

# Water Baths

## *User Manual & Setup Guide*

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**TWB RANGE**

**Omron E5CC**

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**General  
Warning Sign**

**Warning sign:** signifies a general warning, and indicates a risk to people specified by the supplementary sign that if not avoided, may result in death or serious injury.



**Warning;  
Flammable**

**Warning; Flammable:** signifies a flammable warning, and indicates a risk of flammable content as specified by the supplementary sign that if not avoided, may result in a fire by igniting flammable material.



**Warning;  
Electricity**

**Warning; Electricity:** signifies a electricity warning, and indicates a risk of contact with electricity as specified by the supplementary sign that if not avoided, could result in injury.



**Warning; Hot  
Surface**

**Warning; Hot Surface:** signifies hot surface warning, and indicates a risk to people specified by the supplementary sign that if not avoided, will result in contact with hot surface.



**General  
Prohibition Sign**

**General Prohibition:** signifies a prohibited action, indicates a risk to people specified by the supplementary sign that if not avoided, will result in death or serious injury.



**Do Not Expose  
Outside**

**Do Not Expose Outside:** signifies prohibiting the exposure to direct sunlight, and indicates a raised temperature due to sunlight or placement on hot surface can cause harmful damage to bath.

This user manual is intended for Thermoline's range of water baths. We recommend that you read this user manual the whole way through before you start using the bath. Consider this manual as a part of the water bath and an integral part to its function. We recommend keeping it close and within easy access.

## Intended Use

The Thermoline Water Baths TWB-12D , TWB-24D and TWB-24D-CP, are designed and manufactured in Australia. Designed to operate between ambient +5°C and 100°C. The Thermoline Water Bath offers an industry standard in temperature-controlled baths.

- Control Accuracy: +/- 0.25°C
- Operating Temperature up to 100°C

The Thermoline range of water baths are set to function with specific operating ranges. The optimum operating conditions will be explained further in this manual.



# Product Specifications



## Dimensions

### External

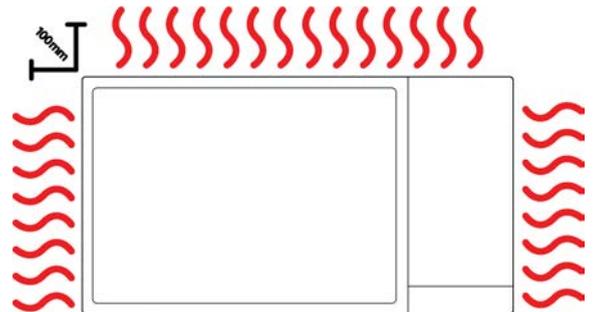
	TWB-12D	TWB-24D	TWB-24D-CP
WxDxH (mm)	380x330x260	650x330x260	650x330x360

### Internal

WxDxH (mm)	240x300x165	500x300x165	
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### Spacing

	TWB-12D	TWB-24D/ CP
Front (mm)		100
Back (mm)		100
Sides (mm)		100



## Product Specifications

### Technical Specifications

	TWB-12D	TWB-24D	TWB-24D-CP
Temperature Range	Ambient +5°C to 100°C (max temp with bath lid on)		
Temperature Stability	+/-0.1°C		
Temperature Uniformity	+/-0.1°C	+/-0.2°C	+/-0.1°C
Heating Power	500 watts	900 watts	900 watts
Electrical	510W/230V	910W/230V	935W/230V
Capacity	12L	24L	24L
Weight	8kgs	11kgs	15kgs
Time Ambient to 50°C	25 minutes (with lid on)	50 minutes (with lid on)	50 minutes (with lid on)
Time Ambient to 100°C	110 minutes (with lid on)	160 minutes (with lid on)	160 minutes (with lid on)

### Features

Omron E5CC Controller	✓	✓	✓
Whisper Quiet Operation	✓	✓	✓
Incoloy Heating Element	✓	✓	✓

### Safety

Over Current Protection	✓	✓	✓
Over Temperature Safety	✓	✓	✓
False Floor Protection from Heating Element	✓	✓	✓

### Options

Polycarbonate Gable Lid	Clear Gable Polycarbonate Lids PCL-12: To suit TWB-12D PCL-24: To suit TWB-24D and TWB-24D-CP		
Stainless Steel Flat Lid	Flat Stainless Steel Lids SSFL-12: To suit TWB-12D SSFL-24: To suit TWB-24D and TWB-24D-CP		

## Water Bath Location

Ensure the water bath is placed in a suitable environment, away from direct sunlight or direct heat sources (**Fig 1**). The product shouldn't be placed in a room where the ambient temperature exceeds that of which it was designed to operate.

