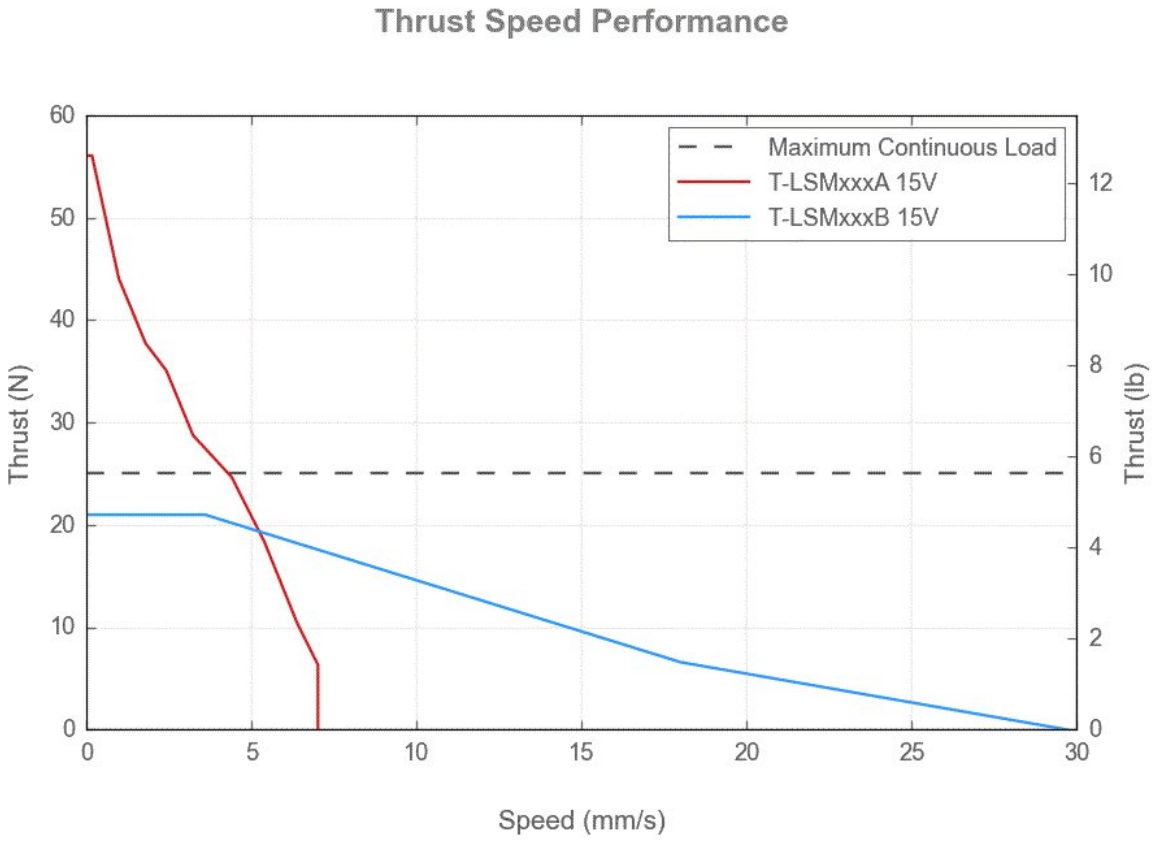
DWG-20-44 (R1)

