



WB-T Transparent Water Bath

Please read the User Manual carefully before use, and follow all operating and safety instructions!



user manual
english

User manual



WB-T Transparent Water Bath

Preface

Thank you for purchasing our Heating Mantle. Users should read this manual carefully, follow the instructions and procedures, and beware of all the preventive measures when using this instrument.

Service

If help is needed, you can always contact your dealer or Labbox via www.labbox.com

Please, provide the customer service representative with the following information:








- Serial number (on the back side)
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts that have been damaged due to improper installation, improper connections, misuse, accident, or abnormal conditions of operation.

For claim under the warranty, please contact your supplier.

1. Safety Instructions

	Connect the device to an earthed socket to ensure the safety of the machine and the experiment. Make sure the voltage is the same as required by the device.
	The use of this instrument in flammable, explosive, poisonous, or highly corrosive environments or with hazardous substances is forbidden.
	Place the incubator on a horizontal, flat, clean, non-slip and stable surface. Adjust the feet so that the device is leveled.
	This item must only be used by qualified staff that has read the instructions manual and knows how to operate it.
	Do not place the device near any heat source. Keep away from high magnetic fields. Do not put volatile, flammable and explosive materials in the machine, otherwise it could cause an explosion or a fire.
	Non-professionals must not disassemble or repair this machine.
	Read the instructions manual before using this device.

- When working, wear the necessary personal protective equipment to avoid the risk of:
 - Burns caused by contact with hot surfaces or materials
 - Burns caused by splashing and evaporation of liquids
 - Intoxication caused by release of toxic or flammable gases.
- Set up the instrument on a spacious, stable, clean, non-slip, dry, and fireproof surface that can support the weight of the equipment. Do not operate the instrument in explosive atmospheres or with hazardous substances.
- During use, do not touch the heating pipe with your hands as it could cause burns.
- The temperature must be set at least 25°C below the flash point of the substances used.
- Process pathogenic materials only in closed vessels.
- Beware of hazards due to:
 - Flammable materials or media with a low boiling temperature
 - Overfilling of the vessel
 - Unsafe vessels
- The instrument can only be disconnected from the main power supply by pulling from the plug, not the cable.

- Check the instrument and accessories before handling for damage prior to every use. Do not use damaged components. Safe operation is only guaranteed with the accessories described in the “Accessories” chapter. Accessories must be securely attached to the device and cannot come off by themselves. Always disconnect the plug before the assembly or disassembly of accessories.
- The voltage stated on the label must correspond to the main power supply.
- Ensure that the mains cable does not touch the heating base.
- Do not cover the device.
- Keep away from high magnetic fields.
- Pay attention to the temperature setting. Never leave the equipment unattended while the heating function is ON.

2. Product description

2.1. Summary

This product is suitable for distillation, concentration, drying and thermostatic heating in medical units, universities and schools, scientific research units, and laboratories of industrial and mining enterprises like chemical painting and dyeing enterprises or pharmaceutical enterprises.

2.2. Structure features

- The innovative design structure that effectively prevents steam leakage.
- Intelligent temperature control instrument with high-brightness digital display and touch key that allows simple operation and high-precision temperature control.
- The shell, interior and cover of the product are all made of transparent engineering plastics which allow to clearly see the object that is being heated.

2.3. Cleaning and maintenance

- Before use, add water until it reaches the clapboard, then connect to the power supply and heat up. Samples cannot be heated without sufficient water.
- The equipment must be used only when the resistor is covered by water; doing otherwise will harm the resistor.
- Avoid violent vibration, collisions, and keep away from corrosive gas.
- After use, empty the tank, dry it, and clean it. Proper maintenance could lengthen the device’s working lifetime.
- Do not spray cleanser directly onto the device.

- If sent in for repair, clean, disinfect and pack it in its original packaging before shipping.

