

HB-1 / HB-2 Block Heater



Installation and Operation Manual

Item # 03040
Version 1.5

**This instrument is intended for laboratory use only*

Packing List

____ x 1 main body

____ x 1 power cable

____ x 1 manual (packing list & warranty card)

____ x 1 block extractor



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A. Important Notice

The instrument is designed for laboratory usage only.

Before setting up and operating Block Heater, please carefully read these instructions to get familiarized with product's installation and operation process. Instructions shall be read by well-trained individuals or by technical people from Wealtec Corp. before operating the instruments.

Any improper usage of the instruments may cause damage, please refer to the safety notice.

The instrument shall not be modified or altered in any way. Any modification or alteration will void the warranty, void the regulatory certifications and create potential safety hazard. Wealtec is not responsible for any injury or damage caused by using the instrument for any non-intended purpose or by modifying the instrument by any person who is not authorized by Wealtec Corp.

A-1. Warranty

Block Heater is warranted to be free from defects in materials and workmanship for a period of one year from the original invoice date under normal usage. Any defects to occur during warranty period, Wealtec Corp. will repair or replace defective products or parts without charge unless the defects arise from below conditions. The defects described below are specially excluded from Wealtec warranty policy.

1. Improper operation of the instrument
2. Repair or modification by any person who is not authorized by Wealtec Corp.
3. Damage caused by any (in)-direct accident, neglect or misuse.
4. Damage caused by disaster.
5. Damage caused by any improper solvents or samples

A-2. Technical and Service Contact

Most of the operation details are described in the instruction manual. Operator can find the possible solution according to the instructions. For any other technical/ service questions, please contact your local representative or contact Wealtec world-wide service center by E-mail: support@wealtec.com.

A-3. Safety Notice

A-3-1. Certification

Wealtec Block Heater is designed to meet the international electrical safety standard EN61010 and EMC regulations. This product is with CE marking. Operation according to the guidance of instruction manual is certificated safe. Any modification or alteration will void the warranty, void the regulatory certifications and create potential safety hazard.



A-3-2. Cautions




1. Apply 10% higher or lower voltage than specified on the instrument may cause malfunction of the Block Heater.
2. Do not splash water or liquid on the block heater, the spilled water or liquid may cause malfunction of the Block Heater.
3. Do not touch or exchange the block while heating or when block is still hot, it may scald the operator.




4. The HB-1 and HB-2 block heaters are only for indoor use.
5. A power cord according to IEC 60227 or IEC 60245 shall be used. The power supply cord set shall have a supply cord with conductors providing a cross-sectional area of 3G, 0.75mm² minimum.
6. The equipment only allowed to be connected to socket-outlet with PE. Make sure the equipment is reliably connected to protective earth before use.
7. Always disconnect the power plug before maintenance.
8. Operate the block heater with volatile liquid may cause damage while heating the liquid.
9. The lifetime of the electronic components may be shortened if the block heater is operated with volatile liquid in a poor ventilated environment.
10. Do not directly pour water/liquid/ice on high temperature heating block to cool down the temperature of the block. It may cause damage to the instrument and fast-evaporated water/ liquid may be harmful to the operator.
11. Do not dispose of electrical appliances as unsorted municipal waste, use collection facilities. Contact your local government for information regarding the collection systems available.
12. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging

your health and well-being.

13. When replacing old appliances with new one, the retailer is legally obligated to take back your old appliance for disposal at least for free of charge.

Symbol used in the equipment:

Symbol	Definition of symbol
	Alternating input current
	Only on control circuit
	The hot surface symbol beside the tank on the enclosure Do not touch enclosure, tank and block when the heater operate

	For protective conductor terminal
	On power switch; O : power off; I : power on
	The equipment complies with Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE)

B. Introduction

Accurate chemical reaction needs to have well-controlled temperature incubation. For fast heat transfer, Wealtec block heater offer three types of interchangeable blocks specified for test tube, micro-centrifuge tube and PCR reaction tubes. Broad range temperature control from ambient to 200°C is ideal for the applications of restriction digestion, denaturing of nucleic acids & proteins, hot start PCR, enzyme kinetics reactions, immunoassays , COD reactions, BUN, coagulation studies, melting agar etc.

