OHAUS®

Instruction Manual

Thermal Shaker, Heat, ISTHBLHTS

Thermal Shaker, Heat/Cool, ISTHBLCTS

Revision 5
28/09/17

Table of Contents

Package Contents

Thermal Shaker with 1.5mL Block, Rack and Cover or
Thermal Shaker Heat/Cool with 1.5mL Block, Rack and Cover
Hex Head Screwdriver
Power Cord
Instruction Manual

Service Information

If the troubleshooting section does not resolve or describe your problem, contact your authorized OHAUS service agent. For service assistance or technical support in the United States call toll-free 1-800-672-7722 ext. 7852 between 8:00 AM and 5:00 PM EST. An OHAUS product service specialist will be available to provide assistance. Outside the USA, please visit our web site, www.ohaus.com to locate the Ohaus office nearest you.

Serial Number: _____

Date of Purchase: _____

Supplier: _____

Installation

Upon receiving the Ohaus Thermal Shaker or Ohaus Thermal Shaker Heat/Cool check to ensure that no damage has occurred in 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, remove the protective coverings from the feet and place the Thermal Shaker or Thermal Shaker Heat/Cool on a level bench or table, away from explosive vapors.

Ensure that the surface on which the unit is placed is clean and free of dust.

To ensure proper function and air flow, position the unit at least 6” away from adjacent devices and walls.

Position the unit in such a way that it is easy to reach and unplug the power cord from the back of the unit.

Ensure that the surface on which the unit is placed will withstand typical heat produced by the unit. Always place the unit on a sturdy work surface.

The Thermal Shaker or Thermal Shaker Heat/Cool is supplied with a power cord that is inserted into the IEC connector on the back of the unit first, then it can be plugged into a properly grounded outlet. The 120V unit plugs into a 120 volt, 50/60 Hz source. The 230V unit plugs into a 230 volt, 50/60 Hz source.

Maintenance & Servicing

The Thermal Shaker and Thermal Shaker Heat/Cool are built for long, trouble-free, dependable service. No lubrication or other technical user maintenance is required. It needs no user maintenance beyond keeping the surfaces clean.

The unit should be given the care normally required for any electrical appliance. Avoid wetting or unnecessary exposure to fumes. Spills should be removed promptly. **DO NOT** use a cleaning agent or solvent on the front panel or touch screen which is abrasive or harmful to plastics, nor one which is flammable. Always ensure the power is disconnected from the unit prior to any cleaning. If the unit ever requires service, contact your Ohaus representative.

Intended Use

The Ohaus Thermal Shaker and Thermal Shaker Heat/Cool are intended for general laboratory use.

Environmental Conditions

Operating Conditions: Indoor use only.

Temperature:	5 to 40°C (41 to 104°F)
Humidity:	maximum 80% relative humidity, non-condensing
Altitude:	0 to 6562 feet (2000 M) above sea level

Non-Operating Storage:

Temperature:	-20 to 65°C (-4 to 149°F)
Humidity:	maximum 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

Equipment Disposal

This equipment must not be disposed of with unsorted waste. It is your responsibility

to correctly dispose of the equipment at life-cycle-end by handing it over to an authorized facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect the persons involved in the disposal and recycling of the equipment from health hazards.

For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment. By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Safety Instructions

Please read the entire instruction manual before operating the Ohaus Thermal Shaker or Thermal Shaker Heat/Cool.

WARNING! DO NOT use the Ohaus Thermal Shaker or Thermal Shaker Heat/Cool in a hazardous atmosphere or with hazardous materials for which the unit was not designed. Also, the user should be aware that the protection provided by the equipment 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 lift unit by the housing, never by the block. Always operate unit on a level surface for best performance and maximum safety.

CAUTION! To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplug from the wall outlet. Disconnect unit from the power supply prior to maintenance and servicing.

Spills should be removed promptly. **DO NOT** immerse the unit for cleaning. **DO NOT** operate the unit if it shows of electrical or mechanical damage.