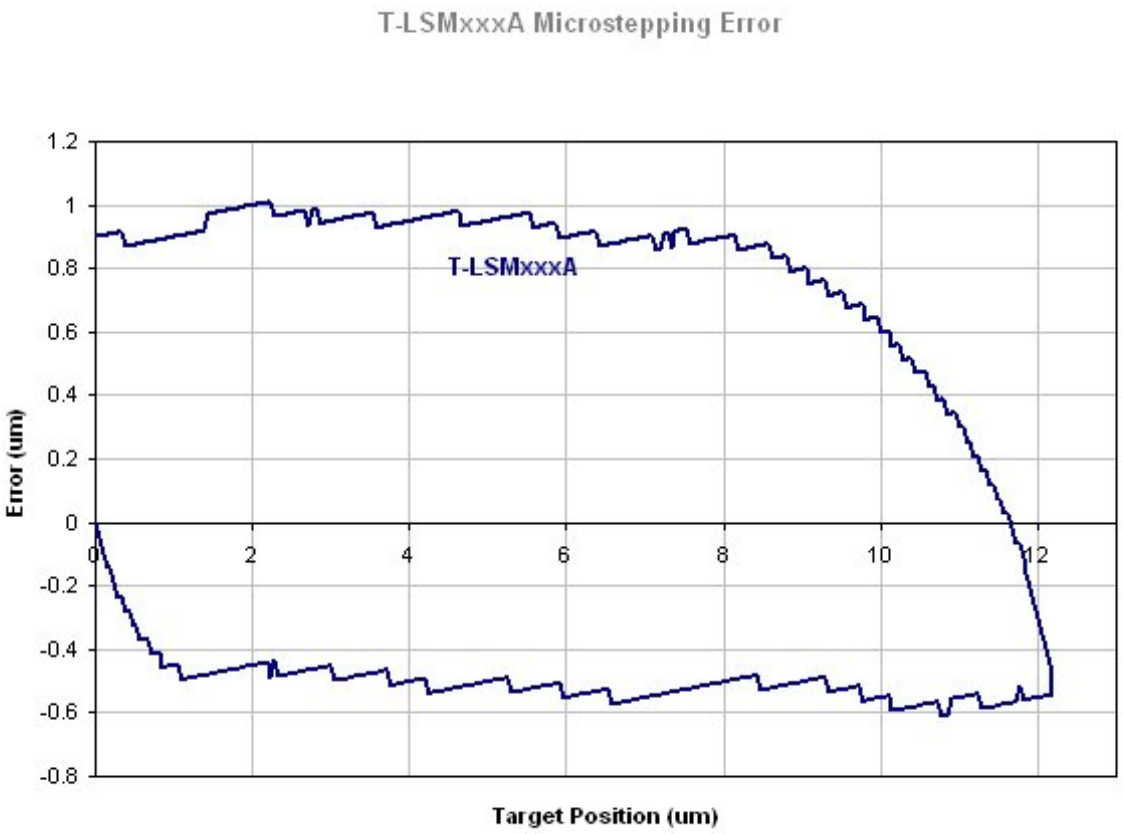
Specifications

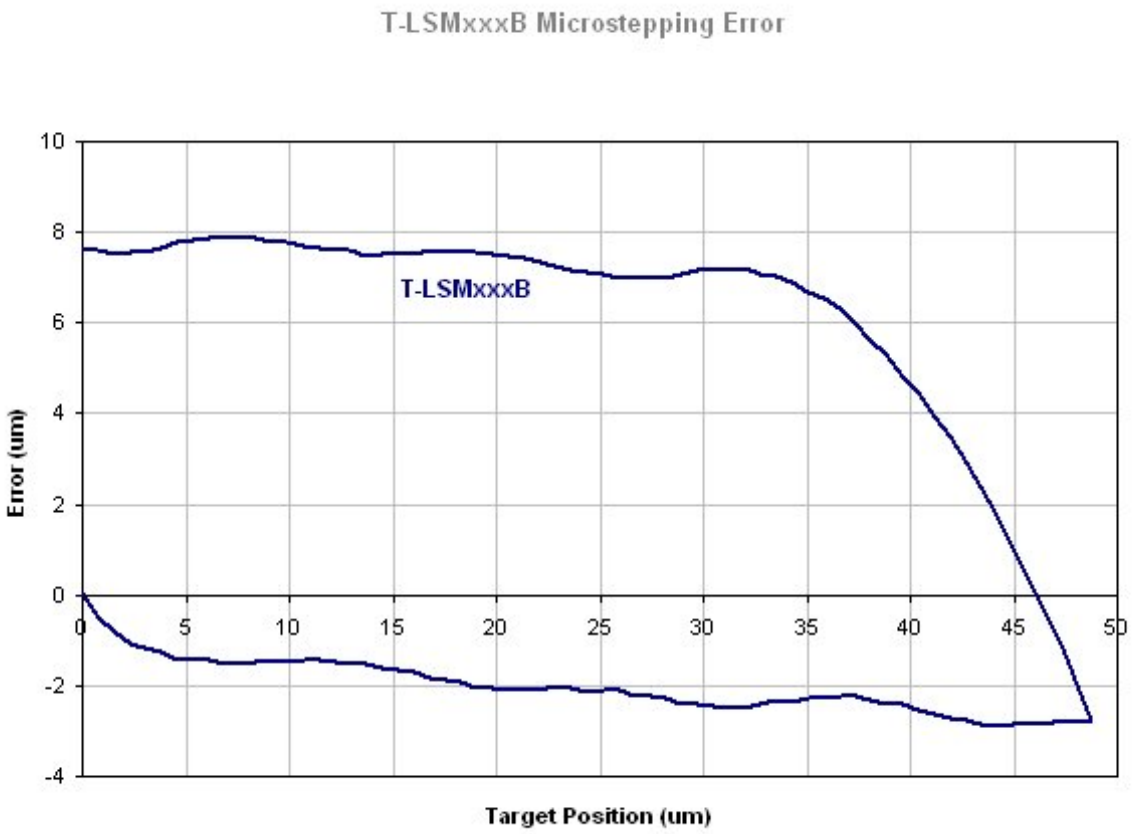
Specification	Value	Alternate Unit
Built-in Controller	Yes	
Microstep Size (Default Resolution)	0.047625 µm	
Travel Range	25.4 mm	1.000 "
Accuracy (unidirectional)	15 µm	0.000591 "
Repeatability	< 3 µm	< 0.000118 "
Backlash	< 12 µm	< 0.000472 "
Maximum Speed	7 mm/s	0.276 "/s
Minimum Speed	0.00022 mm/s	0.000009 "/s
Speed Resolution	0.00022 mm/s	0.000009 "/s
Encoder Type	None	
Peak Thrust	55 N	12.3 lb
Maximum Continuous Thrust	25 N	5.6 lb
Communication Interface	RS-232	
Communication Protocol	Zaber Binary	
Maximum Centered Load	100 N	22.4 lb
Maximum Cantilever Load	300 N-cm	424.8 oz-in
Guide Type	Needle roller bearing	
Vertical Runout	< 8 µm	< 0.000315 "
Horizontal Runout	< 12 µm	< 0.000472 "
Pitch	0.02 °	0.349 mrad
Roll	0.02 °	0.349 mrad
Yaw	0.03 °	0.524 mrad
Maximum Current Draw	500 mA	
Power Supply	12-16 VDC	
Power Plug	2.1 mm center positive	
Linear Motion Per Motor Rev	0.6096 mm	0.024 "
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Inductance	1.5 mH/phase	
Default Resolution	1/64 of a step	

