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VWR™
INTERNATIONAL



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Specifications

Analog Heatblocks

Voltage: 100-120 volts AC, 50/60 hertz
220-240 volts AC, 50/60 hertz

Digital Heatblocks

Voltage: 100-120 volts AC, 50/60 hertz
220-240 volts AC, 50/60 hertz

Dimensions: L x W x H, in.(cm)

1 Heatblock 8.5 x 7.8 x 3.7 (21.6 x 19.8 x 9.4)
2 Heatblock 11.5 x 7.8 x 3.7 (29.2 x 19.8 x 9.4)
3 Heatblock 14.4 x 7.8 x 3.7 (36.6 x 19.8 x 9.4)
4 Heatblock 13.5 x 9.8 x 3.7 (34.3 x 24.9 x 9.4)
6 Heatblock 17.0 x 9.8 x 3.7 (43.2 x 24.9 x 9.4)

Power:

1 Heatblock	100 watt
2 Heatblock	200 watt
3 Heatblock	200 watt
4 Heatblock	300 watt
6 Heatblock	400 watt

Temperature Range:

Analog: Slightly above ambient to 150°C +/- 0.5°C
Low range: Slightly above ambient to 100°C approx.
High range: 75 to 150°C approx.
Digital: Ambient to 120°C +/- 0.2°C

Fuses: 230v - 5mm x 20mm 5 amp quick acting

Controls for Analog Version:

On/Off
Heat indicator light
Low Temp. adjust knob, variable, 1 to 10 dial markings
High Temp. adjust knob, variable, 1 to 10 dial markings

Controls for Digital Version:

On/Off switch
LED display for temperature,
Up/Down keypad for setpoint control

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Specifications (Cont.)

Ship Weight: 1 heatblock - 10 lbs, 2 heatblock - 10 lbs
3 heatblock - 10 lbs, 4 heatblock - 10 lbs
6 heatblock - 10 lbs

Environmental Conditions

Non-Operating Storage:
Temperature: -20 to 65 deg. C (-4 to 149 deg. F)
Humidity: 20% to 85% RH, non-condensing
Operating Conditions: Indoor use only
Temperature: 18 to 33 deg. C (64 to 91 deg. F)
Humidity: 20% to 85% RH, non-condensing
Altitude: 0 to 6,562 ft. (2000 M) above sea level
Installation Category II and Pollution Degree 2 in accordance with IEC 664

Package Contents

Heatblock
Instruction manual
Power Cord

Care and Handling

Always ensure power is disconnected from the unit PRIOR TO any cleaning. Your Heatblock is built for long, trouble free, dependable service. Wiping with soap and water solution only is recommended; solvents and aggressive chemicals should not be used to clean the unit. To extend the life of the unit, move the switch to the "Off" position when not in use.

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Initial Set-up

Place the Heatblock in an area with a stable ambient temperature free of air currents which can affect the stability of the operation. Ensure that the surface on which the unit is placed will withstand typical heat produced by the Heatblock unit and place the Heatblock unit a minimum of four (4) inches from vertical surfaces. Ensure the top of front fascia and bottom plate ventilation holes are not blocked.

The 120v and 230v units are supplied with a 3-prong power cord that should be plugged into a standard three prong grounded outlet.

Place the Heatblock module block(s) into the Heatlblock well (see accessories for a wide variety of module blocks available from VWR International). It is necessary to fill the well with module blocks because empty block locations will affect performance.

Safety Instructions



Warning
Please read this entire manual before operating the Heatblock.



Warning
Do not use Heatblock in a hazardous atmosphere or with hazardous materials. Also, the user should be aware that the protection provided by the equipment might be impaired if used with accessories not provided or recommended by manufacturer, or used in a manner not specified by the manufacturer.



Warning
Wipe up spills immediately to prevent electrical shock. Unplug from power before cleaning and do not operate until clean up is complete. **DO NOT** immerse.



Warning
Do not operate the unit if it shows signs of electrical or mechanical damage.



Warning
The Heatblock units are designed to be operated in dry conditions. **DO NOT** put water, oil, or other fluids in the wells of the Heatblock units. The chamber that the blocks sit in is not designed to be filled with liquid or other fluids. **DO NOT** place anything other than the module blocks listed at the end of this manual in this cavity.

