Guardian™ 3000
Hotplate-Stirrer, e-G31
Instruction Manual

Table of Contents

1. INTRODUCTION

This manual contains installation, operation and maintenance instructions for the OHAUS Guardian™ 3000 hotplate-stirrer. Please read the manual completely before using.

1.1. Safety Information

Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

WARNING	For a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	For a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or minor or medium injuries if not avoided.
ATTENTION	For important information about the product. May lead to equipment damage if not avoided.
NOTE	For useful information about the product.

Warning Symbols


General hazard


Explosion hazard


Caution, hot surface


Protective conductor terminal


Alternating current


Electrical shock hazard

Safety Precautions

WARNING! The protection provided by the unit may be impaired if used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

- Always operate unit on a level surface for best performance and maximum safety.
- DO NOT lift unit by the top plate.
- To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplugging from the wall outlet.
- Disconnect unit from the power supply prior to maintenance and servicing.
- Spills should be removed promptly, after the unit has cooled down.
- Alkalis spills, hydrofluoric acid or phosphoric acid spills may damage the unit and lead to thermal failure.
- DO NOT immerse the unit for cleaning.
- DO NOT operate the unit at high temperatures without a vessel/sample on the top plate.
- DO NOT operate the unit if it shows signs of electrical or mechanical damage.
- Protective earthing of the equipment is achieved via connection of the provided power cord to a compatible grounded power outlet.

WARNING: unit is not explosion proof. Use caution when unit is on or when heating volatile materials.

WARNING! DO NOT use the unit in explosive atmospheres or with materials that could cause a hazardous environment from processing. Keep in mind the material flash point relative to the target temperature that has been set.

CAUTION! The top plate can reach 500°C, DO NOT touch the heated surface. Use caution at all times. Keep the unit away from explosive vapors and clear of papers, drapery and other flammable materials. Keep the power cord away from the heater plate.

CAUTION! Beware of the following risks when heating.

- Flammable materials
- Low boiling point combustible substances
- Glass breakage as a result of mechanical shaking power
- Incorrect container size
- Too much medium
- Unsafe condition of container

Earth Ground - Protective Conductor Terminal

Alternating Current

1.2. Intended Use

This instrument is intended for use in laboratories, pharmacies, schools, businesses and light industry. It must only be used for processing materials as described in these operating instructions. Any other type of use and operation beyond the limits of technical specifications, without written consent from OHAUS, is considered as not intended. This instrument complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. If the instrument is not used according to these operating instructions, the intended protection provided by the instrument may be impaired.

1.3. Package Contents

- Hotplate Stirrer
- Power Cord
- Stir Bar

1.4. Installation

Upon receiving the Ohaus Hotplate-Stirrer, check to ensure that no damage has occurred during shipment. It is important that any damage that occurred in transport is detected at the time of unpacking. If you do find such damage, the carrier must be notified immediately.

After unpacking, place the Hotplate-Stirrer on a level bench or table, away from explosive vapors. Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit and place the unit a minimum of six (6) inches from vertical surfaces. Do not position the equipment such that it is difficult to disconnect the power cord during use. Always place the unit on a sturdy work surface.

The Hotplate-Stirrer is supplied with a 3 conductor, grounded power cord that should be plugged into a matching standard grounded outlet. If the cord supplied does not meet your needs, please use an approved power cord that has ratings equal or exceeding those of the originally provided cord and that complies with the local/national regulations of the country in which the equipment is to be used. Replacement of the plug must be made by a qualified electrician.

2. OVERVIEW

2.1. Dimensions

Round Top Hotplate-Stirrer

Overall Dimensions (L x W x H)	264 x 163 x 101 mm (10.4 x 6.4 x 4.0")
Top Plate Dimensions	Ø 13.5 cm (5.3”)
Top Plate Material	Ceramic coated stainless steel
Electrical (50 / 60 Hz)	100 - 120 V ~ 5 A / 220 - 240 V ~ 4 A
Fuses	10 A, 5 x 20 mm, 250 VAC / 6.3 A, 5 x 20 mm, 250 VAC
Temperature Range	Ambient +5° to 380°C
Temperature Stability of Top Plate[+]	± 3% (> 100°C), ± 2°C (⩽ 100°C)
Temperature Stability with Temperature Probe[++]	± 2% (> 100°C), ± 2°C (⩽ 100°C)
Stir Capacity	15 L
Speed Range	80 to 1600 rpm
Speed Stability[++]	± 2%
Weight Capacity	Up to 15 kg (33 lbs)
Net weight	2.5 kg
Gross Weight	3.1 kg
Shipping Dimension	330 x 250 x 140 mm (13.0 x 9.8 x 5.5 inch)

Note:

- **+** The parameter in the specification table are applicable to 2” (5 cm) diameter center of the top plate.
- **++** Conditions permitting. Variations in temperature and speed measurement processes, vessel, ambient and sample will impact actual performance. To improve temperature accuracy of the system, use the **Single Point Calibration** feature.

4x4 Hotplate-Stirrer

Overall Dimensions (L x W x H)	264 x 163 x 110 mm (10.4 x 6.4 x 4.3")
Top Plate Dimensions	10.2 x 10.2 cm (4 x 4”)
Top Plate Material	Ceramic
Electrical (50 / 60 Hz)	100 – 120 V ~ 5 A / 220 – 240 V ~ 4 A
Fuses	10 A, 5 x 20 mm, 250 VAC / 6.3 A, 5 x 20 mm, 250 VAC
Temperature Range	Ambient +5° to 500°C
Temperature Stability of Top Plate+	± 3% (> 100°C), ± 2°C (⩽ 100°C)
Temperature Stability with Temperature Probe++	± 2% (> 100°C), ± 2°C (⩽ 100°C)
Stir Capacity	15 L
Speed Range	80 to 1600 rpm
Speed Stability++	± 2%
Weight Capacity	Up to 15 kg (33 lbs)
Net weight	2.5 kg
Gross Weight	3.1 kg
Shipping Dimension	330 x 250 x 140 mm (13.0 x 9.8 x 5.5 inch)

Note:

- **+** The parameter in the specification table are applicable to 2” (5 cm) diameter center of the top plate.
- **++** Conditions permitting. Variations in temperature and speed measurement processes, vessel, ambient and sample will impact actual performance. To improve temperature accuracy of the system, use the **Single Point Calibration** feature.

