



Standard Contents

- (1) AFE or AFE-LT Series Lab Oven
- (2) Adjustable nickel-plated wire shelf
- (4) Shelf brackets

Approvals:

Underwriter's UL / CUL, United States/
Canadian for laboratory equipment.

Compliance: UL Standard 61010-1
IEC 61010-1.

⚠ NOT FOR USE WITH FLAMMABLE LIQUIDS OR GASES



SPECIFICATIONS

	MODEL 10AFE 10AFE-LT	MODEL 20AFE 20AFE-LT	MODEL 30AFE 30AFE-LT	MODEL 40AFE 40AFE-LT
INTERIOR DIMENSIONS INCHES W x H x D (CM) W x H x D	12x8.63x10 30.5x22x25.4	13x11.63x13 33x29.5x33	18x14.63x12 45.7x37x30.5	18x19.63x14 45.7x50x35.5
EXTERIOR DIMENSIONS INCHES W x H x D (CM) W x H x D	14x20.5x12 35.5x52x30.5	15x24.5x15 38x61x38	20x28.5x14 52x72.4x35.5	20x33.5x16 52x85x40.63
TEMPERATURE RANGE Ambient + 25°F to: F / C AFE-LT - Ambient + 15°F to: F / C	450° / 232° 225° / 107°	450° / 232° 225° / 107°	450° / 232° 225° / 107°	450° / 232° 225° / 107°
CONTROL STABILITY @ 75°C ±F / °C AFE-LT - @75°C ±F / °C	1.0° / 0.5° 1.0° / 0.5°	1.0° / 0.5° 1.0° / 0.5°	1.0° / 0.5° 1.0° / 0.5°	1.0° / 0.5° 1.0° / 0.5°
STANDARD ELECTRICAL VOLTS / AMPS AFE-LT's - VOLTS / AMPS	120/6.8* 115 / 3.7*	120/8.5* 115 / 3.7*	120/13.1* 115 / 6.8*	115/13.1* 115 / 6.8*
WATTS AFE-LT's - WATTS	822 432	1022 432	1572 792	1572 792
PLUG / NEMA	5-15P*	5-15P*	5-15P*	5-15P*
WEIGHT (lbs)				
SHIPPING	44	61	78	94
STAND ALONE	38	54	70	85

* Standard models voltage only, optional 220 voltage available. For power requirements, see electrical info on the label located on the back of the oven.

Common Unit Construction

Exterior: Powder Coated Steel
Insulation: Fiberglass
Thermo-control: P.I.D. Microprocessor

Interior: Aluminized Steel
Motor: N/A
Heater: Resistive-Tubular Incoloy



IMPORTANT

Refers to an important note in the usage of the unit.



WARNING

Warns of a possible electrical shock



WARNING

Warns of a possible risk of fire



CAUTION

Cautions of HOT exterior surface during operation.











WARNING


Warns of possible injury or muscle strains, use assistance when moving or lifting.

Safety Precautions Read Operating Instructions Thoroughly Prior to Operation

Read Operating Instructions thoroughly prior to operation and observe the following safety precautions:

-  Use only a grounded outlet that is rated for your model's electrical requirement.
-  Do not modify the oven or factory control settings to operate the oven above the stated maximum operating temperature.
-  Exterior surfaces on the AFE and AFE-LT Lab Oven models may become hot to the touch when operating at higher set temperatures.
-  Do not leave the oven unattended during operation.
-  Do not place volatile or combustible materials inside the Lab Oven.
-  Do not use any flammable solvents or gases or materials that may contain flammable solvents or gases, or with liquids, vapors or chemicals that produce toxic gases.
-  Do not use open liquids in the oven.
-  Conduct periodic maintenance as required.

Set-Up & Installation

 Position the unit in its ultimate operating location. Keep a minimum of 4" of airspace around the unit and a minimum of 18" above the unit. The portholes at the top of the unit will expel a small amount of warm air through natural convection.