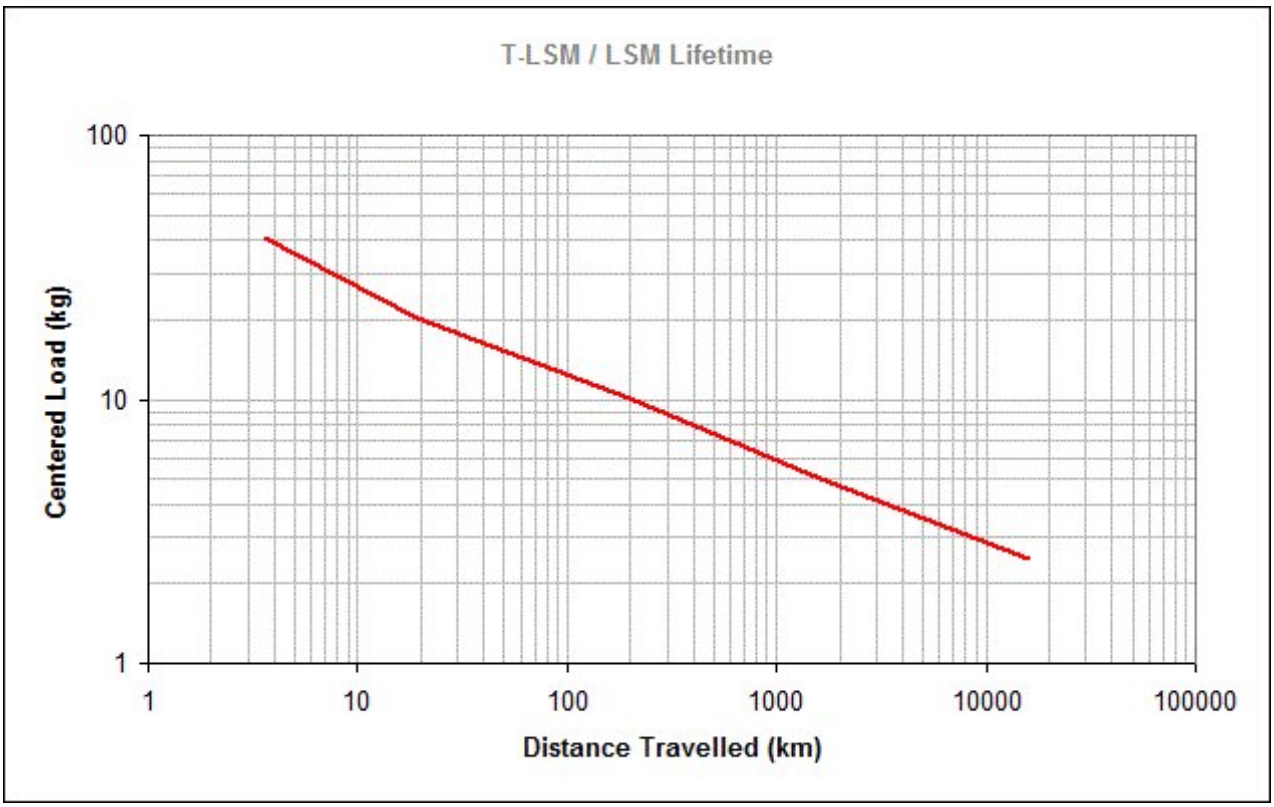
Specification	Value	Alternate Unit
Data Cable Connection	Minidin 6 pin M/F	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic hall sensor	
Manual Control	Yes	
Axes of Motion	1	
LED Indicators	Yes, Bi-Colour	
Mounting Interface	M3 and M6 threaded holes and M4 threaded center hole	
Vacuum Compatible	No	
Operating Temperature Range	0 to 50 °C	
Stage Parallelism	< 25 µm	< 0.000984 "
RoHS Compliant	Yes	
CE Compliant	Yes	
Weight	0.31 kg	0.683 lb

