X-LSM050A-SV1 Datasheet

- Vacuum compatible to 10-3 Torr
- 25, 50, 100, 150, 200 mm travel
- Up to 100 mm/s speed and up to 35 N thrust
- 10 kg load capacity
- Built-in controller; daisy-chains with other Zaber products
- Only 4 feedthrough wires required to control all units in the daisy-chain via serial port (with an X-PIB adaptor)
- Custom versions available

X-LSM-SV1 Series Overview

For more information about the basics of a vacuum system and considerations to keep in mind when gathering requirements for your application, read our technical article, "Motion Device Design Considerations for Vacuum Applications".

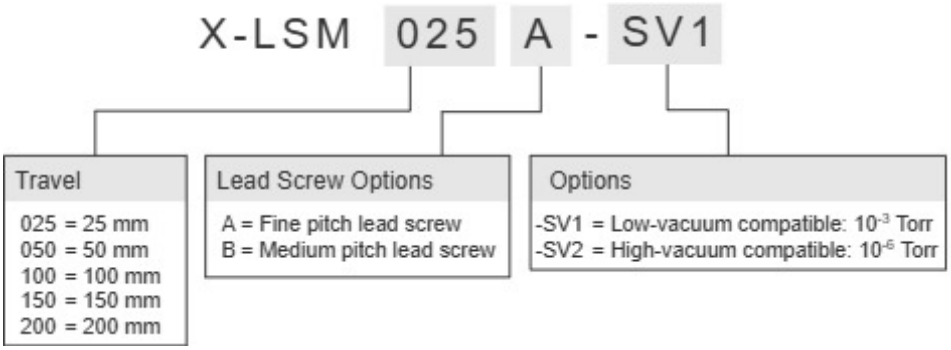
Zaber's X-LSM-SV1 Series devices are low-vacuum compatible, computer-controlled, motorized linear stages with high thrust and speed capabilities, and a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

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.

At only 21 mm high, these miniature stages are excellent for applications where a small profile is required. The X-LSM-SV1 is designed with vacuum compatible materials to minimize outgassing and allow for faster pump down times. Like all of Zaber's products, the X-LSM-SV1 Series is designed to be 'plug and play' and very easy to set up and operate.

For more information visit: https://www.zaber.com/products/vacuum-compatible-stages/X-LSM-SV1

X-LSM-SV1 Series Part Numbering & Options



X-LSM050A-SV1 Drawings

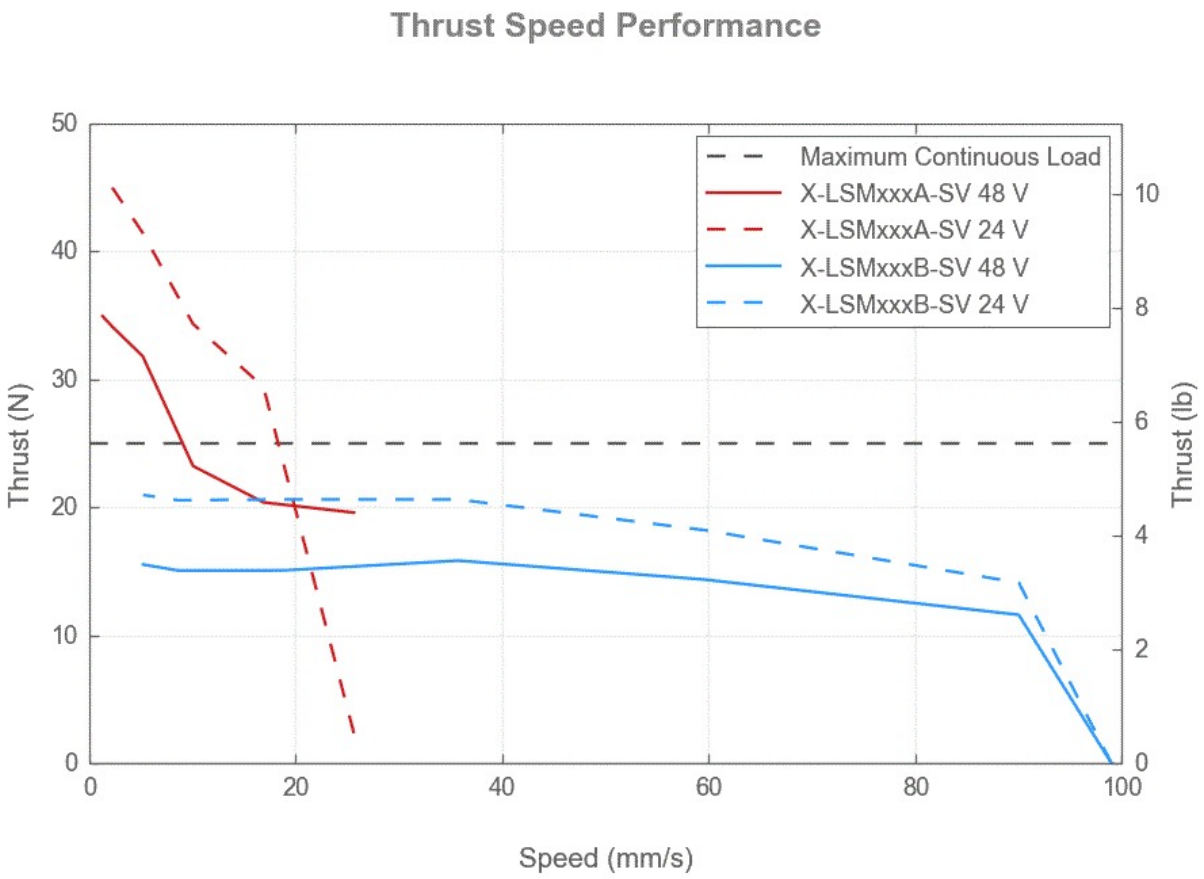
• X-LSM-SV.png (Drawing for the X-LSM-SV)