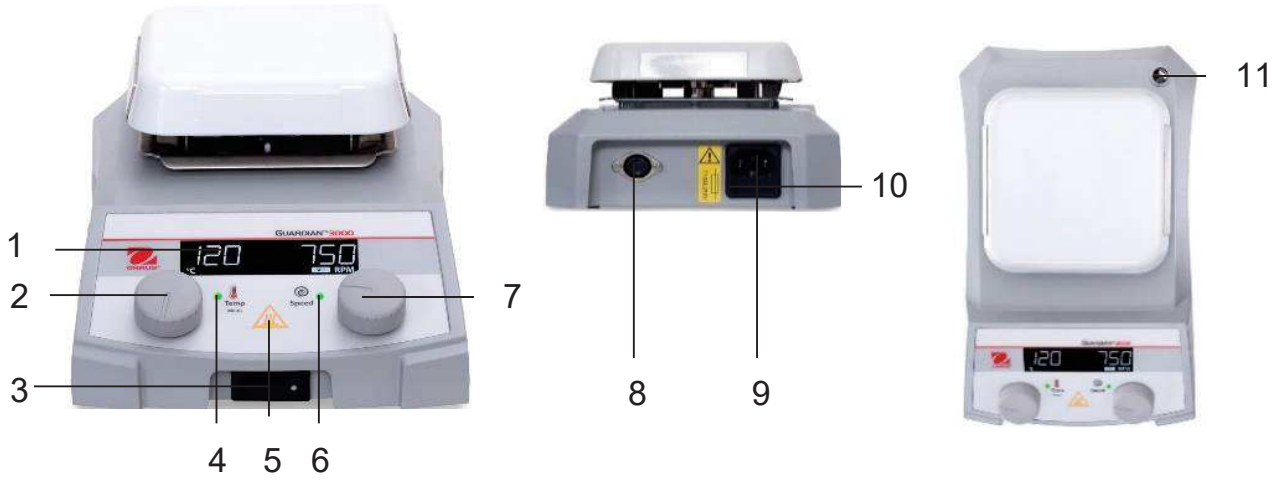
7x7 Hotplate-Stirrer

Overall Dimensions (L x W x H)	318 x 223 x 112 mm (12.5 x 8.8 x 4.4")
Top Plate Dimensions	17.8 x 17.8 cm (7 x 7”)
Top Plate Material	Ceramic
Electrical (50 / 60 Hz)	100 - 120 V ~ 10 A / 220 - 240 V ~ 7 A
Fuses	15 A, 5 x 20 mm, 250 VAC / 10 A, 5 x 20 mm, 250 VAC
Temperature Range	Ambient +5° to 500°C
Temperature Stability of Top Plate+	± 3% (> 100°C), ± 2°C (⩽ 100°C)
Temperature Stability with Temperature Probe++	± 2% (> 100°C), ± 2°C (⩽ 100°C)
Stir Capacity	15 L
Speed Range	80 to 1600 rpm
Speed Stability++	± 2%
Weight Capacity	Up to 15 kg (33 lbs)
Net weight	3.9 kg
Gross Weight	4.6 kg
Shipping Dimension	390 x 290 x 160 mm (15.4 x 11.4 x 6.3 inch)

Note:

- **+** The parameter in the specification table are applicable to 2” (5 cm) diameter center of the top plate.
- **++** Conditions permitting. Variations in temperature and speed measurement processes, vessel, ambient and sample will impact actual performance. To improve temperature accuracy of the system, use the **Single Point Calibration** feature.

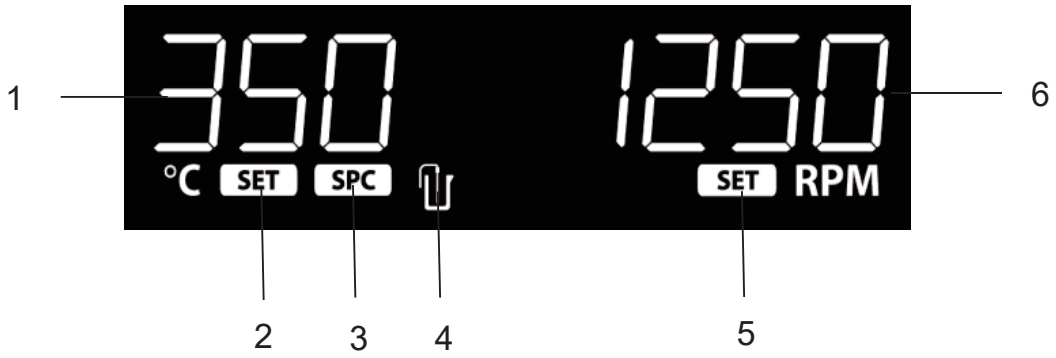
2.2. Control Panel



1. **Display Screen**
2. **Left Knob**: Controls temperature and settings menu.
3. **Standby Switch**
4. **Heater Indicator**: Illuminates when heater is running.
5. **Hot Top Caution Indicator**: Illuminates once the heater temperature reaches 40 °C.
6. **Speed Indicator:** Illuminates when stirrer is running.
7. **Right Knob**: Controls speed.
8. **External RTD Probe Port**
9. **Power Entry Module (PEM)**
10. **Fuse**
11. **Accessory Rod Mounting Hole**

Note: The top plates are of different dimension and material. Please refer to the actual product for detail.

2.3. Display



1. **Heater Temperature**: Switches to external probe temperature when the probe is plugged in and external probe icon is illuminated.
2. **Heat Setting Indicator:** Switches heater temperature to heat setting when illuminated.
3. **Single Point Calibration Icon**
4. **External Probe Icon:** Illuminates when the external probe is plugged in.
5. **Speed Setting Indicator:** Illuminates until stirrer reaches the speed setting.
6. **Stir Speed**

3. OPERATION

3.1. Getting Ready

To get ready:

1. Plug the female end of the provided power cord into **Power Entry Module** (PEM) on the rear side of the unit.
2. Plug the male end of the power cord into a matching standard grounded outlet.
3. The unit will beep once and the screen will illuminate with the following displays:
   a) The first will display all the icons on the screen. In addition, the **Heater Indicator** Temp Menu, the **Speed Indicator** Speed and the **Hot Top Caution Indicator** on the control panel will light up.

   b) The second will display the unit type (left) and the software version (right).

   c) The third will display the unit's electrical voltage (left) and frequency (right).

   d) The forth will display the unit's main operating screen.

Note: If the fourth screen displays OFF, the unit is in standby mode.

3.2. Standby Mode

The standby switch on the front side of the unit controls standby mode.

1. When the unit is switched off:
   a) All heating, stirring, and timing functions will turn off.

   b) The screen will display **OFF**.

   In addition, If the heater temperature is above 40°C, the  on the control panel will remain illuminated as well as the word **HOt** on the screen.

2. When the unit is switched on:
   a) All heating and stirring functions will remain off.
   b) The main operating screen will return to display the previous heating and stirring settings.

   c) The unit is ready for normal use.

3.3. Controlling the Stirrer

1 Rotate the right knob to control the speed setting.
   a) Clockwise rotation will increase the speed setting.

   b) Counterclockwise rotation will decrease the speed setting.

2 To turn on the stirrer, press and hold the right knob until the unit beeps and the Speed on the control panel illuminates.

   a) The unit will beep once to confirm the stirrer has been turned on.
   b) The Speed will blink to indicate that the stirrer is on and ramping to the target speed.

c) Once the stirrer has reached the target speed, the **Speed Setting Indicator** SET will disappear from the screen and the Speed ● will stop blinking and remain illuminated.

Note: the unit will only display the target speed during the process.

3 To change the speed setting while the stirrer is on:

a) Rotate the right knob clockwise or counterclockwise to the new speed setting.

The speed number on the screen will blink to indicate that the speed setting is not confirmed.

b) Briefly press the right knob to confirm the new speed setting.

The speed number on the screen will stop blinking once the new setting is confirmed.

Note: If the speed setting screen remains idle without confirmation for 6 seconds, it will reset to the current setting.

4 To turn off the stirrer, press and hold the right knob until the unit beeps and the Speed ○ lights off.

a) The unit will beep once to confirm the stirrer has been turned off.

b) The Speed ○ on the control panel will go off.

c) The SET on the screen will illuminate.

STIRRING OPERATING TIPS

The stirrer increases speed at a steady rate until the setpoint is reached. If the stirrer is not reaching its setpoint: 1) the stir bar may be too large, 2) the liquid may be too viscous, 3) the setpoint speed may need to be reduced. Additionally, the magnetic strength of stir bars reduce over time and may need to be replaced. Apart from that, the bottom surface of the vessel can affect the stirring performance of the magnetic stir bar. Adjust the vessel being used or change the stir bar to optimize mixing in the sample.

When heating and stirring a reaction vessel within an oil bath or similar set-up, the stirring function will stir up to approximately one inch (2.5 cm) from the top plate. The stirring speed will vary according to liquid viscosity, spin bar length, and distance from top plate. Adjust one or all of these to achieve the desired stirring speed. For example: the closer the reaction vessel is to the top plate, the strong the magnetic connection between the unit and the stir bar.

