

Dry Block Heater

User Manual & Setup Guide

TDB 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 cabinet.

2. General Information

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

Intended Use

The Thermoline Dry Block Heater is designed to provide uniform dry heating of various shapes and sizes of tubes and vials featuring a wide temperature range from ambient +10°C to 200°C with an accurate control stability of +/- 0.2°C.

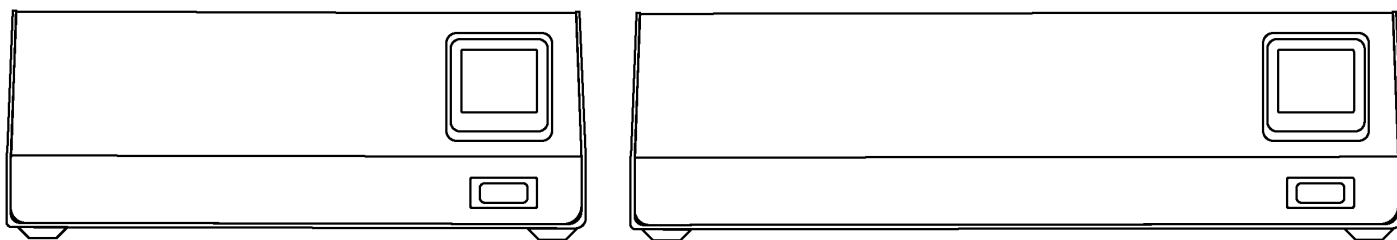
Heating blocks provide a safe, convenient and productive alternative to heating mantles and hotplates for accurate heating of PCR tubes, PCR strips, microcentrifuge tubes, microplates and cuvettes. Our single and triple aluminium block designs offer precise temperature control in small vessels.

Operating Range

The Thermoline dry block heater is set to function with specific Operating Ranges. The optimum operating conditions will be explained further in this manual.



3. Product Specifications



Dimensions

External

TDB-1

TDB-3

WxDxH (mm)

245x180x120

425x180x120

Internal

WxDxH (mm)

80x100x50

240x100x50

Technical Specifications

Block Capacity

1

3

Temperature Range

Ambient +10°C to 200°C

Temperature Uniformity

+/-0.2°C to 100°C

Controller Type

Omron E5CC PID Microprocessor

Safety

Over Temperature Safety/Over Current Protection

Electrical

125W/230V

250W/230V

Weight

1.8kg

3kg

Fibreglass Insulation

✓

✓

Block Options

<i>Block Configuration</i>	<i>Qty of Holes</i>	<i>Diameter (mm)</i>	<i>Depth (mm)</i>
DBAB 0	None	Single Plain	N/A
DBAB-000	None	Single Plain	N/A
DBAB-1	30	6	40
DBAB-2	20	8	40
DBAB-3	20	10	40
DBAB-4 (2.0ml Micro Tubes)	20	12	40
DBAB-5	20	14	40
DBAB-6	12	15	40
DBAB-7	12	16	40
DBAB-8	12	17	40
DBAB-9	8	18	40
DBAB-10	8	19	40
DBAB-11	8	20	40
DBAB-12	8	21	40
DBAB-13	8	22	40
DBAB-14	6	23	40
DBAB-15	6	24	40
DBAB-16	6	25	40
DBAB-17	6	26	40
	<i>Qty of Holes</i>	<i>Size (ml)</i>	<i>Depth (mm)</i>
DBAB-18	30	0.2	16*
DBAB-19	20	0.5	28**
DBAB-20	20	1.5	34**
DBAB-21	96 Plate Well = 2 Blocks		

* Parallel Holes (mm)
** Tapered Holes (mm)

4. Operating Environment

Cabinet Location

Ensure dry block heater is placed in the correct 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.

Dry Block Heater should be stored inside at all times. Failure to adhere to this could cause significant drops in cabinet performance and damage to items stored inside.

Extreme Operating Environment:

- **Temp:** 10°C to 32°C
- **Humid:** Up to 85%RH

Optimal Temperatures:

- 23°C (+/-5°C)
- 50%RH (+/- 25%RH)

- Ensure that warmers are kept away from water (**Fig 2**).

