

LINEAR SCALE AT402E

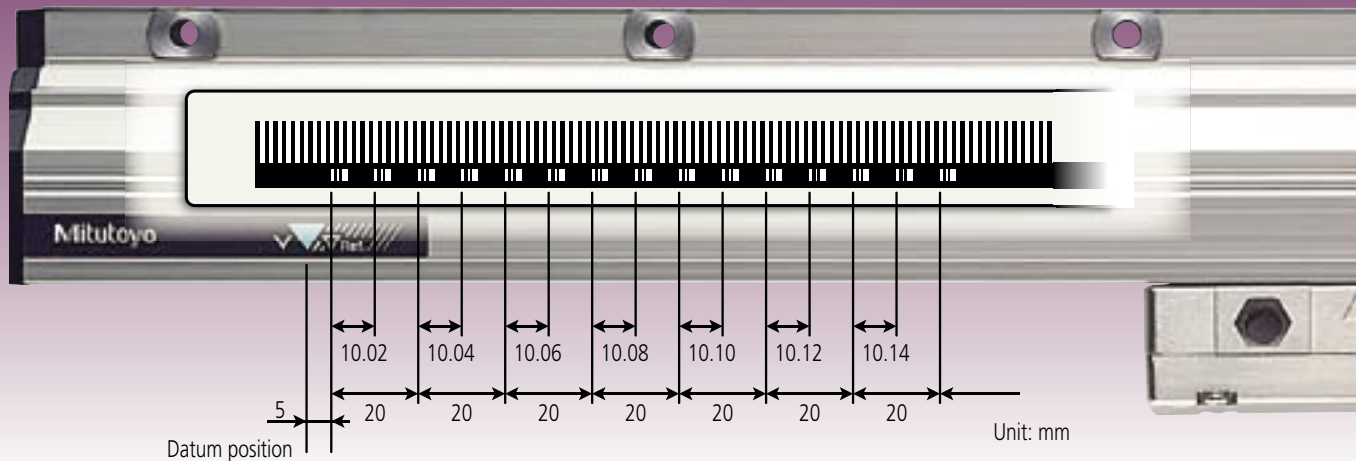
Linear encoder for NC feedback system

Catalog No. E4287-539



In addition to the high measuring accuracy the world-class vibration resistance (20G) and shock resistance (40G) are achieved.

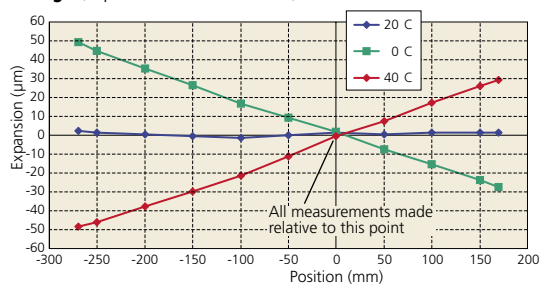
Linear Scale for NC control with high vibration/shock resistance and linear thermal characteristics



Features

- Achieving the world-class vibration resistance (20G) and shock resistance (40G) for using with a heavy cutting machine tool.
- Multi-point elastic fixing for very linear and smooth expansion and contraction with temperature changes
- 1Vpp/20 μ m signal output for high connectivity with various machine controllers.
- Absolute Interval Code for a simple and affordable Absolute Measuring System.
- High-response speed of 120m/min
- High measuring accuracy of $\pm 2\mu$ m (up to 540mm)
- Thermal characteristics

Scale expansion resulting from ambient air temperature change (expansion factor 8.5×10^{-6})

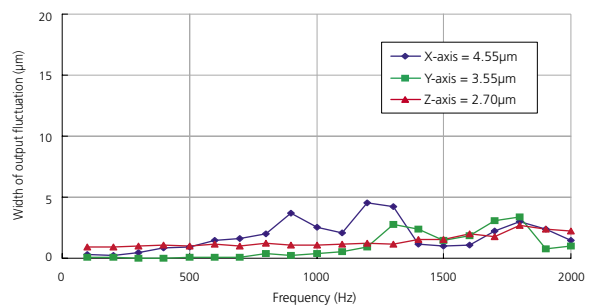


Absolute Interval Code

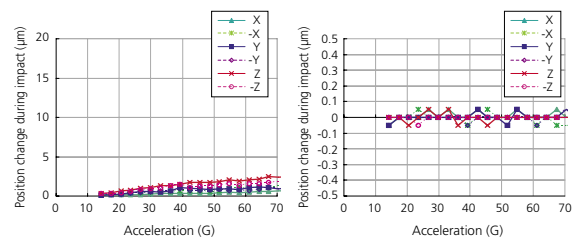
Absolute Interval Code system provides reference marks at every 20mm interval with a 0.02mm offset. This enables unique origin position setting by detection of only two marks (minimum), and the initial setting time required is less.