3.4. Controlling the Top Plate Heater

1 Rotate the left knob to control the heat setting.

a) Clockwise rotation will increase the heat setting.

b) Counterclockwise rotation will decrease the heat setting.

2 To turn on the heater, press and hold the left knob until the unit beeps and the Temp Menu illuminates.

a) The unit will beep once to confirm the heater has been turned on.

b) The Temp Menu on the control panel will illuminate to indicate that the heater is running.

c) During heating, the current heater temperature and the set target temperature along with the **Heat Setting Indicator** SET will be alternately displayed on the screen, while the Temp Menu will blink.

d) When temperature is reached stably, the screen will display the current heater temperature and the Temp Menu will stay illuminated.

e) When the heater temperature is above 40°C, the  on the control panel will be illuminated.

3 To change the heat setting while the heater is on:

a) Rotate the left knob clockwise or counterclockwise to the new heat setting.

The heating temperature on the screen will blink to indicate that the heat setting is not confirmed when heating is active. The **SET** will stay illuminated on the screen.

b) Briefly press the left knob to confirm the new heat setting.

The heating temperature on the screen will stop blinking once the new setting is confirmed.
If the setting temperature remains idle without confirmation for 6 seconds, it will reset to the current setting.

4 To turn off the heater, press and hold the left knob until the unit beeps and the Temp Menu lights off.

a) The unit will beep once to confirm the heater has been turned off.

b) The Temp Menu on the control panel will go off.

CAUTION: THIS DOES NOT MEAN THAT THE TOP PLATE IS SAFE TO TOUCH.

c) Once the heater's temperature cools below 40°C, the ⚠ on the control panel will disappear.

HEATING OPERATING TIPS

Overshoot:
The unit may overshoot the temperature up to 10°C before stabilizing at the setpoint. The two methods to minimize overshoot are:

1. Metal containers minimize overshoot.

   CAUTION! When heating metal containers on a ceramic top plate, it is recommended to use the lowest temperature setting possible to limit thermal stress to the ceramic top plate.

2. If a glass vessel is used, anticipate overshoot. Start with a temperature setpoint 5 to 10°C below the desired temperature. When the temperature stabilizes at this lower setting, increase the heater to the final temperature. Overshoot is then reduced to about 1°C.

The temperature display on the unit represents the estimated top plate temperature, not the sample temperature.

When external probe is in use, the temperature display on the unit represents the sample temperature. The vessel contents being heated may be at a lower temperature depending on the size and thermal conductivity of the vessel.
It may be beneficial to monitor the temperature of the vessel contents and adjust the setpoint temperature accordingly. If you need precise control, use the Ohaus External Temperature Probe.

Typical Time to Boil Water

The chart below is an example of an approximate time to boil for the specified amount of water in a specific vessel. These values are only approximate and can vary from unit to unit. Values are based on 23°C water in an ambient environment of 23°C.

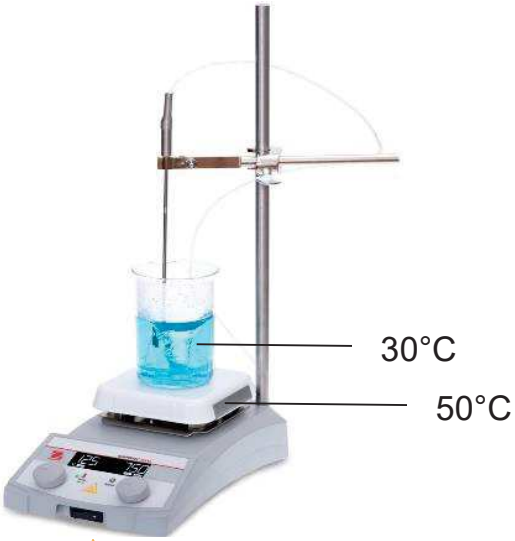
Unit Size	Heater Temp. Limit	Volume of Water	Typical Time to Boil
Round Top	400°C	500mL in 1L beaker	≈ 25 min
7×7	500°C	500mL in 1L beaker	≈ 18 min
4×4	500°C	500mL in 1L beaker	≈ 30 min

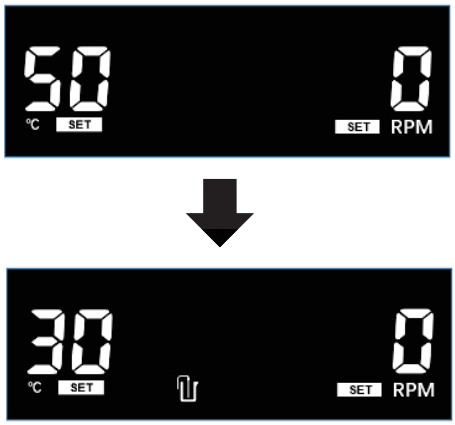
3.5. Using the External Probe

1. Connect the **Ohaus External Temperature Probe** to the **External RTD Probe Port** on the rear panel of the unit.

   Once the Ohaus External Temperature Probe is connected, the **External Probe Icon** on the screen will illuminate.

2. The display will now show the temperature of the external probe instead of the heater. An example is as the following:





The  will still illuminate once the heater temperature reaches 40°C.

Note: When using the Ohaus External Temperature Probe, the temperature setpoint should be adjusted to the desired sample temperature. If the temperature setpoint is higher than the sample can achieve, an E7 will occur (see the **Troubleshooting** section). Reduce sample volume or temperature setpoint value. For Example: Water has a theoretical temperature limit of 100°C (boiling). A temperature setpoint greater than 100°C will cause an E7 error.

3. If the external temperature probe is inserted into the external RTD probe port while the heater is running:
   a) The heater will shut off.
   b) The unit will display an E7 error.
   c) The unit will beep 10 times.

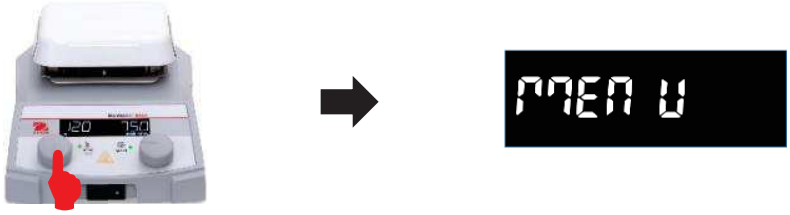
4. If the external temperature probe is removed from the external RTD probe port while the heater is running:
   a) The heater will shut off.
   b) The unit will display an E4 error.
   c) The unit will beep 10 times.

   Note: To clear an E4 or E7 error, flip the standby switch off and back on. The unit will be ready for normal use.

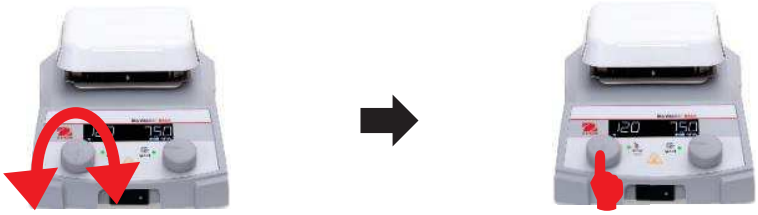
4. THE SETTINGS MENU

4.1. Accessing / Exiting

1. To access the settings menu, press and hold the left knob until MEN U appears on the screen.
   a) Continue to hold the left knob after the unit beeps and the Temp Menu on the control panel illuminates.
   b) The heater will not turn on unless the left knob is released before MEN U appears.
   c) The settings menu cannot be accessed while the heater or the stirrer is running.
   d) MEN U will appear briefly then proceed to the top level of the settings menu.



