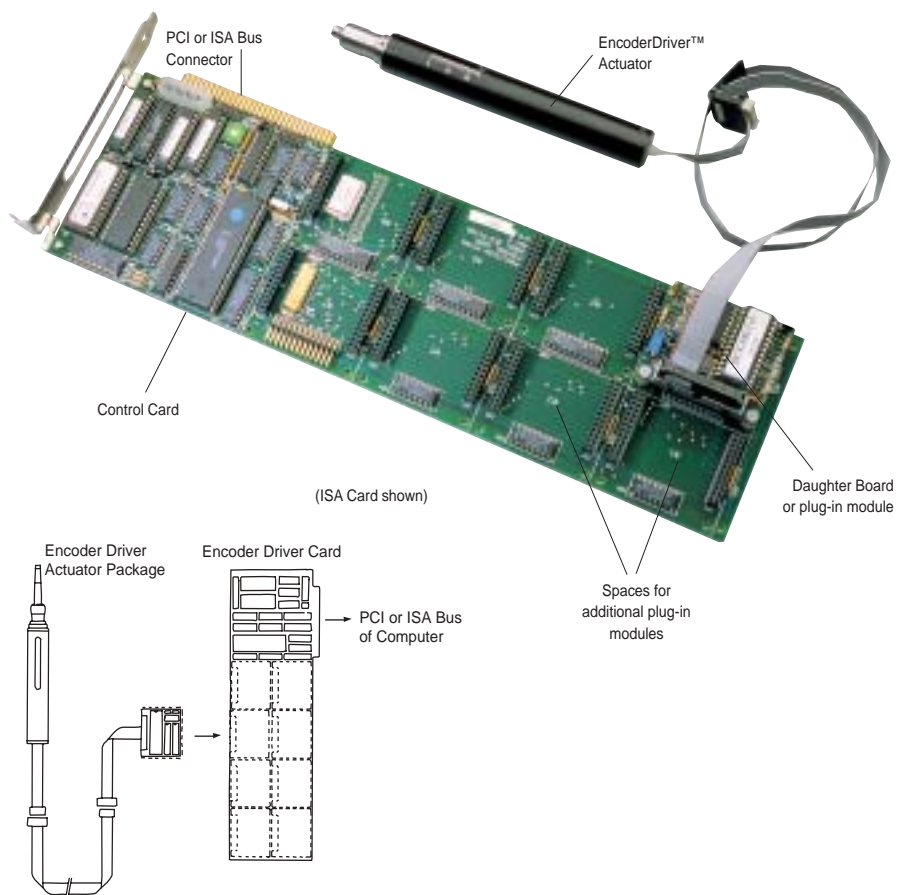


EncoderDriver™ Linear Actuator System

- Computer control of up to 8 motorized actuators
- Ideal for motorization of micropositioners, optical mounts, and instruments
- Closed-loop encoder operation
- Computer controlled variable speed
- 0.02 μm resolution
- 0.1 μm repeatability
- 10 mm, 13 mm, 25 mm, and 50 mm travels
- Replaces standard manual micrometers
- High load capacity



The EncoderDriver actuator system provides a simple economic method of fully automating up to 8 axes of movement by simply replacing the manual micrometers on micropositioning stages. Similar in size and shape to manual micrometers, these precision actuators make conversion from manual easy. Their high resolution and excellent repeatability, combined with compact size, make them suitable for many OEM systems or light industrial applications. The combination of integral dc motor, gearhead, micrometer precision leadscrew and magnetic encoder provides an actuator capable of fully computer-controlled 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 (10 mm unit does not have replaceable tip).

The magnetic encoder inside each actuator is linked to the motor shaft and detects rotation, providing feedback to the EncoderDriver Control Card to track position and tightly control motor speed. Operating from a programmable Control Card, EncoderDriver actuators can carry out intricate sequences of movements automatically under closed-loop control. Up to 8 axes may be driven from a single EncoderDriver Control Card fitted to a computer.

An EncoderDriver system comprises the following parts:

- an IBM Personal Computer or compatible (PCI or ISA bus slots required)
- EncoderDriver™ Control Card
- Up to 8 EncoderDriver™ Actuator Packages

Power consumption of the EncoderDriver is extremely small and is supplied directly from the EncoderDriver Control Card. The EncoderDriver Control Card provides full Programmable Integral/Derivative (PID) control for up to eight EncoderDriver Actuators. Each Actuator is supplied with a 3 m (10 ft) Extension Cable. Additional 3 m Extension Cables may be connected to allow operation of the actuator up to 9 m (30 ft) from the Control Card. A plug-and-play software CD is supplied with each PCI card.

Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules

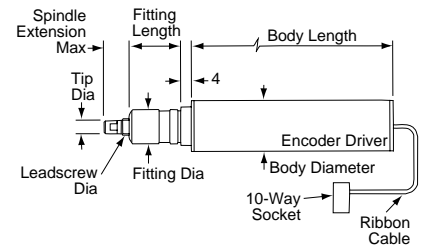
EncoderDriver™ Linear Actuator Packages



- Closed loop motorized remote control of micropositioners
- Computer control of stages
- LabView software drivers
- 0.05 or 0.02 μm minimum incremental movement
- Direct replacement for manual micrometers

EncoderDriver Linear Actuator Packages are available with ranges of travel of 10 mm, 13 mm, 25 mm, and 50 mm (0.375 inch, 0.5 inch, 1 inch, and 2 inches) to suit micrometer-driven stages from the Ealing range. The 10 mm Actuator is supplied with a non-removable spherical tip, all others are supplied with interchangeable spherical and flat tips. Each EncoderDriver

Actuator Package includes an EncoderDriver Actuator, a 3 m Extension Cable, and the daughter board drive module. This daughter board drive module plugs directly into the EncoderDriver Control Cards. EncoderDriver Actuators are available separately for OEM applications.



EncoderDriver™ Specifications

	Travel			
	10 mm	13 mm	25 mm	50 mm
Leadscrew Pitch (mm):	0.5	0.5	0.5	0.5
Max. Motor Speed (rpm-without load):	13,000	12,000	12,000	12,000
Gearhead Ratio:	256:1	485:1	485:1	485:1
Max. Linear Speed¹ (mm/min – without load):	28	12	12	12
Slowest Speed (mm/min):	0.05	0.03	0.03	0.03
Resolution (μm):	0.05	0.02	0.02	0.02
Max. Continuous Output Torque (mNm):	77	100	100	100
Max. Intermittent Output Torque (mNm):	77	150	150	150
Nominal Motor Voltage (VDC)	12	12	12	12
Max. Output Power (W):	0.35	0.3	0.3	0.3
Max. Recommended Axial Load² (kg/lb):	7(15)	10(22)	10(22)	10(22)
Backlash – Typical (μm):	6	6	6	6
Encoder Counts per Revolution of Leadscrew:	40	60	60	60
Encoder Counts per millimeter of Travel:	20,480	58,200	58,200	58,200
Repeatability – Unidirectional (μm)	0.1	0.1	0.1	0.1
Weight (g):	55	110	130	150

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

EncoderDriver™ Socket Pin-outs

Pin	Socket Pin-outs
1	Motor + (12 VDC)
2	Encoder Power (+5 VDC)
3	Encoder A Channel
4	Encoder B Channel
5	Encoder Ground (0 VDC)
6	Motor - (12 VDC)

EncoderDriver™ OEM Actuators

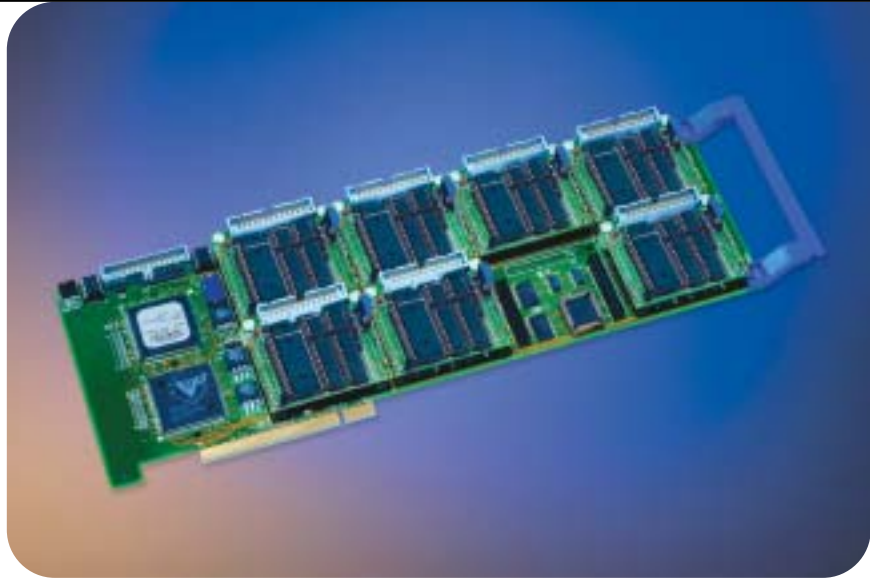
Catalog Number	Travel (mm)	Price US
37-1187	10	\$871.50
37-1179	13	\$876.75
37-1062	25	\$805.35
37-1070	50	\$937.65