Water baths should be stored inside at all times. Failure to adhere to this could cause significant drops in water bath performance and damage to items stored inside.

### Extreme Operating Conditions:

- **Temperature:** 10°C to 32°C
- **Humidity:** Up to 85%RH

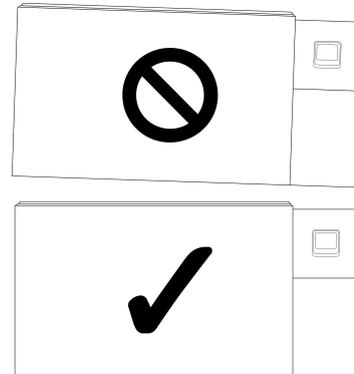
### Ideal Conditions:

- **Temperature:** 23°C (+/- 5°C)
- **Humidity:** 50%RH (+/- 25%RH)

Ensure the water bath is placed on a level surface (**Fig 2**).

While the bath doesn't necessarily require ventilation, Thermoline still suggests 100mm on the sides and back to aid with accessibility (**Fig 3**)

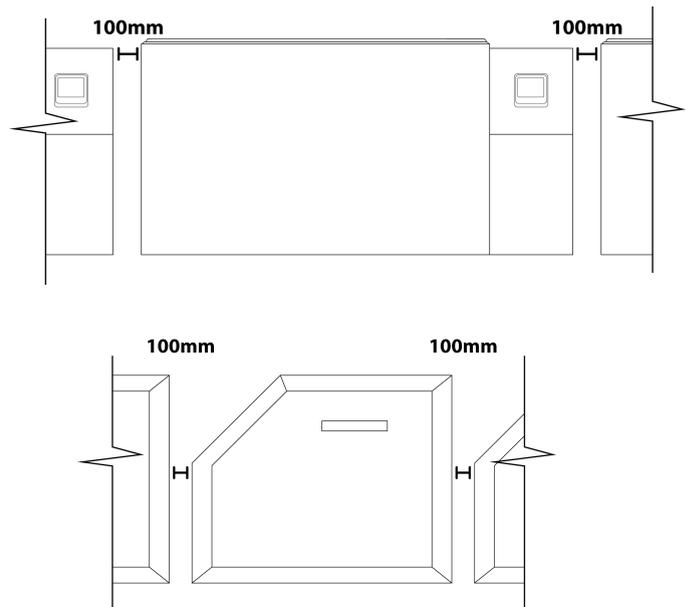
Ensure the bath is placed on a level surface.



**Fig 2. Level surface**



**Fig 1. Suitable operating environment.**



**Fig 3. Adequate Spacing**

## Operating Environment

### Electrical Connections

The water baths require a 10amp 230V 50hz power supply.

A dedicated outlet should be used for all water baths. Do not use power boards or the like. A 3-pin moulded plug is supplied as standard.

#### Electrical:

- Included with the water bath is a 2.5m removable mains power lead with a three pin plug and right angle female IEC plug. Ensure the product is reasonably distanced from the power supply. **(Fig 1)**
- On the water bath itself is a 10 amp male IEC socket. **(Fig 2)**

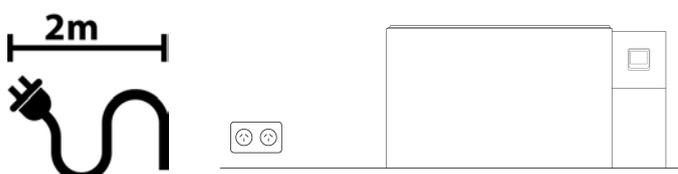


Fig 1. Suitable distance from power supply (2m)