2. Rotate the left knob to navigate the different menu options and briefly press the left knob to select / enter / edit the displayed setting.



3. To exit the menu from the top level, rotate the left knob clockwise until ESC is displayed and briefly press the left knob. The unit will return to the main operating screen.

Note:
To exit the menu at any time, flip the standby switch off and back on. The unit will be ready for normal use.
Turning off the unit will not reset / change the settings.

4.2. Menu Features

The top level of the settings menu has the following features:

1. CAL – Single Point Calibration

Single Point Calibration (SPC) improves the accuracy of the heater at user-selected temperature points. Up to 1 point (Plate) and 1 point (Probe) can be stored.

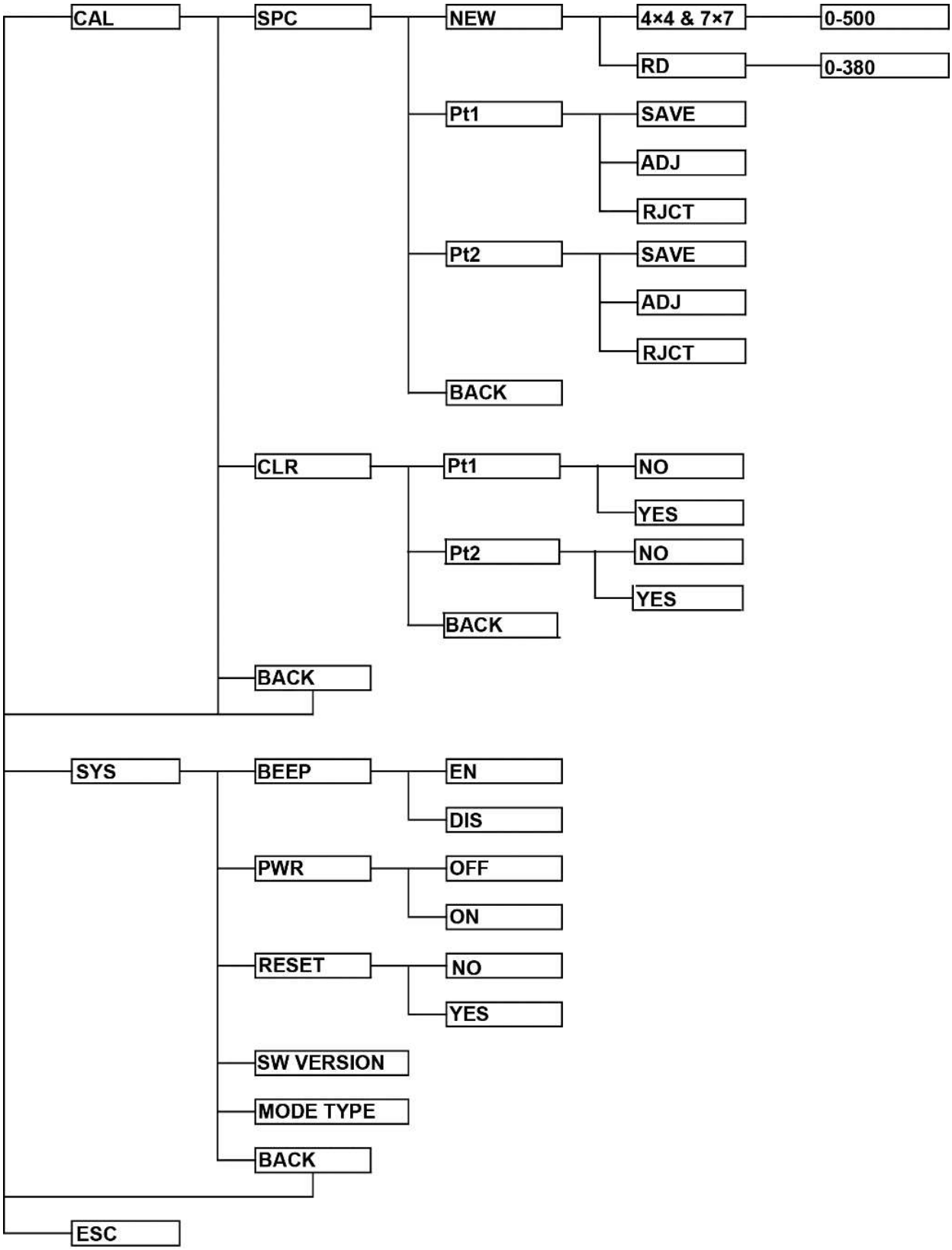
2. SYS – System Settings

System Settings allows the user set additional features, such as enabling /disabling the **Beeper**, changing the **Power Recovery Setting**, and resetting to **Factory Default Settings**.

3. ESC

The unit will save the current settings and return to the main operating screen.

4.3. Structure & Defaults

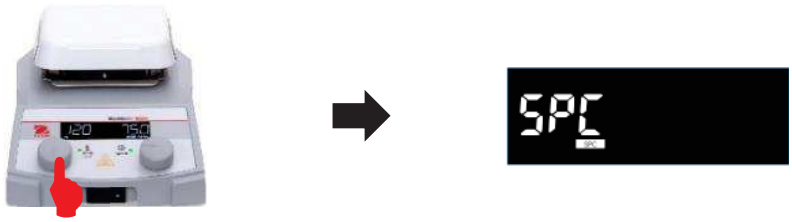


4.4. Using the Single Point Calibration (SPC) Feature

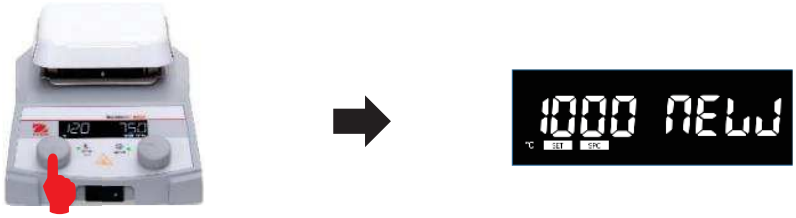
4.4.1. Start a Single Point Calibration (SPC)

1. To enter the **Single Point Calibration**, the unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu. Then wait for the screen to show CAL.

2. Briefly press the left knob to enter the **Calibration** settings menu.

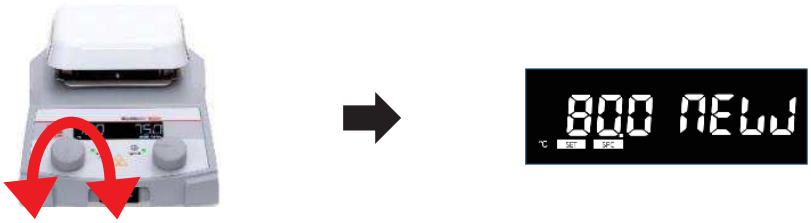


3. Briefly press the left knob to enter the SPC settings menu.



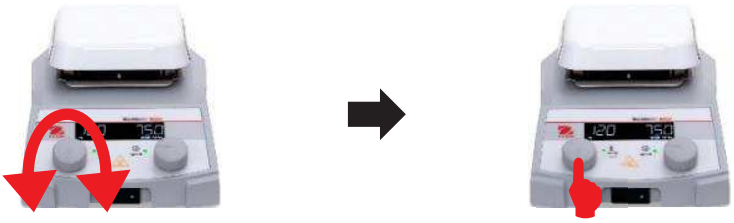
4. Briefly press the left knob again to change the calibration temperature. The temperature will begin to blink to indicate that it can be modified.