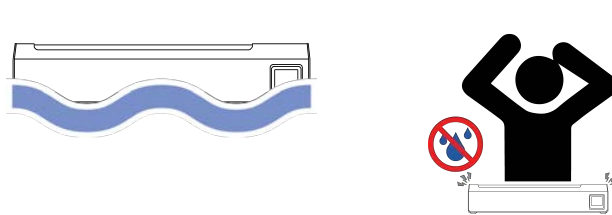


Fig 2.



Fig 1. Suitable Environment

4. Operating Environment

Electrical Connections

Dry block heaters are suitable for connection to a standard 10Amp, 230 volt, 50Hz, supply. A dedicated outlet should be used for the supply, do not use power boards or the like.

Electrical:

- Included with the dry block heater 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 dry block heater itself is a 10 amp male IEC socket. **(Fig 2)**

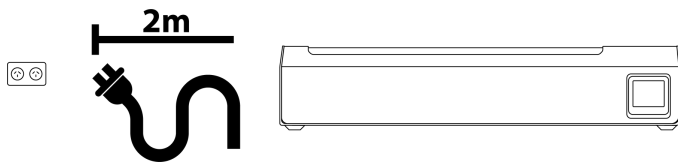


Fig 1. Suitable distance from power supply (2m)

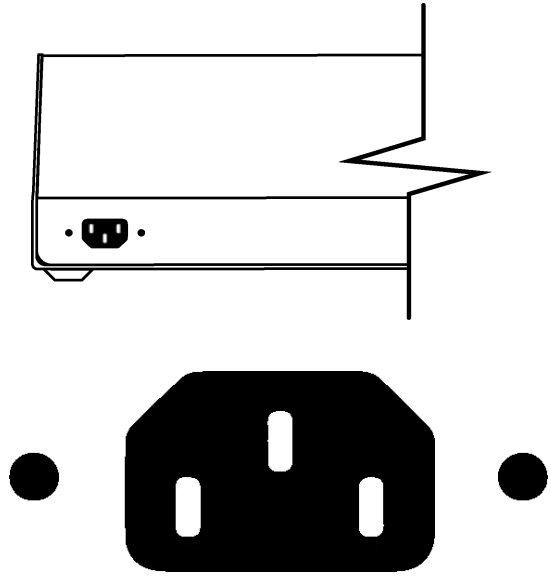


Fig 2. 10 amp male IEC socket

Operating Environment Warnings



All Dry Block Heater require an even surface to ensure consistent performance. Internal contents can also be damaged by the cabinet being on an uneven surface.

Dry Block Heater should be stored inside at all times. Failure to adhere to this could cause significant drops in cabinet performance and damage to items stored inside.



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

5. Setup

Unpacking

Unpacking Process for carton:

- Before proceeding make sure that all internal and external packaging has been removed from the appliance and that all tape, plastic bags and pieces of foam have been removed.
- Removing the box requires the cling wrap and straps to be cut, then expose the cabinet by carefully sliding the box upwards. **(Fig 1)**
- 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.

