

For use in environmental chambers where the entire extensometer must be exposed to elevated temperatures. These capacitive extensometers may be used up to 700 °C (1300 °F) without any cooling.



Model 7642-010M-025M extensometer

These extensometers use a high-temperature capacitive sensor and do not require any cooling. They will operate up to the maximum temperature limit of most environmental chambers used in materials testing. The Model 7642 is ideal for testing composites, metals and high temperature polymers in tensile, compression or

cyclic testing. All units can be displaced in both compression and tension.

The extensometer is supplied with the advanced DT6229 controller. The standard output is 0-10VDC analog signal, factory calibrated with the extensometer. This system provides a number of functional enhancements, including high speed digital output, built in calibration and tare functions, analog and digital filters, and more.

The 7642 is readily interfaced with most existing test controllers, and may be directly connected to a data acquisition system or chart recorder, or directly to a PC. The 7642 may be used for strain controlled tests such as low cycle fatigue (LCF).



Model 7642-050M-125M extensometer



Models 7642 and 7675 extensometers



Models 7642 and 7675 extensometers

## Features

- **May be left on through specimen failure.**
- Improved performance at high temperature.
- Reduced size and weight, and improved high frequency performance up to 100 Hz.
- Improved noise rejection.
- 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
  - Intuitive web-based user interface for setup, calibration, and data acquisition
  - Built-in calibration reference and auto-zero features
  - Multiple extensometer calibration files may be loaded for use with one controller
  - Multiple temperature-specific calibrations may be stored
  - Selectable analog and digital filter options from 2 Hz to 3 kHz
- Ships fully calibrated with electronics with user specified voltage output. (traceable to NPL).
- All models can measure in both tension and compression and may be used for cyclic testing.
- Mechanical over-travel stops.
- Hardened tool steel knife edges are easily replaced. A spare set comes with every extensometer.
- Includes high quality foam lined case and a spare set of knife edges.
- Rugged, dual flexure design for strength and improved performance. Much stronger than single flexure designs, this also allows cyclic testing at higher frequencies.

## SPECIFICATIONS

<b>Analog Output:</b>	User specified, $\pm 5$ VDC or $\pm 10$ VDC typical, $\pm 10.8$ VDC rail
<b>Digital Output:</b>	24 bit high speed Ethernet output with built-in web interface
<b>Accuracy:</b>	Standard configurations meet ASTM E83 class B-1 and ISO 9513 class 0,5 requirements for accuracy. A test certificate is included.
<b>Linearity:</b>	11 point linearization, $\leq 0.1\%$ FS typical linearity
<b>Resolution:</b>	$< 55$ PPM (0.006%FS) RMS @4 kHz, $< 6$ PPM (0.0006%FS) @100 Hz
<b>Cyclic Testing:</b>	$> 25$ Hz typical, up to 100 Hz with small travel units, @0.5 mm travel
<b>Analog Filter:</b>	Selectable 100 Hz analog and 2 Hz - 3 kHz digital filters
<b>Temperature Range:</b>	Ambient to 700°C (1300°F). Use up to 800 °C is possible – contact Epsilon for details. Wire forms may require periodic adjustment or replacement after long-term testing above $\sim 600$ °C.
<b>Temperature Sensitivity (Gain):</b>	$< 100$ PPM/°C (0.01%FS/°C) typical
<b>Temperature Sensitivity (Offset):</b>	20 PPM/°C (0.002%FS/°C) typical
<b>Sensor Cable:</b>	0.7 m (2.5 ft) tri-axial high temperature cable, plus 1.5 m (5 ft) room temperature extension cable
<b>Standard Quick Attach Kit:</b>	Fits round samples up to $\varnothing 15$ mm (0.60"). Fits flat samples up to 50 mm (2.0") wide with thicknesses up to 6.35 mm (0.25"), and up to 19 mm (0.75") wide with thicknesses from 6.35 mm to 12.5 mm (0.25" to 0.50")
<b>Operating Force:</b>	$< 100$ g typical
<b>Environment:</b>	Recommended for elevated temperature testing in dry air, inert / non-corrosive gases, or vacuum
<b>Power:</b>	Includes power supply for your country (specify)

## OPTIONS

- Gauge length adapter kits (for use at temperatures  $\leq 300$  °C (570 °F))
- Connectors to interface to nearly any brand of test equipment
- Bulkhead adapters for vacuum chambers
- Dual-channel DT6229 controller available

## ORDERING INFORMATION

Model 7642 Available Versions: ANY combination of gauge length, measuring range and temperature range listed below is available, except as noted. Other configurations may be available with special order; please contact Epsilon to discuss your requirements.

Gauge Length		Measuring Range	
METRIC		METRIC	
<b>-010M</b>	10.0 mm	<b>-025M</b>	+2.5/-0.5 mm*
<b>-012M</b>	12.0 mm	<b>-075M</b>	+7.5/-1.5 mm**
<b>-0125M</b>	12.5 mm	<b>-125M</b>	+12.5/-1.5 mm**
<b>-020M</b>	20.0 mm		
<b>-025M</b>	25.0 mm	U.S.A.	
<b>-050M</b>	50.0 mm	<b>-010T</b>	+0.10"/-0.02"**
U.S.A.		<b>-030T</b>	+0.30"/-0.05"***
<b>-0050</b>	0.50"	<b>-050T</b>	+0.50"/-0.05"***
<b>-0100</b>	1.00"		
<b>-0200</b>	2.00"		

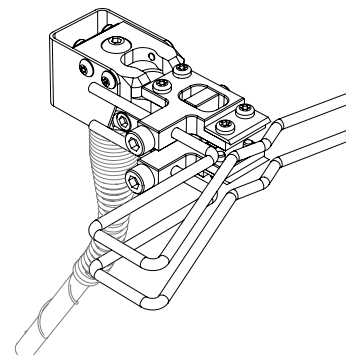
Model Number 7642- \_\_\_\_\_ - \_\_\_\_\_

\* Tilted cable exit

\*\* Vertical cable exit

Example: 7642-0100-030T: 1.00" gauge length, +0.30"/-0.05" measuring range

Visit [www.epsilontech.com](http://www.epsilontech.com) to see more extensometry  
Contact us for your special testing requirements.



MODEL 7642 EXAMPLE