



Product Manual

Water Baths

Heated, Digital

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PLEASE READ THESE INSTRUCTIONS BEFORE USE.

1. Safety Precautions



Read the user manual before use, and ensure operation is performed by qualified personnel. Use the product within the specified load resistance to prevent malfunctions from prolonged exposure to excess conditions.



DO NOT SPILL WATER OUT OF BATH!

The electrical parts are sensitive to water and humidity. If exposed, it may cause damage and it may become the root cause of a fire or an electric shock.



Do not cut, forcibly bend, pull, or tie up the power cable. Placing items on the power cord can cause damage, potentially leading to fire or electric shock.



Do not touch electrical parts, such as the power plug, with wet hands to avoid electric shock. Do not operate the product with a damaged plug to prevent electric shock or short circuits.



Do not use the product in high places, high temperatures, or near heaters or air conditioners, as this can cause temperature instability.



During a thunderstorm, turn off the power and unplug the mains power cord to prevent fire or electrical shock.



Do not remove the ground prong or use an ungrounded adapter. The autoclave requires a 3-pin receptacle; consult an electrician if needed.



Ensure the main voltage matches the value on the nameplate (220VAC, 50/60Hz, single phase).



To reduce the risk of electric shock, do not open the body. No user-serviceable parts inside.



Place the water bath on a flat and levelled surface.

WESTLAB PTY LTD is not responsible for any property damage or personal injury resulting from abuse or improper use of the product.

2. Technical Specifications

SKU	663-310	663-312
Bath Volume	11 Litres	22 Litres
Inner Dimensions	300 W x 240 D x 150mm H	500 W x 300 D x 150mm H
Usable Dimensions	300 W x 240 D x 110mm H	500 W x 300 D x 110mm H
External Dimensions	340 W x 285 D x 270mm H	545 W x 345 D x 270mm H
Net Weight	7 kg	10 kg

Control Panel

Processor	Digital Microprocessor PID Temperature Controller	
Display	Back Light Graphic LCD Display	
Panel	UV Coated Polycarbonate Solid Touch Panel	
Button	Capacitive Touch LED Lighting Touch Button	
Interface	Push & Rotary Encoder Type Jog Dial	
Control Logic	3 Zone PID Control	
Calibration	<ul style="list-style-type: none">• 1 Point Temperature OFFSET• 3 Point Temperature Calibration	
Resolution	0.1°C	0.1°C
Turn-Off Timer	99 Hours 59 Minutes Max.	99 Hours 59 Minutes Max.
Turn-On Delay Timer	99 Hours 59 Minutes Max.	99 Hours 59 Minutes Max.
Sensor	Class B PT-100 Ω Sensor	Class B PT-100 Ω Sensor
Power Restoration	Power and timer restoration function in case of power outage.	

