

Accessories for Hot and Cold Stages, Chucks, and Plates

STC200 SERIES TEMPERATURE CONTROLLER

Description

STC200 is a precision auto-tune PID digital temperature controller. The base model of the STC200 uses a 120/230V AC line voltage as heater power supply. When ordered with one of our hot and cold stages, chucks, or plates, the heater voltage of the STC200 will be individually configured according to the particular stage, chuck, or plate ordered, and can not be used with any other models. The STC200 has dual auto-tune PID outputs, one for heating, while the other for cooling. RS232 is included in the base model which includes WinTemp, a Windows based software, and a sample LabVIEW driver. STC200 is designed to take both Platinum RTDs and Thermocouple temperature sensors.

Features:

- Dual PID outputs for heating and cooling
- Easy to use auto-tune PID parameters
- Programmable control from -190°C to 1500°C
- RS232 Com Port and WinTemp Software included
- Free LabVIEW driver for RS232
- Compatible with all Instec hot and cold stages, chucks, and plates - controller cannot be switched to use with different stage/chuck/plate model
- Optional IEEE port with sample LabVIEW driver



Back view of STC200. The cooling fan is model dependent, and the IEEE port is optional.

Out2 is for PID controlled cooling to be connected with LN2-SYS liquid nitrogen cooling systems, or WP115C/WP230C circulation water pump.

Out3 is for cooling the frame of a stage, chuck, or plate, and is connected with WP115V/WP230V frame cooling circulation water pump.

Technical Specification

Control Algorithm	Auto-tune PID
Maximum Temperature	2315 °C (also limited by sensor and hot stage/chuck/plate type)
Minimum Temperature	-200 °C (also limited by sensor and hot stage/chuck/plate type)
Temperature Resolution	0.1 °C
Calibration Accuracy	±0.1 °C or ±0.1% of temperature span
Controlled Heating Rate	0.1 to 300 °C in 1 min. (also limited by the stage/chuck/plate and power supply)
Controlled Cooling Rate	-0.1 to -300 °C in 1 min. (also limited by the stage/chuck/plate and user supplied coolant)
Host Interface	PC-compatible RS232 serial communication port included. IEEE optional.
Host Software	WinTemp, Windows 95, 98, NT, 2000, XP compatible software which provides a fully programmable graphic user interface. Free sample LabVIEW driver also available for RS232.
Dimension	5" x 10" x 13"

Ordering information

Part Number	Description
IEEE-STC200	Optional IEEE communication port for the STC200 controller, sample LabVIEW driver included
USB-RS232	USB-RS232 converter, which converts an USB port to a 9 pin RS232 port on the host computer. Drivers included for Windows 2000 and XP.



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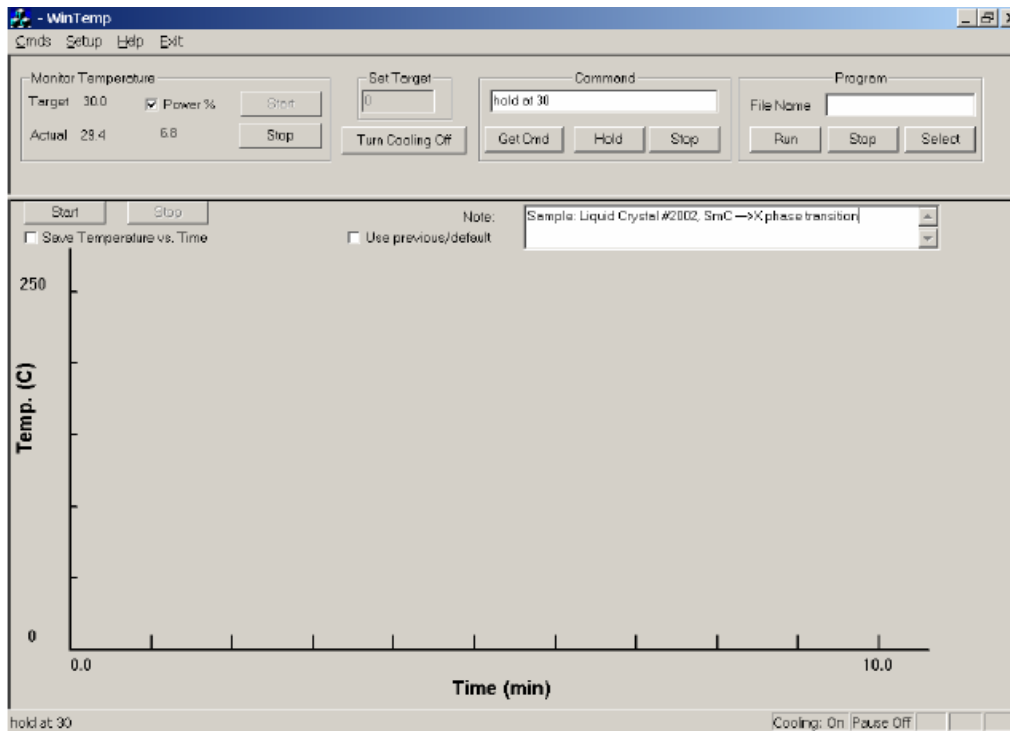
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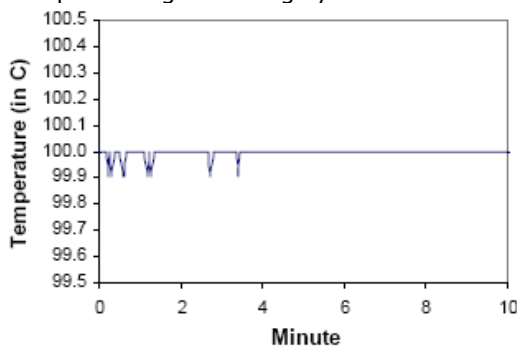
Host Software – WinTemp



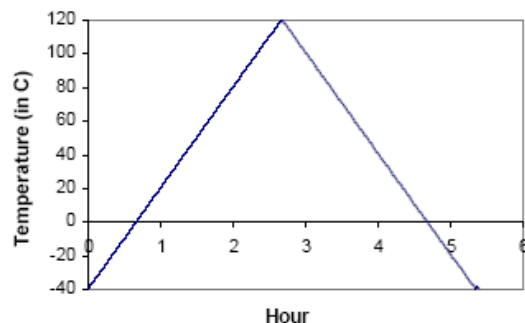
WinTemp software enables sophisticated temperature control, by using simple script commands, such as "hold at 30", "ramp to 120 at 1". Temperature data can be saved to a file as a function of time. During program mode or ramp mode, the program can be paused at the current temperature for a long time until pause is turned off. Once pause is turned off, the program will be resumed. During the pause mode, the up and down arrow keys can be used to increase and decrease by 0.1°C.

Performance Curves

Below data was taken using Instec HCS410 hot and cold stage with STC200 temperature controller and LN2-P2AF2 liquid nitrogen cooling system.



Above graphic shows temperature stability at 100°C.



Above graphic shows controlled heating and cooling: ramp up and down at 1°C/minute.



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