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VWR Heatblock



Operating Instructions

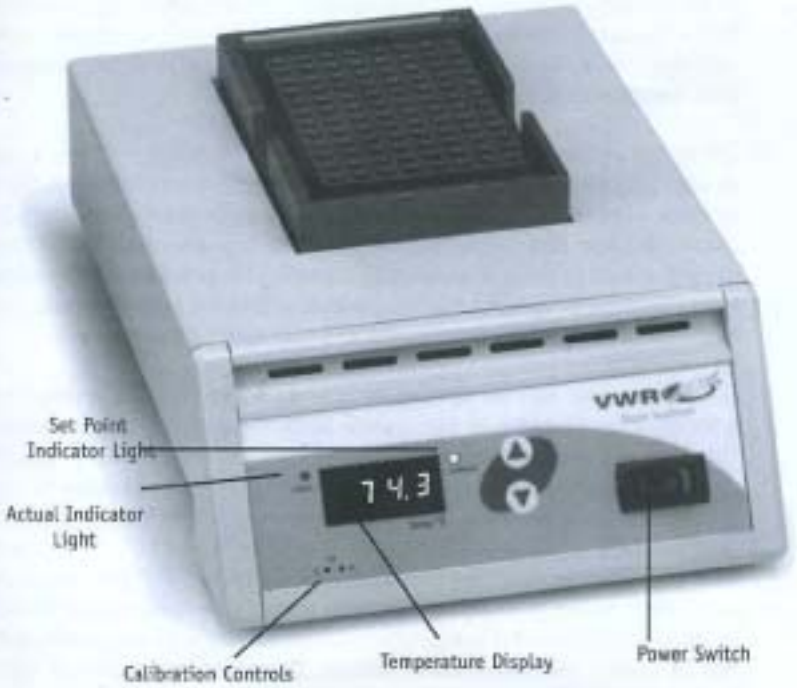
1. Switch the 3 position rocker power switch from the center "Off" position to the low range or high range as desired. The controls are divided into two separate heating ranges, both thermostats having graduations to assist in setting the desired temperatures. The left hand "Low temperature adjustment" controls from slightly above ambient to approximately 100 degrees C. The right hand "High temperature adjustment" controls from approximately 75 degrees C to 150 degrees C.

2. The rocker switch has a center "Off" position and is used to select the desired operating range. When operating at the point where the two thermostats overlap in temperature range, the proper thermostat must be chosen for the task being performed. Move the power switch to the desired operating range and turn the matching range temperature control knob clockwise to increase the temperature within the range selected. The heat indicator light will light during the operation of the heater.

3. The temperature may be verified by placing a thermometer in the test solution or by insertion in the module block thermometer hole provided. This hole fits regular glass bulb thermometers or small diameter digital probes. Due to air currents and radiation losses, the temperature in the test solution will be lower than the temperature in the block itself. For most accurate readings a thermometer should be placed in a sample test tube with solution matching the samples being tested. If the temperature is too high or too low, adjust clockwise to increase temperature, counter-clockwise to decrease temperature. Slight adjustments will usually suffice to correct the temperature setting. When the heat indicator light flashes on and off intermittently, check the temperature again. Allow sufficient time for the temperature to stabilize before re-adjusting. This procedure should be followed until the desired temperature is reached.

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VWR
Digital Heatblock



Operating Instructions

1. Turn the power switch "On". The display will alternate between the ambient temperature and the default set-point temperature.
2. To set the desired block temperature, use the "Up" arrow and "Down" arrow keys. Holding either key down will cause the set temperature to change rapidly, a single pressing of either key will move the set temperature by 0.01 degrees C. There are no set or enter keys to press, once the set temperature is programmed, it is accepted. While the keys are being pressed the display will continue to show setpoint. Once the setpoint has been programmed and the keys are not being pressed, the display will alternate between set and actual temperatures.
3. Allow time for the temperature to stabilize. The actual temperature displayed is the temperature at the bottom of the block. Once the displayed actual temperature agrees with the set temperature several minutes should be allowed for the temperature to even out throughout the block. The units are designed to maintain accurate temperature for long periods with little deviation. Allowing sufficient time for warm-up and temperature uniformity is generally worthwhile.

