

New Scale Technologies

DART™ Smart Linear Actuator & Stage

Optimal Size, Weight and Power for
Photonics Instruments and more

- Precise:** 0.5 μm resolution with absolute sensor
- High Push Force:** 2N
- Low Power:** 6 V DC, < 1 A
- Embedded:** Closed-loop positioning
- Zero power Hold:** With rigidity and no jitter

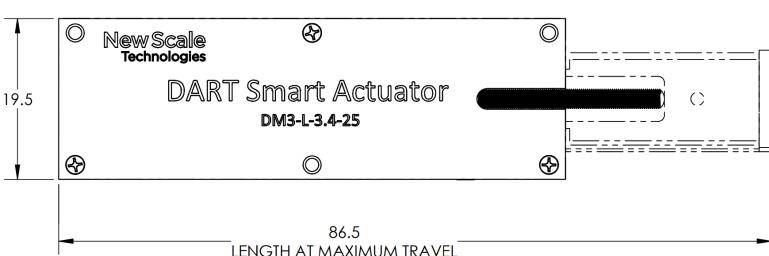
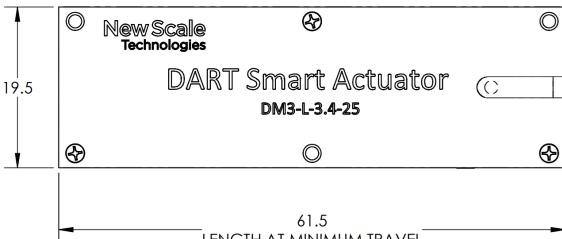
Optimized SWaP

The **DART Smart Linear Actuator** brings a greater range of motion and higher force to our patented SQUIGGLE® technology. This all-in-one linear motion system includes the motor, motor driver, linear guide mechanism, position sensor, microprocessor and embedded firmware. No external controller is required, minimizing total size and weight.

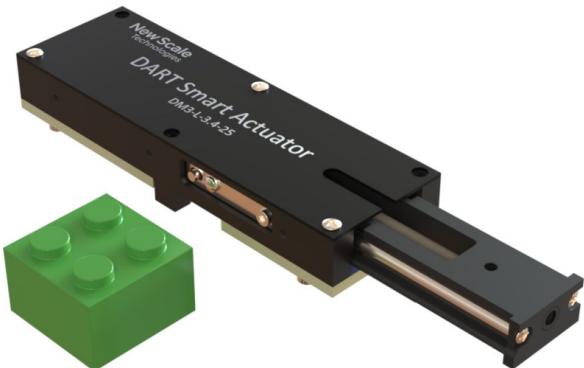
New Scale's patented piezo motor technology holds position without power, providing a motion system with less power consumption in handheld, portable, airborne, and battery powered systems.

Its small size and high precision make it ideal for extreme miniaturization of large and complex photonics instruments and benchtop systems; such as positioning optics, lasers, filters, and more!

25mm of Travel



SMALL, PRECISE, SMART ... IN MOTION

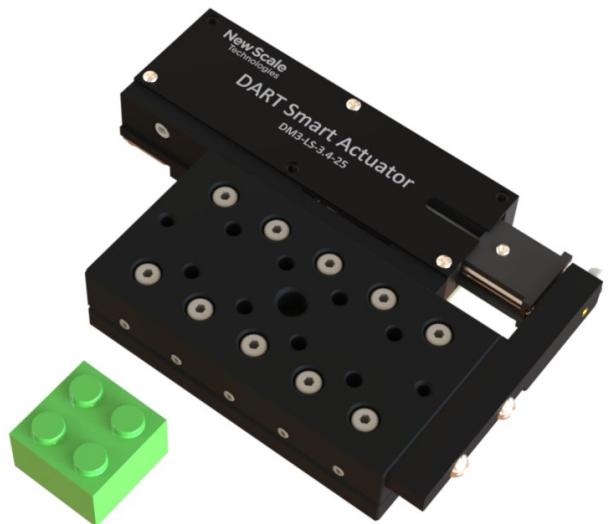
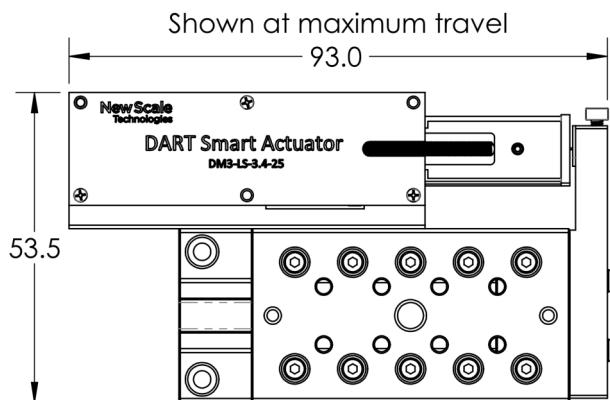


Fast, Simple Integration

Drive and control electronics are fully integrated, offering communication via I2C or SPI, simplifying integration and testing, and accelerating your commercialization schedule.

