

New Scale News

Your update on ingeniously small motion systems

June 2010

Greetings!

Welcome to this issue of New Scale News, your quarterly update on miniature motion technology and applications.

This month we highlight our new M3-F customizable focus module. It adds precision lens motion to the smallest OEM cameras in medical, military and many other applications.

As always, please [contact us](#) with questions or comments.

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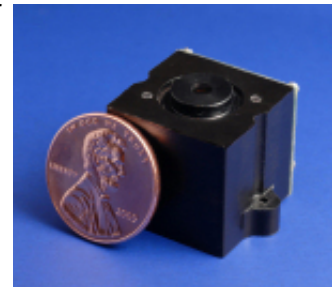
~ M3-F focus module provides precise lens motion in a fully integrated package for the smallest OEM cameras

This month we're excited to announce our custom M3-F focus modules for miniature OEM cameras. This module adds performance to:

- industrial laptops and inspection cameras.
- hand-held devices such as IR cameras, hand-held computers, biometric sensors and PDAs.
- targeting, surveillance and security systems
- medical diagnostic and imaging devices.

At only 20 x 22 x 18.5 mm - about the same dimensions as a fixed lens holder - the M3-F focus module improves image quality over a wide range of focus distances without adding volume or significantly increasing power usage.

All lens motion functions - including actuator, position sensor, guide mechanism, drive and control electronics and software - are fully integrated in the M3-F module. This extreme level of miniaturization and integration highlights New Scale's micro-mechatronics capabilities.



M3-F focus module: precise lens motion in a fully integrated package for the smallest OEM cameras.



Video: [What's in the M3-F?](#)

M3-F modules are designed for ease of integration. The microprocessor accepts PID closed-loop system tuning commands, as well as high-level input commands such as "move specified distance," via standard serial interface (I2C, SPI or USART). No external controller is needed.

Modules provide millimeters of lens motion with 0.5 micrometer position resolution, better than 30 micrometer accuracy, and better than +/-0.5 degree angular alignment.

Based on New Scale's M3 micro-mechatronics module design platform, the M3-F modules are quickly customized to OEM specifications for lens (from M8 to M12 size, up to 5 grams mass), image sensor,

focal length, board camera PCB mounting pattern, and other requirements.

M3-F modules accept 3.3V input voltage for battery-powered operation. They draw approximately 470 mW of power while moving and 130 mW quiescent. Weight is approximately 6 grams without lens.

- **M3-F production modules** are customized to OEM specifications. Pricing and delivery depends on specifications and volume. Custom prototypes are typically available 8 to 10 weeks after acceptance of proposal. [Submit a request for proposal using our online worksheet.](#)
- **M3-F Developer's Kits** include a "typical" M3-F focus module along with a USB key and New Scale Pathway PC software. You can use the graphical user interface to drive the lens holder and evaluate its motion. (Lens and image sensor are not included in the kit.) For more information, including a lens and image sensor compatibility checklist, [visit the M3-F information page.](#)

Developer's Kits are \$750 and will be available in July 2010. To pre-order your kit call +1 (585) 924-4450 x2 or email sales@newscaletech.com.

~ Reduced-voltage piezo motor breakthrough creates options for low-power devices

In the May issue of *Design News*, contributing editor Al Presher and New Scale product manager Ralph Weber explain how dramatic reductions in voltage and power requirements are making tiny piezo motors and drive systems an interesting option for portable, low-power devices.

By eliminating the need for the high voltage normally associated with piezo systems, the new piezo motor design enables miniature motion systems that operate on a single 3V battery without using voltage boost circuits.

"This is a breakthrough because using multi-layer ceramic technology, the system doesn't need 40 volts to operate," Weber says. "There is no aspect of the system which is high voltage anymore, and our approach also enables the drive chip and control circuitry to be reduced to very small sizes."

- [Read the Design News article](#)



~ New Scale to develop non-inductive rotary actuator for U.S. Navy



New Scale Technologies has been awarded a Phase I Small Business Innovation Research (SBIR) contract from the U.S. Navy to develop a non-inductive rotary actuator system that will move flight control surfaces in miniature precision guided munitions.

The closed-loop actuator module incorporates piezoelectric micro motors and control electronics in a one-inch-cubed volume. The actuator system generates no magnetic fields, and can therefore be located in close proximity to navigation systems that use the earth's magnetic field to measure orientation and roll rate.

The combination of small size and non-inductive operation enables further miniaturization of guided munitions systems.

- [Read more about this actuator at newscaletech.com](#)

~ Meet us at Actuator 2010 June 14-16 in Bremen, Germany

ACTUATOR 10 International Conference and Exhibition on New Actuators and Drive Systems

New Scale's chief technical officer David Henderson and lead scientist Dr. Danielle Piazza are presenting a paper, "*Continuous Auto Focus for Next Generation Phone Cameras,*" at Actuator 2010 in Bremen on Wednesday, June 16 at 12:30 pm.

You can also stop by our stand **No. A-01** in the exhibition hall to see our newest products.

- For conference information and registration [visit the Actuator 2010 website](#).
- If you can't attend the conference but would like a copy of our paper, please [send us an email](#).

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