

M3-LS-U2-10 Linear Smart Stage All-In-One Motion Module

- **Smart Stage:** Embedded controller, no separate electronics
Operate directly using I²C or SPI ASCII commands -or-
Evaluate using USB adapter to PC with Pathway™ Software
- **Cost-effective, long-life:** Suitable for high-volume production
- **Small size:** 32 x 32 x 10 mm
- **High resolution:** 0.5 µm with absolute encoding
- **High speed:** 35 mm/s
- **Long stroke:** 10 mm
- **Power:** 5 V DC input, ~2.3 W when moving, zero to hold
- **High repeatability** with precision linear guidance

Precision, stability and ease of use for high volume product applications

The M3-LS-U2 Linear Smart Stage is a direct-drive, high-precision micro stage built for fast, simple integration into miniature OEM systems. All drive and control functions are embedded into the compact stage assembly – **no external electronics** are needed!

The stage drive is a UTAF2 piezo motor combined with a 0.5 µm resolution sensor for precise, repeatable positioning of optics, probes, sensors and more. The piezo motor operates at 5 VDC. No high voltage boost is needed. **Absolute encoding** removes the need to home the stage

Specifications (PRELIMINARY)

M3-LS-U2-10 Linear Smart Stage specifications

MODEL	M3-LS-U2
Stroke	10 mm
Dimensions	32 x 32 x 10 mm <i>including controller</i>
Mass of Smart Stage	15 grams <i>including controller</i>
Moving mass (vertical) (note 1)	≤ 20 grams recommended
Moving mass (horizontal) (note 1)	≤ 40 grams (offset < 10 mm) recommended
Force (operating)	0.2 N
Speed (at operating force)	35 mm/sec
Closed-loop performance	
Resolution	0.5 μm with absolute encoding
Bi-directional repeatability	± 5 μm
Accuracy	± 20 μm
Input Power	~ 2.3 W peak at max speed and force
Input Voltage	5 V DC (4.75 V to 5.5 V)
Mechanical stage	
Static parallelism	< 30 μm
Runout	< 10 μm
Pitch and yaw	< 1 mrad
Absolute maximum loads	See Chart
Environment	
Relative humidity	<