B-1. Specifications

Module Type	HB-1	HB-2
Temperature Range	30 to 200°C	30 to 200°C
Temperature stability @ 100°C	+/- 1°C	+/- 1°C
Temperature uniformity @ 100°C	+/- 1°C	+/- 1°C
Temperature accuracy @ 100°C	+/- 1°C	+/- 1°C
Heat up speed from ambient to 100°C	15 +/- 2 minutes	15 +/- 2 minutes
Temperature controller	Microprocessor	Microprocessor
Temperature control mode	Digital	Digital
Temperature Calibration	Yes (front panel control)	Yes (front panel control)
Heat power (w)	250 W max	500 W max
Over Temp cutoff	212°C	212°C
Number of blocks	1	2
Block material	Solid anodized aluminum	Solid anodized aluminum
Bath internal dimensions	102 x 78 x 46mm (L x W x H)	156 x 102 x 46 mm (L x W x H)

Timer	0-999 minutes	0-999 minutes
Panel Display mode	2 x 3 digital display	2 x 3 digital display
Power	AC 230 V or AC 120V	AC 230 V or AC 120V
Dimensions	310 x 250 x 80 mm (L x W x H)	310 x 250 x 80 mm (L x W x H)
Weight with block	4.5 kg	6 kg
Weight without block	3.3 kg	4.8 kg
Warranty	1 year	1 year
Certification	CE	CE
Operating condition	Temperature: 0-40°C Humidity: 10% to 90% R.H. Non-condensing Up to 2000m	
Pollution degree	II	
Installation/overvoltage category	II	
Replaceable fuse type	F3.15AL/AC 250V for HB-1, F5AL/AC 250V for HB-2	
Block type	12 x 16 mm test tubes, 20 x 1.5 ml microtubes, 30 x 0.5 ml microtubes	


B-2. Product Descriptions


Wealtec Block Heater has two models: HB-1 Block Heater (one block model) and HB-2 Block Heater (two blocks model). Both models can set heat temperature and timer control. The interchangeable aluminum blocks offer more applicable tube types. The digital control module can offer researchers more accurate temperature control for experiment requirements.




Individual functional descriptions ---

- a. On/Off: Power switch is positioned on backside of the instrument. When power is turned on, POWER indicator and LED display will light up. Operator shall connect the instrument to correct voltage source as indicated on the label of instrument.
- b. Power cord inlet: The inlet for the power cord is positioned on the backside of the Block Heater.

- c. : Start and Stop control button: Press Start/Stop button to start/ stop the running of the Block Heater after experiment condition has been set.

- d. : The LED display monitors can show all settings/ status value while setting or running. There are two LED display monitors on the Block Heater. One is to visualize temperature value (left side) and the other is to display setting/ remaining value of the timer (right side).

- e. : Up and Down arrow: Press up and down arrow to select the condition setting value. There are two sets of up and down arrows on Block Heater: Set temperature

value (Left side)* and Set value of the timer (right side).

***Note!** After start running, **DO NOT** press Temperature Up and Down arrow. This will activate instruments OFFSET function. OFFSET function shall not be activated before running temperature is reached and stabilized. For further information about OFFSET function, please refer to OFFSET function section described below.




- f. : Indicator lights for Power, Heating and Set Temp: When power is turned on, both Power and Set Temp indicators lights up, inform operator to set desired temperature. When press Start/ Stop button to start heating, the Set Temp light will be off and Heating light on.



- g. : °F* and °C lights: Located on the left side of temperature LED display monitor. Block Heater's temperature can be displayed as Centigrade or Fahrenheit. Simultaneously press temperature up and down key to alternate Centigrade or Fahrenheit Temperature display.

***Note!** Setting functions are not workable when displayed in Fahrenheit

Temperature. Operator shall press back Centigrade Temperature display to activate setting functions.

- h. : Aluminum Blocks: Wealtec offers three types of blocks: 12 x 16mm test tubes; 20 x 1.5 ml microtubes and 30 x 0.5 ml microtubes

C. Installation of Block Heater

C-1. Package list:

Standard package

Item	Quantity
Block Heater main frame	1
Aluminum block	1(HB-1) or 2(HB-2)
Block extractor	1
Power cable	1
Installation and Operation Instruction Manual	1

C-2. Installation:

1. Unpack the package and take the Block Heater out of the box.
2. Place the Block Heater on a stable, flat surface and proper environment for operation.
3. Make sure the power source has the correct voltage, current and frequency as indicated on the device.
4. Plug the power cable into instrument's inlet located at the backside of the Block Heater, then connect to the power source.

5. Turn on the power of Block Heater and check all functions as to Operation section described below. If the Block Heater has any functional defects, please contact your local representative or Wealtec worldwide service center for assistance.

