M-232 DC-Mike Precision Linear Actuator
Compact Package, Suitable for Fiber Alignment

Travel Range 17 mm
Min. Incremental Motion to 0.1 µm
Max. Velocity 2.5 mm/s
Closed-Loop DC-Motors
Non-Contact Limit and Reference Switches
 Fits M-105 Fiber Aligners
MTBF >5,000 h

The M-232 is an ultra-high-resolution linear actuator providing linear motion up to 17 mm with sub-micron resolution in a compact package. It features a space-saving design with a leadscrew side-by-side to a closed-loop DC-motor/gearhead combination and a high-resolution encoder (2048 counts/rev.). They feature a low-stiction, low-friction construction allowing for minimum incremental motion of 100 nanometers at speeds of up to 2.5 mm/sec.

Upgrade for Manual Aligners
The M-232 was especially designed to fit existing manual translation stages (e.g. M-105 see p. 4-50 ff ) as a direct replacement for a manual micrometer.

Limit and Reference Switches
For the protection of your equipment, non-contact Hall-effect limit and reference switches are installed. The reference switch supports advanced automation applications with high precision.

Integrated Line Drivers
All actuators include an integral 0.5 m cable with 15-pin sub-D connector and come with a 3 m extension cable. On the DC servo versions, the connector features integrated line drivers for cable lengths up to 10 meters between actuator and controller.

For higher loads and travel ranges, refer to the M-230 (see p. 1-46), M-235 (see p. 1-50) and M-238 (see p. 1-52).

Application Examples
Fiber positioning
Metrology
Photonics packaging
Quality assurance testing
Testing equipment

Ordering Information
M-232.17
Compact High-Resolution DC-Mike Linear Actuator, 17 mm, Limit Switches

Technical Data

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Motion and positioning
Travel range 17 mm
Integrated sensor Rotary encoder
Sensor resolution 2,048 Cts./rev.
Design resolution 0.007 µm
Min. incremental motion 0.1 µm
Backlash 2 µm
Unidirectional repeatability 0.2 µm
Max. velocity 1.5 mm/s
Reference switch repeatability 1 µm

Mechanical properties
Spindle Leadscrew
Spindle pitch 0.4 mm
Gear ratio 28.44444:1
Max. push/pull force 40 N

Drive properties
Motor type DC-motor, gearhead
Operating voltage 0 to ±12 V
Electrical power 2 W

Limit and reference switches Hall-effect

Miscellaneous
Operating temperature range -20 to +65 °C
Material Al (anodized), steel
Mass 0.17 kg
Recommended controller/driver C-863 single-axis (p. 4-114), C-843 PCI board, for up to 4 axes (p. 4-112)