Shelf Installation

Install the adjustable shelf by placing the ends of the wire shelf bracket into the corresponding holes located on the inner sides of the oven at the desired height. Push the ends of the bracket into the holes until the first bends in the bracket are against the wall, then rotate the bracket down. Place the shelf on the brackets. (FIG 1)

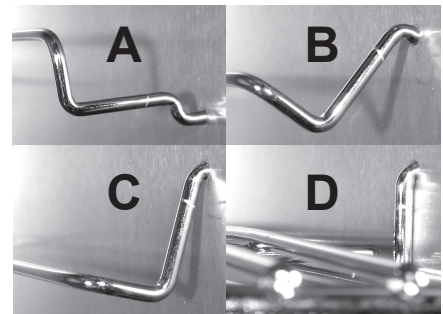


FIG. 1

 Plug the unit into a grounded outlet for your unit's rated voltage.

General Operation

The unit is ready for your immediate use. All control parameters, calibration and, tuning has been done at the factory, no adjustments are necessary.

Turn the power switch to the ON (UP) position. All LED's on the temperature controller will light up and display the current chamber temperature. The **OUT** and **RUN** indicators will also light up once the unit has been powered ON.

The temperature control is set at the factory to read 1/10th degree F or Fahrenheit units.

See Menu Functions Guide for controller functions.



FIG. 2





Press **P** once to see **OUT RUN**





Press **▲** or **▼** to Increase / Decrease



Press **P** 3 times to return to chamber temperature

-  **RUN** and **OUT** lights ON indicates normal heating process.
-  The **OUT** light will flash intermittently after achieving the set point.

 Once the oven is powered ON, it will immediately begin to heat to the factory preset temperature set-point. To change the set-point temperature follow the quick sequence shown to the right in FIG 2.

 Once the unit nears the desired temperature, allow the oven to cycle for 20 minutes at the set-point before the temperature becomes fully stable. Upon each initial powering-up, the control may typically overshoot the set-point by 3 or 4 degrees especially if the temperature set is close to the operating ambient temperature. After equilibrium is achieved the control will hold the set temperature within 1 unit degree F.

Menu Functions Guide

To navigate the controller's menu, please refer to the easy-to-use Menu Guide below: Menu setting changes can be done quickly with our 4-button digital microprocessor. Your incubator's controller allows you to perform the following:

- Set the operating set-point temperature
- Select between degrees Fahrenheit or Centigrade
- Calibrate your unit to your independent temperature sensing device.
- Auto-tune your Incubator for maximum efficiency
- Lock the set-temperature

MENU GUIDE

CONTROLLER KEY DESCRIPTION

- P Menu/Advance** - Use to advance to successive parameter or menu
- ▲ Increase** - Use key to increase the parameters value.
- ▼ Decrease** - Use key to decrease the parameters value.
- F Special Function** - Use key to return and exit.

OPERATION INDICATORS

AT Indicator
ON- Indicates that auto-tuning is in process. (See Auto-Tuning the oven for more information).

OUT
ON- Indicates normal activation of outputs.
FLASHING - Indicates normal operation

RUN
ON - Control is enable to run. (This light remains ON during use)

ALM
ON - Indicates an alarm condition when the process value is above the defined alarm value.

SET-POINT CHANGE

To change the temperature set-point of your oven, use the indicated arrow keys to increase or decrease temperature.

- Press **P** once to see **SP**
- Press **▲** or **▼** to Increase / Decrease
- Press **P** 3 times to return to chamber temperature

TEMPERATURE UNITS

To change the oven's operational unit to read either degrees Celsius or degrees Fahrenheit you will need to:

- Press **P** 2 times to see **UNIT**
- Press **▲** or **▼** to select unit
- Press **P** 2 times to return to chamber temperature

TEMPERATURE OFFSET / CALIBRATION

Your unit has been calibrated at our factory using a NIST-certified temperature instrument.

Over time a temperature adjustment (offset) may be necessary to maintain the unit's controller temperature reading consistent with the interior temperature. To maintain this temperature accuracy, we recommend verifying twice a year that there is a temperature consistency between the controller and the chamber using a known accurate temperature measuring device.