CAUTION! The caution hot indicator light warns that the temperature of the top plate is above 40°C. The light will illuminate and remain lit when the temperature of the top plate reaches approximately 40°C. When the heat is turned off, the caution hot indicator light will stay lit until the temperature of the top plate is less than 40°C.

Pich Point - Keep fingers clear during operation

Earth Ground - Protective Conductor Terminal

Alternating Current

Standards & Regulations

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

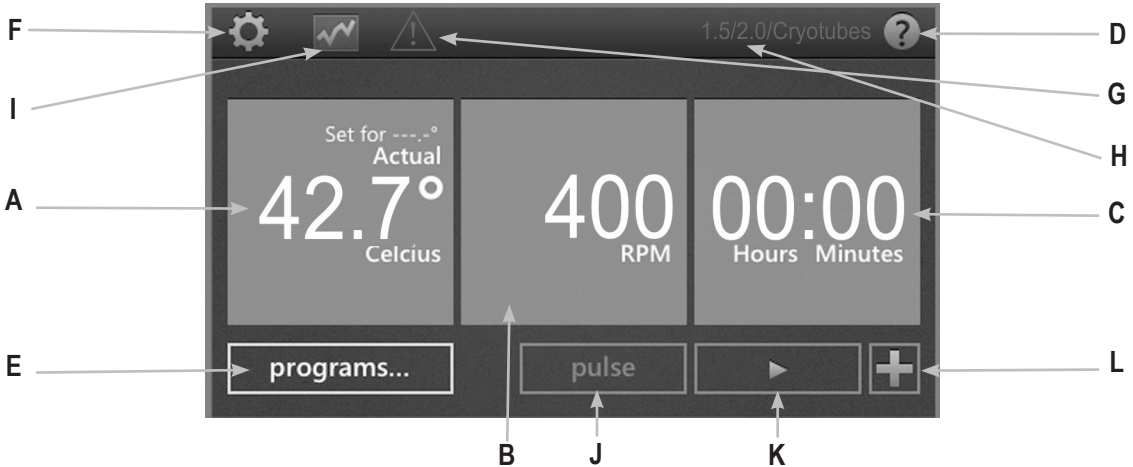
Mark	Standards and Regulations
CE	OHAUS Corporation declares that the ISTH series shakers comply with directives 2011/63/EU, 2014/30/EU, 2014/35/EU and standards EN 50581, EN 61010-1, EN 61010-2-010, EN 61010-2-051, EN 61326-1. The full text of the EU declaration of conformity is available at the following internet address: www.ohaus.com/ce.
	This product complies with directive 2012/19/EU. 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 61010-1, CAN/CSA C22.2 61010-2-010, CAN/CSA C22.2 61010-2-051 UL 61010-1, UL 61010-2-010, UL 61010-2-051

Global Notice
Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Canada Notice
This Class A digital apparatus complies with Canadian ICES-003.

FCC Notice
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 Ohaus Corporation could void the user's authority to operate the equipment.



Control Panel

The front panel of the Thermal Shaker and Thermal Shaker Heat/Cool contains all the controls and displays needed to operate the unit with the touch of a finger.

A. Temperature display: Displays the actual and set point temperatures in °C

B. Speed display: Displays the speed in RPM's

C. Time display: Displays elapsed time, or when programmed, counts down and shows remaining time

D. Help button: Whenever this icon is displayed in the upper right corner, a help screen is available

E. Program button: Touch to enter Program Mode

F. Settings button: Touch this icon to access and change important settings

G. Caution hot top: When icon is illuminated, indicates the surface temperature is above 40°C

H. Block type: Unit indicates the type of block attached to the unit

I. Chart icon: This icon appears when a program is running and shows program status

J. Pulse button: Touch to shake, release to stop

K. Start button

L. Add a step button: Add a step to the current settings in order to create a program

Icon Legend

	Power Button		Stop
	Help		Add Steps to a Program
	Settings		Indicates temperature settings in a program
	Chart		Indicates speed settings in a program
	Caution Hot		Back Arrow
	Start		Power Failure
	Pause		Delete

Specifications - Thermal Shaker

Operating Conditions: Indoor use only.