Fig 2. 10 amp male IEC socket

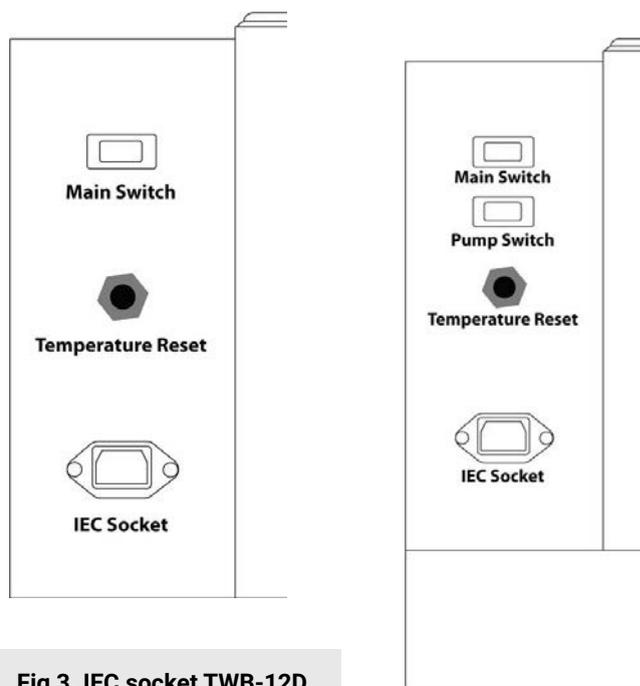


Fig 3. IEC socket TWB-12D  
TWB-24D

Fig 4. IEC socket  
TWB-24D-CP

### Operating Environment Warnings



Water baths should be stored inside at all times. Failure to adhere to this could cause significant drops in performance and damage to items stored inside.



Water baths are not suitable for use with flammable solvents! They are fitted with components that may be the source of ignition.

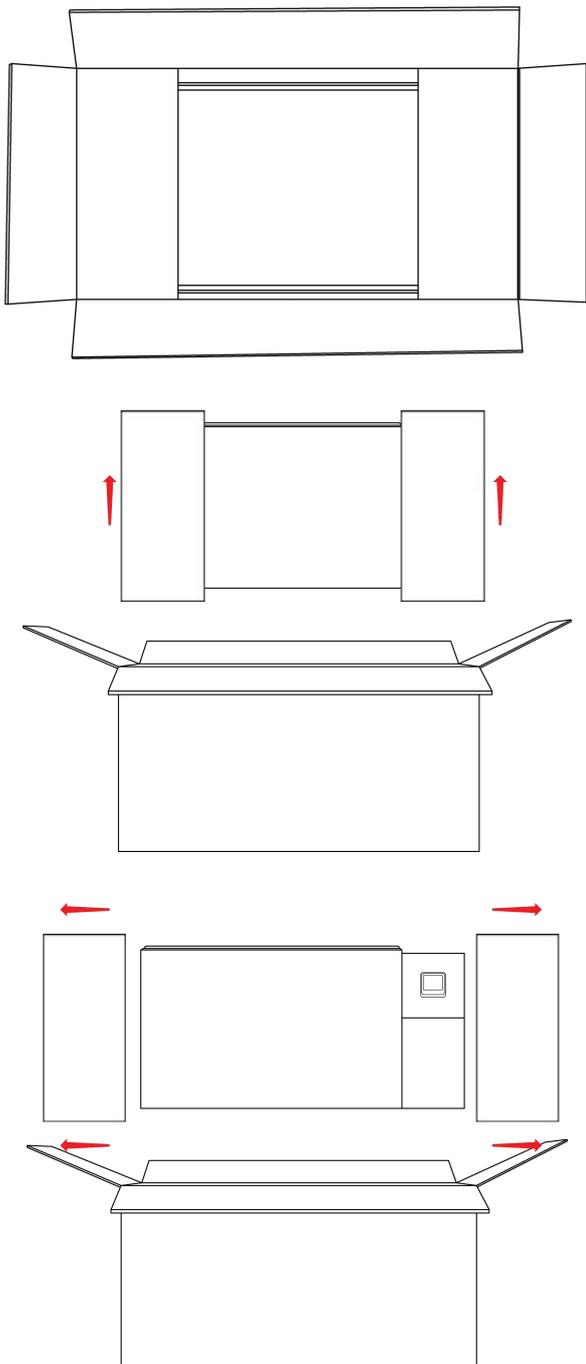


Water baths heat water up to 100°C and can become hot. This includes the optional lids.

