



## Greetings!

Welcome to New Scale News, your monthly update on embedded motion modules and system solutions. This month we introduce a new micromanipulator system for research automation, developed in cooperation with our customer at a leading research institute.

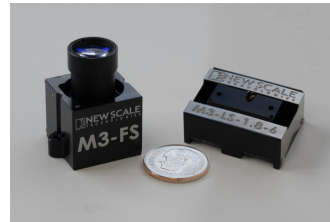
## Embedded motion boosts productivity and precision in neuroscience research

New Scale's new Multi-Probe Micromanipulator (MPM) System lets neuroscientists quickly and accurately position multiple silicon probes, in the smallest possible space, for in-vivo neural recording.

The MPM System incorporates five or more modular probe positioning assemblies, each combining four axes of manual pre-adjustment with three axes of motorized closed-loop micro-positioning.

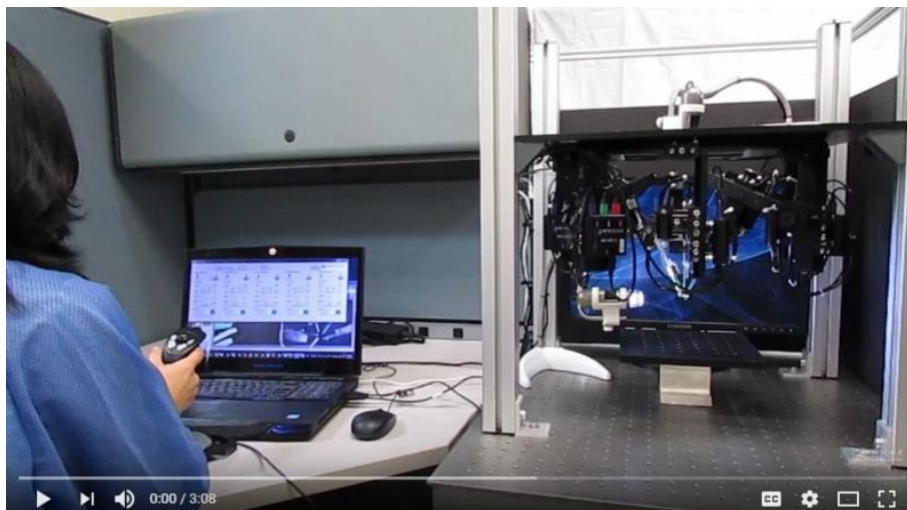
With the embedded motion modules, up to 15 axes of motorized closed-loop positioning are independently controlled from one intuitive PC application.

A position sensor and controller in each module accepts a variety of inputs including the point-and-click user interface, programmed scripts or optional joystick control.



For more than a decade New Scale has been delivering M3 MODULES to customers who manufacture instruments and devices. With a unique all-in-one design and embedded controller, M3 focus modules, smart stages and beam steering systems are easy to integrate and reduce overall system size and cost. New Scale's embedded motion modules are ideal building blocks for creating flexible, simple-to-install, and easy-to-operate multi-axis systems.

### Watch: the Multi-Probe Micromanipulator System (3:08)



Five M3-LS Smart Stage 3-axis assemblies, each mounted on an arm for manual pre-adjustment, are independently controlled from one PC screen.