5. Rotate the left knob to scroll to the desired temperature.



6. Press and hold the left knob until the unit beeps and the Temp Menu illuminates to begin calibration at the set temperature.

   a) The unit will begin to heat to the set temperature.
   b) The **Single Point Calibration** icon SPC on the display will blink to indicate that the calibration is running.
   c) The left and right knobs will be disabled until the calibration is completed.
   d) If the external probe is connected, the stirrer will turn on at 300 rpm.
   e) To cancel the calibration while it is running, flip the standby switch off to turn off the unit.
7. Once the unit has reached the calibration temperature, the SPC and the calibration temperature will blink.
8. With a secondary temperature measurement device, measure the temperature of the top plate or the heated sample at the location of the external probe (if using probe control).
9. Rotate the left knob to scroll to the measured temperature from the secondary temperature measurement device, and then briefly press the left knob to select the new temperature.



10. The unit will begin to regulate temperature with compensated error. When this is complete, SAVE will appear and blink on the screen.
11. Measure the temperature at the same location as step 8.
12. Rotate the left knob to select from:
    a) SAVE – to retain calibration (stirring will stop if using probe control).
    b) AdJ – to prompt fine tuning of calibration (return to step 9).
    c) AJCt – to cancel the single point calibration and return to the initial calibration menu.
13. If you select SAVE, the screen will return to the beginning of the calibration. Rotate the left knob to bACK.

14. Briefly press the left knob to return to the top level of the settings menu.

15. Rotate the left knob to scroll to ESC.
16. Briefly press the left knob to return to the main operating screen.

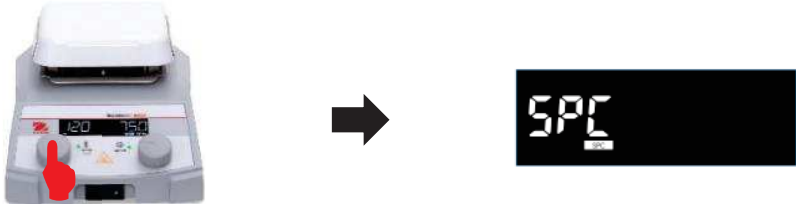
17. If you select ADJt in step 12, the screen will return to the calibration menu.

Rotate the left knob to ESC, and briefly press the left knob to return to the main operating screen.

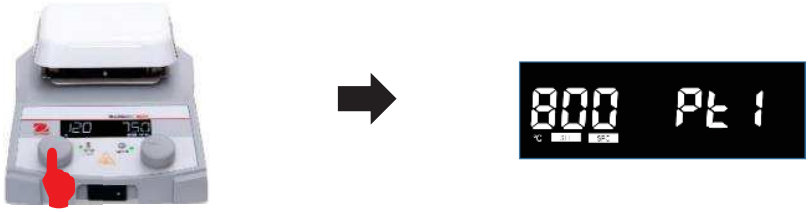
4.4.2. Adjust a Calibrated Temperature

1. To adjust a calibrated temperature, the unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu. Then wait for the screen to show CAL.

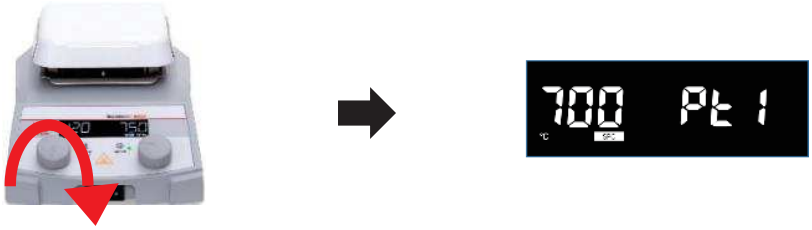
2. Briefly press the left knob to enter the **Calibration** settings menu.



3. Briefly press the left knob to enter the SPC settings menu.



4. Rotate the left knob to select which calibration temperature to adjust if two calibration records are stored. The unit can store1 point (Plate) and 1 point (Probe) single point calibration record. For calibration performed with an external probe, the screen will display  .



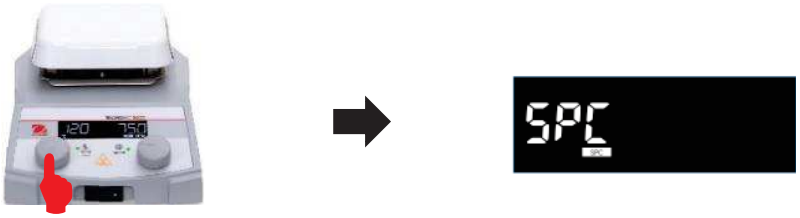
5. Press and hold the left knob until the unit beeps and the 

illuminates to begin calibration. Then repeat steps in the previous **Start a Single Point Calibration** Section from step 6 to the end to finish the process.

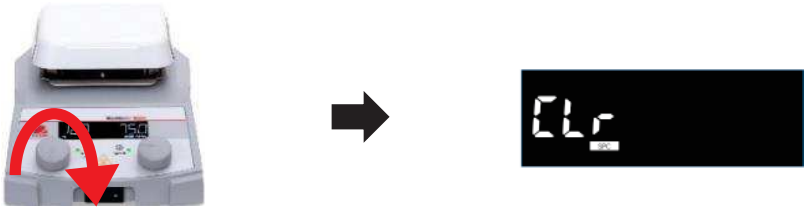
4.4.3. Clear a Calibrated Temperature

1. To clear a calibrated temperature, the unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu. Then wait for the screen to show CAL.

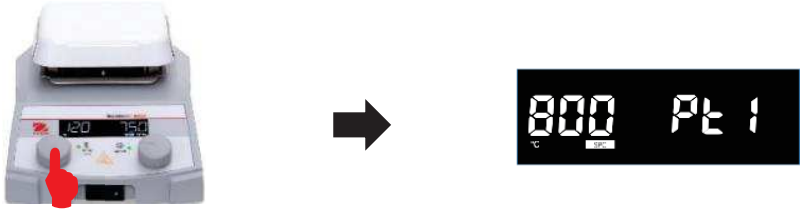
2. Briefly press the left knob to enter the **Calibration** settings menu.



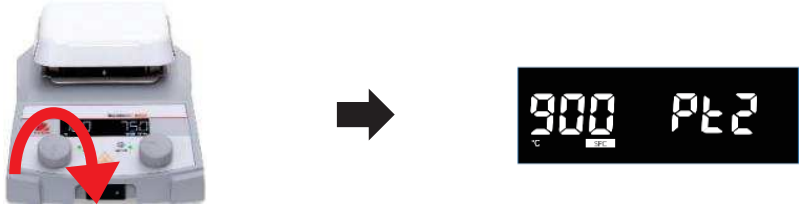
3. Rotate the left knob to scroll to CLr.



4. Briefly press the left knob to enter the menu. If there is no stored SPC point, select bAcK to return to the previous screen.



5. Rotate left knob to scroll to the calibration point you want to clear. The calibration points are stored in ascending order by temperature.



6. Briefly press the left knob to confirm your selection.

7. Rotate the left knob to select from:
   a) YES – to clear the selected calibration temperature.
   b) NO – to return to **Calibration** settings menu.

8. Briefly press the left knob to confirm your selection and return to the **Calibration** settings menu.

4.4.4. Use a Calibrated Temperature

1. To heat to a calibrated temperature, the unit should return to the main operating screen.

2. Rotate the left knob to scroll the heat setting to the stored calibration temperature. The SPC icon will appear once the temperature is correct.

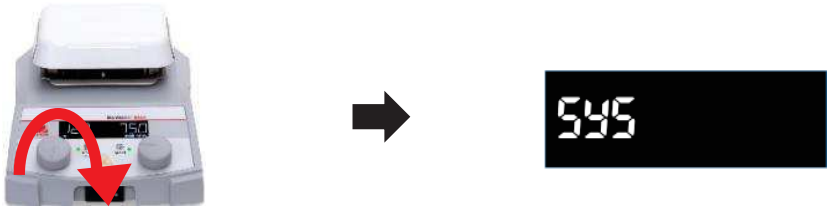
3. Press and hold the left knob until the unit beeps and the Temp Menu illuminates. The unit will heat to the stored calibration temperature.