Performance Information

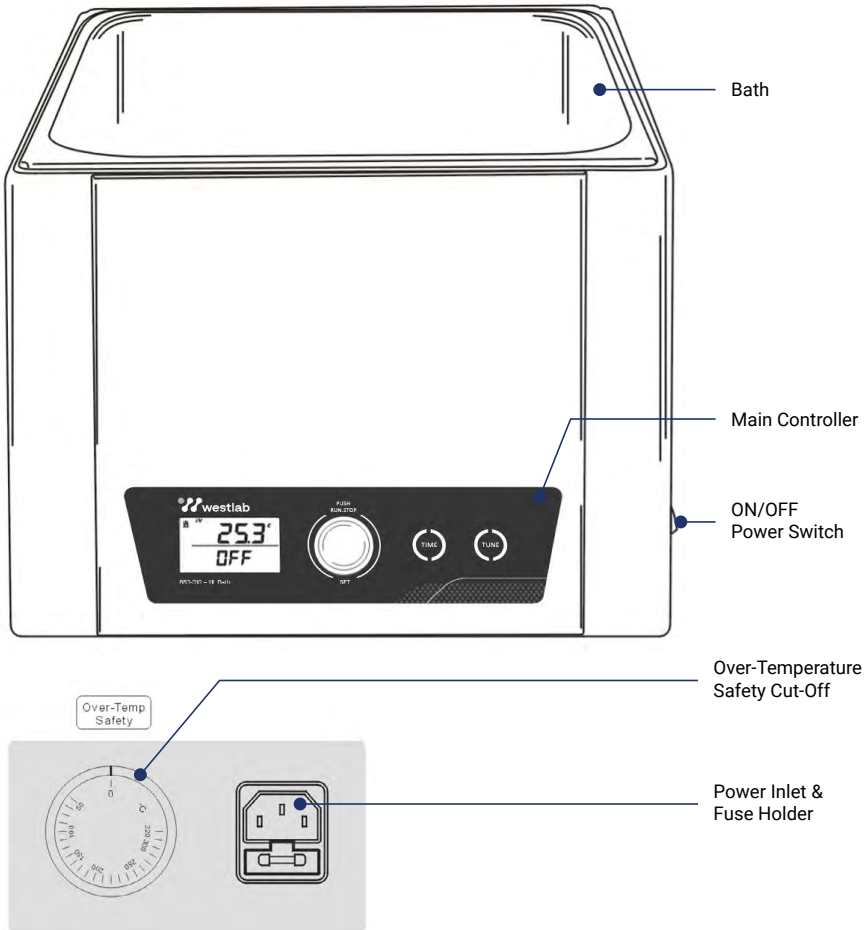
Heating System	Immersed Heating Element
Temperature Range	Ambient +5°C to +99°C
Temperature Accuracy	$\pm 0.2^\circ\text{C}$ at 37.0°C
Temperature Uniformity	$\pm 0.8^\circ\text{C}$ at 37.0°C
Operating Temperature	5°C to 40°C
Operating Relative Humidity	< 80%
Environment	For indoor use only.



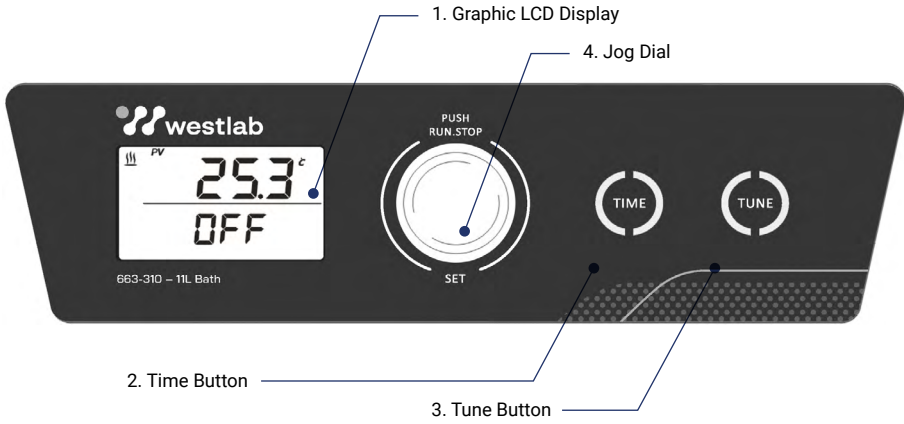
Electrical Information

Rated Voltage	230 ± 10% VAC	230 ± 10% VAC
Power Frequency	50 Hz ~ 60 Hz	50 Hz ~ 60 Hz
Heater Output	1.0 kW	1.5 kW
Nominal Power	1.0 kW 4.6 amp	1.5 kW 6.8 amp
Phase	1 Phase	1 Phase

3. Identification of Parts



Control Panel



#	Icon	Name	Function
1		Digital LCD Display	<p>Displays current operating status.</p> <p>PV: Present value (Temperature in °C or Timer in hh:mm)</p> <p>SV: Set value (Temperature in °C or Timer in hh:mm)</p> <p>HEAT Icon: Turn on during operation.</p> <p>TIMER Icon: Turn on when the timer is activated.</p> <p>WARNING! Turn on when the sensor is short or open.</p>
2		TIME Button	Press to set the timer. Press and hold for 3 seconds to enter the LOCK mode.
3		TUNE Button	Press and hold for 3 seconds to enter the OFFSET (1-Point Temperature Calibration) mode.
4		JOG Dial	<p>Press to start or stop operation.</p> <p>Turn clockwise to increase the selected value.</p> <p>Turn counter-clockwise to decrease the selected value.</p> <p>Press and hold for 3 seconds to save the temperature or time value.</p> <p>Save the temperature and timer settings to restore the operating status after a power outage.</p>



Button Usage

The JOG dial and TIME/TUNE buttons have two functional actions:



PRESS

Press (or push) to activate the main function of the button.



