



Heater Circulator

User Manual & Setup Guide

TU-1500

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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.



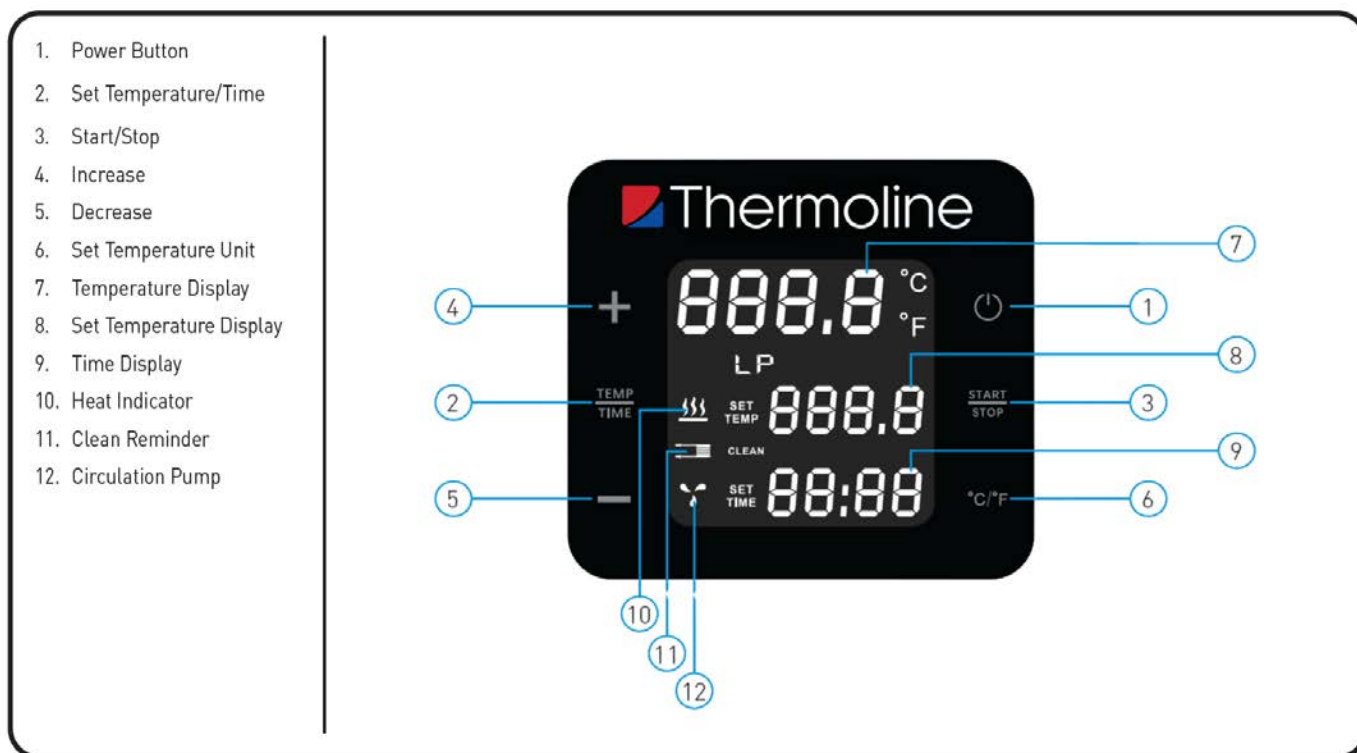
**Do Not Expose
Outside**

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.

Start Up Procedure

Start Up process for the heater circulator:

- Before proceeding, please ensure all internal and external packaging has been removed from the appliance and that all tape, plastic bags and foam pieces have been removed.
- Please ensure the heater circulator is appropriately placed in the bath and filled.
- Plug the supplied 1.2 metre lead with the 3 pin plug into a 10amp General Purpose Outlet.
- Turn the main switch/ power button on the front of the heater circulator to 'ON'.
- Set the temperature and timer and start the heater circulator with the Start/Stop Button.