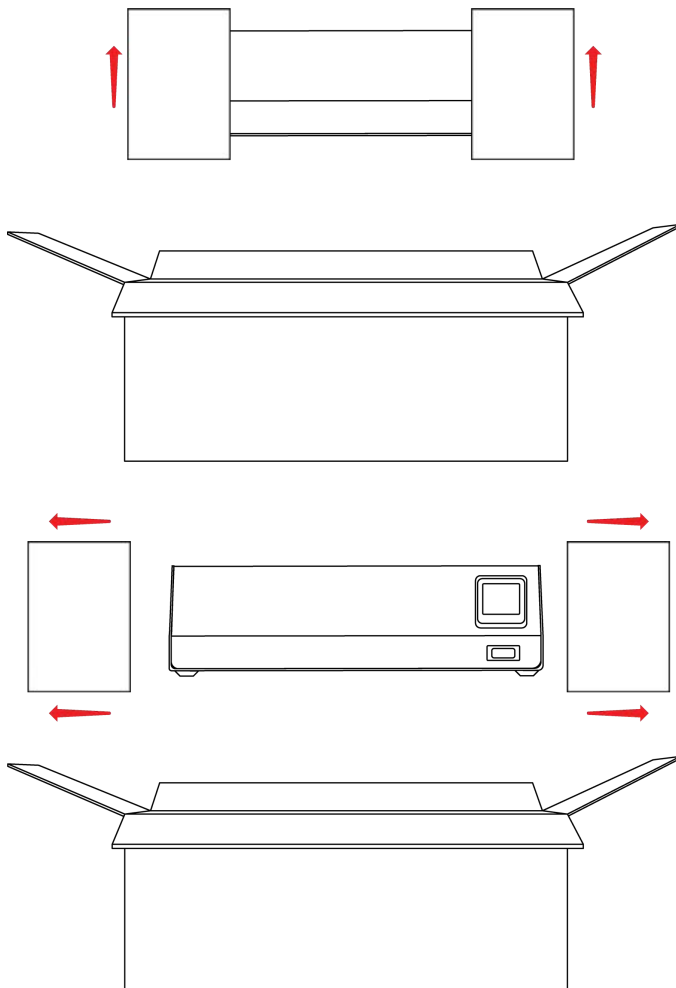


Fig 1 . Unpacking Process (Box)

Moving

While the dry block heater is not heavy please note that it can be very hot at the top. Please take caution not to get injured from the hot surface. **(Fig 2)**



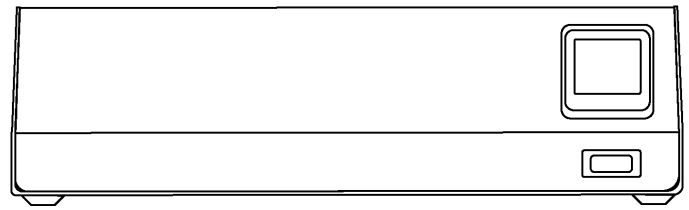
Fig 2.

5. Setup

Start Up Procedure

Start Up process for Dry Block Heater:

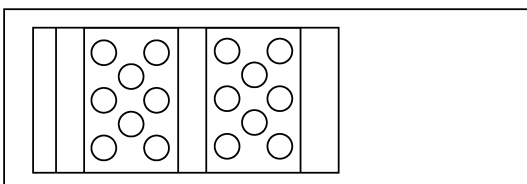
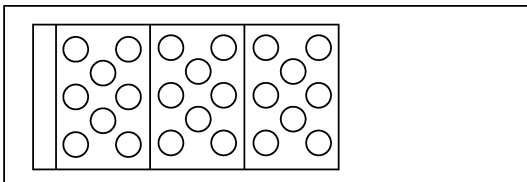
- Take the supplied lead and plug it into the male IEC socket on the rear of the incubator. Next, plug the 3 pin plug into a 10amp General Purpose Outlet.
- Turn the main switch adjacent to the temperature control to 'ON' to start the incubator.
- The controller will go through a warm up period where all segments of the display will be on, before indicating the set temperature (SV) on the lower display and incubator actual temperature (PV) on the top display.
- The fan ON/OFF switch allows you to switch between fan forced or natural convection modes.



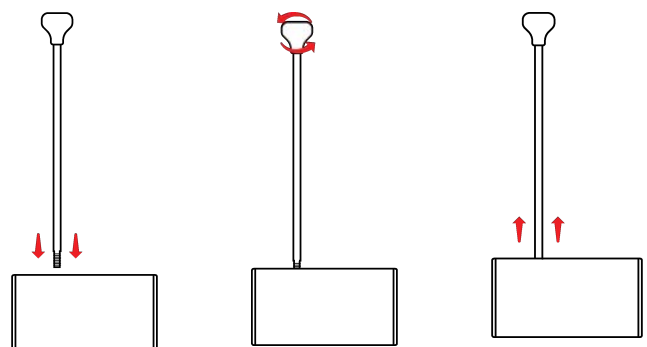
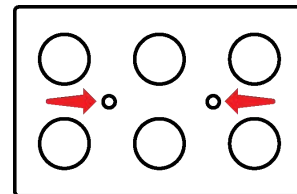
Main Switch
Temperature Controller

Loading

When in use please ensure the dry block heater is loaded with a full compliment of blocks. Included with the dry block heater is a handy tool that can be screwed into the threaded hole of the block to remove them (please take caution if the blocks are hot).



Correct Loading



Block Removal

5. Setup

Cabinet Location

Location Requirements:

- Dry block heaters cabinets require a level surface to operate best. (Fig 1)
- Do not place the warming plate in any amount of water, this will result in premature component damage.
- While the dry block heater doesn't have an internal fan for ventilation, there is still a vent on the side to allow heat to escape. Thermoline still suggests 100mm on the sides to allow hot air to escape.