2.4. Main technical parameters

Function	Voltage (V)	200-240 /100-120
	Power (W)	800
	Sensor	Pt100
	Temperature Motion (°C)	±0.5
	Temperature Range (°C)	0~100
	Temperature Sensitivity (°C)	≤±1
	Time Range	0~9999 min or hours
	Measurement error	< 0.3%
Structure	Shelves Height (mm)	Distance from bottom 100mm
	Shelves Holes Diameter	5 X104mm
	Inner Chamber Size (L*W*H)	280 x 220 x150 mm
	Exterior Size (L*W*H)	400 x 260x 190 mm
	Packing Size (L*W*H)	450 x 350 x270 mm
	N.W. (KG)	3.5
	G.W. (KG)	5
Working conditions	Environmental temperature (°C)	5~40
	Relative humidity	RH < 85%

2.5. Control monitor

Indicators

RUN/AT: lights up when the functions are running. Flashes during auto-tuning.

OUT: lights up when the heating output is working.

ALM: lights up when there is an over-temperature alarm.

SW: lights up when there is not enough water.

Keys

◀: Press to shift the set value in the setting state.

▼: Press to reduce the set value in the setting state. Hold to reduce continuously.

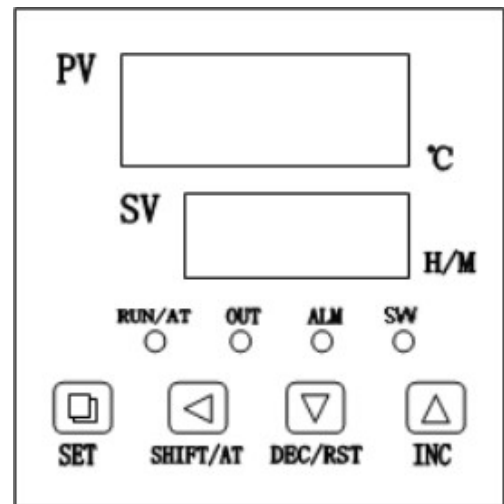
▲: Press to increase the set value in the setting state. Hold to increase continuously.

SET: Press to enter the setting state and to enter a value.

Screen

PV: Displays the measurement value.

SV: Displays the parameter value.



3. Operation

1. Place the water bath on a stable surface that can support the weight of the device and leave 30 cm clear on each side.
2. Fill the tank to 2/3 of the total volume.
3. Connect to a power supply that is consistent with the voltage requirement of this instrument. Make sure it is properly earthed.
4. Switch the device on. The power supply indicator will light up.
5. Set the desired temperature (see instructions below). The temperature controller will display the temperature inside the working chamber.
6. If desired, set the time (see instructions below).

Note: The thermostatic bath cannot be used with deionized, demineralized or distilled water as it will not conduct electricity properly

4. Temperature and time setting

4.1. No timer function

1. Press the **SET** button to enter the setting state → the indicator **SP** and the temperature set value will show.
2. Use ◀ ▼ ▲ to modify the value.
3. Press **SET** to enter → the controller will return to the normal display and the value will be saved

4.2. Timer function

1. Press **SET** to enter the setting state → the indicator **SP** and the temperature set value will show.
2. Press **SET** again → the indicator **SP** and the time set value will show.
3. Use ◀ ▼ ▲ to modify the value.
4. Press **SET** to return to the initial screen. The value will be saved automatically.

When the time is set to 0, the controller will run continuously until manually stopped.

Otherwise, when the timer is set, the lower window will display the temperature set value or the running time depending on the **ntd** parameter configuration (see later). When the time is over, the lower window will display **End** and the alarm will go off and ring for 60s. Stop it by pressing any button. Press the **RST** button for 3s to restart the controller.

5. Self-tuning of PID

When the temperature control effect is not ideal, a system self-tuning can be carried out where the equipment will automatically configure its PID parameters. To do that, follow the next instructions:

- Press **AT** for 6s → the controller will run the auto-tuning function. The **AT** indicator will flash.
- To stop the process, press **AT** for 6s while it is running.
- During the process, the **SET** button does not work, and the lower window always displays the temperature set value.

6. Internal parameters setting

6.1. How to enter

To adjust the internal parameters, you must enter the required password. To do that, follow these instructions:

1. Press **SET** for 3s → the controller will display the password prompt **Lc**.
2. Use ◀ ▼ ▲ to choose the required value (see the password values below).
3. Press **SET** to enter → the controller will enter the internal parameters setting state.