PRESS & HOLD

Press and hold for 3 seconds to enter the extended function or sub-menu of the button.

4. Before Operation



Power Connection

Ensure that the main voltage matches the value on the water bath nameplate: 220VAC, 50/60Hz, single phase.



Do not remove the ground prong (third pin) from the power cord or use an ungrounded adapter. The water bath requires a 3-pin receptacle; consult an electrician if one is not available.



To reduce the risk of electric shock, do not open the body.
No user-serviceable parts inside.



Do not dry out the water bath.

Ensure the bath is filled with enough water to fully immerse the heating element, keeping it submerged during operation.

Getting Started

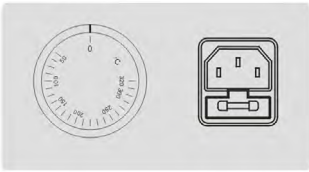
1. Connect the power cord to the wall mounted socket.
2. Install the heater cover on the bottom of bath.
3. Fill an adequate amount of water in the bath.
4. It is recommended to use distilled water to avoid calcification and rust of the heating element.
5. Turn the power switch ON.

Set Over Temperature Protection

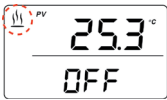
Set the over-temperature protection before operating the unit. Turn the over-temperature safety dial to 10–20°C above the operating temperature. If the protection value is set below the operating temperature, the temperature may fluctuate below the set value.

Set the temperature within the range of 30°C to 320°C, based on your application's maximum allowable temperature.

Over-Temp
Safety



Set Temperature Value



The Basic Controller displays the information when powered ON.

PV indicates that the Present Temperature of the bath.

OFF indicates that the Temperature Control is OFF.

A **Blinking Heat Icon** indicates that the Temperature Control is OFF.

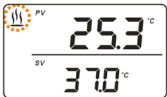


TURN

Turn the **JOG DIAL** to change the temperature Set Value (SV).

To increase the value, turn the dial clockwise.

To decrease the value, turn the dial counter-clockwise.



Set the **Temperature Set Value (SV)**.

For example, 37.0°C.

The maximum temperature limit of the water bath is 120°C.



PRESS

START



LONG
PRESS

SAVE

Press the **JOG DIAL** to START operation.

Press and hold the **JOG DIAL** for 3 seconds to save the temperature value in memory.

Press the **JOG DIAL** again to start.



PRESS

STOP

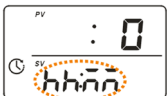
Press the **JOG DIAL** to STOP the temperature control.

Set Time Value



PRESS

Press the **TIME** button to set the Wait-Off Timer.



The controller displays **Present Value (PV)** of the TIMER as 0.

PV indicates the current timer value saved in memory.

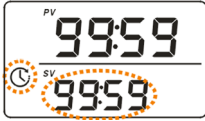
The **TIMER** Icon is turned ON and waits for user input.

The time scale is in hour:minute (hh:mm) format.



TURN

Turn the **JOG DIAL** to change the **Timer Set Value (SV)**.



Set the **Timer Set Value (SV)**.

For example, 99 hours 59 minutes.

The maximum time limit is 99 hours 59 minutes.



PRESS



LONG PRESS

Press the **JOG DIAL** to **START** the timer.

Long press the **JOG DIAL** to **SAVE** the timer for frequent use.

Press the **JOG DIAL** again to **START** the timer.

The bath will beep 3 times when the set timer expires.

START/STOP

SAVE

Press the **JOG DIAL** to **STOP** the timer.

Set Delay Timer



PRESS



LONG PRESS

To set the delay timer, turn **OFF** both temperature control and the timer.

Then, press the **TIME** button to enter the timer mode.