D. Operation

1. Turn on the On/Off power switch, the Power light and LED monitor will light up. The temperature LED monitor will display default value of 30°C.
2. Press Temperature Up and Down-key to set the desired value. If the function is not workable, simultaneously press Up and Down-key to alternate display of Fahrenheit Temperature to Centigrade display.
3. Press Timer Up and Down-key to set running time. For continuously running without timer control, set the value to "0". Timer setting function will then only be activated under "Stop" situations.
4. After all settings are completed, press Start/Stop button to initiate the Block Heater. By pressing start button, Heating indicator will light up and Set Temp light will be switched off. The Temperature LED monitor will flash and display the status of temperature. The

flash will stop when set temperature is reached and stabilized. Timer LED display will start to count down after press start button.

- **Caution! Do not touch the hot top of the Block Heater while running**

5. Operate optional OFFSET function, please refer to OFFSET function section described below.
6. To stop the Block Heater manually, press Start/ Stop button.

E. OFFSET function

OFFSET function is for operator to re-calibrate Block Heater if it is necessary. Due to every Block Heater has been properly calibrated by calibrated digital thermometer before product delivery; operator is **NOT** recommended to use the OFFSET function.

- ➡ Important Notice: OFFSET function is only used under situations as followed:
 - A. Operator has a standard calibrated thermometer
 - B. Operator wish to read the value same as their mercury thermometer to keep experimental conditions at the same standard.
- *Note!** General laboratory mercury thermometer is not calibrated from

international standard thermometer. Some temperature variation may occur with different thermometer.

- ➔ If necessary to perform any adjustments in the field, please follow procedure as below:
 - A. Put a thermometer in the hole of the aluminum block and operate Block Heater in same way as the Operation section above to start the Block Heater.
 - B. The OFFSET function is activated only under running condition and the temperature of block is reached and stabilized at the desired set value (Temperature LED display stops flashing at this moment).
 - C. When press the Temperature Up or Down-key under the situation as described above, the Temperature LED display monitor will be off and Timer LED display will show 000.
 - ***Note!** The function display will be de-activated within 3 seconds if no further press on Up or Down-key. Press Temperature Up or Down-key to activate the OFFSET function again.
 - D. If desired value is lower then displayed value, press down arrow button of Temperature setting. If desired value is higher then displayed value, press up arrow button of Temperature setting. The maximum adjustable range is +/-100

(Equal to +/- 10 °C) . In this function display, 1 degree equal to 0.1°C adjustment.

- E. For example, if operator's thermometer displays 98.5°C and Block Heater shows 100°C. Operator shall press down button of Temperature setting to -15 (98.5-100= -1.5°C) . After 3 seconds without any further action, display will automatically return to temperature and timer display.
- F. Wait for 30 minutes to make sure the temperature of Block Heater becomes stable.
- G. Check temperature with thermometer again and compare to display of the Block Heater. If the display value still differs from thermometer, repeat the OFFSET function setting again.

F. Care and maintenance

Blocks shall not be touched while still hot. Operator shall not directly pour water/liquid/ice on the hot block/ block heater to reduce the temperature of the heating surface. It may cause damage to the instrument and fast-evaporated water/ liquid may be harmful to the operator.

After the block temperature cooled down, Block Heater shall be cleaned by moisten soft tissues after every usage to avoid all possible contaminations and damages to the instruments.

Aluminum blocks can be washed with water and mild detergent. Please avoid scrape the surface with hard brush it may damage the specialized coating of aluminum block.

G. Order Information

<u>Item #</u>	<u>Description</u>
1092001	HB-1 Block Heater with an aluminum block for 12 x 16 mm test tubes, 120V
1092002	HB-1 Block Heater with an aluminum block for 12 x 16 mm test tubes, 230V
1092003	HB-1 Block Heater with an aluminum block for 20 x 1.5 ml microtubes, 120V
1092004	HB-1 Block Heater with an aluminum block for 20 x 1.5 ml microtubes, 230V
1092005	HB-1 Block Heater with an aluminum block for 30 x 0.5 ml microtubes, 120V
1092006	HB-1 Block Heater with an aluminum block for 30 x 0.5 ml microtubes, 230V
1092107	HB-2 Block Heater with two optional aluminum blocks*, 120V
1092108	HB-2 Block Heater with two optional aluminum blocks*, 230V

* Purchase order shall include the item numbers of optional blocks

Accessories:

1092101	Aluminum block for 12 x 16 mm test tubes
1092102	Aluminum block for 20 x 1.5 ml microtubes
1092103	Aluminum block for 30 x 0.5 ml microtubes
1092104	Block Extractor

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