To return to the regular state at any time, press **SET** for 3s.

6.2. Parameter tables

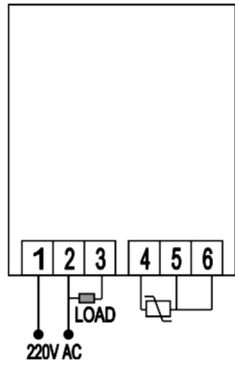
INDICATOR	NAME	INSTRUCTIONS OF THE FUNCTION	(RANGE) DEFAULT VALUE
Lc	Password	The password to modify the parameters in this table is Lc = 3	0
ALH	Over-temp alarm	If $SV > (SP + ALH)$, the ALM light turns on. The buzzer sounds and the heating output turns off.	(0~100.0°C) 20.0
ALL	Under-temp alarm	If $SV < (SP - ALL)$, the ALM light flashes, the buzzer sounds.	(0~100.0°C) 0
T	Control cycle	The temperature control cycle.	(1~60S) 5
P	Proportional band	Adjustment of proportional function.	(1~400.0°C) 35.0
I	Integration time	Adjustment of integration function.	(1~2000S) 200
d	Differential time	Adjustment of differential function.	(0~1000S) 200
Pb	Zero point adjustment	When the error is comparatively larger, this value might need adjustment. $Pb = \text{actual value} - \text{measure value}$	(-12.0~12.0°C) 0
PK	Large value adjustment	Correction of errors caused by sensor high temperature values. $PK = 1000 \times \left[\frac{\text{actual value} - \text{measured value}}{\text{measured value}} \right]$	(-999~999) 0

INDICATOR	NAME	INSTRUCTIONS OF THE FUNCTION	(RANGE) DEFAULT VALUE
Lc	Password key	The password to modify the parameters in this table is Lc = 9	0
ndA	Temp alarm mode	0: With over-temp alarm only. 1: With over-temp alarm and under-temp alarm at the same time.	(0~1) 0
ndt	Timer mode	0: No timer function. 1: With timer function, the lower window displays the running time after the measured temperature reaches to the set value. 2: With timer function, the lower window always displays the setting value.	(0~2) 1
Hn	Timer unit	0: Minutes 1: Hours	(0~1) 0
EH	Timer end mode	0: Continue to maintain the constant temperature when the running time is over. 1: Stop the temperature control when the running time is over.	(0~1) 0
oPn	Auxiliary parameter	0: ON 1: OFF	(0~1) 0
nP	Maximum power	Percentage of maximum power heating output.	(0~100%) 100
Co	Off point	If SV > (SP + Co) , stop the heating output forcibly.	(0~100.0°C) 50.0
SPL	Minimum set point	Adjustment of the minimum temperature.	(0~0) 0
SPH	Maximum set point	Adjustment of the maximum temperature.	(0~400.0) 300.0

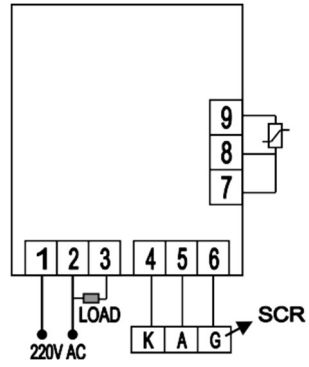
7. Fault analysis

FAILURE	CAUSE	HANDLING METHOD
No power supply	Bad contact between plug and socket	Replace the plug or socket tube
	The fuse is burnt	Replace the fuse with one with the same specifications
No temperature rise	The temperature controller is broken	Replace the instrument
	The sensor is broken	Replace the sensor
	The set temperature is lower than water temperature	Reset the temperature
	The heating pipe is burnt	Replace the heating pipe
There is a big difference between display temp. and actual temp.	The temperature controller	Replace the temperature controller
	The temperature sensor is broken.	Replace the temperature sensor