4.5. Enabling / Disabling the Beeper

Disabling the beeper will prevent beeps in the following scenarios:

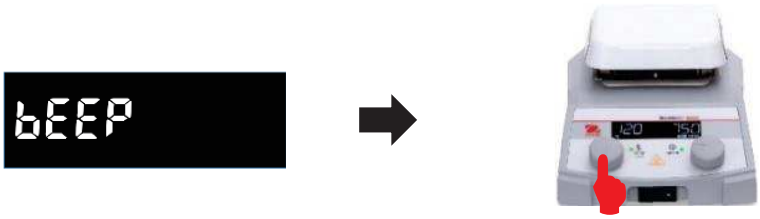
- Starting and stopping the heater
- Starting and stopping the stirrer
- When the heater reaches the set temperature
- Starting **Single Point Calibration** (SPC)

1. To enter the beeper setting, the unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu.
2. Rotate the left knob to scroll to the SYS (System) setting.

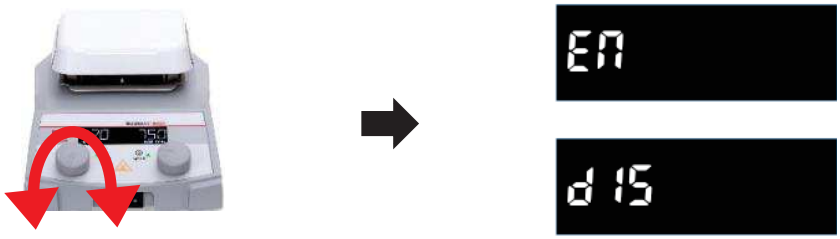


3. Briefly press the left knob to enter the **System** settings menu.

4. The display shows bEEP. Briefly press the left knob to enter the beeper setting.

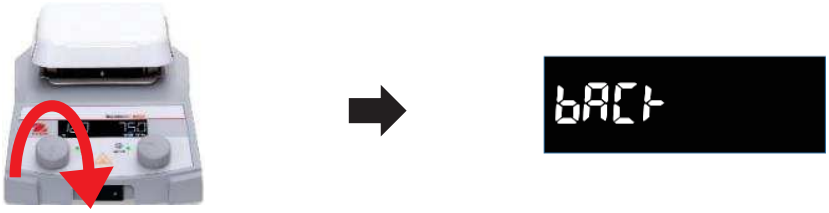


5. Rotate the left knob to scroll to the desired beeper setting. EN for enable and d IS for disable.



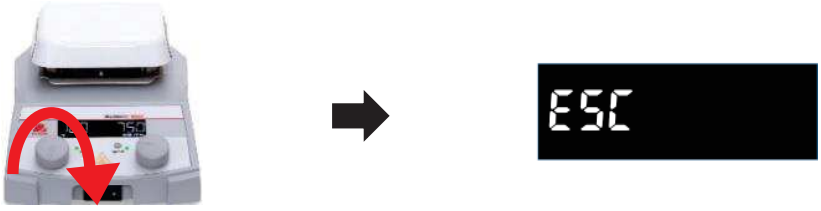
6. Briefly press the left knob to confirm your selection.

7. Rotate the left knob to bACK.



8. Briefly press the left knob to return to the top level of the settings menu.

9. Rotate the left knob to scroll to ESC.



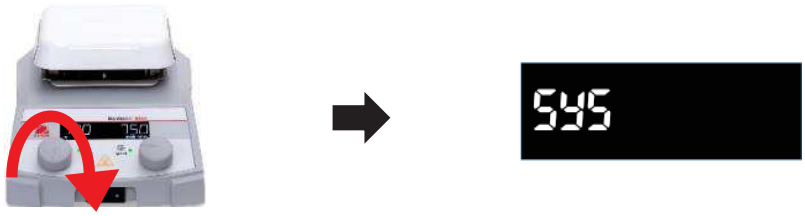
10. Briefly press the left knob to return to the main operating screen.

Note: There is not an icon to indicate that the beeper has been disabled.

4.6. Changing the Power Recovery Setting

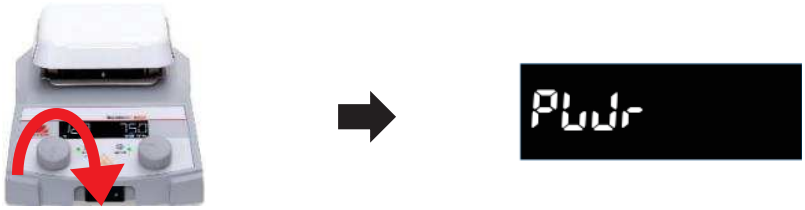
Power Recovery is an optional feature that allows the unit to automatically restart heater and stirrer functions when power is returned to the unit after a disconnect. By default, this feature is turned off.

1. To enter the power recovery setting, the unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu.
2. Rotate the left knob to scroll to the SYS (System) setting.



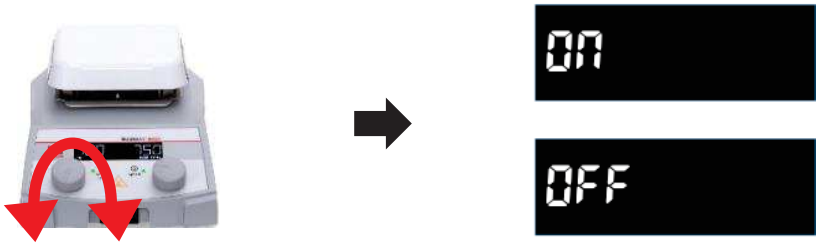
3. Briefly press the left knob to enter the **System** settings menu.

4. Rotate the left knob to PWJr (Power Recovery).



5. Briefly press the left knob to enter the **Power Recovery** settings.

6. Rotate the left knob to scroll to the desired Power Recovery setting.
   OFF – heating and stirring functions will need to be manually restarted after power restoration.
   On – heating and stirring functions will automatically restart upon power restoration.



7. Briefly press the left knob to confirm your setting.

8. Rotate the left knob to **bACk**.

9. Briefly press the left knob to return to the top level of the settings menu.

10. Rotate the left knob to scroll to **ESC**.

11. Briefly press the left knob to return to the main operating screen.

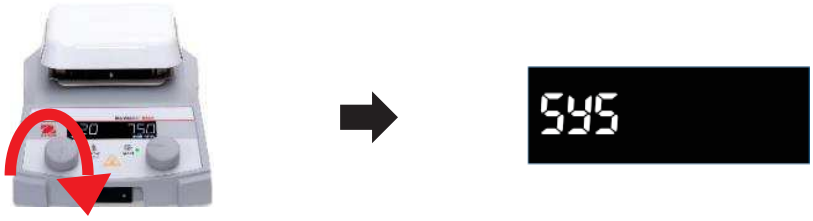
Note: There is not an icon on the display to indicate that the **Power Recovery** has been activated.

4.7. Reset to Factory Default Settings

Resetting the unit to Factory Default Settings will do the following:

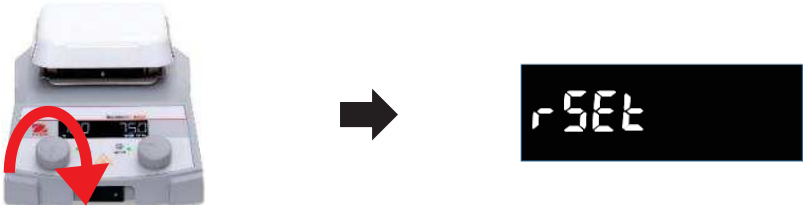
- Clear all **Single Point Calibration** (SPC) temperatures.
- Turn off **Power Recovery**.
- Re-enable the beeper setting.