In timer mode, long press the **TUNE** button to enter the Delay Timer (D-TIMER) setting mode.



d-tr indicates that the current mode is in Delay Timer mode.

The **TIMER** icon will blink, indicating it is waiting for user input.

The time scale is in hour:minute (hh:mm) format.



TURN

Turn the **JOG DIAL** to change the Set Value (SV).



Set the **D-TIMER SV** value.

For example, 99 hours 59 minutes.

The maximum time limit is 99 hours 59 minutes.



PRESS



LONG PRESS

Press the **JOG DIAL** to **START** the operation.

Long press the **JOG DIAL** to **SAVE** the D-TIMER for frequent use.

Press the **JOG DIAL** again to **START** the operation.

The temperature control will turn **ON** when the delay timer expires.

START/STOP

SAVE

Press the **JOG DIAL** to **STOP** the delay timer.

Lock Mode

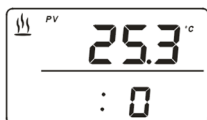


Normal Mode

The normal display during operation.



Long press the **TIME** button to enter **Lock Mode**.



Lock Mode w/o TIMER

The screen displays present temperature and time values simultaneously.

The TIME and TUNE buttons are disabled.



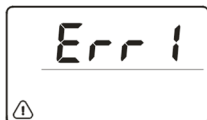
Lock Mode /w TIMER

The Jog Dial is disabled, preventing both rotation and pressing the dial.



Long press the **TIME** button to exit the lock mode.

Silence Beep Alarm



The user can temporarily silence audible alarms in any error status.

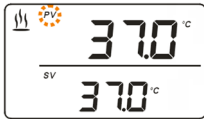
The audible error alarms beep 3 times per minute.



Long press the **TIME** button to enter the lock mode.



Long press the **Jog Dial** to silence the audible error alarms.

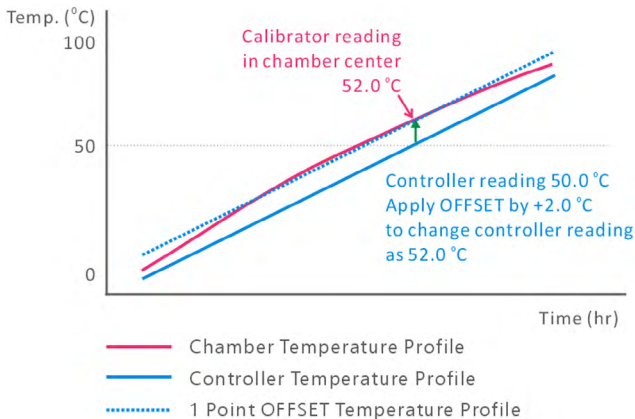


The **PV** blinks during beep silence mode.

5. Operation

5.1 1-Point Calibration

It is a simple and easy tool for calibrating the temperature at a single, frequently used temperature point. The below illustration displays the calibration at 50.0°C.



The 1-POINT TEMPERATURE CALIBRATION OFFSET reduces the temperature difference between the controller and the calibrator at the calibrated temperature.

The temperature bias of the other temperatures remains as shown in above illustration.

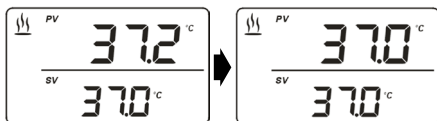
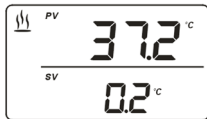
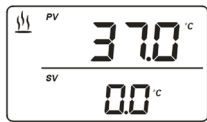
To improve temperature accuracy across the full temperature range, refer to 3-POINT CALIBRATION.

Calibration Protocol

Install the calibrator probe in the centre of the bath.

Set the temperature to 37.0°C and wait for the temperature to stabilise.

Read the calibrator temperature. For example, 37.2°C.

