

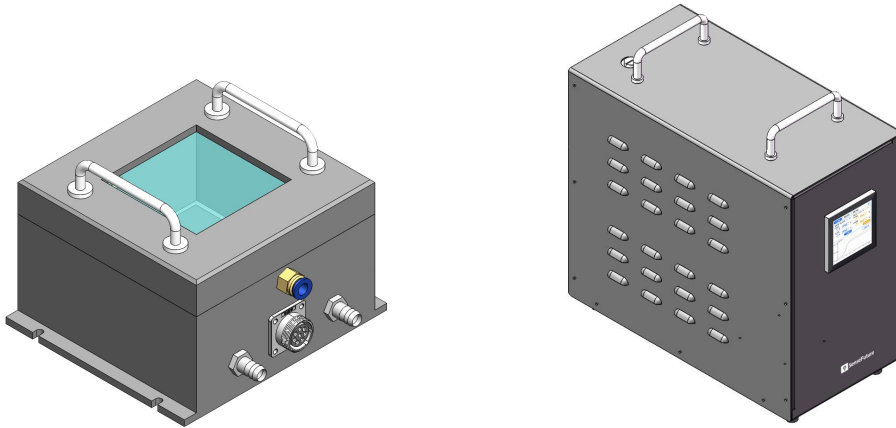
TEC High and Low Temperature Aging Test Bench

PRODUCT INTRODUCTION

Striving for the Bright Future of Precision Optoelectronic Measurement.

01 Product Functions

This product consists of two parts: a TEC high and low temperature bench and a water-cooled temperature controller. It adopts a semiconductor refrigeration chip as the cooling and heating element to build a high and low temperature test platform. It can conduct rapid high and low temperature tests for micro-display products, LEDs, wafers, chips, detectors, sensors, photomultiplier tubes and other products.

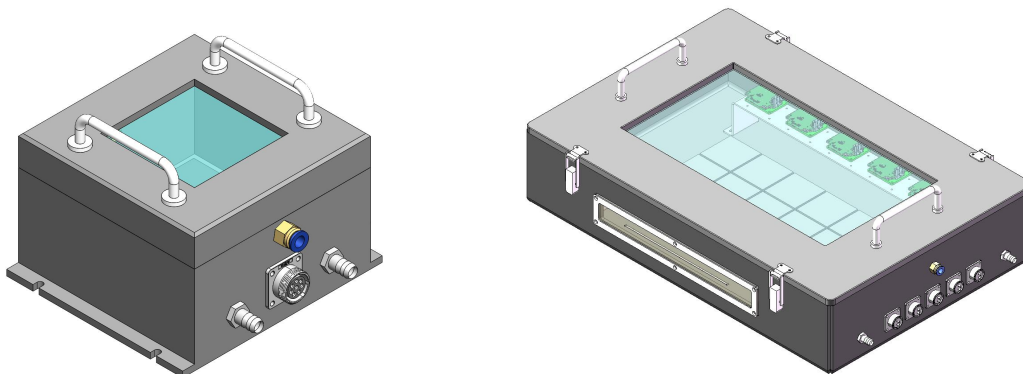


TEC High and Low Temperature Bench (Left) and Water-Cooled Temperature Controller (Right)
(Product functions are subject to iteration; please refer to the physical product for accuracy)

02 Product Features

- Rapid temperature change, greatly accelerating the high and low temperature aging speed;
- Small footprint, easy to move;
- High temperature control stability, $\pm 0.1^{\circ}\text{C}$ or $\pm 0.01^{\circ}\text{C}$;
- Temperature control range of $-40\sim 140^{\circ}\text{C}$, other ranges can be customized;
- Plane temperature uniformity lower than $\pm 0.1^{\circ}\text{C}$;
- The temperature control system is equipped with overcurrent, overvoltage and overtemperature protection;
- Heat dissipation method: Water cooling;
- The entire temperature control system can be customized according to customer needs.