To execute an OFFSET you will need to:

- 1 Place a trusted, preferably certified digital temperature probe at the center of the unit's chamber.
- 2 Record the temperature reading at the controller and at the center of your unit's chamber.
- 3 Access the **OFFS** parameter and input the temperature difference from your controller to your digital probe.

To change the offset value on your incubator:

- Press **P** 3 times to see **PASS**
- Press **▲** to input factory passcode **1111**
- Press **P** ONCE to see **OFFS**
- Press **▲** or **▼** to input temperature difference
- Press **P** ONCE to exit calibration

Factory set passcode 1111

- ⚠ Once a temperature adjustment has been made, allow the unit some time to stabilize before making any subsequent adjustments.
- ⚠ The temperature difference between the controller and your independent probe can be a positive or negative number.

AUTO-TUNING THE UNIT

Your unit's controller has been tuned from our factory to achieve set-point temperatures at a faster rate. However, you can auto-tune your unit's controller to work best with your application and set-points. The two auto-tuning options available are:

FAST Tuning

This option prioritizes speed over accuracy, allowing you to reach set-point temperatures faster.

FULL Tuning

This tuning option gives priority to accuracy over speed.

⚠ Although there are other tuning options available, we recommend only using the two options mentioned above. Any other tuning option performed will affect the unit's performance and accuracy.

To execute an auto-tuning you will need to:

- 1 Select the desired set-point temperature to tune the unit.



Press **P** once to see **SP**



Press **▲** or **▼** to Increase / Decrease



Press **P** 3 times to return to chamber temperature

- 2 Once the desired set-point temperature has been set, you will need to input the factory set passcode to access the tuning parameter.



Press and **HOLD P** to see **PASS**



Press **▲** to input passcode



Press **P** **ONCE** to see **FACTORY**. Continue to 3

Factory set passcode 1111

- 3 Select either the **FAST** or **FULL** tuning option to be executed. Once a selection has been made exit tuning menu. The indicator **AT** will light up and remain ON during the tuning process.



Press **▼** to select tuning option



Press and **HOLD P** or **F** to exit tuning menu

IMPORTANT:

- ⚠ During the tuning process, it is common to see the temperature fluctuate by a few degrees above and below the setpoint.
- ⚠ Allow the unit some time to reach temperature stability after the tuning process has been completed.

CONTROLLER LOCK

Your unit's controller allows you the option to "lock" the controller buttons to prevent any changes to the parameter values. You can do this by following the sequences shown below:

1. Press **P** (3) times to see **PASS**
2. Enter the password of **1111** by holding **▲**
3. Press and hold **P** until the display **CALib**
4. Press **P** (3) times to see **Prot**
5. Change the **4** to **5** by pressing **▲**
6. Press **P** again (4) times to return to temperature



PASSWORD PROMPT



ENTER PASSWORD



CALib Prompt



Prot PROMPT



CHANGE 4 TO 5



RETURN TO TEMPERATURE

CONTROLLER ALARM

Controller Alarm- If the unit exceeds the high limit alarm value, the controller will stop the heating process and display the ALM indicator on the controller until the unit is manually reset.

To reset alarm condition- Power the unit OFF and allow it to cool down to room temperature before powering ON. If the problem persists contact technical support.



Chamber Loading

Understanding the unit's thermal convection and "load-effect" are necessary to optimize oven's performance. Article or media processing times and/or uniformity are largely dependent on load density and positioning.

Important guidelines to chamber loading and processing:

- Load the oven so that heated air circulation within the chamber is not impaired (FIG. 3).
- Leave a space between articles on the shelf.
- Avoid using large solid trays or foil on lower shelves, this can drastically limit heat to shelves and articles placed above as shown in FIG. 4.
- Avoid extremely large (in quantity or size), or high-density loads. This will show by non-uniform processing and long or impossible "heat-through" times. To help determine a large load's suitability, use the set-point recovery time (the time it takes for the temperature to recover to the original set temperature once load is placed and door is closed), as a guide.
- To reduce recovery time, reduce load proportionally. Also, large loads may require an elevated set temperature for the solution to reach and maintain a lower target temperature.
- Process the smallest possible load the application or workload will permit. **For best processing of small multiples or a single item, adjust one shelf so that the article(s) is centered in the Lab Oven.**
- Avoid placing articles or media against or within an inch of the walls especially on the lower shelf. Heated air from the lower heat-shield, is designed to travel up the sidewalls and can have a slightly elevated temperature from the setpoint and the rest of the chamber.