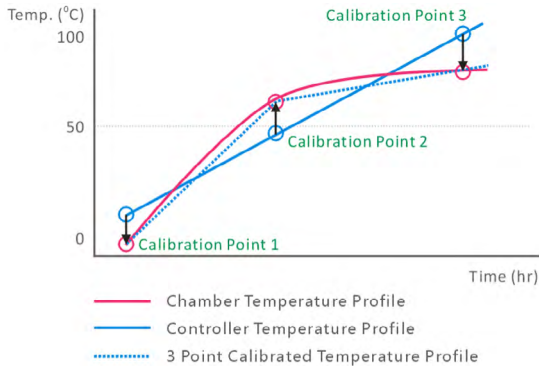


Wait until the temperature is stabilised at 37.0°C.



5.2 3-Point Calibration

A tool to calibrate the bath at three different temperature points, adjusting multiple temperature biases to increase temperature accuracy across the entire temperature range.



Calibration Point	Allowable Temperature Range	Standard Calibration Point	Allowable Range
CAL 1	< 32.0°C	25.0	(0 ~ 40.0)
CAL 2	32.1°C ~ 42.0°C	37.0	(30.0 ~ 45.0)
CAL 3	> 42.1°C	50.0	(40.0 ~ 60.0)

Calibration Protocol

The 3-Point Calibration is conducted at three different temperatures during operation.

3-Point Calibration takes approximately half a day, and the controller must remain ON without interruption throughout the full process. Please consult with Westlab for more information.

Place the calibrator probe into the centre of the chamber.

Calibrate the temperature three times at any temperature point within each calibration temperature range.

CAL 1: ambient temperature < 32.0°C (25)

CAL 2: 32.1°C ~ 42.0°C (37)

CAL 3: > 42.1°C (50)

3-Point Calibration is only effective when 3 calibration points are successfully saved.

3-Zone PID Control

Note that the water bath controller features a six-group zone PID control.



Zone 1 Pat1 Value



Zone 1 Pbt1 Value



Zone 1 Pct1 Value



Zone 2 Pat2 Value



Zone 2 Pbt2 Value



Zone 2 Pct2 Value



Zone 3 Pat3 Value

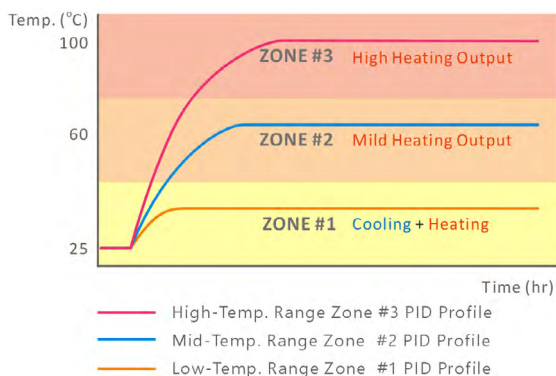


Zone 3 Pbt3 Value



Zone 3 Pct3 Value

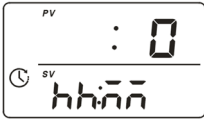
The usable temperature range is divided into three zones (Low, Middle, and High). Each zone has its own optimised PID parameters for precise and superior temperature control across the entire range.



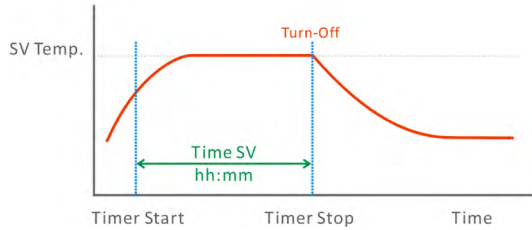
The factory default parameters are already optimised to the full temperature range operation.

5.3 Using OFF-TIMER & DELAY TIMER Together

TIMER



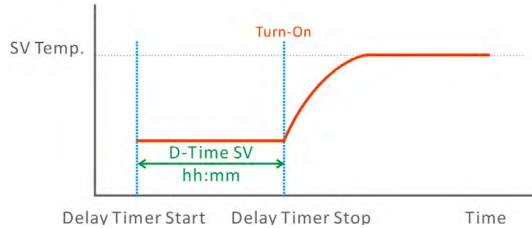
The OFF-TIMER automatically turns OFF the temperature control when the set time expires.