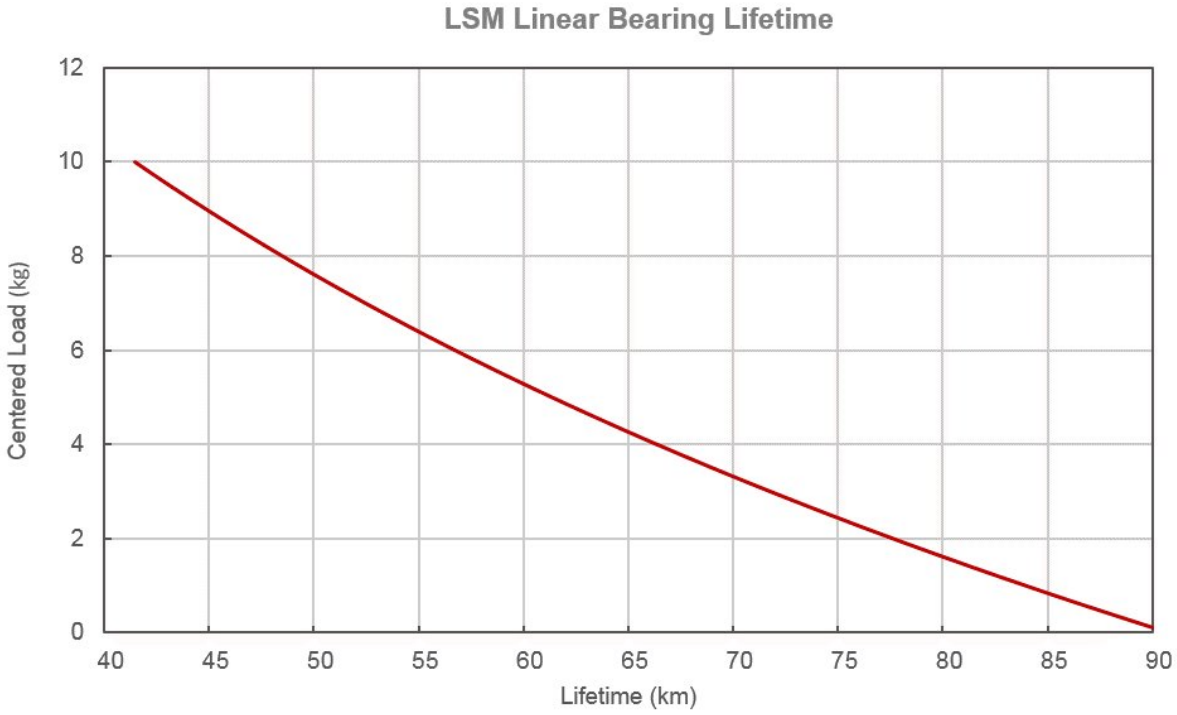
Charts


Thrust Speed Performance
Maximum Continuous Load
T-LSMxxxA 15V
T-LSMxxxB 15V
Thrust (N)
Thrust (lb)
Speed (mm/s)
0
10
20
30
40
50
60
0
2
4
6
8
10
12
0
5
10
15
20
25
30


T-LSMxxxA Microstepping Error
T-LSMxxxA
Error (um)
Target Position (um)
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
2
4
6
8
10
12


T-LSMxxxB Microstepping Error
T-LSMxxxB
Error (um)
Target Position (um)
10
8
6
4
2
0
-2
-4
0
5
10
15
20
25
30
35
40
45
50


T-LSM / LSM Lifetime
Centered Load (kg)
100
10
1
1
10
100
1000
10000
100000
Distance Travelled (km)


LSM Linear Bearing Lifetime
Centered Load (kg)
12
10
8
6
4
2
0
40
45
50
55
60
65
70
75
80
85
90
Lifetime (km)