## Unpacking

### Unpacking Process for carton:

- The TWB-12D, TWB-24D and TWB-24D-CP will be delivered in a carton.
- Removing the box requires the cling wrap and straps to be cut, then expose the bath by carefully sliding the box upwards. **(Fig 1)**

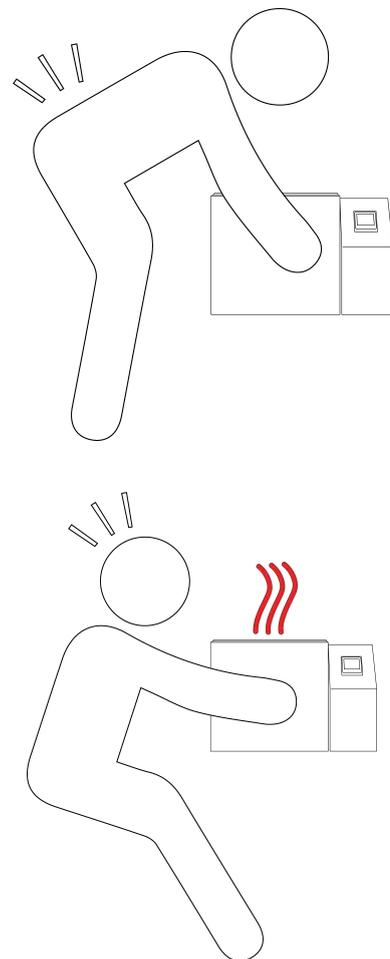


**Fig 1 . Unpacking Process (Box)**

If upon opening your package damage is present, notify the detail of any damage to your supplier or to Thermoline Scientific without delay at +61 2 9604 3911 or email at [service@thermoline.com.au](mailto:service@thermoline.com.au).

## Moving

The water bath will need to be drained prior to moving. Please note to take caution with lifting and be aware of any residual heat from the bath **(Fig 2)**.



**Fig 2.**

## Setup

### Filling

Please always make sure that the bath is filled to at least 50mm above the perforated base (**Fig 1**). The maximum level can be seen by the lip at the top of the bath, approximately 30mm from the top (**Fig 2**).

When filling please take into account the samples to go into the bath to ensure their displacement does not cause an overflow.

**Note:** Never use deionised water in the water bath. It will corrode the stainless steel and not be covered by warranty.

**Note:** Never fill the bath using oil. The introduction of oil into the bath will result in pyrolysis (chemical decomposition by heat).



**Note:** The water in the bath and the bath itself including the lid, can become very hot.

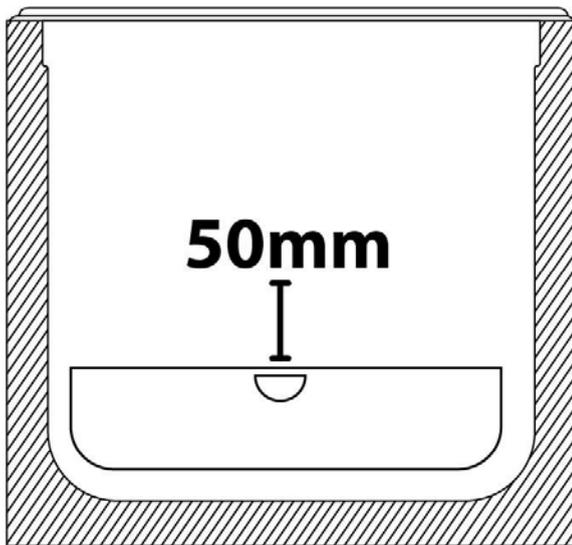
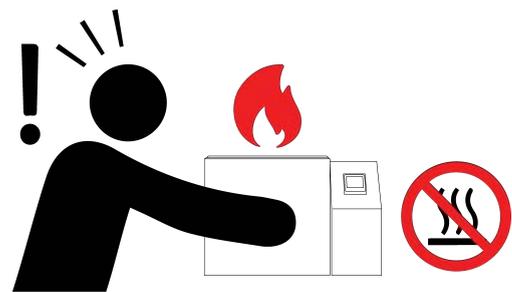


Fig 1. Minimum fill level.



30mm

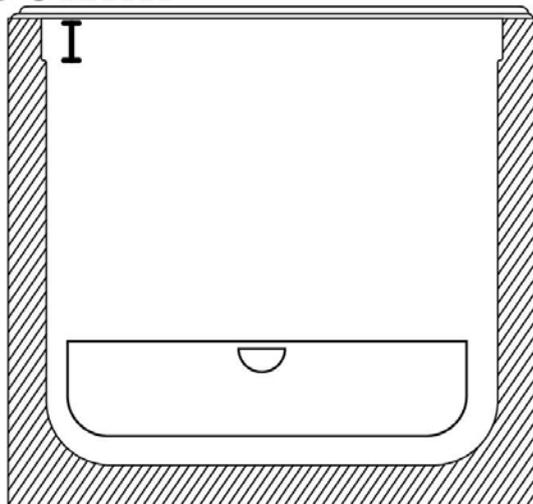


Fig 2. Maximum fill level.