This user manual is intended for the Thermoline TU-1500 heater circulator.

We recommend that you read this user manual the whole way through before you start using the heater circulator. Consider this manual as a part of the heater circulator and an integral part to its function. We recommend keeping it close and within easy access.

Intended Use

The Thermoline TU-1500 heater circulator is designed to operate between ambient +5°C and 95°C. The Thermoline TU-1500 heater circulator offers an industry standard in temperature control in uncirculated baths.

- Control Accuracy: +/- 0.1°C
- Operating Temperature: up to 95°C



Product Specifications

Technical Specifications

	TU-1500	TU-1500-B
Temperature Range	Ambient +5°C to 95°C (max temperature with lid on)	
Mounting plate to suit Thermoline TWB-24NE-4E water bath	✓	X
Universal Mounting Bracket	X	✓
Bath Capacity	Up to 50L with a lid	
Display Accuracy	+/- 0.1°C	
Electrical	1500W/230V	
Max and Min. Filling Height Marks	✓	
Dimensions WxDxH (mm)	150x110x285	121x159x285
Weight	1.6kg	

Features

Digital Controller	✓	✓
Air Cooled Motor	✓	✓
Timer Range	5m - 99h 59m	
Cleaning Reminder	✓	✓

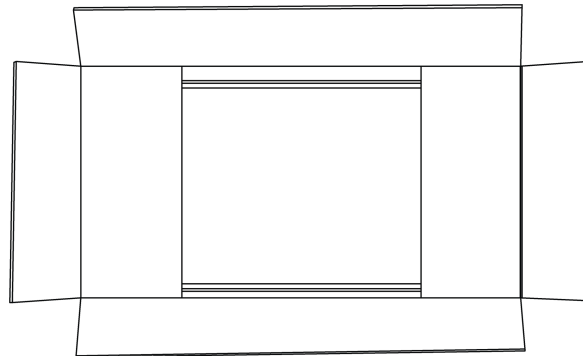
Safety

Over Temperature Safety	✓	✓
Low and High Water Safety	✓	✓

Unpacking

Unpacking Process for carton:

- The TU-1500 heater circulator will be delivered in a carton.
- If upon opening your package damage is present, notify the detail of any damage to your supplier or to Thermoline without delay at +61 2 9604 3911 or email at service@thermoline.com.au.



Packing List

	TU-1500	TU-1500-B
TU-1500 Heater Circulator	1	1
Mounting Plate Attached	1	N/A
Universal Mounting Bracket Attached	N/A	1
Operating manual	Downloaded from the Thermoline Website	

Heater Circulator Components



Parts Description

External Part

34A Stainless Steel Housing

Internal Parts

26A Submersible Pump

27A Pump Mount

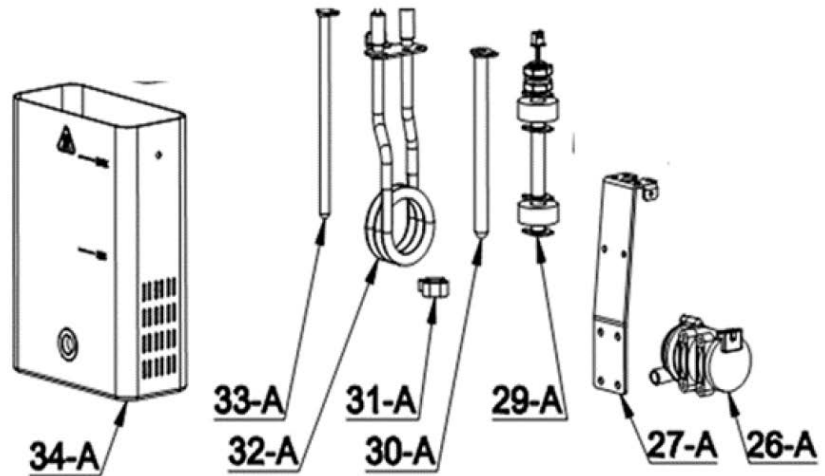
29A Low / High Water Switch Float

30A Fuse

31A Band

32A Heating Element

33A Temperature Sensor



Setup

Installation

Depending on the model, the heater circulator can be installed in the bridge of a current Thermoline TWB-24NE-4E water bath (model: TU-1500) or attached to the side of a bath using the universal mounting bracket (model: TU-1500-B).