Temperature:	5 to 40°C (41 to 104°F)
Humidity:	maximum 80% relative humidity, non-condensing
Altitude:	0 to 6562 feet (2000 M) above sea level

Non-Operating Storage:

Temperature:	-20 to 65°C (-4 to 149°F)
Humidity:	maximum 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

Overall dimensions (L x W x H):	10.6 x 10.3 x 5.4” (26.9 x 26.2 x 13.7cm)
Electrical (50/60 Hz):	120V, 1.8A, 215W 230V, 0.9A, 210W
Fuses:	5mm x 20mm, 5 Amp 250V quick acting
Temperature range:	4°C above ambient to 100°C
Temperature accuracy:	+/- 1°C from 20°C to 45°C, +/- 2°C above 45°C
Temperature accuracy, Microplate, 15mL, 15mL Blocks*:	+/- 2°C below 70°C, -5°C above 70°C
Heating rate:	5°C/min
Speed range:	
384 well plate block	1400 rpm
0.2mL PCR plate block	1400 rpm
0.5mL tube block	3000 rpm
1.5mL tube block	2200 rpm
2.0mL tube block	2200 rpm
2.0mL cryo tube block	2200 rpm
12mm tube block	2200 rpm
5mL Eppendorf™ tube block	2200 rpm
15mL conical tube block	800 rpm
50mL conical tube block	800 rpm
Microplate thermal block	2400 rpm
Speed accuracy:	+/- 2%
Orbit:	3mm (0.12”)
Timer:	1 min. to 99 hrs. 59 min.
Unit weight:	8lbs (3.7kg)
Ship weight:	11.5lbs (5.3kg)

* Temperature accuracy can be improved by performing a single point calibration

Specifications - Thermal Shaker Heat/Cool

Operating Conditions: Indoor use only.

Temperature:	5 to 40°C (41 to 104°F)
Humidity:	maximum 80% relative humidity, non-condensing
Altitude:	0 to 6562 feet (2000 M) above sea level

Non-Operating Storage:

Temperature:	-20 to 65°C (-4 to 149°F)
Humidity:	maximum 80% relative humidity, non-condensing

Installation Category II and Pollution Degree 2 in accordance with IEC 664.

Overall dimensions (L x W x H):	10.6 x 10.3 x 5.4” (26.9 x 26.2 x 13.7cm)
Electrical (50/60 Hz):	120V, 1.8A, 215W 230V, 0.9A, 210W
Fuses:	5mm x 20mm, 5 Amp 250V quick acting
Temperature range:	17° below ambient to 100°C
Temperature accuracy:	+/- 0.5°C from 20°C to 45°C +/- 2°C below 20°C and above 45°C
Temperature accuracy, Microplate, 15mL, 50mL Blocks:	+/- 2°C below 70°C, -5°C above 70°C
Heating Rate:	5°C/min
Cooling Rate:	Above ambient 2-3°C/min Below ambient 0.5-1.0°C/min
Speed range:	
384 well plate block	1400 rpm
0.2mL PCR plate block	1400 rpm
0.5mL tube block	3000 rpm
1.5mL tube block	2200 rpm
2.0mL tube block	2200 rpm
2.0mL cryo tube block	2200 rpm
12mm tube block	2200 rpm
5mL Eppendorf™ tube block	2200 rpm
15mL conical tube block	800 rpm
50mL conical tube block	800 rpm
Microplate thermal block	2400 rpm
Speed accuracy:	+/- 2%
Orbit:	3mm (0.12”)
Timer:	1 min. to 99 hrs. 59 min.
Unit Weight:	8lbs (3.7kg)
Ship Weight:	11.5lbs (5.3kg)

* Temperature accuracy can be improved by performing a single point calibration

Installing a Block

1. Looking at the underside of the block, align the hole in the block with the temperature sensor on the top plate and carefully place the block on top of the plate.
2. With the included screwdriver, hand tighten the 2 integrated screws on the block to the top plate to fully install the block. Be sure not to over tighten.
3. The unit will now be able to read and display the specific block used.
4. Rack and cover are included with the 0.5mL, 1.5mL, and 2.0mL Microtube blocks and can be used to transport or store samples. The cover snaps on to the rack to secure the samples.

