

MotorDriver™ Linear Actuator System

Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

- Remote control of micropositioners, optical mounts, and instruments
- Open loop
- Sub-micrometer minimum incremental movement
- 10 mm, 13 mm, 25 mm, and 50 mm travels
- Spherical and flat tips
- Direct replacement of standard manual micrometers



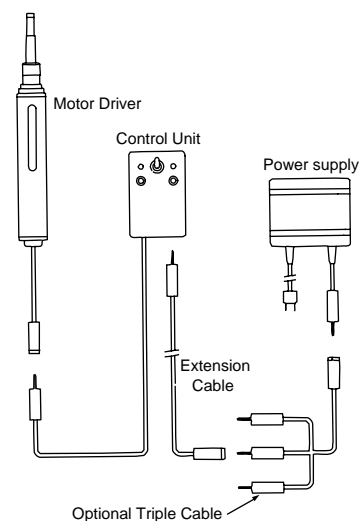
The MotorDriver system provides a simple and economic method of motorizing the Ealing range of Manual Micropositioners. These motorized actuators are similar in size and shape to the Starret and Mitutoyo micrometers found on many manual positioning stages, making conversion from manual to motorized operation easy. They have also found many OEM applications where a compact motorized actuator is required. The integral dc motor gearhead and precision leadscrew result in an actuator capable of submicrometer motion without sacrificing load capacity. All actuators include a spherical tip, with interchangeable flat tip also supplied with 13, 25, and 50 mm travel units. MotorDrivers are useful when remote operation is required due to limited access or when physical contact could disturb a set-up. They provide open-loop electric actuation and have no positional feedback (for closed-loop operation with positional feedback refer to EncoderDrivers).

A complete MotorDriver System consists of the following items:

- MotorDriver™ Actuator
- MotorDriver™ Hand Control Unit
- MotorDriver™ Power Supply

All of these items are described on the following pages. Individual units are supplied with the necessary cables and connectors to build the complete system. The MotorDriver Hand Control Unit includes a 1.5 m (5 ft) Extension Cable for connection to the Power Supply. Additional Extension Cables are also available to provide greater operating range. The optional Triple Cable Assembly, which enables three MotorDrivers and their Hand Control Units to be driven from a single Power Supply, may be fitted between the Power Supply and the Extension Cables. This arrangement permits, for example, a three-axis positioning assembly to be motorized with a minimum of cost and complication by using a single power source.

A Complete MotorDriver System is shown in the diagram below.



Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules

MotorDriver™ Linear Actuators

- Four travel ranges 10 mm, 13 mm, 25 mm, and 50 mm
- Open loop sub-micrometer motorized control
- Two speed operation



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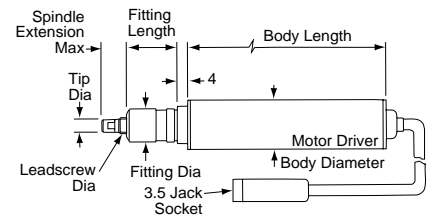
MotorDriver Actuators are available with travel ranges of 10 mm, 13 mm, 25 mm, and 50 mm (0.375 inch, 0.5 inch, 1 inch, and 2 inches) to suit the various micrometer-driven stages from the MicroMech™ MiniMech™ and MacroMech™ ranges. The 10 mm travel unit is miniaturized to have a body diameter of only 12.7 mm (0.5 inch). Longer travel units are still compact for motorized drivers at 19 mm (0.75 inch) diameter.

The 10 mm miniature Actuator is fitted with a spherical tip that is not interchangeable. All others feature interchangeable spherical or flat tips, both are supplied with the units.

Each MotorDriver Actuator requires its own Hand Control Unit and either its

own or a shared (up to 3 MotorDriver Actuators) Power Supply Unit, these are described on the following pages.

Dimensions and specifications for the MotorDriver Actuators range are given below.



MotorDriver™ Specifications	10 mm 37-0221	13 mm 37-0007	25 mm 37-0015	50 mm 37-0023
Leadscrew Pitch (mm):	0.5	0.5	0.5	0.5
Motor Speed (rpm-without load):	14,750	15,000	15,000	15,000
Gearhead ratio:	256:1	485:1	485:1	485:1
Max. Linear Speed ¹ (mm/min – without load):	28	15	15	15
Slowest Speed (mm/min):	0.05	0.03	0.03	0.03
Resolution (µm):	0.1	0.1	0.1	0.1
Max. continuous output torque (Nm x 10 ⁻³):		50	50	50
Max. intermittent output torque (Nm x 10 ⁻³):	77	100	100	100
Nominal motor voltage (VDC)	12	12	12	12
Max. output power (W):	0.35	0.5	0.5	0.5
Max. recommended axial load ² (kg/lb):	7(15)	10(22)	10(22)	10(22)
Backlash – typical (µm):	6	6	6	6
Weight (g):	50	80	100	120

¹Rating for intermittent operation. ²Axial load rating is with point contact on leadscrew spindle tip.