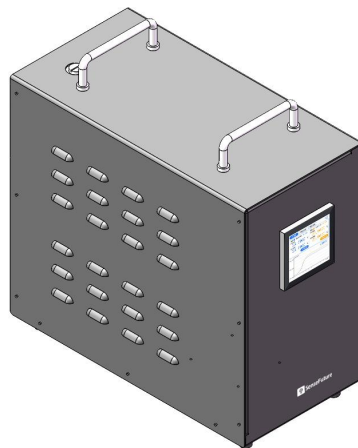
03 Parameter Table of Test Bench



TEC High and Low Temperature Bench (Left: Single Platform; Right: Multi-Platform) (Customizable according to customer needs)

Parameter	Model		Unit
	TECP (Customizable according to customer needs)		
Platform Size	50*50 (single platform size; other sizes customizable)		mm
Built-in Sensor	PT1000		
Temperature Variation Range	-40~140		°C
Temperature Change Rate	0~10		°C/s
Power Supply Requirement	< 24V, < 10A		
Case Size	150*150*100 (Customizable)		mm
Weight	≈2		kg
Operating Environment Temperature Range	-10~50		°C
Operating Environment Humidity Range	0~98,no condensation		%RH
Other Operating Environment Requirements	Atmospheric pressure: 80~110		Kpa
Storage Temperature Range	-40~70		°C

04 Parameter Table of Water-Cooled Temperature Controller

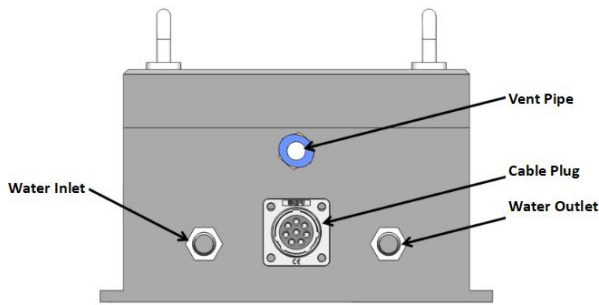


Water-Cooled Temperature Controller

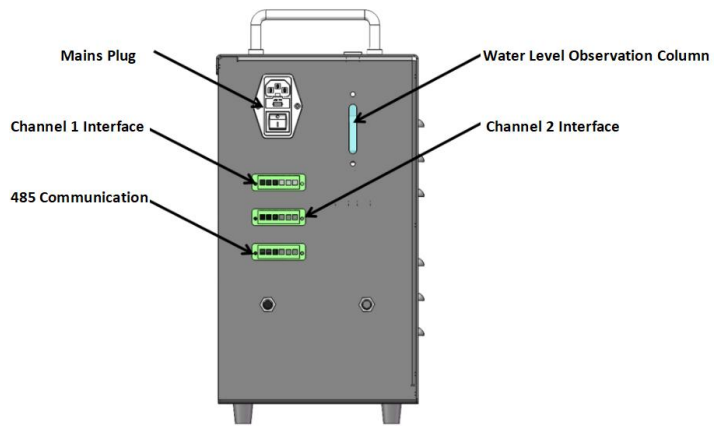
Parameter	Model				Unit
	WCTC115L	WCTC115	WCTC215L	WCTC215	

Supported Sensors	NTC/PT1000/PT100				
Supported Temperature Measurement Range	-270~850				°C
Temperature Measurement Sensitivity	0.001	0.0001	0.001	0.0001	°C
Temperature Measurement Drift Caused by Ambient Temperature	0.0001				°C/°C
Optimal Temperature Control Stability (related to your temperature control structure design)	±0.01	±0.001	±0.01	±0.001	°C
Communication Method	485 Serial Port (supports two communication protocols: Modbus and ASCII code)				
Power Supply Voltage Requirement	AC180~264V, 47~63Hz				
Output Polarity	Bidirectional or unidirectional (optional)				
Number of Output Channels	1		2		
Maximum Allowed Output Voltage	Configurable				
Output Current Range	0~±15A/channel; 0~±80A/SSR (Solid State Relay)				
Output Current Limit	±10		±20		A
Circuit Board Overtemperature Protection	Yes				
Power-off Memory Function	Yes				
PID Parameters	Supports self-tuning/user adjustment				
Operating Environment Temperature Range	-55~60				°C
Operating Environment Humidity Range	0~98				%RH
Other Operating Environment Requirements	Atmospheric pressure: 80~110Kpa				
Storage Temperature Range	-40~70				°C
Dimensions	400*200*350				mm
Weight	≈3				kg

