M-231

High-Resolution Closed-Loop DC-Mike Actuators

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M-231.17 high-resolution DC-Mike actuator, 17 mm travel range

Ordering Information

M-231.17
DC-Mike Actuator, 17 mm, Limit Switches

Ask about custom designs!

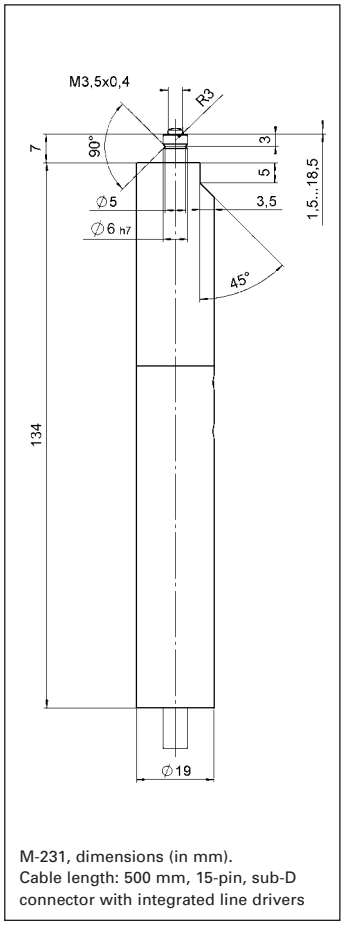
- **17 mm Travel Range**
- **0.1 µm Minimum Incremental Motion**
- **Velocity up to 2.5 mm/sec.**
- **Closed-Loop DC Motor**
- **Compatible with Leading Industrial Motion Controllers**
- **Integrated Hall-Effect Origin and Limit Switches**
- **Fits M-105 & F-110 Fiber Aligners**
- **>5,000 Hours MTBF**

The M-231 is an ultra-high-resolution linear actuator providing linear motion up to 17 mm with sub-micron resolution in a compact package. It consists of a leadscrew which is driven by a closed-loop DC motor/gearhead combination with motor-shaft-mounted, high-resolution encoder (2048 counts/rev.).

Upgrade for Manual Aligners

The M-231 was especially designed to fit existing manual translation stages (e.g. M-105, see page 7-30) and F-110 piezoelectric fiber alignment systems (see page 8-24 in the "Photonics" section) as a direct replacement for a manual micrometer.

M-231 actuators provide a cost-effective solution in industrial and OEM environments. They feature a low-stiction low-friction construction allowing for minimum incremental motion of 100 nanometers at speeds up to 2.5 mm/sec.



M-231, dimensions (in mm).
Cable length: 500 mm, 15-pin, sub-D connector with integrated line drivers

Non-Contact Limit and Origin Switches

Integrated, non-contact, high-precision Hall-effect origin and limit switches protect your equipment and increase versatility in automation applications.

Integrated Line Drivers

Each actuator includes an integral 0.5 m cable with 15-pin sub-D connector and a 3 m extension cable. The connector features integrated line drivers for cable lengths up to 10 meters between actuator and controller.

Stepper-motor-driven versions of the M-231 are available on request.

For higher loads and travel ranges, refer to the M-230 and M-235 on pages 7-78 and 7-82.

M-231 mounted on M-105 XYZ positioning systems

Technical Data

Models	M-231.17	Units	Notes see p. 7-106
Travel range	17	mm	
Design resolution	0.007	µm	A3
Min. incremental motion	0.1	µm	A4
Unidirectional repeatability	0.2	µm	
Backlash	2	µm	
Max. velocity	2.5	mm/s	
Max. push/pull force	40	N	
Max. lateral force	0	N (at tip)	
Encoder resolution	2048	counts/rev.	
Drive screw pitch	0.4	mm/rev.	
Gear ratio	28.44444:1		
Nominal motor power	2	W	
Motor voltage	12	V	
Weight	0.17	kg	
Recommended motor controllers	C-843, C-848, C-862		D2

Application Examples

- Photonics packaging
- Fiber alignment
- Quality control
- Test equipment
- Metrology