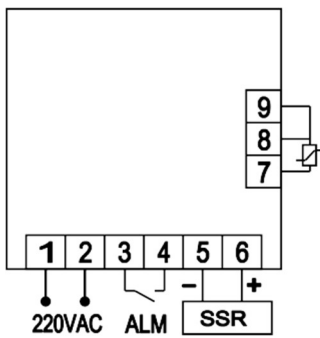
8. Wiring diagrams



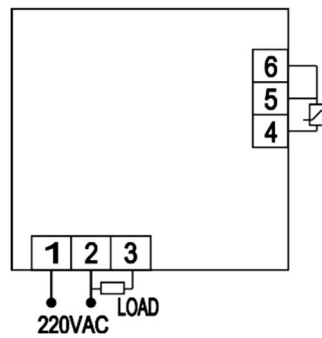
P.1(PCE-E3000)



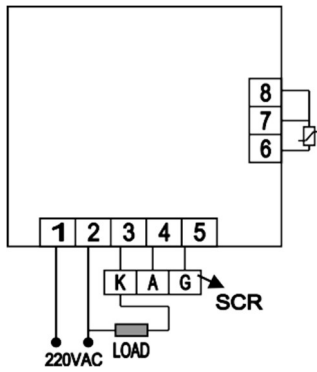
P.2(PCE-E3003)



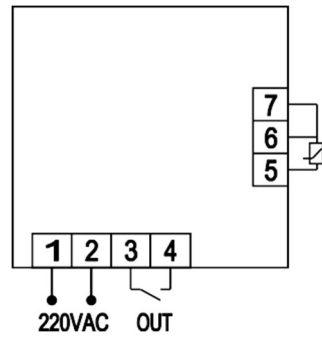
P.3 (PCE-E3001)



P.4 (PCE-E3002)



P.5 (PCE-E3003-N)



P.6 (PCE-E3007)

Nota importante para los aparatos electrónicos vendidos en España

Instrucciones sobre la protección del medio ambiente y la eliminación de aparatos electrónicos:



Los aparatos eléctricos y electrónicos marcados con este símbolo no pueden ser eliminados en forma de residuos urbanos.

De conformidad con la Directiva 2012/19/UE, los usuarios de la Unión Europea de aparatos eléctricos y electrónicos, tienen la posibilidad de devolver sus RAEE para su eliminación al distribuidor o fabricante del equipo después de la compra de uno nuevo. La eliminación ilegal de aparatos eléctricos y electrónicos es castigada con multa administrativa.

Remarque importante pour les appareils électroniques vendus en France

Informations sur la protection du milieu environnemental et élimination des déchets électroniques :



Les appareils électriques et électroniques portant ce symbole ne peuvent pas être jetés dans les décharges.

En réponse à la réglementation, Labbox remplit ses obligations relatives à la fin de vie des équipements électriques de laboratoire qu'il met sur le marché en finançant la filière de recyclage de ecosystem dédiée aux DEEE Pro qui les reprend gratuitement (plus d'informations sur www.ecosystem.eoo).

L'élimination illégale d'appareils électriques et électroniques est punie d'amende administrative.

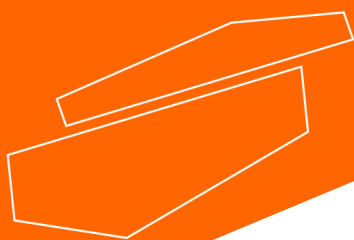
Nota importante per le apparecchiature elettroniche vendute in Italia

Istruzioni sulla protezione ambientale e sullo smaltimento dei dispositivi elettronici:



Le apparecchiature elettriche ed elettroniche contrassegnate con questo simbolo non possono essere smaltite come rifiuti urbani.

In conformità con la Direttiva 2012/19 / UE, gli utenti dell'Unione Europea di apparecchiature elettriche ed elettroniche hanno la possibilità di restituire i propri RAEE per lo smaltimento al distributore o al produttore di apparecchiature dopo averne acquistato uno nuovo. La rimozione illegale di apparecchiature elettriche ed elettroniche è punibile con una sanzione amministrativa.



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