Tiny beam steering demo captivates booth visitors | View this issue in a browser with images

New Scale News

NEW SCALE TECHNOLOGIES

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Welcome to New Scale News, your monthly update on micro-mechatronic systems and applications.

This month we're back from Photonics West and BiOS and excited about the energy in the industry. 22,400 people and 1,345 exhibitors attended and our booth was always busy.

SPIE. PHOTONICS WEST BIOS

In case you missed us or could not attend here's a quick look at our most popular demo. Please **email us** if you have questions about this or any of our **other products** !

Beam steering demo captivates visitors

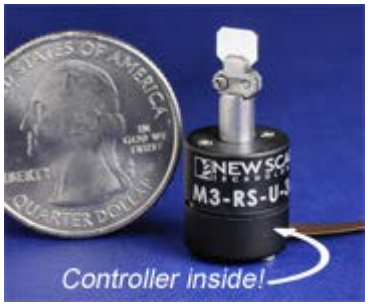
The easy, "all-in-one" solution draws a big crowd

The most popular demo in our Photonics West booth was the two-axis beam steering system with built-in controller. **Check out the one-minute video**.

FAQs on beam steering demo

Here are a few of the questions that we answered most often at Photonics West.

Q. Where is the controller?
A. Inside the module! This is not what people expect and sets a new standard for the industry. No more separate boxes or big green printed circuit boards! With the M3-RS-U there is *no external controller.* It's all inside. **Learn more about the M3 Smart Module design platform**



Q. How is this better than a galvo system?
A. There are several advantages to the M3-RS-U system:

- It is smaller - the stage itself is smaller, AND we've eliminated the external controller. This is a big advantage for people trying to create smaller, handheld or portable systems.
- It has no jitter and holds absolute position with power off. This is a big advantage when you want to move a beam to a fixed point and hold it there.
- It has all-in-one simplicity. See the previous question!

Q. Can the stage turn more than 20 degrees?
A. Sure! The stage itself can do continuous 360° rotation. The beam steering kit does 20° since that's the practical limit for beam reflection angles with mirrors, and also prevents the two mirrors from colliding.

Q. Can the stage move a greater mass?
A. Yes. Let us know what you need, and we'll let you know if it's feasible.

Q. What software do I need?
A. You don't need any special software. The developer's kit includes our powerful New Scale Pathway software to get you started. This PC-based GUI receives your commands and communicates with the stage via a USB adapter. For embedded systems your processor and firmware communicate directly with the stage. Which leads to the next question...

Q. How do I send commands to the module?
A. Direct digital or analog servo input. You can use it as a SPI slave, use I2C or UART channels, or use the analog position servo. We provide a reference guide that explains how to connect, set up and communicate with the module through any of these methods - in addition to the USB adapter and included software mentioned in the previous question.

Q. Can I get better than 0.025 degrees resolution?
A. Yes. Closed-loop resolution is limited by the internal position sensor, not the motor. You can achieve better resolution by commanding motor sub-steps (open-loop resolution). Measuring the magnitude of the sub-steps requires an external sensor with better resolution. The typical open-loop resolution is less than 0.0057 degrees (100 microradians). **Consult this application note for more information**.

Q. What is the repeatability?
A. The closed-loop repeatability of the mirror position is +/- 2 encoder counts or +/- 0.05 degrees.

Q. How much does a Developer's Kit cost?
A. Beam steering kits are $3,450 for a two-axis kit with mirrors and laser, and $1,980 for a one-axis kit with mirror. M3-RS-U Rotary Smart Stages are also sold separately with volume pricing available.

Watch the detailed dev kit video (3:32)

Q. Where can I buy one?
A. Developer's Kits are currently available from New Scale - call (595) 924-4450 or email **nstsales@newscaletech.com**. Kits will be available from DigiKey and Mouser in Q2 2016.

Q. Where can I get more information?
A. **Visit the product web page** or download the following data sheets with drawings:

- **Two-axis beam steering kit** (PDF)
- **One-axis mirror positioning kit** (PDF)
- **M3-RS-U rotary stage** (PDF)

Did we answer YOUR question? **Let us know!**

About Us

New Scale Technologies develops small, precise and smart motion systems for critical adjustments of optics, and many other micro positioning applications. Our simple and elegant solutions deliver best-in-class performance in handheld, portable and mobile instruments for medical, scientific and industrial applications. Our customers benefit from

complete, "all-in-one" motion solutions that are tailored to their unique requirements and easily integrated into their next-generation instruments. **Contact us.**

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