

TSA02i Inverted Microscope Thermal Stage



Instec's TSA02i is a Thermo Electric Cooler (Peltier) based thermal stage designed specifically for inverted optical microscopes. It features a large sample chamber, simple thermal control, improved atmospheric control, wide adjustable viewing window, and customizable base plate.

The TSA02i's sample chamber can accommodate specimens and slides up to 53 mm X 78 mm. The peltier thermal unit both heats and cools without the need for an expensive chiller or a supply of liquid nitrogen. This is convenient for performing long duration experiments at cold temperatures. It also simplifies the system set up and reduces operating costs. The lid allows for precision temperature control, gas purge, and atmospheric control. Purge gas is pre-heated/cooled before entering the sample chamber for improved thermal performance. The lid windows are defrosted for low temperature operation, and ports are available for the user's own atmospheric sensors, e.g. CO₂, humidity, etc. The viewing aperture can be a 40mm wide window or replaced with smaller windows for better thermal operation. In addition an inner lid is available for even better thermal uniformity. The TSA02i base plate is removable and replaceable. It can be customized to fit your specific microscope stage.

TSA02i is an ideal solution for applications such as Cell Culture, Biology, and Thermal Microscopy for inverted microscopes.



Hot & Cold Stages

Features

- Programmable Precision Temperature Control from -25° C to 60° C
- Peltier-Based Inverted Microscope Thermal Stage
- Accommodate Up To 53 mm x 78 mm Sample Size
- Variable Sized Sample Plates
- Pre-Heated or Pre-Cooled Gas Purge
- Electric Wire Access to Sample Chamber
- Controlled Fast Heating and Cooling Rate
- Extra Large Viewing Aperture
- Removable and Exchangeable Windows
- Dual Pane Windows for Better Thermal Isolation
- Integrated Aperture Window Defrost System
- Variable Sample Chamber Height
- Gas Purge Sample Chamber
- Inner Lid and Sample Plate for Improved Sample Temperature Uniformity and Versatility
- Optional Higher Temperature Limit Available

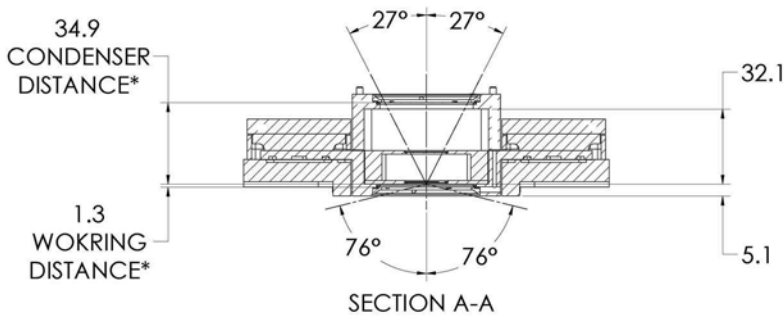
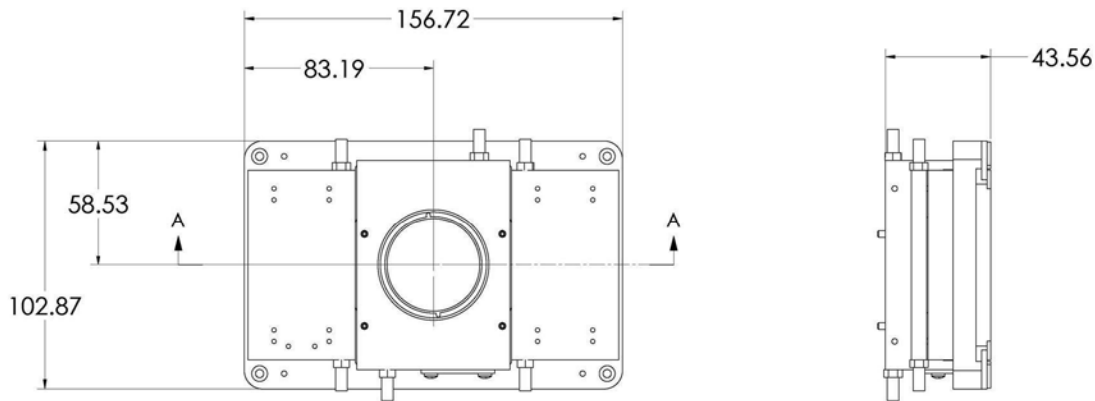
Technical Specifications

Temperature Range	-25 °C to 60 °C (Optional higher temperature limit available)
Temperature Resolution	0.01 °C with mK1000
Temperature Stability	±0.01 °C at 37 °C with mK1000
Minimum Heating and Cooling Rate	±0.1 °C per hour
Maximum Heating Rate	+50 °C per minute at 37 °C
Maximum Cooling Rate	-50 °C per minute at 37 °C
Temperature Control Method	PID with Linear Variable DC
Temperature Control Sensor	100 Ω Platinum RTD
Minimum Objective Working Distance	1.3 mm (with outer window installed) 2.8 mm (with outer window and sample plate installed) 0 mm (with outer window removed)
Minimum Condenser Working Distance	35 mm (with outer cover and window installed) 14.6 mm (with inner cover installed and outer cover removed)
Sample Area	53 mm x 78 mm
Chamber Height (with sample plate removed)	12.8 mm with inner cover 32 mm with outer cover
Sample Viewing Aperture	17 mm for transmitted light, with sample plate 40 mm for transmitted light, without sample plate

Ordering Information

Part Number	Description
TSA02i-mK1000	TSA02i, inverted microscope thermal stage with mK1000, 115V/230V, WP115F or WP230V and software included
HT-A+90C	Optional higher temperature limit to 90 °C, for TSA02i, HCS60
Accessories	Description
mK1000 Options	Please refer to the mK1000 Temperature Controller section for mK1000 controller options (e.g. IEEE-mK1000: IEEE 488 communication port)

Physical Dimensions & Cross Section View



*DISTANCE IS CALCULATED WITH BOTH WINDOWS INSTALLED AND WITH OUTER COVER INSTALLED, BUT WITHOUT SAMPLE PLATE INSTALLED.