- UNIT WILL NOT OPERATE WITHOUT A BLOCK INSTALLED
- ONCE SECURED DO NOT LIFT UNIT BY THE BLOCK
- DO NOT ATTEMPT TO OPERATE UNIT WITHOUT A BLOCK PROPERLY INSTALLED
- DO NOT LIFT BLOCK BY THE RACK OR COVER. RACK AND COVER ARE FOR SAMPLE TRANSPORT ONLY

NOTE: When using Eppendorf Thermomixer® R blocks you may need to calibrate the system for optimal performance.

Help Screens

The Thermal Shaker or Thermal Shaker Heat/Cool has help screens available when the "?" is displayed on the screen. Look for this icon in the upper right hand corner of the screen to provide assistance while operating the unit.

Operating Instructions

The Ohaus Thermal Shaker or Ohaus Thermal Shaker has been designed to heat/cool (depending on the model) and shake microplates and modular blocks that have been designed to hold various sample vessels such as plates, tubes and vials.

1. Getting ready:

a. Plug the cord into a properly grounded, 3-pronged outlet. Press the rocker switch located in the back of the unit to the "I" or ON position. The screen will illuminate. The Ohaus Thermal Shaker or Ohaus Thermal Shaker Heat/Cool is now ready to operate.

2. Setting temperature:

a. Touch the far left box to bring up the Temperature Setting Window.
b. Touch the digit you wish to change, the digit will be now be highlighted and ready to set.
c. Tap the number above or below the blue box to select the desired value. Temperature can be adjusted in 0.1°C increments.
d. Once the value for the temperature setting is complete, touch "set".
e. To turn off temperature control, touch the temperature box and touch "off".
f. To start the heating/cooling function, touch the "start" button ▶. Once started, the "pause" ⏸ and "stop" ■ buttons will be available. "Pause" will hold the temperature at its current state. "Stop" will turn off the heating/cooling function.

Temperature Operating Tips:

- The default maximum temperature is 100°C. Maximum temperature can be adjusted or limited in the "Settings" Menu ⚙.
- Heating and Cooling rates can be adjusted when programming by touching the "advanced" button to bring up the choices. Default settings will heat or cool as fast as possible.

- The temperature display on the unit shows the actual temperature of the sensor, not the top plate or sample. The vessel contents being heated may be at a lower temperature depending on the size of the vessel and volume of sample. To fine tune and calibrate the unit see the Single Point Calibration procedure on page 11.

Caution hot indicator:

The caution hot indicator icon light warns that the temperature is above 40°C (104°F). The icon will illuminate and remain on when the temperature reaches approximately 40°C (104°F). When the heat is turned off, the caution hot indicator light will stay on until the temperature falls below 40°C (104°F). The unit will not enter standby mode while the hot surface warning is on.

3. Setting speed:

a. Touch the center box to bring up the Speed Setting Window.
b. Touch the digit you wish to change, the digit will be now be highlighted and ready to set.
c. Tap the number above or below the blue box to select the desired value. Speed can be adjusted in 10 RPM increments.
d. Once the value for the speed setting is complete, touch "set".
e. To turn off speed control, touch the RPM box and touch "off".
f. To start the shaking function, touch the "start" button ▶ . Once started, the "pause" ⏸ and "stop" ■ buttons will be available. "Pause" will stop the shaking function temporarily. "Stop" will turn off the shaking function.
g. Alternately the "pulse" button allows for shaking as long as the button is touched. Shaking will stop when "pulse" is released.