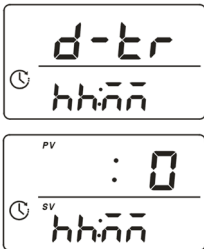
DELAY TIMER



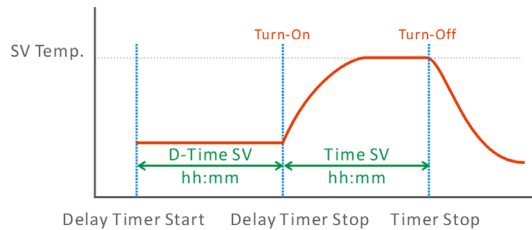
The DELAY-TIMER automatically turns ON the temperature control when the set delay time expires.



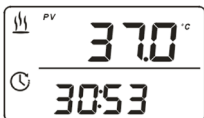
DELAY TIMER & TIMER



The DELAY-TIMER automatically turns ON the temperature control when the set DELAY TIME expires, and the TIMER automatically turns OFF the temperature control when the set TIME expires.



POWER OUTAGE & RESTORE



OPERATION MODE FOR POWER LOSS

In the event of power outage and subsequent restored conditions, the user can choose between:

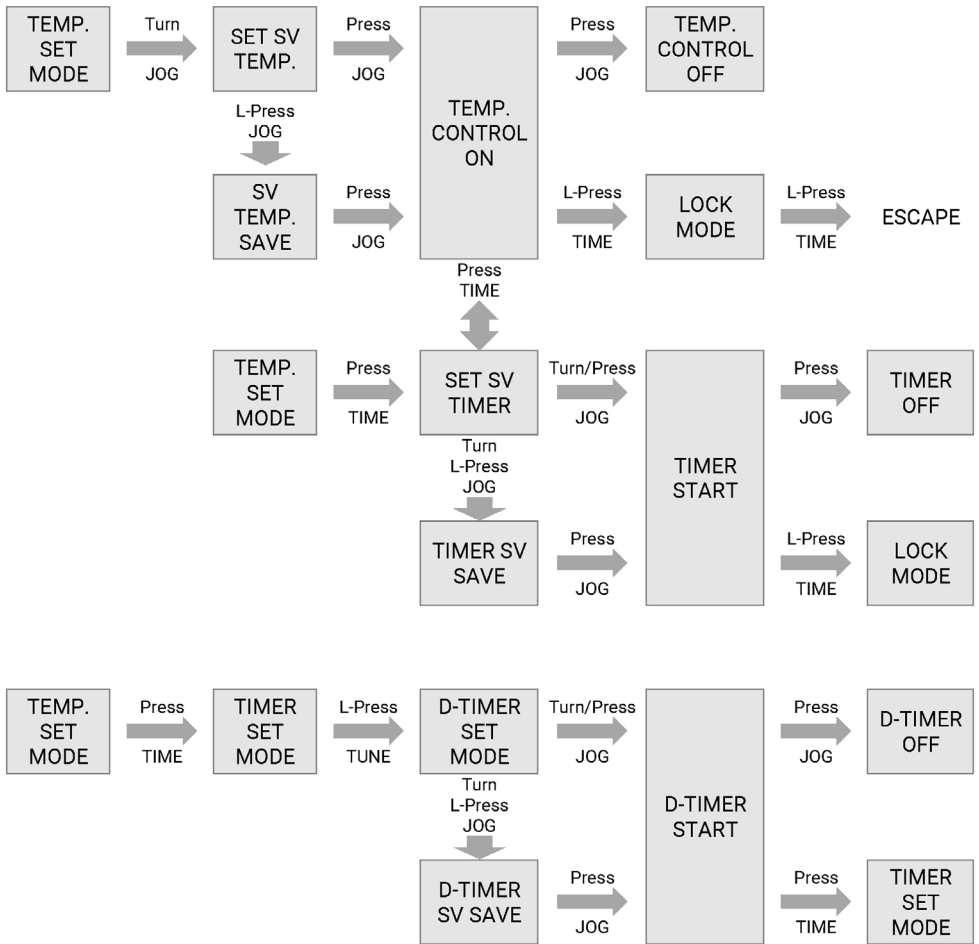
OFF CONTROL: The system remains off if the saved temperature is 0.0°C (OFF).