1. To reset the unit to factory default settings, the unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu.
2. Rotate the left knob to scroll to the SYS (System) setting.



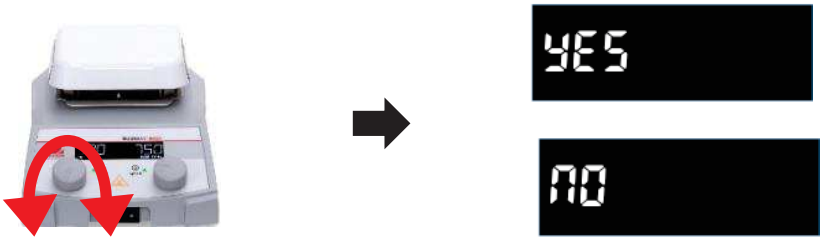
3. Briefly press the left knob to enter the **System** settings menu.

4. Rotate the left knob to rSEt (Reset).



5. Briefly press the left knob to enter the menu.

6. Rotate the left knob to scroll to the desired setting. YES for resetting and nO for not resetting.



7. Press and hold the left knob until the unit beeps to confirm the **Reset** setting.

8. Rotate the left knob to **bACk**.

9. Briefly press the left knob to return to the top level of the settings menu.

10. Rotate the left knob to scroll to **ESC**.

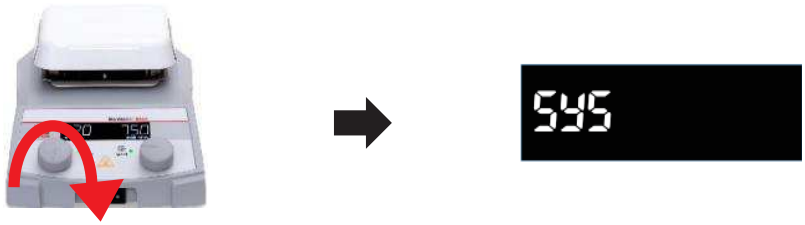
11. Briefly press the left knob to return to the main operating screen.

Note: There is not an icon on the display to indicate that the unit has been reset to factory default settings.

4.8. Software Version

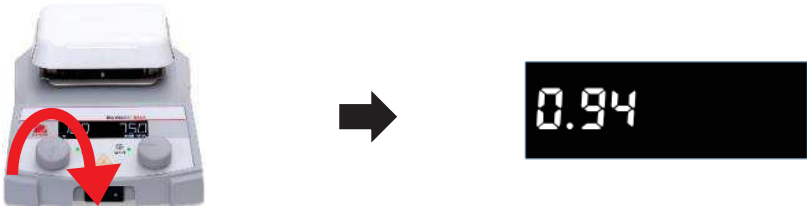
To check the unit's software version:

1. The unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu.
2. Rotate the left knob to scroll to the SYS (System) setting.

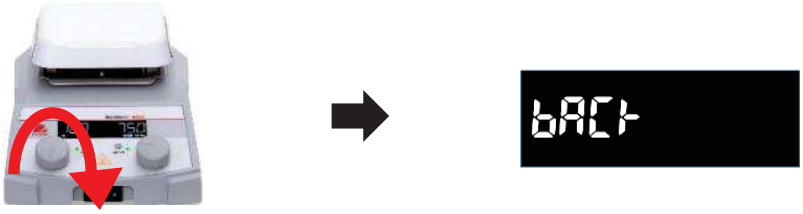


3. Briefly press the left knob to enter the settings.

4. Rotate the left knob clockwise until you see numbers, such as 0.94. That is the software version for your unit.

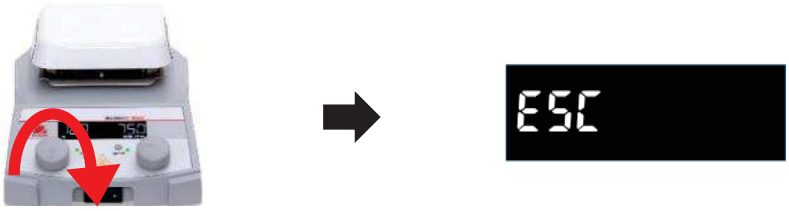


5. To return to the operating screen, rotate the left knob to bACK.



6. Briefly press the left knob to return to the top level of the settings menu.

7. Rotate the left knob to scroll to ESC.

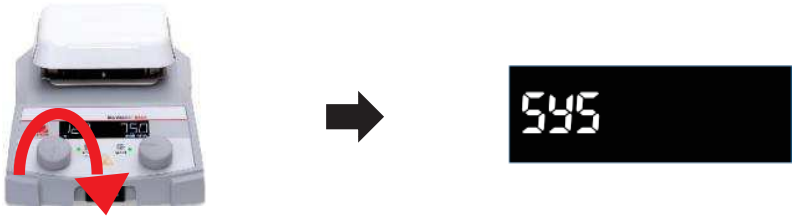


8. Briefly press the left knob to return to the main operating screen.

4.9. Mode Type

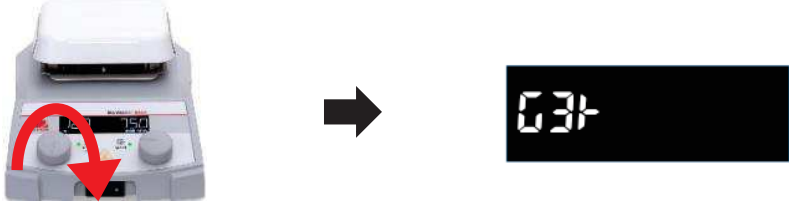
To check the unit's mode type:

1. The unit must first be in the top level of the settings menu. Please refer to **Accessing / Exiting** Section for how to enter the top level menu.
2. Rotate the left knob to scroll to the SYS (System) setting.

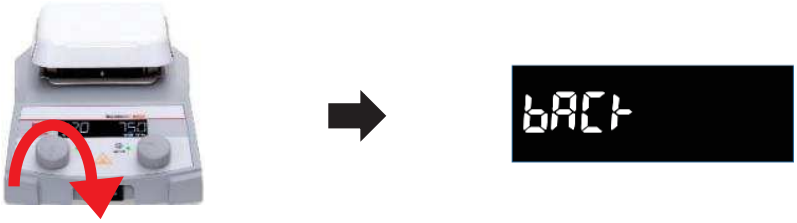


3. Briefly press the left knob to enter the settings.

4. Rotate the left knob until you see mode type name, such as G3H. That is the mode type for your unit.

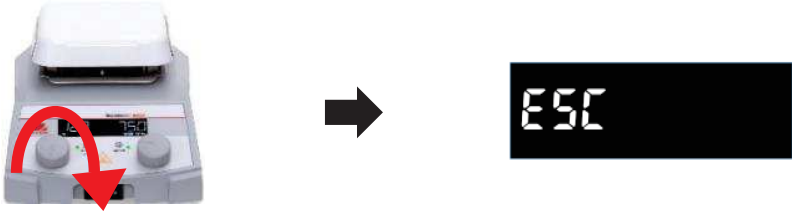


5. To return to the operating screen, rotate the left knob to bACK.



6. Briefly press the left knob to return to the top level of the settings menu.

7. Rotate the left knob to scroll to ESC.



8. Briefly press the left knob to return to the main operating screen.

5. MAINTENANCE

5.1 Cleaning

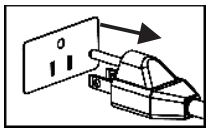
WARNING: Electric Shock Hazard. Disconnect the equipment from the power supply before cleaning.
Make sure that no liquid enters the interior of the instrument.