## Setup

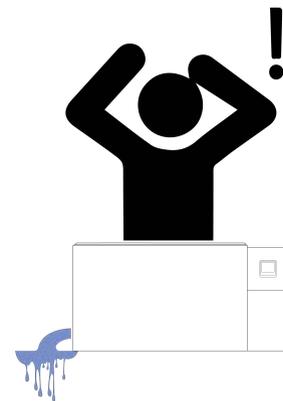
### Cleaning

The interior and exterior can be cleaned as often as required using a soft cloth and soapy water. Never use abrasive cleaners or scouring pads, as these will scratch the surface and may result in corrosion. Never use caustic-type cleaning agents.



### Drain

Prior to cleaning or storage the water bath will need to be drained. The Thermoline water bath has a drain feature located on the left side of the bath. Simply pull on the white part to let the water drain out of the bath.



**Note:** Please ensure the the end of the hose is place into a sink or some other suitable drain before removing the plug as there is no tap.



To drain the bath simply find the drain located on the side of the bath and pull it out (exposing the hose). You can then remove the plug to drain the water.

## Setup Warnings

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Ensure that the water baths are placed on an even and flat surface.

Ensure that the Water Baths are placed on an even and flat surface. Uneven surfaces can cause issues within the tray. Uneven surfaces can cause the bath to fall over and damage the product.

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When you remove packaging from the water bath you should be careful when using knives to cut tape and cardboard.

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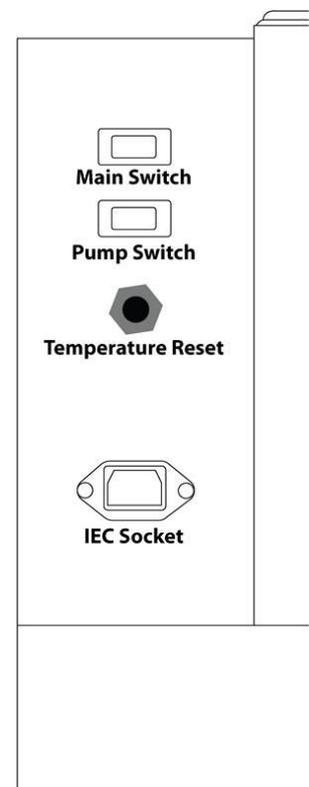
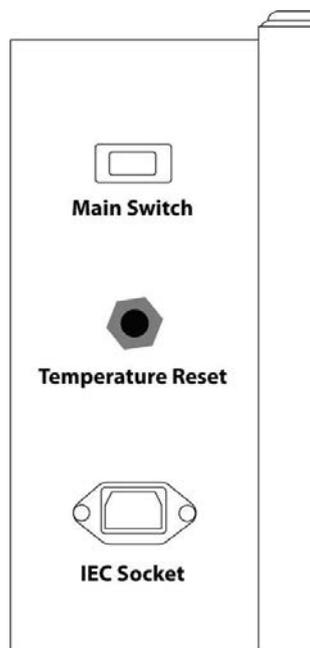
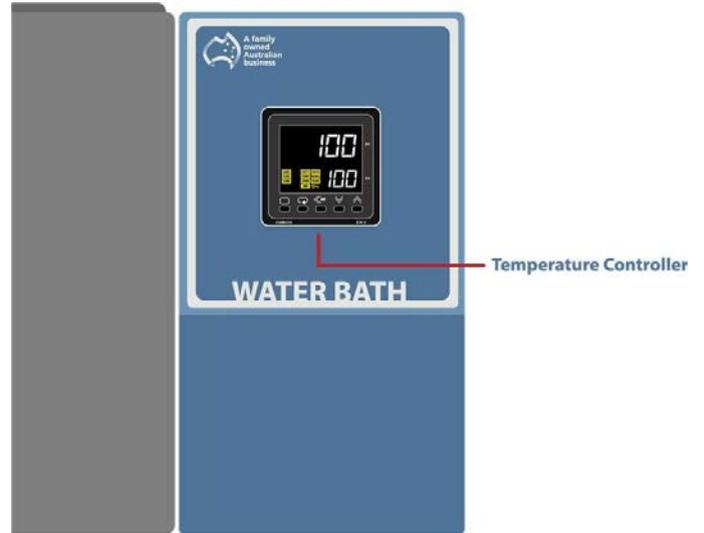


Water baths heat water up to 100°C and can become hot. This includes the optional lids.