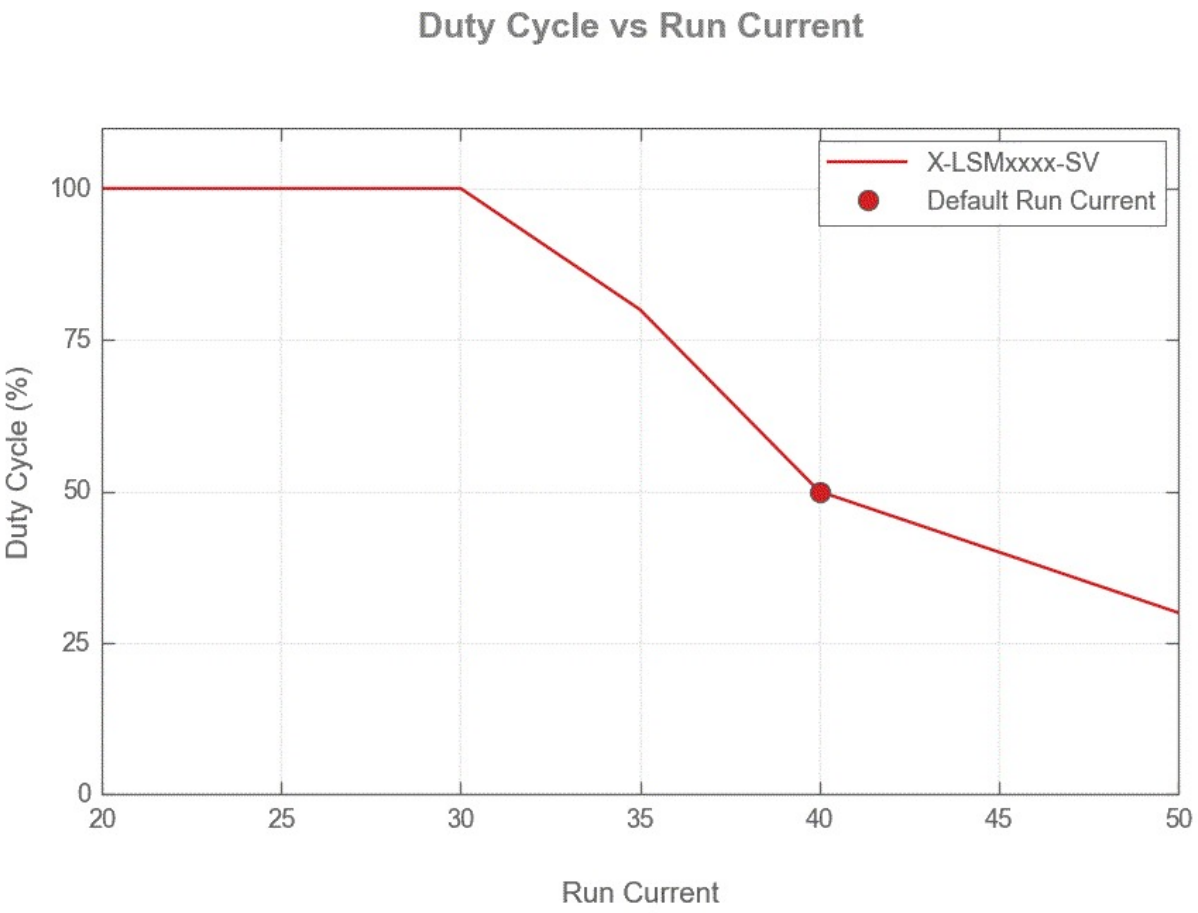
X-LSM050A-SV1 Specifications

Microstep Size (Default Resolution)	**0.047625 µm**
Built-in Controller	Yes
Travel Range	50.8 mm (2.000")
Accuracy (unidirectional)	20 µm (0.000787")
Repeatability	< 3 µm (< 0.000118")
Backlash	< 12 µm (< 0.000472")
Maximum Speed	24 mm/s (0.945"/s)
Minimum Speed	0.000029 mm/s (0.000001"/s)
Speed Resolution	0.000029 mm/s (0.000001"/s)
Encoder Type	No
Peak Thrust	35 N (7.8 lb)
Maximum Continuous Thrust	25 N (5.6 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Teflon flying leads with M8 4 pin M/F
Maximum Centered Load	100 N (22.4 lb)
Maximum Moment (Roll)	300 N-cm (424.8 oz-in)
Maximum Moment (Pitch)	300 N-cm (424.8 oz-in)
Maximum Moment (Yaw)	300 N-cm (424.8 oz-in)
Guide Type	Needle roller bearing
Vertical Runout	< 11 µm (< 0.000433")
Horizontal Runout	< 14 µm (< 0.000551")
Pitch	0.03° (0.523 mrad)
Roll	0.03° (0.523 mrad)
Yaw	0.03° (0.523 mrad)
Stiffness in Pitch	55 N-m/° (317 µrad/N-m)
Stiffness in Roll	52.5 N-m/° (332 µrad/N-m)
Stiffness in Yaw	85 N-m/° (205 µrad/N-m)