MotorDriver™ Linear Actuators

Catalog Number	Driver Type	Travel (mm)	Spindle Extension	Fitting Length	Fitting Dia.	Body Dia.	Body Length	Tip Dia.	Leadscrew Dia.	Price US
37-0221	DC Motor	10	11	6.0	6.00	12.7	78	4	4	\$616.35
37-0007	DC Motor	13	19	9.5	9.52	19.05	78	5	6	\$347.55
37-0015	DC Motor	25	31.75	19.05	12.70	19.05	90	5	6	\$368.00
37-0023	DC Motor	50	56.75	19.05	12.70	19.05	117	5	6	\$537.60
37-9701	DC Motor	13	19	9.5	9.0	19.05	78	5	6	\$616.35
37-9669	DC Motor	25	31.75	19.05	9.52	19.05	90	5	6	\$385.00
37-9677	DC Motor	50	56.75	19.05	9.52	19.05	117	5	6	\$588.00

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- Manual Micro-positioners
- Motorized Positioners

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- Diode Laser Modules

MotorDriver™ Control Electronics

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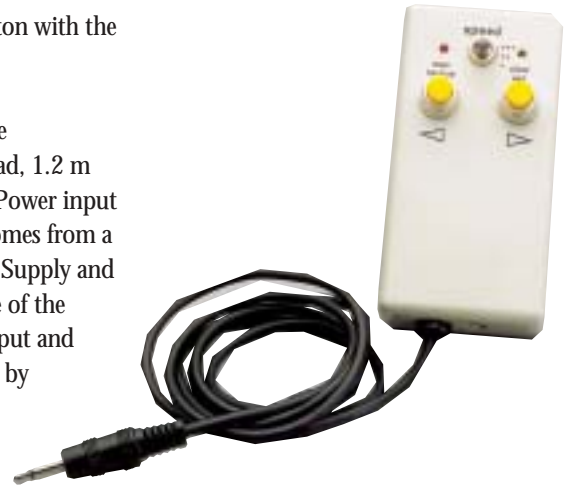
MotorDriver™ Hand Control Unit

Each MotorDriver requires its own Hand Control Unit. This is a compact, hand-held device providing three selectable speeds, the slowest of which is adjustable. Two push-buttons control forward and reverse directions, and their 'polarity' may be reversed by a switch on the side of the Control Unit. A LED illuminates when maximum torque is reached, and the MotorDriver is protected by a current limiting circuit.

The smallest movement of the MotorDriver is obtained by momentary

pressure on an operating button with the slowest speed selected.

The output connection to the MotorDriver is via a flying lead, 1.2 m (4 ft) long, with a jack plug. Power input to the Hand Control Unit comes from a separate MotorDriver Power Supply and is via a jack socket in the base of the Hand Control Unit. Both input and output leads can be extended by using an additional 37-0056 Cable Assembly.



MotorDriver™ Hand Control Unit

Catalog Number	Description	Price US
37-0031	MotorDriver Hand Control Unit	\$239.40

MotorDriver™ Cable Assemblies

An Extension Cable Assembly extends the distance between the Power Supply and Control Unit or MotorDriver and Control Unit by 1.2 m. By using the Triple Cable Assembly up to three MotorDrivers may be operated from a single Power Supply.

MotorDriver™ Cable Assemblies

Catalog Number	Description	Price US
37-0056	MotorDriver Extension Cable Assembly	\$8.80
37-0064	MotorDriver Triple Cable Assembly	\$69.30

MotorDriver™ Power Supply Unit

The MotorDriver Power Supply Unit is a compact, double-insulated unit with an output of 16 V at 150 mA dc. The output lead is fitted with a jack plug for connection to the 37-0031 MotorDriver Hand Control Unit or a 37-0056 Extension Cable Assembly. The Power Supply will drive up to three MotorDriver Units, using a 37-0064 Triple Cable Assembly.



MotorDriver™ Power Supply Unit

Catalog Number	Description	Price US
37-1021	MotorDriver Power Supply, 115 Volts	\$31.90
37-1013	MotorDriver Power Supply, 230 Volts	\$53.55

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