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Calibration

The Heatblock is factory calibrated using traceable equipment and should not need to be recalibrated.

CALIBRATION SHOULD ONLY BE UNDERTAKEN BY EXPERIENCED PERSONNEL USING ACCURATE EQUIPMENT TRACEABLE TO NIST

There are two calibration controls, Offset - marked "L" and Gain - marked "H". Both are accessible from the front panel. Note: Full calibration involving Gain, described below, can be a lengthy and complicated procedure, if it is simply required to get a unit temperature reading to match a local reference standard this is best done adjusting ONLY THE OFFSET (L) potentiometer.

CALIBRATION DISPLAY- If the unit is switched on while the DOWN ARROW is depressed, the unit will display actual temperature only. THIS MODE CAN BE USEFUL WHEN CALIBRATING. In this mode the unit will still allow you to put in the setpoint and will display setpoint for the time you are entering into the unit, however, once you complete entry it will revert back to actual temperature being displayed and will not go back to alternating unless you turn the unit off, then turn back on WITHOUT DEPRESSING THE DOWN ARROW.

Calibration Procedure

1. Fully load unit to be calibrated with module block(s) (at room temperature). Place the primary reference device measuring temperature in the thermometer hole or in one of the sample wells in a block.
2. Press the down arrow button while powering unit on (to put the unit in calibration mode with the "actual" temperature displayed). Enter 37 degrees, wait a minimum of 1 hour for the temperature to stabilize. Take a reading of temperature. Write down the reading
   A. If the reading is between 36.5 and 37.5 enter 120 degrees and go to step 3.
   B. If the reading is outside these values, adjust offset potentiometer marked "L" until the actual value displayed agrees with thermometer reading (within +/- 0.2 degrees). Wait until the temperature has steadied down again and write down the reading. Enter 120 degrees.
3. Wait a minimum of 1 hour for the unit to stabilize. Take a reading temperature, write down the reading.
   A. If the temperature is between 119.2 and 120.8, the unit is sufficiently calibrated. Switch off the unit and allow to cool.
   B. If the temperature reading is outside these values by a small amount (approx 1 degree) compare the reading with the reading at 37 degrees setting. The gain pot marked "H" affects the 37 degree value by approximately 80%, so estimate and make the best "H" adjustment to bring the reading into tolerance but is not expected to bring the 37 degree reading out of tolerance. Wait until the temperature has stabilized again and write down the reading. If the temperature is outside these values, repeat step 3B.

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C. If the temperature reading is outside these values by more than 1 degree, adjust the "H" pot by the deviation value x 5 and the "L" pot by the deviation value x 4 in the other direction until the actual value matches the thermometer reading. It is best to make the first reading such that the "actual" reading goes above 120 degree then gets adjusted back to the final value, (so that the unit does not see an artificially low reading and starts heating again prematurely thus corrupting the readings. This process is necessary because of the interaction of gain with offset and helps achieve a span adjustment without affecting zero adjust).

Example:
If the thermometer is reading 122 degrees with the unit reading 120, the deviation is 2. The "H" pot should be adjusted up to 120+(2x5)=130 and the "L" pot immediately adjusted down to the 130-(2x4)=122. Wait until the temperature has stabilized again and write down the reading. If the temperature is between 119.2 and 120.8, switch the unit off and allow to cool. If the temperature is outside these values repeat steps 3B or 3C.

4. With the unit cool, switch it on in the cal mode again, set to 37 degrees and allow to stabilize. Take a reading of temperature and write down the reading. If the reading is between 36.5 and 37.5 the unit is sufficiently calibrated. If the reading is outside these values repeat steps 2B through 3 as necessary.

Your unit is now ready to be placed back in service.

FAULT FINDING

If the unit displays flashing "SSSS" it means there is a faulty temperature sensor or a break in the wiring from the sensor. Switch the unit off and contact your local VWR representative for repairs. If the unit displays flashing "HHHH" it is exceeding the maximum allowable temperature. Switch the unit off and contact your VWR representative for repairs.

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MANUFACTURED BY:

HENRY TROEMNER LLC

201 Wolf Drive • PO Box 87 • Thorofare, NJ 08086-0087
Phone: 856-686-1600 • Fax: 856-686-1601 • E-mail: troemner@troemner.com
www.troemner.com

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