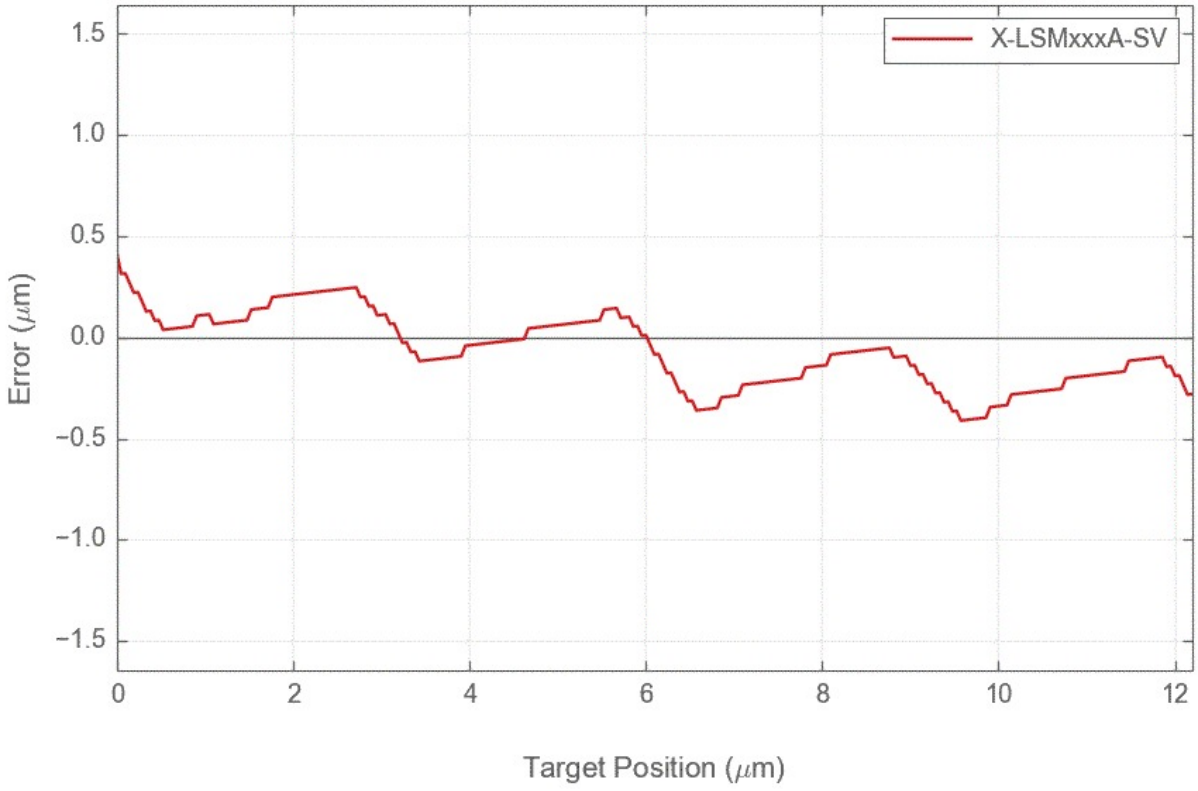
Microstep Size (Default Resolution)	**0.047625 µm**
Power Supply	24-48 VDC
Power Plug	None, use X-PIB
Maximum Current Draw	350 mA
Linear Motion Per Motor Rev	0.6096 mm (0.024")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	800 mA/phase
Inductance	3.5 mH/phase
Default Resolution	1/64 of a step
Mechanical Drive System	Precision lead screw
Limit or Home Sensing	Magnetic hall sensor
Manual Control	No
Axes of Motion	1
LED Indicators	Yes
Mounting Interface	M3 and M6 threaded holes and M4 threaded center hole
Stage Parallelism	< 25 µm (< 0.000984")
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	Low vacuum (10-3 Torr)
Weight	0.40 kg (0.882 lb)