EncoderDriver™ Linear Actuator Packages (includes actuator, daughter board and cables)

Catalog Number	Driver Type	Travel (mm)	Spindle Extension	Fitting Length	Fitting Dia.	Body Dia.	Body Length	Tip Dia.	Leadscrew Dia.	Price US
37-0494	DC Motor	10	11	6.0	6.00	12.7	86	4	6	\$1,268.40
37-0486	DC Motor	13	19	9.5	9.52	19.05	118	5	6	\$1,268.40
37-1104	DC Motor	25	31.75	19.05	12.70	19.05	132	5	6	\$1,268.40
37-1112	DC Motor	50	56.75	19.05	12.70	19.05	162	5	6	\$1,378.65
37-9719	DC Motor	13	19	9.5	9.0	19.05	118	5	6	\$1,268.40
37-9685	DC Motor	25	31.75	19.05	9.52	19.05	132	5	6	\$1,256.00
37-9693	DC Motor	50	56.75	19.05	9.52	19.05	162	5	6	\$1,375.00

EncoderDriver™ Control Card & Software

- An economical PC-based micropositioning controller
- Computer control of up to eight EncoderDriver actuators
- No external power supplies needed
- Graphical & intuitive Windows utility programs included
- Fully programmable using LabVIEW, Visual Basic and other popular high-level languages



EncoderDriver™ Control Card

The EncoderDriver Control Card is available in a PCI or ISA bus form-factor (PCI Card shown above). These fit into either the full-length PCI or ISA expansion slots of an IBM compatible PC. The Control Card will control and drive from one to eight EncoderDriver Actuators and requires no external power supplies or amplifiers. Full independent and simultaneous control of up to 8 servo axes can be achieved from a single Control Card. The Card features a

Specifications

Operating Capacity: 1-8 EncoderDrivers
Max. Motor Current: 500 mA
Encoder Input: TTL/CMOS compatible
Interface: IBM PC PCI or ISA bus
Operating Voltage: +5V 200 mA +12V 50 mA + motor current -12V 50 mA

position mode of operation which is ideal for data acquisition when the actuator speed needs to be varied to maintain a precise position versus time. Alternatively the Card supports a velocity mode, ideal for scanning applications that require the actuator velocity to be tightly controlled. Communication with the card is via the PC's PCI or ISA bus. Users can command motion in several ways. The easiest is to initiate motion by simply pointing & clicking the appropriate

buttons on the included graphical Windows utilities. Users can also write fully automated positioning sequences using any one of several popular high-level languages such as C/C++, LabVIEW, Pascal or Visual Basic. For LabVIEW programmers, a comprehensive library of custom LabVIEW VI's is also provided. And finally, a simple, intuitive command language is available, allowing even non-programmers to easily automate their application.

EncoderDriver™ Control Card

Catalog Number	Description	Price US
37-1045	EncoderDriver Control Card (controls up to 8 axes) PCI Slot	\$1,395.00
37-1039	EncoderDriver Control Card (controls up to 8 axes) ISA Slot	\$1,538.25

EncoderDriver™ Extension Cable

This 3 m (10 ft) Cable connects the EncoderDriver Actuator to the Control Card. One Extension Cable is included with each EncoderDriver Actuator Package; additional Cables may be used to extend the distance between the Control Card and the Actuator up to 9 m (30 ft).

EncoderDriver™ Extension Cable

Catalog Number	Description	Price US
37-1047	EncoderDriver Extension Cable, 3 m	\$33.00

Optics

Lenses & Microscope Components

Coatings

Mirrors, Beamsplitters & Windows

Prisms & Polarizers

Filters

Pinholes

Opto-mechanics

Tables, Breadboards & Rails

Mounting Hardware

Mirror & Component Mounts

Manual Micro-positioners

Motorized Positioners

Lasers & Accessories

Beam Delivery

Laser Measurement

Diode Laser Modules