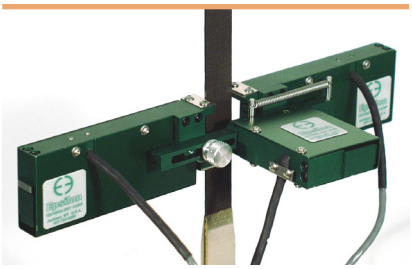
A single integral unit provides simultaneous, averaged lateral (transverse) strain and averaged axial strain measurement for determining modulus and Poisson's ratio.



Model 3560-BIA with 25 mm gauge length

The model 3560-BIA is extensometer is ideally suited for routinely measuring modulus and Poisson's ratio of advanced composites and other anisotropic materials. Transverse strain is averaged and provided as a single output. Axial strain is averaged and provided as a single output in the standard configuration. Model 3560-BIA is also available in an optional configuration that has separate outputs for the axial strain channels, which enables measurement of specimen bending with the testing machine's software.

Standard configuration – two outputs:

- Average axial strain (electrically averaged)
- Average transverse strain (mechanically averaged)

Optional configuration – three outputs:

- Left axial strain (for averaging using the testing machine's software)
- Right axial strain (for averaging using the testing machine's software)
- Average transverse strain (mechanically averaged)

The Model 3560-BIA uses a design unique to Epsilon, where the knife edges remain parallel during the displacement. This approach greatly reduces crosstalk between axes and allows use on round or flat specimens with equal ease. These extensometers are very easy to mount. Integral springs hold the unit on the test sample. The parallel multiple flexure design makes these units very durable.

The Model 3560-BIA extensometers are strain gaged devices, making them compatible with any electronics designed for strain gaged transducers. Most often they are connected to a test machine controller with electronics for a strain channel, and Epsilon will equip the extensometer with compatible connectors that are wired to plug directly into the controller. For systems lacking the required electronics, Epsilon can provide a variety of signal conditioning solutions that enable connecting to data acquisition systems or other equipment. The standard model 3560-BIA configuration requires two strain channels in the testing machine. The optional configuration requires three strain channels in the testing machine.

For customers who only need to measure modulus and do not need to measure Poisson's ratio, Epsilon recommends the smaller, lighter, fatigue test rated model 3442AVG.

Features

- May be left on through failure with composites that fail progressively (non-explosive) and low-elongation materials.
- Multiple sets of dual flexures and mechanical stops allow testing through failure and provide a rugged unit.
- Full bridge, 350 ohm strain gaged design for compatibility with nearly any test system.
- Includes the Epsilon Shunt Calibration System for on-site electrical calibration.
- Rugged, dual flexure design for improved performance.
- Knife edge mounting and parallel displacement allows mounting on round or flat specimens. Much easier to mount than designs using conical points (especially on thin flat specimens and round ones).
- Self-supporting on the specimen.
- High accuracy and minimal crosstalk between channels.
- Includes high quality foam lined case and spare set of tool steel knife edges.

Specifications

Excitation:	5 to 10 VDC recommended, 12 VDC or VAC max.
Output:	2 to 4 mV/V, depending on model
Accuracy:	Standard configurations meet ASTM E83 class B-1 and ISO 9513 class 0,5 requirements for accuracy in the axial direction. A test certificate is included. All standard units have linearity of 0.15% full scale measuring range or better in the transverse direction.
Linearity:	≤0.15% of full scale measuring range, depending on model
Temperature Range:	Standard (-ST) is -40 °C to +100 °C (-40 °F to 210 °F) Optional (-LHT) is -270 °C to +200 °C (-454 °F to 400 °F)
Cable:	Integral, ultra-flexible cable, 2.5 m (8 ft) standard
Specimen Size:	Works with samples 2.5 to 25 mm (0.1 to 1 inch) width or up to 15 mm (0.6 inch) diameter
Operating Force:	30 to 50 g typical
Crosstalk:	Less than 0.5%

Options

Connectors to interface to nearly any brand of test equipment
Two outputs or three outputs - specify when ordering
Adapters to fit larger specimens
Specialty knife edges (see page 106)

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Ordering Information

Model 3560-BIA Available Versions: ANY combination of gauge length, measuring range and temperature range listed below is available.

Gauge Length

METRIC	
-010M[1]	10.0 mm
-025M	25.0 mm
-050M[2]	50.0 mm
U.S.A.	
-0050[1]	0.500"
-0100	1.000"
-0200[2]	2.000"

Measuring Range

	% AXIAL STRAIN	TRANSVERSE MEASURING RANGE
-005[3]	±5%	±1.0 mm (±0.050")
-010[3]	±10%	±1.0 mm (±0.050")

Model Number 3560-BIA - __ __ __ __ - __ __ __ - __ __

Temperature Range

-LT	-270 ˚C to 100 ˚C (-454 ˚F to 210 ˚F)
-ST	-40 ˚C to 100 ˚C (-40 ˚F to 210 ˚F)
-HT1	-40 ˚C to 150 ˚C (-40 ˚F to 300 ˚F)
-HT2	-40 ˚C to 200 ˚C (-40 ˚F to 400 ˚F)
-LHT	-270 ˚C to 200 ˚C (-454 ˚F to 400 ˚F)

[1] *10 mm and 0.5 inch gauge lengths are only available in 10% axial measuring ranges.*

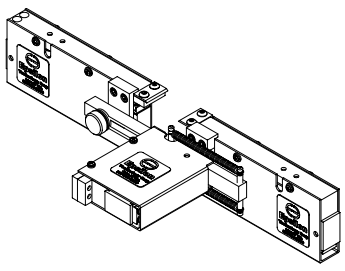
[2] *50 mm and 2.0 inch gauge lengths are only available in 5% axial measuring ranges.*

[3] *If the gauge length is ordered in mm units, then the transverse measuring range will be in mm. If the gauge length is ordered in inch units, then the transverse measuring range will be in inches.*

Note: model 3560-AVG has been replaced by the smaller, fatigue test rated model 3442AVG .

Example: 3560-BIA-050M-010-HT2: 50.0 mm gauge length, ±10% axial strain measuring range/±1.0 mm transverse measuring range, HT2 option (-40 °C to 200 °C)

Visit our website at www.epsilontech.com
Contact us for your special testing requirements.



MODEL 3560-BIA EXAMPLE