ON CONTROL: The system resumes operation at the last saved temperature, if the temperature is other than 0.0°C.

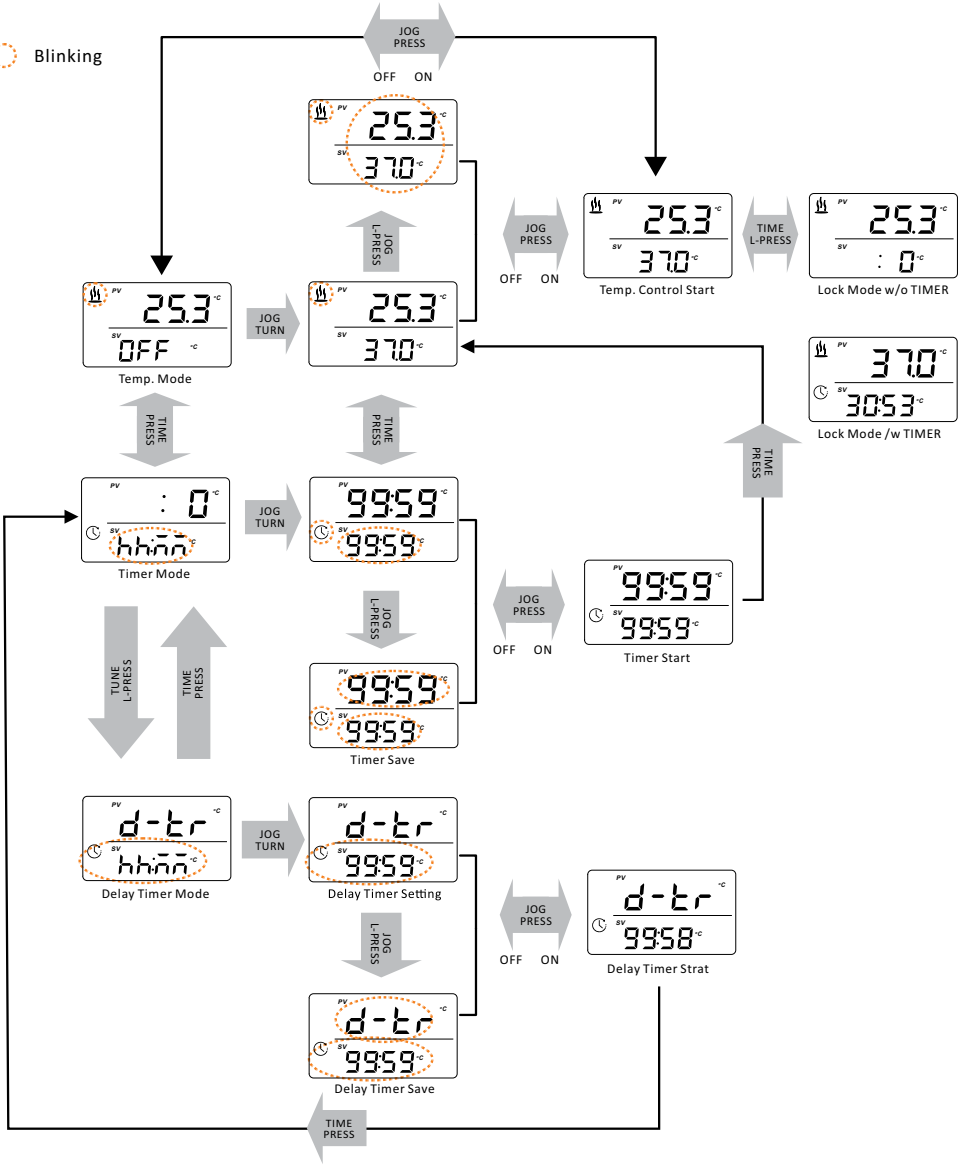
TIMER: The remaining time starts to count down if a value was saved.

DELAY TIMER: The delay timer time is reset to zero, and the system resumes operation according to the selected condition (ON CONTROL or OFF CONTROL).

