

This high precision extensometer measures axial strains on specimens at temperatures up to 1600 °C (2900 °F). Compatible with materials testing furnaces or induction heating. May be used for strain-controlled, high frequency fatigue tests. Slide mounting system enables mounting to hot specimens in seconds.



Model 7650A axial extensometer

Model 7650A extensometers measure strains with extremely high precision due to their design features and low strain range. All models are capable of tension and compression strain measurement, and may be used for fatigue testing under fully reversed load and strain conditions at

frequencies up to 10 Hz.

All 7650A models mount rigidly on the load frame and incorporate slide mounting to bring the extensometer into contact with the specimen. The gauge length is set automatically before mounting on the test specimen, which allows for hot mounting after thermal equilibrium has been reached.

These units are specifically designed to provide high accuracy, high resolution measurements and perform high temperature fatigue testing at the highest possible frequencies. They incorporate capacitive sensors for low operating force and include electronics with programmable filtering and multi-point linearization for improved performance and accuracy. The overall design minimizes, and in many cases virtually eliminates, any influence from common lab environment vibrations.

These liquid-cooled extensometers are equipped with high purity alumina rods for specimen contact when testing to 1200 °C (2200 °F). Silicon carbide rods are used for the 1600 °C (2900 °F) high temperature option.

The Model 7650A is often customized for specific test needs. Contact Epsilon for a configuration that matches your requirement.



Model 7650A extensometer with rigid load frame mounting



Model DT6229 single-channel signal conditioner provides analog and digital outputs

Features

- **May be left on through specimen failure.**
- Hot mountable and retractable.
- Self-setting gauge length with fine adjustment feature.
- All models can measure in both tension and compression and may be used for cyclic testing at test frequencies up to 10 Hz.
- Ships fully calibrated with calibration that is traceable to NPL; voltage output may be user-specified (typically 0-10V).
- Excellent ambient vibration rejection; primary vibration mode >100 Hz typical.
- Digital controller and power supply included. Provides high level DC voltage output with low noise. Easily interfaced to test controllers, data acquisition boards and chart recorders.
- Includes high speed analog and digital outputs.
- Web-based user interface for setup and data acquisition.
- Selectable analog and digital filter options from 2 Hz to 3 kHz.
- Built-in calibration reference and auto-zero features.
- Multiple extensometer calibration files may be loaded for use with one controller.
- Can be used with specimens at elevated temperatures while only requiring room temperature calibration.
- Quick-disconnect liquid cooling fittings and signal cables.
- Includes high quality foam lined case and a spare set of rods.

SPECIFICATIONS

Analog Output:	User specified, ± 10 VDC typical, ± 10.8 VDC rail
Digital Output:	24 bit high speed Ethernet output with built-in web interface
Cyclic Testing:	up to 10 Hz, depending on test system and test amplitude
Accuracy:	Standard configurations meet ASTM E83 class B-1 and ISO 9513 class 0,5 requirements for accuracy. A test certificate is included. Rod lengths >250 mm (10") can affect the final class rating.
Linearity:	11 point digital linearization, $\leq 0.1\%$ FS typical linearity
Hysteresis:	$\leq 0.1\%$ FS typical
Resolution:	<75 PPM (0.0075%FS) RMS @ 4 kHz, <6PPM (0.0006%FS) @ 100 Hz at gauge length
Filter:	Selectable 100 Hz analog and 2 Hz - 3 kHz digital filters
Temperature Range:	Standard (-ST) is to 1200 °C (2200 °F), optional (-HT) 1600 °C (2900 °F)
Sensor Cable:	2 m (6.5 ft) room temperature cable
Output Cable:	Flexible 2.4 m (8 ft) analog output cable
Coolant Interface:	Two barbed hose fittings for 1/8" (3.2 mm) ID coolant hoses
Operating Force:	<30 grams typical
Contact Force:	<560 grams typical
Environment:	Recommended for testing in dry air, inert / non-corrosive gases, or vacuum
Power:	Includes power supply

OPTIONS

High temperature option (-HT suffix) for use to 1600 °C
 Load frame mounting brackets
 Bulkhead adapters for use in vacuum chambers
 Model EPS170 constant-temperature recirculating chiller - see the Options tab on the web page for important details about liquid cooling requirements
 Connectors to interface to nearly any brand of test equipment
 Rod tips can be straight chisels or conical tips; specify when ordering

ORDERING INFORMATION

Ceramic rod lengths are made to fit furnaces as required. Provide furnace dimensions and electrical outlet type at time of ordering.
 Requires external mounting brackets and 110 - 240VAC / 4W electrical power.
 Liquid cooling is recommended; required for 800 °C and above.
 Other configurations are available with special order; please contact Epsilon to discuss your requirements.

Gauge Length		Measuring Range	
METRIC		METRIC	
-0125M	12.5 mm	-015M	+1.5 mm / -1.5 mm
-025M	25.0 mm	-020M	+2.0 mm / -1.0 mm
		-025M	+2.5 / -0.5 mm
U.S.A.		U.S.A.	
-0050	0.500"	-060T	+0.060" / -0.060"
-0100	1.000"	-080T	+0.080" / -0.040"
		-100T	+0.100" / -0.020"

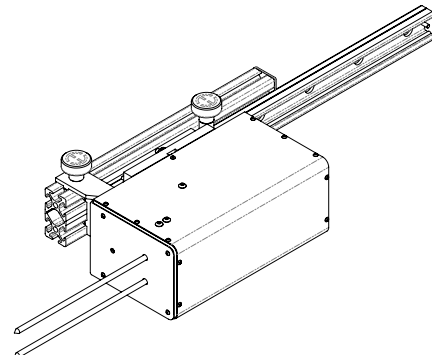
Temperature Range	
-ST	Ambient to 1200 °C (RT to 2200 °F)
-HT	Ambient to 1600 °C (RT to 2900 °F)

Model Number 7650A- _____ - _____ - _____

Example: 7650A-025M-020M-ST: 25 mm gauge length, +2.0 / -1.0 mm measuring range, standard temperature range (room temperature to 1200 °C)



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



MODEL 7650A EXAMPLE