Moving

To remove the heater circulator from the bath, first switch off the power and then take caution with any residual heat or potential water spills.

Heater Circulator Location

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

Heater circulators 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. When not in use, they should be powered down and stored out of the water.

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 heater circulator is placed level in the bath being used. Also ensure the bath being used is placed on a flat suitable surface.

Setup

Water Quality

The water quality parameters in the table below should be adhered to to get the best out of your Thermoline equipment. Due to the extensive use of stainless steel in Thermoline products, deionised water should not be used. It can cause corrosion (due to leaching over time) that may not be covered under warranty.

Thermoline suggests avoiding using tap water if possible. Using tap water may significantly increase the required frequency of cleaning and maintenance of the equipment. Unacceptable water can cause excess scale build-up and mineral deposits, particularly in humidity systems. This, in turn, can cause heater failure and issues with float switches. In water baths, corrosion due to insufficient cleaning is the primary concern, with heater circulators and circulation pumps being the most significant issue.

Note: All Thermoline equipment using water requires regular maintenance, inspection and cleaning. Six monthly for Humiditherm, Envirotherm and Climatron cabinets. Water baths will require much more frequent cleaning due to the ease of contamination in the water. Water should be changed for any signs of contamination.

Descaling may be required if the water used is continuously topped up to compensate for evaporation as this concentrates the mineral deposits in the water. The bath should be completely drained regularly and filled with fresh, clean water.

Parameter	Range
Resistivity	0.1 - 0.5 MΩ
Conductivity	2-10 μs/cm
Total Dissolved Solids	<10 mg/L
Acidity	6-7 pH

Electrical Connections

The TU-1500 heater circulator requires a 10amp 230V 50hz power supply.

A dedicated outlet should be used for all heater circulators. Do not use power boards or the like. A 3-pin moulded plug on a 1.2 metre lead is attached to the heater circulator.

Setup

Filling

Please ensure the bath is sufficiently filled with water to cover the minimum depth required by the TU-1500 heater circulator and not over the maximum level. If the unit is run outside these levels, an H₂O alarm will light up on the display, and the circulator will need to be restarted to clear it.

When filling, please consider the samples to go into the bath to ensure their displacement does not cause an overflow or go over the maximum fill level on the heater circulator.

When the TU-1500 is used in a TWB-24NE-4E, the bath's maximum fill line can be used as it is just under the TU-1500's maximum fill line.

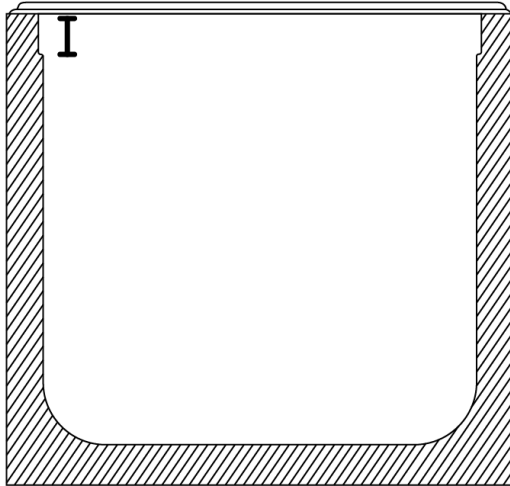


Note: Please ensure the water used meets the water quality parameters listed.

