

M-231 DC-Mike Precision Linear Actuator With Limit Switches, Suitable for Fiber Alignment



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

Ordering Information

M-231.17
High-Resolution DC-Mike Linear Actuator, 17 mm, Limit Switches

- 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-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 p. 4-50 ff) as a direct replacement for a manual micrometer.

Limit and Reference Switches

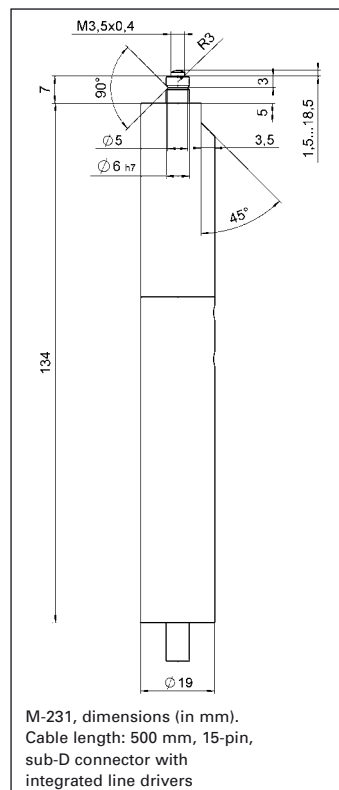
For the protection of your equipment, non-contact Hall-effect limit and reference switches are installed. The reference switch supports advanced automation applications with high precision.

Application Examples

- Fiber positioning
- Metrology
- Photonics packaging
- Quality assurance testing
- Testing equipment

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).



M-231 mounted on M-105 XYZ positioning systems

Technical Data

| Model | M-231.17 | Units |
|--------------------------------|---|--------------------|
| Active axes | X | |
| 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 | $^{\circ}\text{C}$ |
| 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. 4-120) | |