5.4 Flow Chart for Temperature & Timer Settings





 Blinking



6. Troubleshooting

The controller has a built-in diagnostic function. If an abnormal condition occurs, an error code will be displayed, and an audible alarm will sound. Record the displayed error code, turn off the power supply, and find the solution.

Error	Definition	Solution
	Sensor Error	<p>Short circuit or disconnection of the PT sensor.</p> <p>Beeps three times every minute.</p> <p>Contact your service representative.</p>
	High Temperature Error	<p>The bath temperature exceeds the set temperature by more than 5°C.</p> <p>Beeps three times every minute.</p> <p>Contact your service representative.</p>
The temperature fluctuates above and below the set temperature.	The OVERHEAT SAFETY setting is lower than the set temperature.	Turn the OVERHEAT SAFETY knob clockwise to a value higher than the set temperature.

7. Factory Inspection Certificate

Inspected By

Approved by

--	--



8. Maintenance & Service Check List

Article	Every 6 Months	Every Year	Every 2 Years
CONTROLLER		<input type="radio"/>	
TEMP. SENSOR		<input type="radio"/>	
HEATER	<input checked="" type="radio"/>	<input type="radio"/>	
SSR		<input type="radio"/>	
THERMOSTAT		<input type="radio"/>	
FUSE		<input type="radio"/>	

Check Clean-Up Replace

9. Certificate of Warranty

Description	Heated Digital Water Bath
Product SKU	
Serial Number	
Warranty Period	24 Months After Purchase
Date of Purchase	
Purchase From	

See full Warranty Statement on page 19.

10. Product Recycling

In the case that the product is to be disposed of, the relevant legal regulations are to be observed.





Product Warranty Statement

Thank you for choosing a Westlab product. Please read all warranty and maintenance documentation.

Product Code	663-310, 663-312
Description	Heated Water Baths
Warranty Period	24 Months

Westlab warrants that this product will be free of defects in material and workmanship for a period of twenty-four (24) months from the date of purchase.

Request for warranty is to be in writing and state model, date of installation, serial number, and the reason for application for warranty claim.

This warranty will only apply if:

- The purchaser provides proof of the date of purchase;
- The product has been installed, operated, and maintained in accordance with Westlab's instructions. If in doubt, contact Westlab Pty. Ltd. for details; and
- The product has not been sold, leased, licensed, or otherwise disposed of by the original retail customer.
- The unit is sterilised and decontaminated beforehand. Provide the service technician with details of any hazardous substances used.

Warranty Exclusions

- The rental of another machine or related equipment while unit repairs are in progress.
- The labour and parts for mechanical adjustments which are made or should be made as standard preventative maintenance or calibration procedures.
- The replacement of normal maintenance parts made in connection with normal preventative maintenance services as opposed to manufacturing defects.
- Any defect caused by alteration, modification, fitment of a non-genuine part or attachment not approved by Westlab.
- Any defect caused by misuse, negligence, accidents, or failure to carry out proper maintenance procedures.
- Any defect caused by work carried out by persons other than a person authorised to do so by Westlab.

- Damage caused by continued operation of the machine after it is known to be defective.
- Freight and insurance costs for the recall of the machine or equipment to Westlab and the subsequent return to the purchaser.
- Technician travelling costs to and from site if any on site repairs are required.

This warranty will not apply to damage due to:

- Water damage;
- Normal wear and tear;
- Shipment or delivery of the product;
- Misuse, abuse, impact, or accident;
- Use of the product in other than normal domestic circumstances;
- Any fault or damage caused by incorrect installation or use of the product; or
- The product was not purchased from Westlab.

Prior to returning any product under this warranty, the approval of Westlab must be obtained.

The purchaser will bear the cost of all transportation or freight charges, or any other charges incurred in returning defective products for repair, together with the cost of returning them to the purchaser, unless otherwise determined by Westlab.

After-Sales Service and Support

Should your product become defective, or you require support, please contact Westlab for assistance.

Email: sales@westlab.com.au

Phone: 1800 358 101

In Person: 4 Cargo Way, Mitchell Park VIC 3355

View the complete Westlab Warranty Statement [here](#).

Publication Date: 13/12/2024

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