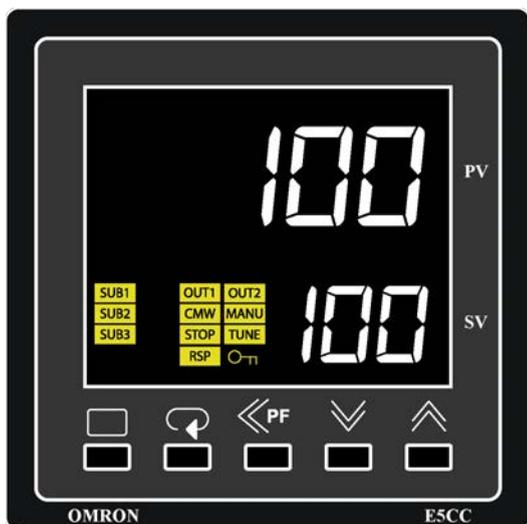
## Start Up Procedure

### Start Up process for the water bath:

- Before proceeding, please make sure that all internal and external packaging has been removed from the appliance and that all tape, plastic bags and foam pieces have been removed.
- Fill the bath to the appropriate level.
- Take the supplied lead and plug it into the male IEC socket on the rear of the water bath. Next, plug the 3 pin plug into a 10amp General Purpose Outlet.
- Turn the main switch at the back of the bath to 'ON' to start the bath.
- The controller will go through a warm up period where all segments of the display will be on, before indicating the set temperature (SV) on the lower display and the water bath's actual temperature (PV) on the top display.
- Turn the pump switch to 'on' for the TWB-24D-CP if required.



The controller is an Omron E5CC microprocessor based instrument with digital indication of set temperature and operating temperature. The instrument has been factory configured for range, sensor type, and engineering parameters for optimum control.



**Note:** Limited access to the controller is available. The operator has access to alter the temperature set point and parameters used for calibration purposes only.



**Scroll Button:** Used to view the set temperature target and start/reset the ramp/dwell function.



**Page Button:** Used to view calibration offset parameter and the ramp/dwell control parameters.



**Increase/Decrease Button:** Used to increase and decrease the parameter settings.



**Side Arrow:** Used to move the cursor when changing temperature

**PV**

**Process Value:** Current temperature within the bath

**SV**

**Set Value:** Set temperature within the bath.

## Display Symbols

The Omron E5CC controller comes with an array of functions. The table below is an overview of the LED indicators displayed throughout use. Familiarise yourself with them so you are able to recognise problems or faults easily.

LED	Name	Meaning
SUB1	Auxillary Output 1	N/A
SUB2	Auxiliary Output 2	N/A
SUB3	Auxiliary Output 3	High Alarm
OUT1	Control Output 1	Heat Output ON
OUT2	Control Output 2	N/A
CMW	Communications Wiring	N/A
STOP	Stop	N/A
RSP	Remote SP	N/A
MANU	Manual	N/A
TUNE	AT/ST	N/A
	Setting Change Protection	N/A

A	b	C	d	E	F	G	H	I	J
A	B	C	D	E	F	G	H	I	J
K	L	M	N	o	P	Q	R	S	t
K	L	M	N	O	P	Q	R	S	T
K	U	W	X	Y	Z				
U	V	W	X	Y	Z				

## Temperature Control

**How to**

Use the “<<PF” button to move the cursor. The digits in **SV** will flash, indicating that it can be changed.

Change the temperature by using the “UP” or “DOWN” arrows. When the desired temperature is set, leave for a few seconds and the digits will stop flashing to confirm entry.



UP



DOWN



SCROLL



SIDE ARROW



PAGE

## Sensor Calibration

There are a number of factors that will affect the accuracy of the temperature displayed in relation to the actual temperature inside the bath. These could include the following:

- Sample load inside the bath (the load should be distributed evenly).
- Product temperature (at higher temperatures the heat loss from the product will be greater).
- Location of the sensor (the temperature sensor can never be placed in the centre of the bath because it could be damaged).

