M-110.2 Linear Slide
High-Resolution Micro-Translation Linear Stage with Ballscrew Drive

- 5 to 25 mm Travel Ranges
- 5000 h MTBF
- Very Cost Effective
- 200 nm Minimum Inc. Motion
- Hall-Effect Limit & Reference Switches
- Recirculating Ballscrew for Extended Lifetime

M-110, M-111 and M-112 are high-resolution motorized translation stages providing linear motion of 5 mm, 15 mm and 25 mm.

Small Size, High Performance
A major appeal of these stages is their small form factor in which they feature precision linear ball bearings for flatness and straightness of <0.5 microns over 15 mm. A miniature DC or stepper motor drives the platform via a back-lash-compensated ballscrew system and gearhead. To meet the most critical positioning demands, the DC motor is equipped with a high-resolution encoder featuring resolution of 8.5 nm per count. The combination of the extremely low stiction/friction design and high-resolution encoder allows minimum incremental motion of 0.2 µm and speeds to 2 mm/sec.

24 Hours a Day—7 Days a Week: 24/7 Duty Cycles
To meet industrial demands, the M-110.2, M-111.2 and M-112.2 linear translation stages are equipped with a recirculating ballscrew instead of a leadscrew for precise motion with reduced friction. This allows 24/7 duty cycles. To protect your investment, integrated non-contact Hall-effect limit and reference switches with direction sensing are standard. The connector on the DC-servo versions features integrated line drivers for cable lengths up to 10 meters between actuator and controller.

Low Cost of Ownership
As mentioned before, these compact PI stages are extremely cost effective in industrial applications. The combination of the M-11x.2DG and the networkable C-862 Mercury™ single channel servo controller/driver offers high performance for a very competitive price in both single and multi-axis configurations.

Notes
See “Accessories”, page 7-92 ff. for adapters, brackets, etc.

Application Examples
- Micromachining
- Photonics packaging automation
- Fiber optic instrumentation
- Fiber alignment
- Quality control
- Test equipment

Ordering Information
M-110.2DG
Micro-Translation Stage, 5 mm, Closed-Loop DC Motor, Ballscrew
M-111.2DG
Micro-Translation Stage, 15 mm, Closed-Loop DC Motor, Ballscrew
M-112.2DG
Micro-Translation Stage, 25 mm, Closed-Loop DC Motor, Ballscrew
M-110.22S
Micro-Translation Stage, 5 mm, Stepper Motor, Ballscrew
M-111.22S
Micro-Translation Stage, 15 mm, Stepper Motor, Ballscrew
M-112.22S
Micro-Translation Stage, 25 mm, Stepper Motor, Ballscrew

Adaptors and Angle Brackets:
Same as for Leadscrew Versions M-110.1/M-111.1/M-112.1.

Ask about custom designs!
<table>
<thead>
<tr>
<th>Models</th>
<th>M-110.2DG</th>
<th>M-111.2DG</th>
<th>M-112.2DG</th>
<th>M-110.22S</th>
<th>M-111.22S</th>
<th>M-112.22S</th>
<th>Units</th>
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<tbody>
<tr>
<td>Travel range</td>
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<td>15</td>
<td>25</td>
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<td>10</td>
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* 2-phase stepper, 24 V chopper voltage, max. 250 mA / phase, 1,200 microsteps with C-600, C-630 controllers.
* See page 7-108 for notes and explanations.

M-110, M-111, M-112 dimensions in mm. C-815.38 motor cable included: 3 m, sub-D, 15/15 pin (m/f).

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**Index**

- Active Optics / Steering Mirrors
- Tutorial: Piezoelectrics in Positioning
- Capacitive Position Sensors
- Piezo Drivers & Nanopositioning Controllers
- Hexapods / Micropositioning
- Photonic Alignment Solutions
- Motion Controllers
- Ceramic Linear Motors & Stages
- Nanopositioning & Scanning Systems

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**Technical Data**

- Models: M-110.2DG, M-111.2DG, M-112.2DG, M-110.22S, M-111.22S, M-112.22S
- Units:
  - Travel range (mm)
  - Design resolution (µm)
  - Min. incremental motion (µm)
  - Unidirectional repeatability (µm)
  - Backlash (µm)
  - Max. velocity (mm/sec)
  - Max. normal load capacity (kg)
  - Max. push/pull force (N)
  - Max. lateral force (N)
  - Encoder resolution (counts/rev.)
  - Motor resolution (steps/rev)
  - Drivescrew pitch (mm/rev)
  - Gear ratio
  - Nominal motor power (W)
  - Motor voltage (V)
  - Weight (kg)
  - Cable length (mm)
  - Connector: 15-pin sub-D
  - Recommended motor controllers: C-843, C-848, C-862, C-600, C-630