* Refer to specifications table for maximum block speed setting. See pages 6-7

4. Setting time

a. Touch the right box to bring up the Time Setting Window.
b. Touch the digit you wish to change, the digit will be now be highlighted and ready to set.
c. Tap the number above or below the blue box to select the desired value. Time can be adjusted in 1 minute increments.
d. Once the value for the time setting is complete, touch "set".
e. Touching the "clear" button will allow the unit to run continuously while counting elapsed time.

Time Operating Tip:

- Time is set in hours:minutes format

5. Turning unit off:

a. Press the rocker switch located in the back of the unit to the "O" or OFF position.
b. To completely cut off power from the unit, disconnect the power cord from the unit or unplug from the wall outlet.

NOTE: After the unit is idle for 15 minutes, the unit will go into standby and a "power" button icon will appear on the screen. When the heat is turned off, the caution hot indicator light will stay on until the temperature falls below 40°C (104°F). The unit will enter standby mode once the hot surface warning is off. Touch anywhere on the screen to return to the main screen.

OPERATING TIPS

If an interruption of power occurs the following is to be expected:

- If running in program mode, the unit will return to the home screen with a Power Failure message.
- If running in continuous mode the unit will restart and show a Power Failure message. This includes pulling the plug and intentionally disconnecting power from the unit while it is running.
- The Power Failure message will be cleared once the unit is restarted or a button is touched.

SETTINGS

Touch the "settings" icon to enter the settings menu. Use the up and down arrow buttons to scroll through the setting options.

SOUND (muting audible alarm)

To silence beeper operation, except for error codes, touch the "ON" to change this setting to "OFF".

LANGUAGE

The default language is English. You can change the language to French, Spanish, Italian, German, and Portuguese. To change the language setting touch the language name until the desired language appears.

MAXIMUM TEMPERATURE

The default maximum temperature limit is 100°C. To protect your samples, the maximum temperature of the unit can be limited. Touch the box next to Maximum Temperature. The Temperature Settings window will appear. Adjust the maximum temperature as needed. This setting will limit the temperature on all existing programs as long as it is active. To return to the default setting, touch the "100°C".

PROGRAM PRIORITY

There are two ways to count the elapsed time of a program step utilizing the temperature control. Each can be selected by touching the "Program Priority" button in the settings menu.

- Time Priority (default): Time begins to count down as soon as the unit is started. You will see the time begin to count down immediately as the unit heats/cools to the desired set temperature.
- Temperature Priority: Time begins to count only when the set temperature has been reached. The time will not begin to count down until the temperature of the sensor has reached your desired set temperature.
- These priority settings affect all temperature steps where a time is set.

USB LOG

When a Flash Drive is connected to the USB port and this setting is enabled, the unit will log data while your saved program is running. This will create a .csv file on your USB drive with data that is easily transferred to a computer for analysis. Data is output to this file once per second.

To enable this function, insert the USB drive, then touch the USB Log button in the Settings menu.

NOTE: The USB drive must have sufficient available memory for this function to work properly. If problems arise, remove the USB drive and replace with a USB drive with more available space.

USB PROGRAMS

The Thermal Shaker or Thermal Shaker Heat/Cool can store up to 5 programs internally and up to 10 programs on a single USB drive. Connect a Flash Drive to the USB port and select the USB Program button on the Settings menu.

To transfer programs from the unit to the USB:

- Select unit program number 01 through 05 to be transferred.
- Select the USB program Number 01 through 10 where you would like the program saved.
- Then touch "To USB" to transfer and save the program from the unit to the USB.
- This process will overwrite programs previously saved at those program numbers.

To transfer programs from the USB to the unit:

- Select USB program number 01 through 10 to be transferred.
- Select the unit program Number 01 through 05 where you would like the program saved.
- Then touch "To unit" to transfer and save the program from the USB to the unit.
- This process will overwrite programs previously saved at those program numbers.

NOTE: The USB drive must have sufficient available memory for this function to work properly. If problems arise, remove the USB drive and replace with a USB drive with more available space.