## Case Study

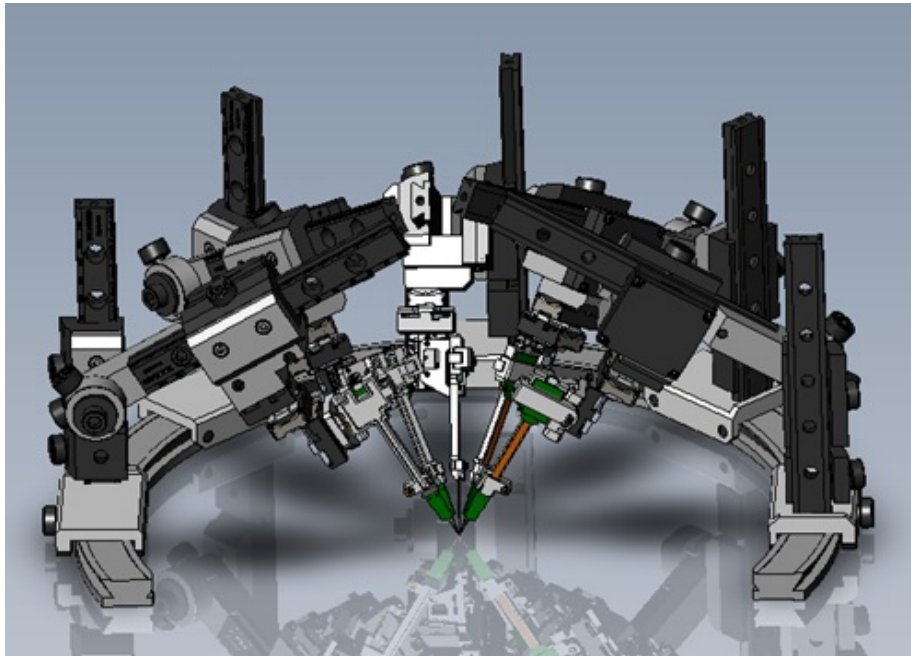
# The Multi-Probe Micromanipulator System: Created *with* researchers, *for* researchers

In 2016 New Scale began a formal collaboration with Dr. Josh Siegle of the Allen Institute to create and commercialize a Multi-Probe Micromanipulator (MPM) system for neuroscience research.

Dr. Siegle had already successfully collected data using New Scale's **M3-LS-1.8-6 Smart Stages** in his multi-probe experiments. This work validated the performance of the three-axis M3-LS stage assemblies, in a three-probe experiment. It also highlighted opportunities to improve the flexibility, speed of installation, and ease of use.

In only a few months, New Scale's engineering team worked side-by-side with Allen Institute to create a multi-probe system solution that meets the needs of a broader research community doing acute in-vivo recording.

This community is working with the newest generation of silicon probes fabricated using microelectronic manufacturing (integrated circuit) processes. The result is tiny needle-shape tips, with tens to hundreds of recording channels, that must be precisely inserted in the brain of test animals.



The compact M3-LS Smart Stages have built-in controllers, making it easy to combine all 15 motorized axes into a single USB connection.

The MPM is the first micromanipulator system optimized for insertion of silicon probes, and the first to enable independent control of multiple probes simultaneously. These valuable features enhance research productivity and data collection:

- A fully-engineered and complete micromanipulator solution that is easy to install and operate
- All mechanical parts, hardware, tools and instructions
- Clearly marked cables and modular electrical connections to the PC
- 15 axes of control from one intuitive PC application
- Ergonomic pre-alignment axes that allow fast multi-probe installation with reduced risk of probe damage

Ongoing collaboration with the Allen Institute continues to yield new ideas that New Scale is quickly transforming into new product features. The MPM can be ordered in an upright or inverted configuration to accommodate different animal task environments. An optional joystick control is now available, and new mounting brackets are being created for a diverse and growing list of commercial

silicon probes.



A New Scale Pathway software application, customized for the MPM system, controls all five probes - 15 axes of motion - from one screen. Joystick control is optional.

As in all research applications, less time spent positioning the recording equipment means more time available to record data.

"Many micromanipulation tasks in research can benefit from increased automation, but existing tools are often not suited to the latest techniques," said David Henderson, CEO of New Scale Technologies. "Most researchers prefer to spend their time making measurements, not creating custom instruments. We are extremely pleased to fill that role, in partnership with leading researchers in their field."

Learn more

- [About the Multi-Probe Manipulator](#)
- [About the M3-LS Linear Smart Stage](#)
- [About custom engineering with New Scale Technologies](#)

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## See the MPM at Neuroscience 2016

Neuroscience 2016

Nov. 12-16

San Diego, CA

Booth 3504



The Society for Neuroscience's 46th annual meeting is the premier venue for neuroscientists to present emerging science, learn from experts, collaborate with peers, explore new tools and technologies, and advance careers. [Learn more or register at sfn.org](#)

Schedule a meeting

Stop by our booth, or [contact us to schedule a private meeting](#) in Rochester or San Diego.



## About Us

New Scale Technologies develops and manufactures the smallest and most precise closed-loop positioning solutions available. Our "all-in-one" M3 Smart Modules with built-in controllers are easy to integrate into smaller, smarter imaging systems, scientific instruments, medical devices, aerospace and defense systems and more. [Contact us.](#)



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