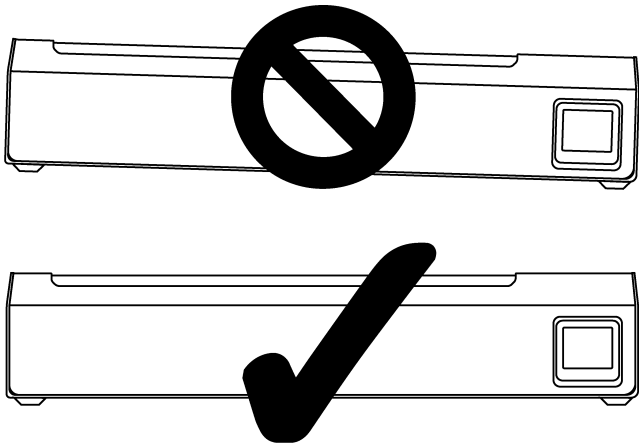
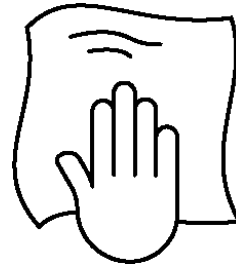


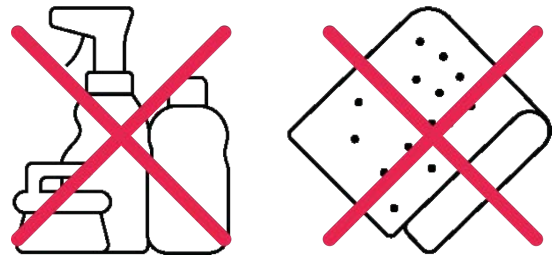
Fig 1. Correct Levelling

Cleaning

The Thermoline Dry Block Heaters require no routine maintenance other than normal levels of cleanliness. The external surface powder coated steel and may be wiped clean using a damp, soft cloth. Never use abrasive cleaners or scouring pads as these will scratch the surface and may result in corrosion. Never use caustic type cleaning agents.



All dry block heaters have electrical components such as the temperature controller. These should not be subjected to any levels of moisture.



Setup Warnings



Never block off air vents on the dry block heater. It can cause damage due to excess build up of heat.



When you remove packaging from the dry block heater, you should be careful when using knives to cut tape and cardboard.

The controller used in the dry block heater is an Omron E5CC microprocessor based instrument with digital indication of set temperature and operating temperature.



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 Buttons: Used to increase and decrease the parameter settings.



Side Arrow: Used to move the flashing digit.

PV

Process Value: Current temperature of the cold plate.


SV

Set Value: Set temperature of the cold plate.

Note: There is limited access to the controller's parameters. The operator can alter the temperature set point and has access to parameters used for calibration purposes.

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	Hi 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	v	w	X	y	Z
U	V	W	X	Y	Z

Dry Block Heater General Controls

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 of the dry blocks.

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.

Each block has two holes. One for the lifting tool and the other for a temperature sensor.

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

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.

Problem

Fix

The word "Stop" is showing on the Omron Controller

1. Press the 'PAGE' button and the 'SCROLL' button simultaneously until 'oAPt' appears on the screen.
2. Press 'SCROLL' button until you see the parameter 'PMSK' on the screen.
3. Press the 'DOWN' button to turn off.
4. Press the 'PAGE' button and the 'SCROLL' button simultaneously to take you back to the main menu.
5. Press 'SCROLL' until you see 'R-S' on the screen.
6. Press the 'DOWN' button to turn 'STOP' to 'RUN'
7. Press the 'PAGE' and the 'SCROLL' button simultaneously until 'oAPt' appears on the screen
8. Press 'SCROLL' until you see the parameter 'PMSK' on the screen
9. Press the 'DOWN' button to turn on
10. Press the 'PAGE' and the 'SCROLL' button simultaneously to take you back to the main menu.

Please note if other parameters are changed by mistake further issues may occur.

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



ABN 80 000 859 129
SALES AND MANUFACTURING
10-12 Ross Place, Wetherill Park NSW 2164 Australia
Phone: +61 2 9604 3911 Email: 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 cabinet 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.