SINGLE POINT CALIBRATION

This procedure is used to fine tune and calibrate the unit at up to (6) separate set points. Enter the calibration screen by touching the Calibration button in the Settings menu.

1. Secure the block with the appropriate tubes or microplate in place.
2. Fill a vessel in the blocks with mineral oil or your sample.
3. Touch a "sensor temperature" box, enter the desired calibration temperature and touch "set".
4. The unit will immediately begin to heat/cool to this set point. The "adjusted temperature box" will remain light blue until the set temperature is reached and the sample has stabilized (approximately 10 minutes after reaching set temperature).
5. Measure the temperature of your sample with an external temperature probe or thermometer and enter this value in to the "adjusted temperature" box and touch "set".
6. Calibration points are not saved until the "done" button is touched. Be sure to touch "done" when finished calibrating your unit.

When using this offset temperature, SPC (Single Point Calibration) will display on the bottom of the temperature screen when running at the SPC temperature set point.

TO RESTORE UNIT TO FACTORY SETTINGS

The Thermal Shaker or Thermal Shaker Heat/Cool can be restored to factory settings by touching the "Reset all settings" button in the settings menu. Touch "reset" to proceed with restoring the unit to factory settings or "cancel".

NOTE: By touching "reset" the Beeper preference (sound), Language, Program Priority, USB log, and Temperature calibrations will be restored to default settings. Also, all calibration points and programs will be erased.

SOFTWARE UPDATE

Before updating software, check the current version in the settings menu. To update software follow these steps:

1. Copy the files onto an empty USB drive. These files must be saved in a folder named "CMD" and must be on the root of the drive.
2. Power the unit on, once the main screen is visible plug the USB drive into the unit.
3. The unit will beep immediately after inserting the USB drive, and the unit is now

programming itself. **DO NOT** remove the USB drive at this point! The software update will take approximately 1 minute and may take up to 90 seconds.

4. The screen on the unit will now fade in and out. This is normal and should last another 60-90 seconds. Again, **DO NOT** remove the USB drive during this process.
5. When the software update is complete, the unit will automatically restart and return to the main screen. Remove the flash drive, unplug the unit and plug back in. Check the software version on the settings screen to ensure a successful software update.

CREATING, SAVING, EDITING AND MANAGING PROGRAMS

PROGRAMMING (Single Step Program)

1. Touch "Program" button.
2. Touch the large blue box next to the any program number between 1 and 5 "Tap to add a program".
3. Select your parameters. Temperature, Speed, and Time are entered the same way as in the non-program mode.
   a. All program steps must have a time entered.
4. To select a temperature ramp rate other than default, touch "advanced".
   b. Heat/cool rates (depending on model) are able to be set in 0.5°C/min increments
   c. Continue to tap the desired temperature rate box until the desired rate is displayed. Touch "set" after selecting the preferred rate.
   d. "Default" will allow the unit to heat/cool at its maximum rates.
5. If creating a single step program, simply touch "save".
6. Select the Program number where you want to save. You can save the program in an empty spot or overwrite an existing program. If you are overwriting an existing program, that program will be highlighted in red and you will need to confirm this overwrite.
7. Touch "yes" to confirm overwrite or "no" to save to a different program location.

PROGRAMMING (Multiple Step Program)

1. Multiple step programs are created by following steps 1-4 above and touching the "add a step" + button for each addition step, up to 5 steps per program.
2. Once all steps have been entered, touch "save" and follow step 6-7 above.
3. A multiple step program can also be created by touching the "add a step" button on the main screen to add additional steps.

EDITING AN EXISTING PROGRAM

1. Touch "program" button.
2. Touch the blue box of the program you wish to edit.
3. Use the white up/down arrows to scroll through the program steps to select the parameter(s) you wish to edit.
4. Touch the setting and make the desired changes.
5. Additional steps may be added up to 5 steps per program by touching the "add a step" button.
6. To delete an entire step touch the "delete" button ⊗ below the step number.
7. Touch "save".
8. You can save to an open program spot or overwrite an existing program.
9. If you are overwriting an existing program, that program will be highlighted in red and you will need to confirm this overwrite.
10. Touch "yes" to confirm overwrite or "no" to save to a different program location.