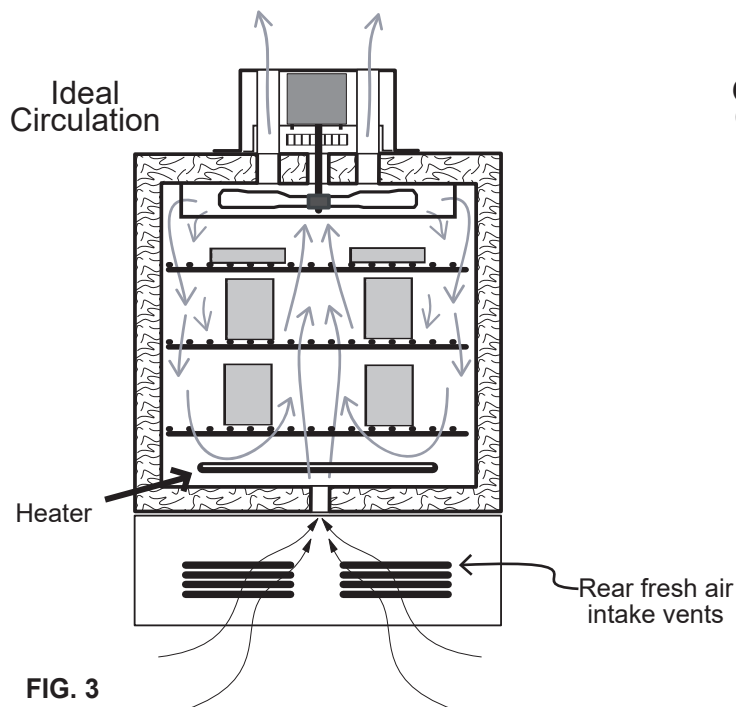


FIG. 3

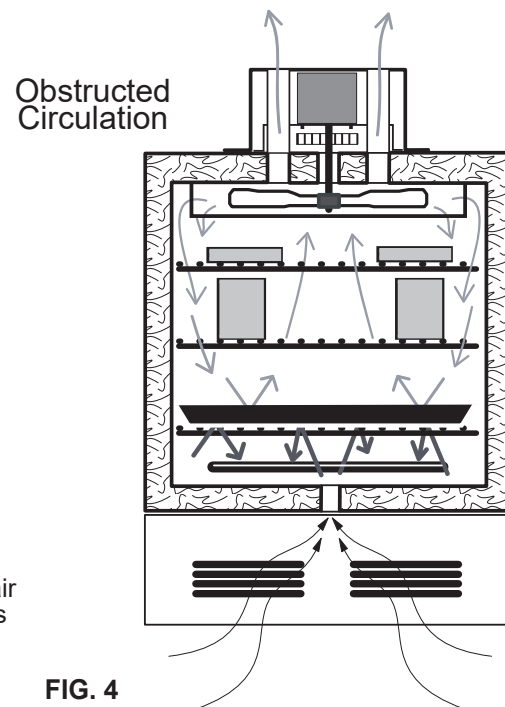


FIG. 4

Important Operational Notes

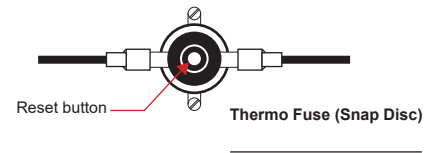
The oven's chamber temperature stability can be affected by changes in ambient (room) temperature and/or equipment running in close proximity (creating microclimates) or cycling on the same electrical circuit. Take time to see how unit location or changes in room temperature from seasonal heating or air conditioning may influence the oven's set temperature. **For best chamber temperature stability, keep the ambient temperature stable.**

Care should also be taken to avoid placing items on the top-most shelf too close to the holes in the fan plenum. This will restrict the flow of air passing through the plenum and reduce the amount of pre-heated air being circulated through the entire chamber and cause longer than normal heat-through times and inconsistent or unstable oven temperatures.