Attention: Do not use solvents, harsh chemicals, ammonia or abrasive cleaning agents.

The housing may be cleaned with a cloth dampened with a mild detergent if necessary.

5.2 Replacing Power Fuse

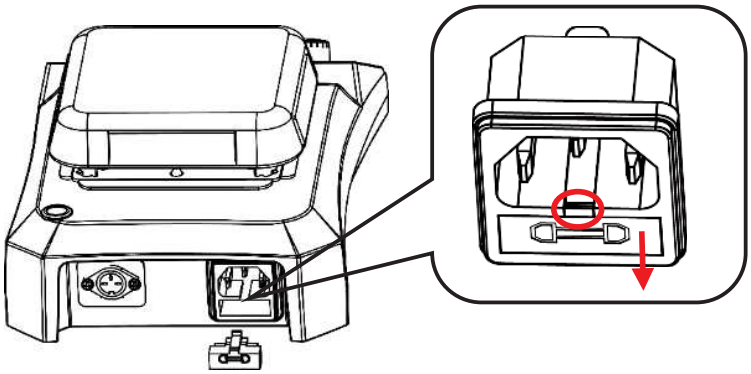
The use of a fuse of a different type or with a different value, or bridging or shunting the fuse is not allowed and can possibly cause a hazard to your safety and lead to instrument damage!



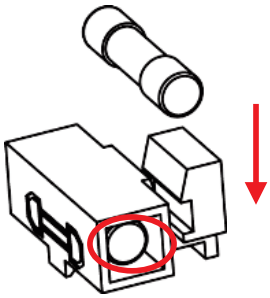
WARNING: **Electric Shock Hazard.** Disconnect the equipment from the power supply before replacing the fuse.

To replace the fuse:

1. Put the tip of a screwdriver or a test pen in the circled position below, and then pull the fuse holder out.

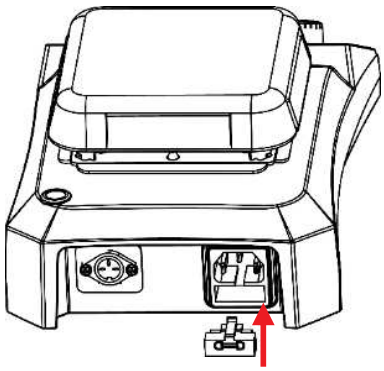


2. Take out the old fuse and then push the new fuse into the slot. Choose the correct fuse to replace according to the fuse specification listed in the **Dimensions** Section.



Note: the unit comes with a spare fuse in the fuse holder (in the circled position above).
Attention: If the fuse is good and power is available at the outlet, the cord or unit may be defective. Try a new cord. If this does not work, the unit should be sent back for servicing.

3. Push the fuse holder back in to finish the replacement.



5.3 Troubleshooting

The following table lists common problems and possible causes and remedies. If the problem persists, contact OHAUS or your authorized dealer.

Table 6-1 Troubleshooting

Error*	Cause of Error	How to Fix
Unit fails to power on	Missing or blown fuse	Add or replace fuse as necessary.
E1	Plate RTD open	Not fixable by user, please contact Ohaus.
E2	Plate RTD short	Not fixable by user, please contact Ohaus.
E3	No stirring motion / cannot reach speed	Not fixable by user, please contact Ohaus.
E4	Probe RTD open (Removing the probe while the unit is heating)	Switch unit to standby, then return to normal operating mode.
E5	Probe RTD short (Malfunctioning probe)	Switch unit to standby, remove the probe from the unit, then return to normal operating mode.
E6	A/D lock error	Not fixable by user, please contact Ohaus.
E7	User Probe Error (Plugging the probe into the unit while it is heating)	Switch unit to standby, then return to normal operating mode.
E8	Plate over temperature	Not fixable by user, please contact Ohaus.
E9	Plate under temperature	Not fixable by user, please contact Ohaus.
E10	Triac fault	Not fixable by user, please contact Ohaus.
E11	Heater damage	Not fixable by user, please contact Ohaus.
E12	Heater overheating	Switch unit to standby, then return to normal operating mode.

***Note**: Error code instances will stop equipment operation by default.

5.4 Service Information

If the troubleshooting section does not resolve your problem, contact an authorized OHAUS Service Agent. For Service assistance in the United States, call toll-free 1-800-526-0659 between 8:00 AM and 5:00 PM Eastern Standard Time. An OHAUS Product Service Specialist will be available to assist you. Outside the USA, please visit our website www.ohaus.com to locate the OHAUS office nearest you.

6. TECHNICAL DATA

Equipment Ratings:
Indoor use only

Altitude:	0 to 2000m
Operating temperature:	5°C to 40°C
Storage temperature:	-20°C to 65°C
Operating humidity:	20 to 80% relative humidity, non-condensing
Storage humidity:	20 to 80% relative humidity, non-condensing
Voltage fluctuations:	Mains supply voltage fluctuations up to ±10% of the nominal voltage.
Overvoltage category (Installation category):	II
Pollution degree:	2

7. COMPLIANCE

Compliance to the following standards is indicated by the corresponding mark on the product.

Mark	Standard
CE	This product complies with the applicable harmonized standards of EU Directives 2011/65/EU (RoHS), 2014/30/EU (EMC) and 2014/35/EU (LVD). The EU Declaration of Conformity is available online at www.ohaus.com/ce.
UKCA	This product complies with the applicable statutory standards of the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, UK Electromagnetic Compatibility Regulations 2016 and Electrical Equipment (Safety) Regulations 2016. The UK Declaration of Conformity is available online at www.ohaus.com/uk-declarations.
	This product complies with the EU Directive 2012/19/EU (WEEE). Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. For disposal instructions in Europe, refer to www.ohaus.com/weee.
	EN 61326-1
TÜV SÜD C US	CAN/CSA-C22.2 No. 61010-1, CAN/CSA-C22.2 No. 61010-2-010, CAN/CSA-C22.2 No. 61010-2-051
	UL 61010-1, UL 61010-2-010, UL 61010-2-051

ISED Canada Compliance Statement:
CAN ICES-003(A) / NMB-003(A)

ISO 9001 Registration
The management system governing the production of this product is ISO 9001 certified.

FCC Supplier Declaration of Conformity

Unintentional Radiator per 47CFR Part B
Trade Name: OHAUS CORPORATION
Model or Family identification: e-G31xxxxx

Party issuing Supplier's Declaration of Conformity:
Ohaus Instruments (Changzhou) Co., Ltd.
2F, 22 Block, 538 West Hehai Road, Xinbei District, Changzhou
Jiangsu 213022
China
Phone: +86 519 85287270

Responsible Party – U.S. Contact Information:
Ohaus Corporation
7 Campus Drive, Suite 310
Parsippany, NJ 07054
United States
Phone: +1 973 377 9000
Web: www.ohaus.com

FCC Compliance Statement:
Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

LIMITED WARRANTY

OHAUS products are warranted against defects in materials and workmanship from the date of delivery through the duration of the warranty period. During the warranty period OHAUS will repair, or, at its option, replace any component(s) that proves to be defective at no charge, provided that the product is returned, freight prepaid, to OHAUS.

This warranty does not apply if the product has been damaged by accident or misuse, exposed to radioactive or corrosive materials, has foreign material penetrating to the inside of the product, or as a result of service or modification by other than OHAUS. In lieu of a properly returned warranty registration card, the warranty period shall begin on the date of shipment to the authorized dealer. No other express or implied warranty is given by OHAUS Corporation. OHAUS Corporation shall not be liable for any consequential damages.

As warranty legislation differs from state to state and country to country, please contact OHAUS or your local OHAUS dealer for further details.