The Omron temperature control has a parameter that can correct the temperature displayed. This sensor correction parameter is displayed as “iNS” (Input Shift).

In simple terms, this parameter adds or subtracts a correction value to the displayed temperature to make it read the correct temperature.

The bath calibration needs to occur with a lid on and allowed to stabilise. The sensor can be placed to the centre of the bath.

Once the bath has stabilised, any difference in the temperature reading can be offset using the sensor correction parameter.

The calibration parameter can be accessed as follows:

**How to**

Press **PAGE** to display sensor correction parameter.



Use the **UP** or **DOWN** button to adjust the sensor correction.

After this, allow the digit to stop flashing and the screen will display the adjusted value.

## Manual Safety Thermostat

This safety thermostat is not operator-adjustable. It will electrically isolate the heating element in the event of an over-temperature situation.

### Fixing the Manual Safety Reset:

- Allow the bath to cool down before resetting the thermostat.
- Locate the safety reset near the main switch and IEC socket on the back of the electrical box. It is displayed as a black or red knob (Fig 1).
- Once the bath has cooled down, twist the red or black knob anti-clockwise.
- Once the knob is off, simply press the internal red button firmly until you feel a “click”, this will restart the circulating fan and turn on the digital display again.  
**NOTE:** This will allow the heaters to operate again. If this keeps tripping contact a qualified service technician to investigate possible causes of fault.

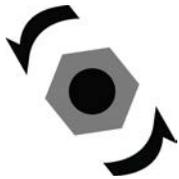


Fig 1. Remove Screwcap

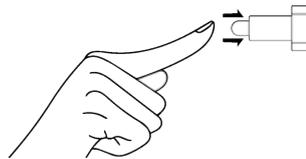
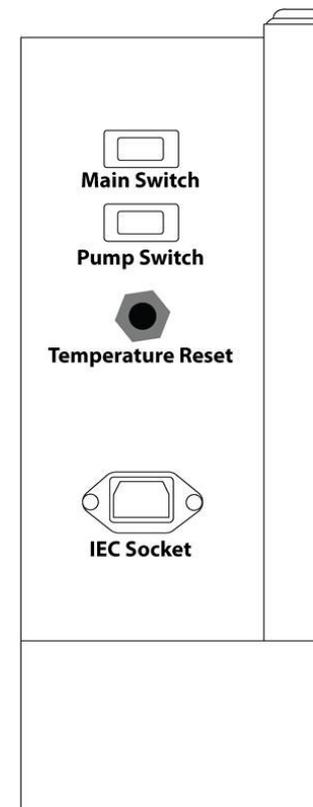
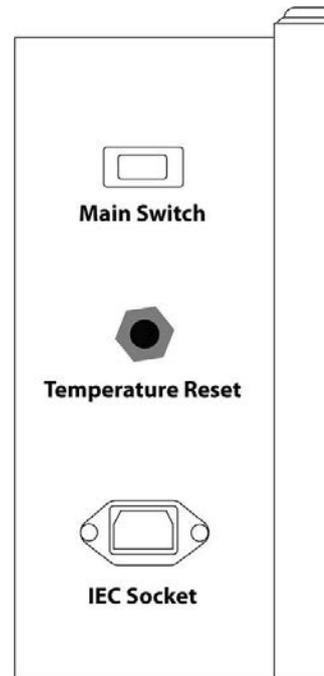


Fig 2.



Problem	Fix	Part Number
<p><b>Controller is off, but switch is illuminated</b></p>	<p><b>Safety Thermostat</b> Please check the safety thermostat. It is the red button on the back of the bath. Unscrew the cap and then push the button in. For further information refer to the Safety Information Chapter.</p> <p>If this does not rectify the issue. You will need to contact your preferred electrician/technician to diagnose the issue.</p>	<p><b>40920 - Manual Reset Thermostat</b></p>  <p><b>61612 - Omron Controller</b></p> 
<p><b>The word "Stop" is showing on the Omron Controller</b></p>	<ol style="list-style-type: none"> <li>1. Press the 'PAGE' button and the "SCROLL' button simultaneously until 'oAPt' appears on the screen.</li> <li>2. Press 'SCROLL' button until you see the parameter 'PMSK' on the screen.</li> <li>3. Press the 'DOWN' button to turn off.</li> <li>4. Press the 'PAGE' button and the 'SCROLL' button simultaneously to take you back to the main menu.</li> <li>5. Press 'SCROLL' until you see 'R-S' on the screen.</li> <li>6. Press the 'DOWN' button to turn 'STOP' to 'RUN'</li> <li>7. Press the 'PAGE' and the 'SCROLL' button simultaneously until 'oAPt' appears on the screen</li> <li>8. Press 'SCROLL' until you see the parameter 'PMSK' on the screen</li> <li>9. Press the 'DOWN' button to turn on</li> <li>10. Press the 'PAGE' and the 'SCROLL' button simultaneously to take you back to the main menu.</li> </ol> <p><b>Please note if other parameters are changed by mistake further issues may occur.</b></p>	

