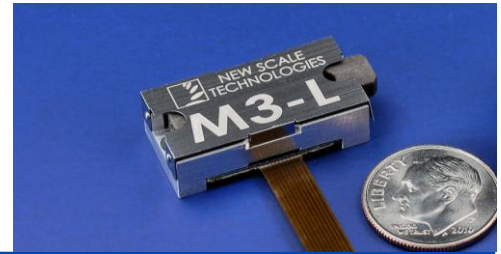


M3-L

Precision Linear Motion Modules



FEATURES

- **Small**
 - Complete, closed-loop controls in a size less than 27.5 x 13 x 7.5 mm
- **Precise**
 - 0.5 μm resolution
 - Many millimeters of travel
- **Integrated M3 Motion Control Platform**
 - Complete closed-loop motion control system
 - Simple serial commands
 - Rapidly customizable
 - Prototypes designed to your application
- **Low Voltage / Low Power**
 - 3.3 Volt input
 - <500 mW
 - Holds position when power is off

APPLICATIONS

- High Resolution Tuning Systems
- Hand-held Instrumentation
- Precision Photonics
- Targeting System
- UAV/UGV Controls and Optics
- Miniature Camera Systems
- Micro Surgical Devices
- Biomedical Inspection and Sampling

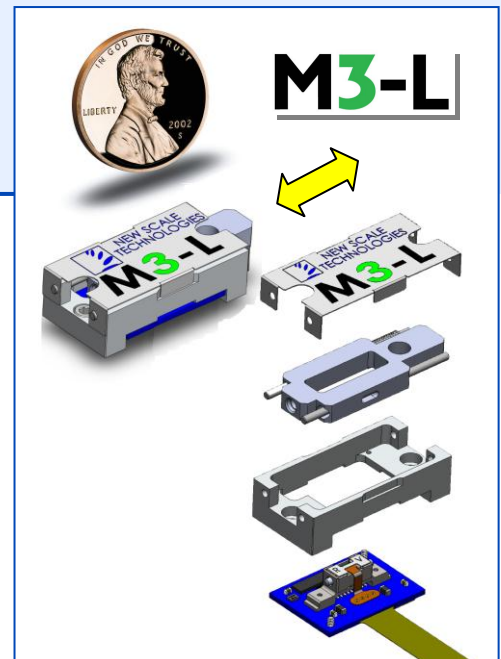
High resolution M3-L linear motion modules

The **M3-L** is the world's smallest, high-resolution, low-voltage, closed-loop linear motion system. **M3-L** provides 0.5 micron position resolution at less than $\frac{1}{2}$ the size and $\frac{1}{4}$ the weight of comparable positioning systems. Typical **M3-L** travel range is up to 6 mm, with custom variations offering up to 20 mm travel. Our world-class micro-mechanics engineering team can also provide expertise in your application-specific, single or multi-axis design, providing unrivalled precision in the smallest possible spaces.

The **M3-L** is ideal for precision automated control of variable inductors and trimmer capacitors in RF and microwave tuning systems, and of optical elements in photonics tuning systems. It provides reliable performance in a wide range of optical, handheld and precision instrumentation for defense, security and biomedical products.

The M3 platform

M3-L module is built on New Scale's **M3 Micro-Mechatronic Module** technology platform: the smallest, highest resolution and most repeatable closed-loop micro-mechatronic system available – all in an easily integrated, customizable package. The platform includes a patented **SQUIGGLE[®] RV** piezo micro motor, an NSD-2101 drive ASIC, an NSE-5310 high-resolution magnetic position sensor, and a microprocessor. These combine to create the world's smallest closed-loop linear motion system, with performance comparable to much larger systems. The modules operate on 3.3V input and accept simple high-level motion commands via standard serial interface.



The **M3-L** module is a drop-in, sub-micron linear positioning solution that solves your most demanding motion control requirements. These modules are easily configured for single or complex multi-axis systems.