⚠ Thermal Safety Reset (Snap Disc)

Oven Safety Reset- To protect the oven's electrical components and for the safety of the user, if the unit exceeds its maximum temperature, an internal safety "snap disc" will cut power OFF to the unit until it is manually reset.

To Reset - unplug the oven, lay it on its back, and remove the bottom cover. Locate the round safety "snap disc" and push on the button to reset.



Maintenance / Cleaning Procedures / Common Replacement Parts

The Lab Series Ovens are designed to be virtually maintenance free. But operational safety requires periodic cleaning and chamber temperature accuracy verification (see Temperature offset/calibration on page 3 of this manual).

Cleaning Procedure - Periodically check the rear air intake vents for dirt or dust build-up. Keep the intake & exit ports clear of obstruction and clean of dust and dirt. To reduce the risk of fire, it may be necessary to remove the bottom plate cover to clean or vacuum any dirt and dust build-up. To clean the exterior and interior surfaces, use a damp cloth or an all-purpose cleaner. Avoid commercially available oven cleaners.

Common Replacement Parts -

Digital P.I.D Controller

AFE & AFE-LT Series
PART # 101-1230

S.S. Relay

AFE Series
PART # 701-6252

AFE-LT Series
PART # 201-2310

Motor

AFE & AFE-LT Series
PART # 205-2030

For a full list of
replacement
parts scan QR code.



Troubleshooting

PROBLEM	POSSIBLE CAUSE	WHAT TO DO BEFORE CALLING TECH. SUPPORT
Unit not turning ON when power switch is in the ON position	1. <i>Tripped GFCI power outlet</i>	1. Check if the unit tripped a GFCI outlet or fuse. Try a non GFCI power outlet connection before moving to number 2 on this list.
	2. <i>Damaged or missing fuse</i>	2. Check the (red) plastic fuse holder in the back of the unit for missing or broken fuse. Replace as needed.
	3. <i>Disconnected / loose wires.</i>	3. Check all wire connections in the electrical area (bottom) and make sure there are no loose or disconnected wires in the unit.
	4. <i>Thermal safety disc tripped.</i>	4. Reset the oven's "snap disc". Refer to "Thermal Safety Reset" section above for more information.
Oven not heating or over heating.	1. <i>No Heat: Set temperature not set correctly or set too low.</i>	1. Make sure the setpoint temperature is set correctly on the $\square F$ parameter (see pg. 3) and is above the stated minimum required temperature range.
	2. <i>The unit overheated and alarmed</i>	2. Turn unit OFF to clear (ALM) Alarm and allow it to cool down to room temperature before restarting. If the problem persists contact Quincy Lab. for further assistance.
	3. <i>Incorrect OFFSET ($\square F F \square$) value</i>	3. Verify that the Temperature Offset is between -10°F to 10°F. Any value higher than this may affect the heating process. Bring value down to zero, and perform a temperature calibration (see pg. 3 for more information).

Technical Support

If you have any questions or need technical assistance, contact Quincy Lab technical support for further assistance, or visit us on the web at www.quincylab.com

Email: information@quincylab.com
Voice: 800-482-4328
Fax: 773-622-2282

Quincy Lab, Inc.
109 Shore Dr.,
Burr Ridge, Illinois 60527

Limited Warranty



Quincy Lab, Inc. warrants to the original purchaser that this product will be free from defects in material and workmanship under normal use throughout the warranty period. The standard warranty period for this instrument is twenty four (24) months from date of shipment. The instrument warranty is supplemented with a three year warranty on the heating element. Please refer to your invoice or shipping documents to determine the active warranty period. This warranty covers parts & labor (labor at factory only) and shipping cost for replacement parts.