Note: Never use the heater circulator with oil. The introduction of oil into the bath will result in pyrolysis (chemical decomposition by heat).



30mm



Maximum fill line on the TWB-24NE-4E



Maximum fill line on the TWB-24NE-4E in relation to the TU-1500

Setup

Cleaning

The heater circulator 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. Do not rinse or submerge the main body in water as water can enter and damage the upper section.

Note: Always switch the heater circulator off and unplug it from the power before cleaning.

Note: A cleaning reminder will appear on the screen after 20 cycles or 100 hours of operation.

To reset this reminder, you can run a cleaning cycle. To run the cleaning cycle, turn the heater circulator on and simultaneously hold down the Start/Stop (Button 3) and Decrease Button (Button 5). This will set the temperature to 80°C and the time to 3 hours.

These settings will flash 10 times. Once they stop flashing, push the Start/Stop button to start the cleaning process. The heater circulator will beep when the cleaning process is completed.



Cleaning Stainless

Stainless steel is under most conditions extremely resistant to corrosion. This is in part due to the addition of chromium and nickel to the steel and the formation of a durable chromium oxide at the surface during the manufacturing process. There are several chemicals which will attack the surface of stainless steel, plus the lack of oxygen at the surface will cause rusting, corrosion and pitting. Generally Tap water is suitable. Should this supply prove to be of poor quality, it is recommended that distilled water be used.

Heater Circulator Warnings



Heater circulators must be stored indoors at all times to prevent significant drops in performance.

Make sure to place the heater and circulator evenly and flat in the bath.



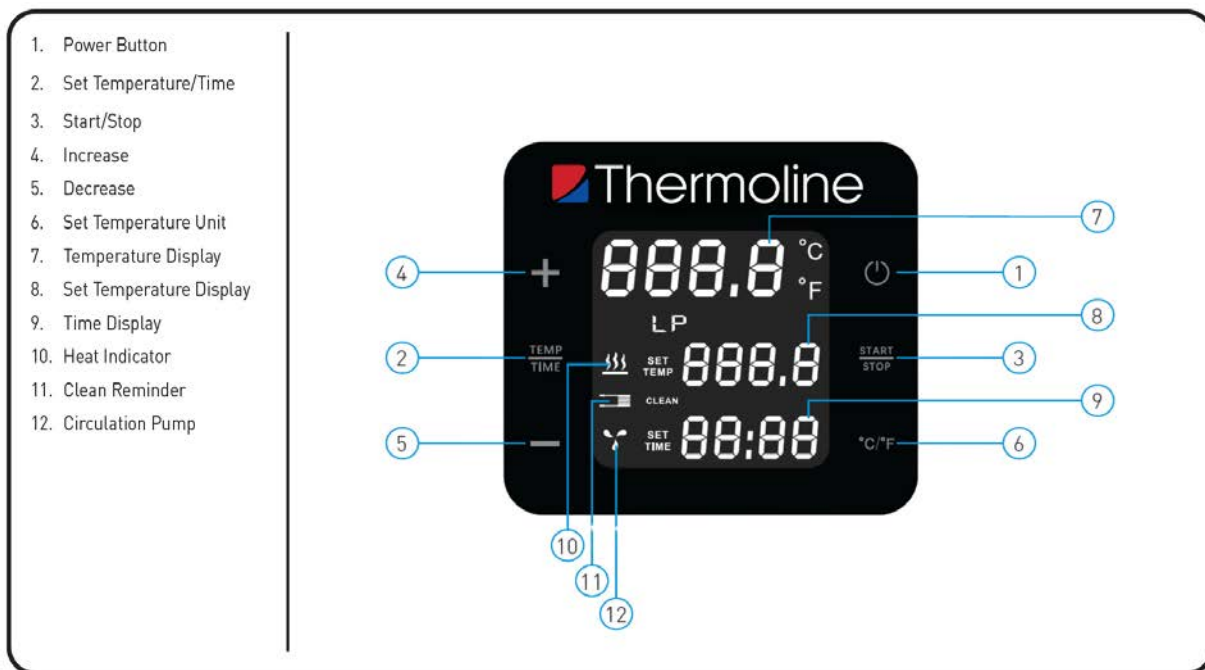
Water baths with heater circulators should not be used with flammable solvents, as they contain components that could cause ignition.