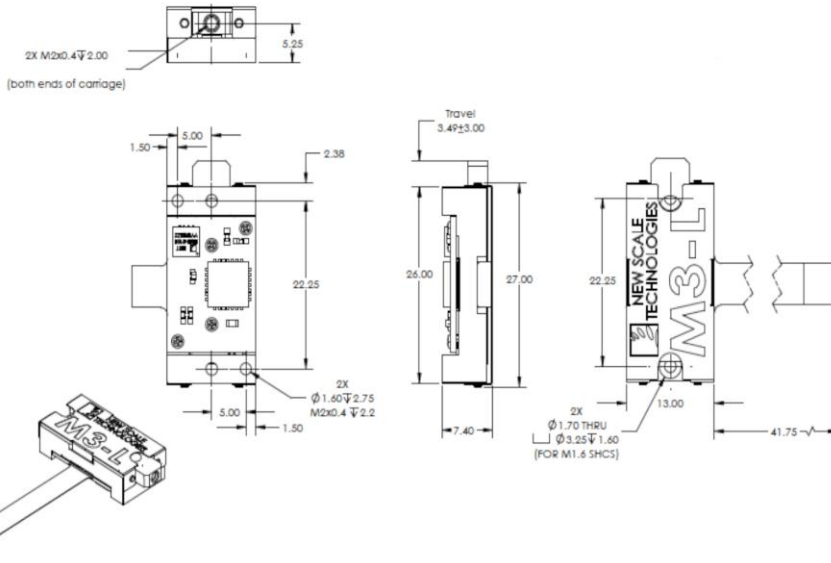
SQUIGGLE RV motor and driver inside every **M3-L** module is the world's smallest linear motor system.

M3-L Developer's Kits

The **M3-L Developer's Kits** provide a convenient platform for initial evaluation and integration into your prototype platform. The kit includes an **M3-L** linear positioning module and a USB stick to convert computer commands directly from New Scale Pathway™ PC software to the linear module. Kits are available pre-configured to accept I²C or SPI serial commands. Standard tips included are bullet nose for push and eye end for pulling. Bi-directional, push/pull systems as well as custom tips can also be custom configured for your specific needs*.



The **M3-L Developer's Kits** allow OEMs to rapidly integrate miniature, high resolution linear motion controls up to 6 mm total travel, and include one M3-L module, USB control adapter and New Scale Pathway™ software.



Ordering information

Order a developer's kit by calling New Scale Sales at (585) 924-4450 or find your nearest distributor at <http://www.newscaletech.com/contactus.html>

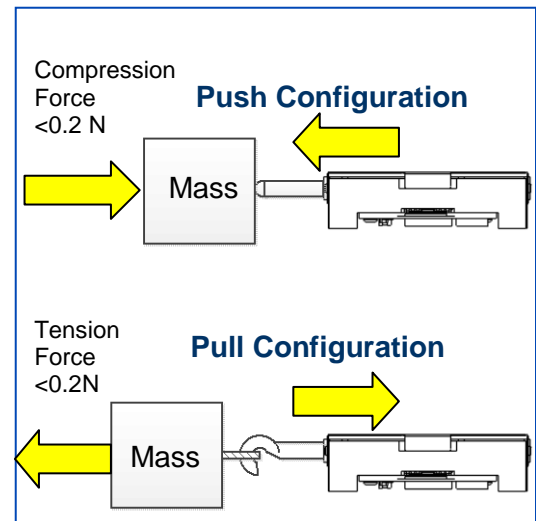
Integration information

Additional integration information including an integration guide and CAD files are available from the downloads section of our website. Please register at http://www.newscaletech.com/register_for_download.php

*Customization

For bi-directional push/pull designs or other customizations, please complete module specification worksheet at http://www.newscaletech.com/contact_M3-L-RFP.aspx

Part Number	Description
DK-M3L -1.8-TRK-6.0-C	M3-L Linear Micro-mechatronic developer's kit, Includes M3-L module, USB adapter, software and cables, push and pull ends. I ² C Configuration.
DK-M3L -1.8-TRK-6.0-S	M3-L Linear Micro-mechatronic developer's kit, Includes M3-L module, USB adapter, software and cables, push and pull ends. SPI Configuration.



M3-L Developer's Kit Specifications	
Travel Range	6 mm
Housing Dimensions	27.5 x 13 x 7.5 mm
Speed	5 mm/s @ 0.15 N load (typical)
Resolution	0.5 μm
Linear Accuracy	± 25 μm
Maximum Load (Push Pull Stall Force with ± 1 degree axial alignment)	<0.20 Newtons
Maximum Recommended Mass	5 grams
Input Voltage	3.1 - 3.6 V
Input Power**	< 0.5 Watts (5mm/s at 0.15 Newtons) < 0.2 Watts Quiescent
Weight (without tip)	4.5 grams

** Power depends on input voltage, speed & load.