## Troubleshooting

Problem	Fix	Part Number
<p>The Controller is showing less than 100C even though the water is boiling.</p>	<p><b>Sensor</b> The temperature of the water is 100C, but the reason for the discrepancy is that the sheath that the sensor sits in, draws heat away from the sensor.</p>	
<p>S.ERR Is shown</p>	<p>The sensor has failed and needs to be replaced. Please contact your preferred technician/electrician to assist with the installation.</p>	<p>40716 - <b>PT100 sensor</b></p>  <p>41803 - <b>MG12 Cable Gland With Lock Nut</b></p> 

## Technical and Repair Support

When contacting Thermoline regarding information about the product, it is important to have the Serial Number and other related information with you. The serial number is on a silver sticker, usually located near the power IEC socket.

Contact Thermoline service on +61 2 9604 3911 or email at [service@thermoline.com.au](mailto:service@thermoline.com.au)

 **Thermoline**  
S C I E N T I F I C

ABN 80 000 859 129

SALES AND MANUFACTURING

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Phone: +61 2 9604 3911 Email: [sales@thermoline.com.au](mailto:sales@thermoline.com.au)



Model:  
Serial No:  
Watts/Amps:  
Volts:

*Have the following information available when you contact the service department. Model number and serial number. This is generally found on the exterior of the bath in the form of a stick-on label. The company name, address, contact name, contact phone number. A brief description of the problem. All warranty claims must be reported to, and agreed to by a Thermoline representative prior to any work being carried out.*

## Standard 24 Month Warranty

### **Thermoline Scientific Equipment Pty Ltd ABN 80 000 859 129 (‘Thermoline’)**

Thermoline warrants to the original purchaser that this product will perform to its product specification for a period of 2 years from date of purchase, provided that the installation of the product has been carried out in accordance with the latest version of the manufacturer’s instructions and further provided that the use of the product complies with that specified in the relevant specification. Thermoline is not responsible for any loss or damage arising from incorrect usage, usage outside the suitability of the product as stipulated in the manufacturer’s instruction, damage caused by accident, fire, flood, act of God or failure to properly install, operate or maintain the goods in accordance with the printed instructions provided.

The following statement applies only to product sales that fall within the definition of a Consumer Sale set out in the Australian Consumer Law contained within the Competition and Consumer Act (Cth) 2012:

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Notwithstanding the preceding clause and to the extent permissible by law, the liability of Thermoline is limited, in relation to the warranted product and at the option of Thermoline to:

Replacing the product or the supply of equivalent product;  
The repair of the product;  
The payment of the cost of replacing the product or of acquiring equivalent product; or  
The payment of the cost of having the product repaired.

To the extent permitted by law, all other warranties whether implied or otherwise, not set out in this Warranty are excluded and Thermoline is not liable in contract, tort (including, without limitation, negligence or breach of statutory duty) or otherwise to compensate the Purchaser for:

any increased costs or expenses;  
calibration/certification services;  
any loss of profit, revenue, business, contracts or anticipated savings;  
any loss or expense resulting from a claim by a third party.  
Any special, indirect or consequential loss or damage of any nature whatsoever caused by Thermoline’s failure in complying with its obligations or the purchaser’s failure due to accident damage, impact, misuse or negligence.

The benefits given to the purchaser in this Warranty are in addition to other rights and remedies under a law in relation to the products or services to which this warranty applies. This warranty applies only to products purchased and installed in Australia and does not cover any consumable items e.g. filters, light globes, ultrasonic nebulizers. The warranty does not extend to labour and freight costs where the warranted product is located outside Australia.

To make a warranty claim, contact Thermoline on 02 9604 3911 or [service@thermoline.com.au](mailto:service@thermoline.com.au).

# We are proudly Australian owned

We will continue to invest in Australian  
manufacturing.

