

THMSEL600 / THMSEL350V / TSEL1000

Temperature and Environmental Control Stages for Ellipsometry



TSEL1000

Wide Temperature Range

Heating and cooling from
< -195°C to 1000°C,
customised for ellipsometry

Ellipsometry Windows

Spectroscopy grade quartz
windows available in a range
of thicknesses

Atmospheric Control

A range of stage chambers
supporting vacuum, gas
purging and humidity

Introducing the THMSEL600 and THMSEL350V

Linkam's THMS600, one of the most widely used heating and freezing stages, has been modified in collaboration with world leading ellipsometer manufacturers to produce stages with optimal optical access, the THMSEL600 and THMSEL350V.

The THMSEL600 is fitted with a silver heater with a temperature range of $< -195^{\circ}\text{C}$ to 600°C , it has a gas tight chamber and quick-release gas ports allowing atmospheric composition control.

The THMSEL350V is fitted with a vacuum compatible nickel plated copper heater with a temperature range of $< -195^{\circ}\text{C}$ to 350°C . The stage body can be fitted with gas ports for atmospheric composition control, or vacuum trumpets for a vacuum down to 10^{-3} mBar.

Samples are quickly characterised by heating to within a few degrees of the required temperature at a high rate, then slowed down to a few tenths of a degree per minute to closely examine sample changes. Our LINK software can be used to control the entire experiment and additionally allows the experimental data to be charted or exported for further analysis.

A system requires a THMSEL stage and a T96-S temperature controller, which is available with either LINK software for computer control, or a LinkPad touch screen for stand-alone control. For cooling below ambient temperatures, an optional LNP96-S liquid nitrogen pump is also available.



THMSEL600

Features

WIDE TEMPERATURE RANGE

The temperature range spans from $< -195^{\circ}\text{C}$ (using the optional LNP96-S) up to 600°C (350°C for the THMSEL350V), accommodating a versatile range of experimental conditions. The stage body is water-cooled for work above 300°C .

RAPID HEATING / COOLING RATES

The powerful T96-S controller allows the stage to heat samples at a maximum rate of $150^{\circ}\text{C}/\text{minute}$ ($30^{\circ}\text{C}/\text{minute}$ for the THMSEL350V)

HIGH DEGREE OF ACCURACY AND STABILITY

The embedded high quality Pt100 platinum sensor guarantees high accuracy and stability throughout the temperature range.

XY MANIPULATORS

Sample position can be controlled over 15mm of travel in both X and Y directions via the precision ground manipulators.

ATMOSPHERIC CONTROL

Quick-release gas ports to allow atmospheric composition control or vacuum (THMSEL350V).

WINDOWS

Various thickness spectroscopy-grade quartz windows are available, custom-designed for use with ellipsometers.

CUSTOM OPTIONS

Please contact us with details of your requirements.



THMSEL350V

Introducing the TSEL1000

Based on Linkam's highly successful TS range of high temperature stages, the TSEL1000 has been modified with a special optical adapter to facilitate use on an ellipsometer. The TSEL has a ceramic heater with a temperature range of ambient to 1000°C, it has a gas tight chamber and quick-release gas ports allowing atmospheric composition control.

Samples are quickly characterised by heating to within a few degrees of the required temperature at a high rate, then slowed down to a few tenths of a degree per minute to closely examine sample changes. Our LINK software can be used to control the entire experiment and allows the experimental data to be charted or exported for further analysis.

A system requires a TSEL1000 stage and a T96-S temperature controller, which is available with either LINK software for computer control, or a LinkPad touch screen for stand-alone control.

Features

WIDE TEMPERATURE RANGE

The temperature range spans from ambient up to 1000°C, accommodating a versatile range of experimental conditions. The stage body is water-cooled for work above 300°C.

RAPID HEATING /COOLING RATES

The powerful T96-S controller allows the stage to heat samples at a maximum rate of 200°C/minute.

ATMOSPHERIC CONTROL

Quick-release gas ports for environmental control.

WINDOWS

Various thickness spectroscopy grade quartz windows are available, custom-designed for use with ellipsometers.

CUSTOM OPTIONS

Please contact us with details of your requirements.



Technical Specification

	THMSEL350V	THMSEL600	TSEL1000
Temperature Range	< -195°C to 350°C	< -195°C to 600°C	Ambient to 1000°C
Heating/Cooling Rates	Up to 30°C/min	Up to 150°C/min	Up to 200°C/min
Aperture	1.3mm Ø	2mm Ø	1.7mm Ø
Sample Area	22mm Ø	22mm Ø	17mm Ø
Temperature Stability	< 0.1°C	< 0.1°C	< 1°C
Temperature Sensor	PT100	PT100	Thermocouple
Vacuum Support	Yes (10 ⁻³ mBar)	No	No

Discover More...



Control Options

Take control of your experiment with LINK software, or the stand-alone LinkPad touch screen, alongside the T96 temperature controller.

Both LINK software and LinkPad share a unified user interface that can control and monitor temperature and many other parameters including vacuum, humidity, tensile and shear force (dependent on system). The LinkPad provides an easy-to-use interface to the T96, for total control without a PC. Profiles with up to 100 ramps can be programmed, allowing simulation of complex processes.

LINK software enhances this with data-logging functions and real time graphical feedback. Optional modules to enhance your system include the LINK Imaging Module for synchronised image capture, the LINK Extended Measurements module to measure key image features, the LINK 21CFR11 Module for data regulatory compliance, and LINK TASC providing image-based thermal analysis.



Optical DSC450

The DSC450 provides a route to sample calorimetry measurements with a dual-pan differential scanning system, enabling optical sample analysis via reflected light through the transparent quartz DSC pan lid.

The design allows mounting of the device on a microscope, enabling image and time lapse recording of sample transitions at high resolution. A sealed crucible is also available for those wishing to conduct closed-lid experiments.

The DSC450 enables the user to measure and image thermal phase transitions (such as melting points and glass transitions) of a wide range of substances whilst accurately controlling temperature from -150°C to 450°C.



Thermoelectric Cooling Systems

Linkam's range of Peltier stages are easy-to-use thermoelectrically cooled instruments providing a straightforward means of temperature control with minimal setup.

They do not require liquid nitrogen to cool below ambient temperature and provide a simple turnkey solution with +/- 0.1°C temperature stability and control, in addition to rapid sample loading and precise sample positioning.

Peltier stages are supplied as part of a system that includes a T96-P controller, LinkPad touch screen display to control experiment parameters, and an ECP water circulator. These systems are also compatible with our optional LINK software to add features such as data logging, charting, data export options and modules enabling further capability, such as imaging and image analysis.

Contact Details


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We make scientific instruments that help characterise materials from polymers to biological tissue and metals to composites. Our instruments are used for research by the world's most advanced scientific organisations and companies. Each of our instruments are designed and manufactured in-house by our team of highly experienced electronics, software and mechanical design engineers. We design and develop solutions for sample characterisation by collaborating with the best scientists in the world. Will you be next?

Linkam products are constantly being improved, hence specifications are subject to change without notice.
TASC products are a family of techniques developed by Prof. Mike Reading (Cyversa) and Linkam.



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