Water baths with heater circulators can heat water up to 95°C and may become hot, including the lid.



When unpacking the heater circulator, use caution when using knives to cut tape and cardboard.



1. Power

In standby mode, press the button to turn the unit on. The current temperature will be displayed. A second press will turn the unit off to standby mode. The fan will automatically stop after approximately 30 minutes.

2. Set Temperature/Time

Switches between Temperature and Time settings.

At first press, the Temperature display will flash, set the desired temperature with Increase/Decrease buttons.

At second press, the Time display will flash, set the desired cooking time with Increase/Decrease buttons.

If no settings are selected, the display will flash 10 times, and will exit Set Temperature/Time mode.

3. Start/Stop

Press Start/Stop to start the heater circulator. Press Start/Stop again to return the heater circulator to standby mode.

4. Increase

'+' increases the Temperature and Time settings.

5. Decrease

'-' decreases Temperature and Time settings.

6. Set Temperature Unit

Press to switch between Celsius and Fahrenheit temperature units.

7. Temperature Display

Displays the actual temperature of the water bath at that moment.

8. Set Temperature Display

Displays the set operating temperature.

9. Time Display

Prior to the Start/Stop button being pressed, the set time is displayed. In working mode, the time remaining from the set time is displayed.

10. Heat Indicator

Icon Flashes when Heating.

11. Cleaning Reminder

Icon will illuminate after 20 individual cycles or 100 hours total operating time.

12. Circulation Pump

Icon Flashes when circulating water.

General Controls

Operating Instructions

Set Temperature: Press Temp/Time button to adjust the temperature. Press the Increase or Decrease buttons to set the desired temperature. The temperature can be adjusted while the timer is running. The temperature set range is up to 95°C in increments of 0.1°C.

Note: To change Temperature Unit, press the Set Temperature Unit button to change between °C and °F.

Set Time: After setting the temperature, press Temp/Time button a second time to switch from the temperature setting to time setting. Press the Increase or Decrease buttons to set the desired time (Time range from 5 minutes to 99 hours and 59 minutes).

Start/Stop: To begin operation, press Start/Stop. The heater circulator will start to pre-heat the water to the set temperature. When the set temperature is reached, there will be an audible beep and the timer will start counting down. When the timer finishes, there will be an audible beep and the heater circulator will beep every 60 seconds. The heater circulator will continue to hold the set temperature and circulate.

Press Start/Stop again to return the heater circulator to **standby mode**.

Problem	Possible Cause	Solution
The display screen reads error code: H20	The water level is below the 'MIN' water level marker or higher than the 'MAX' water level marker	Make sure the water level is between the 'MIN' and 'MAX' marks on the body of the heater circulator. Turn off the power and adjust the water level.
The display screen reads error code: E02	<ol style="list-style-type: none"> 1. Possible issue with Heating element 2. Possible issue with internal wiring 3. Possible issue with temperature sensor 	Contact Service
The word CLEAN is displayed on the touch screen	The heater circulator has been working for more than 20 cycles or 100 hours and requires a clean	Refer to cleaning and maintenance section of this user manual
LP is displayed on the touch screen	Loss of power	Cycle the power at the GPO and wait ten seconds to turn it back on

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 white sticker, usually located near the power lead.

Contact Thermoline service on +61 2 9604 3911 or email at service@thermoline.com.au



Model:
Serial No:
Watts/Amps:
Volts:

Phone: +61 2 9604 3911
Email: hello@thermoline.com.au



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 circulator 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.

We are proudly Australian owned

We will continue to invest in Australian
manufacturing.