Operating Instructions (cont'd)

PROGRAM MANAGEMENT

1. Up to 5 separate programs can be saved on the unit.
2. Programs can be deleted by simply touching the "delete" button under the program number.
3. A multiple step program can also be created by touching the "add a step" button on the main screen to add additional steps.
4. This program can be run immediately for a one time application, or saved for future use. To save the program, touch "save" and use the white up/down arrows to select the position where you want to save this new program.
5. If more than 5 programs need to be saved, refer to the USB Program settings on page 11.

PROGRAMMING TIPS:

- Total program time is indicated to the left of each program.
- The steps and settings for each program will be displayed in the boxes to the right of each program number.
- While a program is running touch the "chart" icon . The status of the program is indicated in the boxes at the top of the screen. The vertical white line visually tracks the progress of the program through all of the steps.
- In the settings menu, if you select Temperature for the Program Priority, your incubation time will not begin until the set temperature is reached.
- You can add an inactive step to a program by leaving the temperature and speed blank and entering a time.

Technical Service

For information or technical assistance contact your Ohaus representative or visit www.ohaus.com.

Troubleshooting

If the unit gives an error code, immediately disconnect from the power source to turn the unit off. See the error table below for proper corrective action. If the error cannot be cleared, please contact your Ohaus representative for repair.

Error	Cause of Error	How to Fix
Unit fails to power on	Missing or blown fuse	Add or replace fuse as necessary. If problem persists, please contact your Ohaus representative for repair.
E1	Temperature sensor opened or malfunctioned	This error cannot be fixed by the end user. Please contact your Ohaus representative for repair.
E2	The units temperature exceeds set-point temperature	Reset the unit by disconnecting from the power source and let the unit return to room temperature. Adjust the maximum temperature setting if needed. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E3	There is either no motion on the motor or the motor is not working properly	Reset the unit by disconnecting from the power source. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E4	Motor is not reaching set speed	Ensure the block is secured properly and check there is no mechanical obstruction. Reset the unit by disconnecting from the power source. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E5	Motor failure	Remove mechanical obstruction. Reset the unit by disconnecting from the power source. If problem persists after restarting the unit, please contact your Ohaus representative for repair.

Error codes continue on next page.

Troubleshooting (cont'd)

Error	Cause of Error	How to Fix
E6	Internal electronic communication error	Reset the unit by disconnecting from the power source. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E7	Internal sensor error	Reset the unit by disconnecting from the power source. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E8	Unit not recognizing an installed block	Unscrew and remove the block. Reinstall and ensure a secure fit for the block. Reset the unit by disconnecting from the power source. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E9	Unit has recognized multiple warnings	Reset the unit by disconnecting from the power source and let the unit return to room temperature. If problem persists after restarting the unit, please contact your Ohaus representative for repair.
E10	Ambient sensor has detected a temperature exceeding 65°C	Reset the unit by disconnecting from the power source and let the unit return to room temperature. If problem persists after restarting the unit, please contact your Ohaus representative for repair.

Troubleshooting (Cont'd)

Warning codes: If these codes appear on the display of your unit, there is a possible reduction of performance. You can continue to use the unit with the warning displayed. If you detect a noticeable change in performance of your unit and it is affecting your application, contact your Ohaus representative for repair.

Warning Code	Cause of Warning
Probe 1 or Probe 2	The temperature of the probe exceeded 110°C. Reset the unit by disconnecting from the power source and let the unit return to room temperature.
Heat Sink Probe	The heat sink probe has a possible malfunction. Reset the unit by disconnecting from the power source.
Fan 1 or Fan 2	Fan 1 or Fan 2 has a possible malfunction. Reset the unit by disconnecting from the power source.

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