05 Introduction to Terminal Blocks



TEC high and low temperature bench terminal block

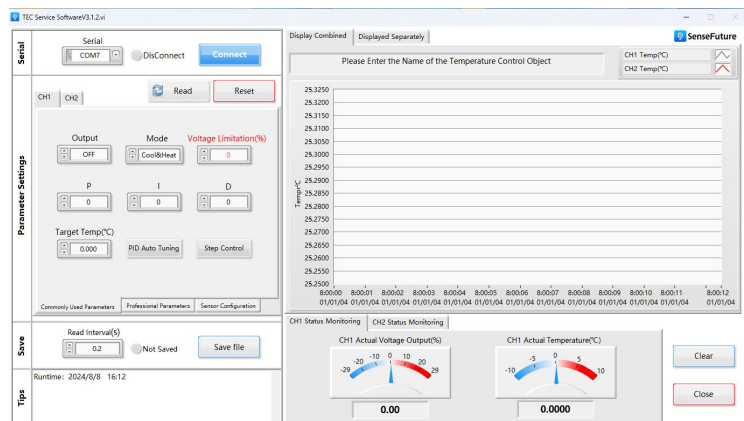


Terminal blocks on the back panel of the water-cooled temperature controller

06 Screen and Computer Interface (Please contact engineers for communication protocols)



Touch Screen Display Diagram



Computer Software Interface of Temperature Controller

07 Selection Table

Model	Stability (°C)@20°C	Supported Sensor Types	Number of Channels	Driving Capacity @24V	Power Supply	Dimensions	Features
WCTC115L	±0.01	NTC PT	1	±7A/channel	220V AC	340*240*128 mm	Two channels, medium current
WCTC115	±0.001						
WCTC215L	±0.01		2	±15A/channel; ±80A/solid state relay method			Two channels, high current, supports solid state relays
WCTC215	±0.001						

Temperature Measurement Range and Sensitivity of Temperature Sensors Matching WCTC115/215

Sensitivity	NTC (500k B4250)	NTC (100k B3950)	NTC (10k B3950)	NTC (1k B3470)	PT1000	PT100
$\leq \pm 0.001^\circ\text{C}$	60~300°C	25~210°C	-20~150°C	-60~70°C	-200~800°C	—
$\leq \pm 0.01^\circ\text{C}$	60~470°C	25~350°C	-20~200°C	-60~110°C	—	-200~800°C
$\leq \pm 0.1^\circ\text{C}$	60~550°C	25~500°C	-20~290°C	-60~180°C	—	—

Temperature Measurement Range and Sensitivity of Temperature Sensors Matching WCTC115L/215L

Sensitivity	NTC (500k B4250)	NTC (100k B3950)	NTC (10k B3950)	NTC (1k B3470)	PT1000	PT100
$\leq \pm 0.01^\circ\text{C}$	60~400°C	25~290°C	-20~180°C	-60~100°C	-200~800°C	—
$\leq \pm 0.1^\circ\text{C}$	60~550°C	25~430°C	-20~280°C	-60~130°C	—	-200~800°C
$\leq \pm 1^\circ\text{C}$	—	25~550°C	—	-60~180°C	—	—

We have comprehensive capabilities to provide temperature control solutions. For customized temperature control systems, please contact us.

Version Change Log

Version No.	Modification Details	Change Date	Reviewer
1.0	Initial version	2025/10/16	WST、WYR

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