X-LSM-SV1 Series Charts

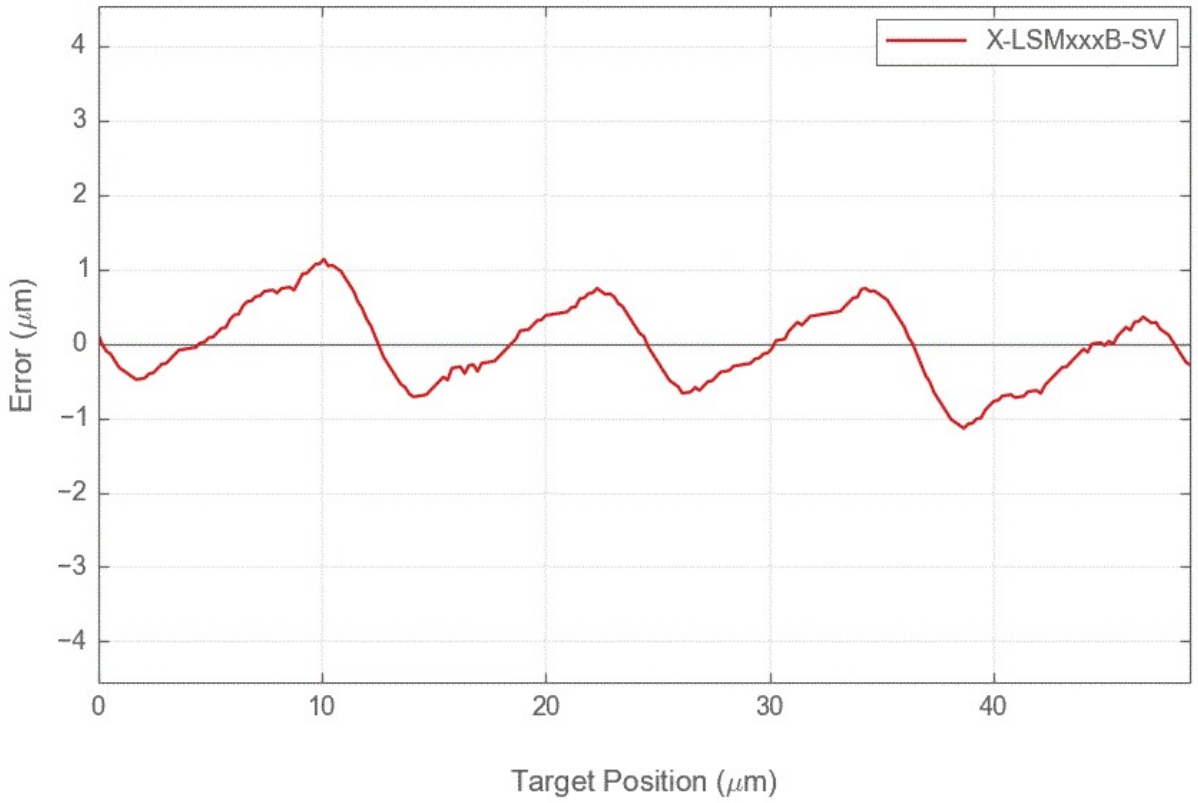



Duty Cycle vs Run Current
X-LSMxxxx-SV
Default Run Current
Duty Cycle (%)
100
75
50
25
0
20
25
30
35
40
45
50