Optional Linear Stage

Mating the DART Linear Actuator with a precision stage improves the system stiffness, minimizes total runout, pitch, roll, and yaw throughout the travel range.



*Images are not to scale

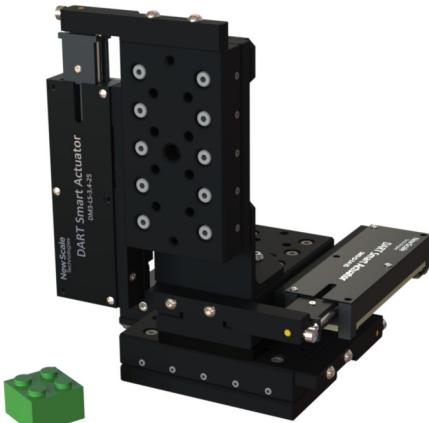
DART Smart Linear Actuator DM3-L-3.4-25

| | |
|--|---|
| Travel Range | 25 mm |
| Push Force (Operating) | 2 N |
| Max speed (2 N load) | 10 mm/s |
| Max Axial Load (Static, Non-operating) | 10 N |
| Closed Loop Performance | |
| Encoder | Absolute |
| Resolution | 0.5 μ m |
| Bi-Directional Repeatability | < 5 μ m |
| Accuracy | < 20 μ m |
| Environmental | |
| Relative Humidity (Non-condensing) | <70% |
| Operating Temp (Note 1) | -30°C to 70°C |
| Storage Temp | -40°C to 85°C |
| Lifetime | 1 million random motions |
| Electrical | |
| Controller | Embedded |
| Input Power (Closed-loop with 2N load) | 6 VDC \pm 5% typical < 0.2 W quiescent < 5W typical at 10mm/s |
| Controller Interface | I2C or SPI serial interface Or via USB adapter to PC |
| DART Smart Linear Stage DM3-LS-3.4-25 | |
| Performance Specifications are equal to those listed above for the DM3-L-3.4-25 | |
| Black anodized aluminum Crossed Roller Bearing slide increases stability and smoothness of motion. | |

Note 1: Performance varies at temperature extremes

Modular Multi-Axis Configurations

The modular design of the DART stage allows for flexible and stackable mounting options, enabling multi-axis XY or XYZ configurations.



Developer's Kits

Developer's kits provide easy and fast system prototyping for single axis DART Actuators and Stages. Developer's kits are available from New Scale and our distributors.

The included New Scale Pathway™ software provides access to stage settings, scripted motion commands, diagnostics, and more.

Contact New Scale Technologies to purchase additional DART actuators, stages, or accessories.

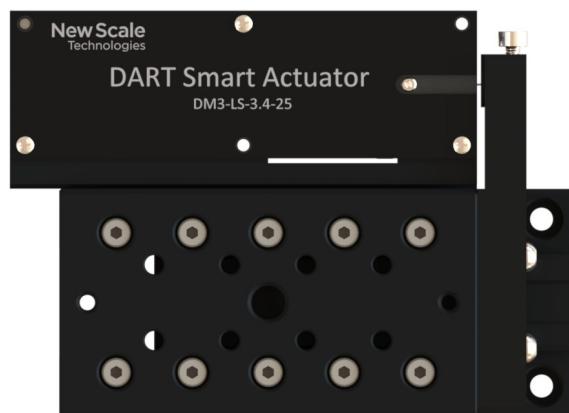
Developer Kit Contents

DK-DM3-L-3.4-25 Developers Kit



*Actual Size

DK-DM3-LS-3.4-25 Developers Kit



*Actual Size

Both Developer Kits contain the following

- 1x USB Flash Drive with the New Scale Pathway™ Software
- 1x USB A to USB Micro B Cable (1 meter)
- 1x USB Interface Board
- 1x FPC Cable (250mm)
- 1x Power Cable with Barrel Jack
- 1x 6v Power Supply
- 4x M2 Mounting Screws
- 1x 1.3mm Hex Key