World-class vibration/shock resistance

Vibration test at 20G



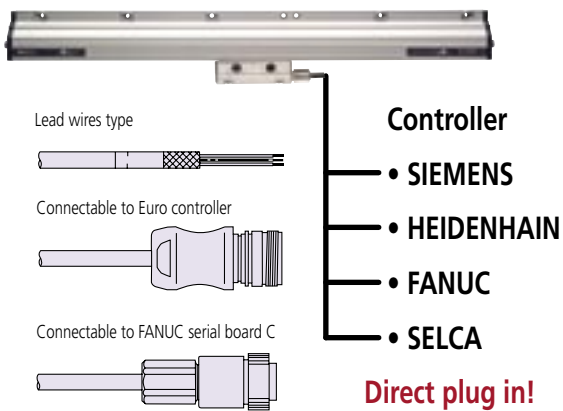
Shock test at 1/2 sin and 11msec



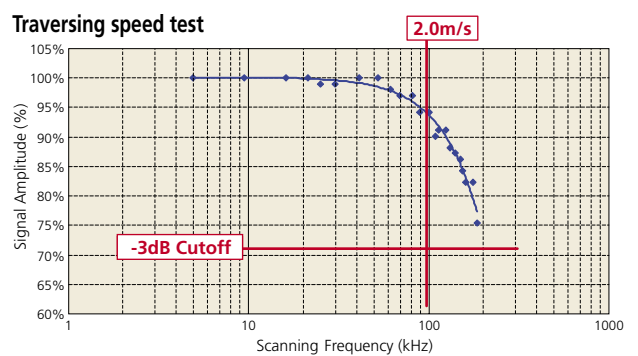
Linear Scale AT402E



• Connectable NC Controller

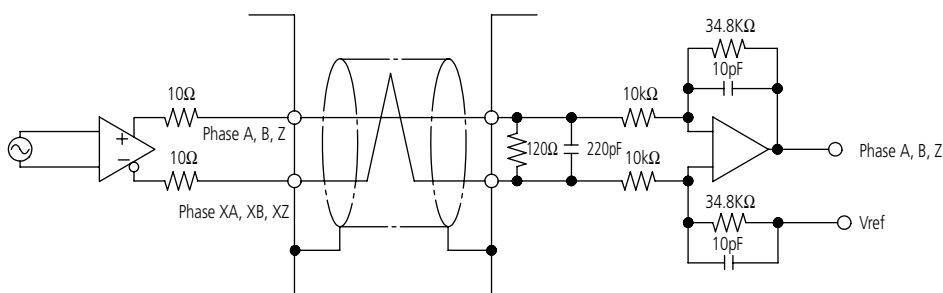
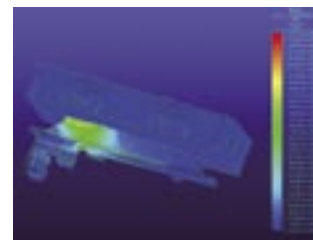


• Higher traverse speed performance reserve



• 1Vpp Signal Output and Output Circuit

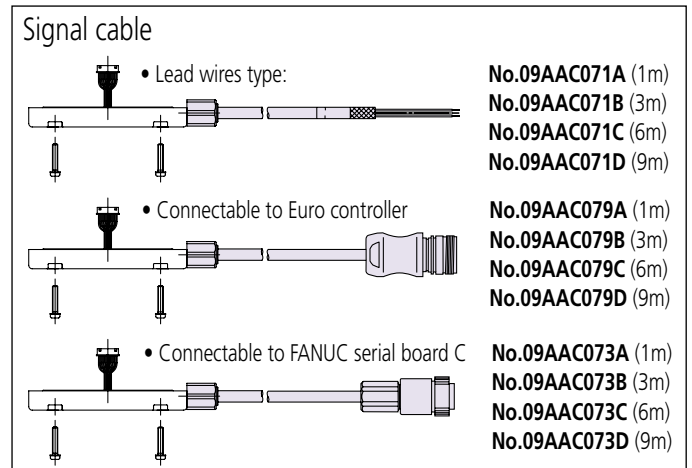
- Sin wave output signals
 - Differential signal amplitude: 1.0Vpp
- Scale reference point signals
 - Differential signal amplitude: 0.5Vp





Specifications

Effective length L_0 (mm):	140, 240, 340, 440, 540, 640, 740, 840, 940, 1040, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 2040, 2240, 2640, 2840, 3040
Detecting method:	Optoelectronic linear encoder
Signal output:	1Vpp (4-phase sin wave), Differential origin point pulse (Absolute Interval Code - Distance Code compatible -)
Signal pitch:	20 μ m
Maximum response speed:	120m/min (sin wave with -3dB amplitude)
Indication accuracy (20°C):	$\pm 2\mu$ m (L_0 : 140 to 540mm), $\pm 3\mu$ m (L_0 : 640 to 940mm), $\pm 3\mu$ m/1m (L_0 : 1040 to 3040mm)
Coefficient of linear expansion:	$8.5 \times 10^{-6}/^\circ\text{C}$
Temperature (operation):	0°C to 45°C, 20%PH to 80%PH (with no condensation)
Temperature (storage):	-20°C to 70°C, 20%PH to 80%PH (with no condensation)
Vibration resistance:	20G (55 to 2000Hz)
Shock resistance:	40G (1/2Sin 11ms)
Power supply:	DC5V \pm 5%
Power consumption:	120mA
Dust/water protection:	IP53 level
Nozzle for air supply:	Provided





- Coordinate Measuring Machines
- Vision Measuring Systems
- Form Measurement
- Optical Measuring
- Sensor Systems
- Test Equipment and Seismometer
- Digital Scale and DRO Systems
- Small Tool Instruments and Data Management

Specifications are subject to change without notice.

Note: All information regarding our products, and in particular the illustrations, drawings, dimensional and performance data contained in this pamphlet, as well as other technical data are to be regarded as approximate average values. We therefore reserve the right to make changes to the corresponding designs, dimensions and weights. The stated standards, similar technical regulations, descriptions and illustrations of the products were valid at the time of printing. In addition, the latest applicable version of our General Trading Conditions will apply. Only quotations submitted by ourselves may be regarded as definitive.

Mitutoyo Corporation
20-1, Sakado 1-Chome,
Takatsu-ku, Kawasaki-shi,
Kanagawa 213-8533, Japan
T +81 (0) 44 813-8230
F +81 (0) 44 813-8231
<http://www.mitutoyo.co.jp>

Mitutoyo