Run Current

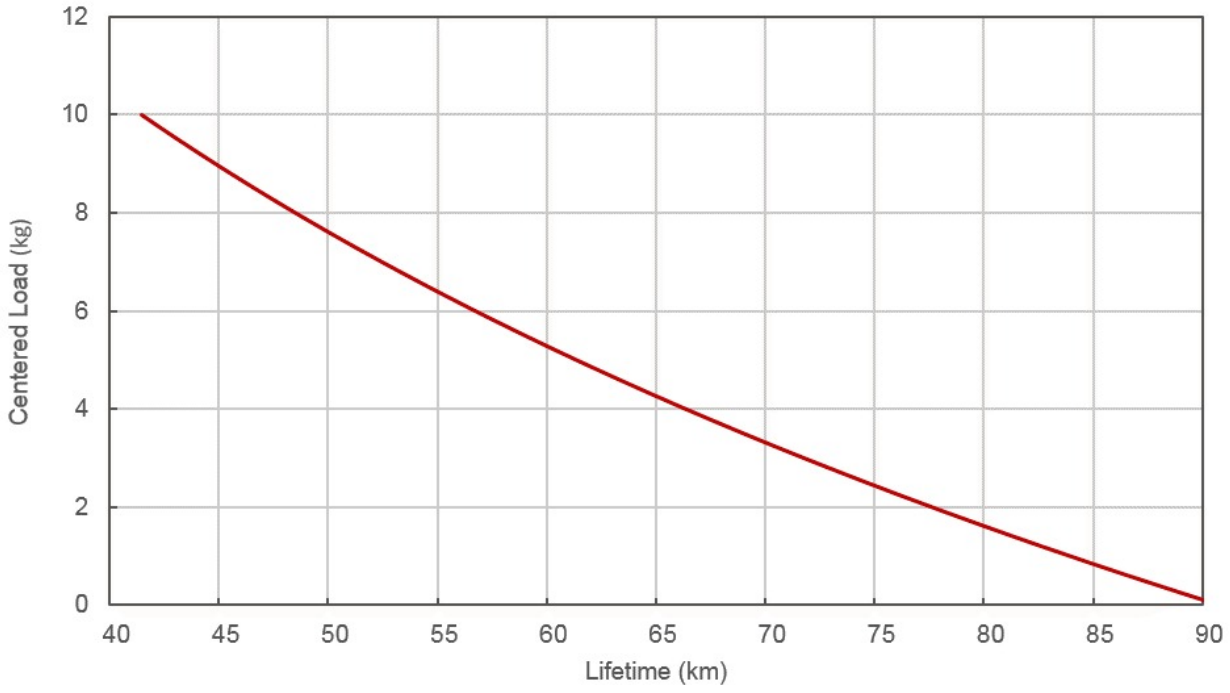
Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSM Linear Bearing Lifetime



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