



# Model GCE Digital Series Lab Ovens

With Microprocessor Control & Digital Display

## OPERATING MANUAL



### Standard Contents

- (1) GCE Series Lab Oven
- (2) Adjustable chrome 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 10GCE	MODEL 20GCE	MODEL 30GCE	MODEL 40GCE
<b>INTERIOR DIMENSIONS</b> INCHES W x H x D (CM) W x H x D	12x10x10 31x25x25	13x13x13 33x33x33	18x16x12 46x41x31	18x21x14 46x53x36
<b>EXTERIOR DIMENSIONS</b> INCHES W x H x D (CM) W x H x D	14x17x12 36x43x31	15x21x15 38x53x38	20x25x14 51x64x36	20x30x16 51x76x41
<b>TEMPERATURE RANGE</b> Ambient + 25°F to: F / C	450° / 232°	450° / 232°	450° / 232°	450° / 232°
<b>CONTROL STABILITY</b> @ 75°C	0.5° / 1.0°	0.5° / 1.0°	0.5° / 1.0°	0.5° / 1.0°
<b>STANDARD ELECTRICAL</b> VOLTS/AMPS WATTS PLUG/NEMA	115/5.2* 600 5-15P*	115/6.3* 750 5-15P*	115/10.5* 1200 5-15P*	115/12.5* 1500 5-15P*
<b>WEIGHT (lbs)</b> SHIPPING STAND ALONE	44 38	61 54	78 70	94 85

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

### Common Unit Construction

**Exterior:** Powder Coated Steel  
**Insulation:** Fiberglass  
**Thermo-control:** PID Microprocessor

**Interior:** Aluminized Steel  
**Motor:** AFE models only  
**Heater:** Resistive-Tubular Incoloy



**WARNING:** READ INSTRUCTIONS THOROUGHLY BEFORE OPERATING OVEN



**WARNING:** RISK OF ELECTRICAL SHOCK. DISCONNECT UNIT FROM POWER SOURCE BEFORE REMOVING COVER



**CAUTION:** EXTERIOR SURFACES MAY BECOME HOT DURING OPERATION



**WARNING:** DO NOT USE WITH FLAMMABLE LIQUIDS OR GASES



**WARNING:** NOT FOR USE WITH OPEN LIQUIDS



**WARNING:** CARE SHOULD BE TAKEN WHEN CARRYING/LIFTING UNIT INTO PLACE. LARGER UNITS ARE HEAVY AND MAY REQUIRE TWO PEOPLE TO TRANSPORT OR INSTALL.

## Safety Precautions Read Operating Instructions Thoroughly Prior to Operation

 The GCE Series lab ovens are not designed for use with any flammable solvents or gases or for materials that may contain flammable solvents or gases. Use only a grounded outlet that is rated for your model's electrical requirement. Oven exterior walls and doors may become hot to the touch when operating at higher set temperatures. Do not leave the oven unattended during operation, especially when processing materials that have flash point temperatures lower than the model oven's maximum operating range. Do not modify the oven or control parameters to operate the oven above the stated maximum operating temperature.

### Set-up

Position unit in its ultimate operating location. Keep a minimum of 2" of airspace around the unit and a minimum of 10" above the unit. The port holes at the top of the unit will expel a small amount of warm air through natural convection. This port can also be used as an access for an external temperature probe to verify the chamber's temperature or the chamber's contents directly.

Install 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)

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.

Push the illuminated power button. All LED's on the temperature control will light-up and display the current chamber temperature and the set temperature.

Set temperature is constantly displayed in the lower right-hand corner of the display. To change the set temperature, simply press either the up arrow key or the down arrow key, until desired set temperature is reached. (FIG. 2) The temperature control is set at the factory to read in 1/10th degree F, or Fahrenheit units.

To change Controller functions see: Menu Level Functions Guide (page 3).

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

**Unit Safety Reset-** If the unit exceeds its maximum temperature, an internal safety "snap disc" will cut power to the unit until it is manually reset. To do this, unplug the unit, lay it on its back and remove the bottom cover. Locate the round safety "snap disc" and push in the button to reset.

 **WARNING:** RISK OF ELECTRICAL SHOCK. DISCONNECT UNIT FROM POWER SOURCE BEFORE REMOVING COVER. FAILURE TO COMPLY COULD RESULT IN SERIOUS INJURY OR DEATH.

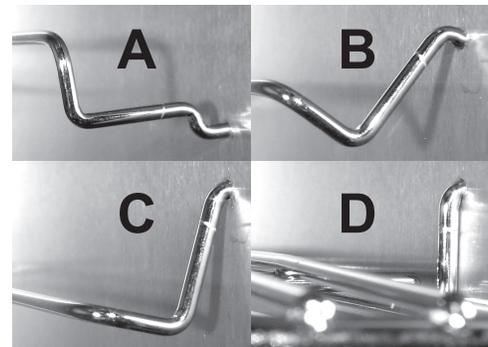


FIG. 1

**NOTE:** FLASHING YELLOW LIGHT **OUT** INDICATES NORMAL OPERATION.



 Enter/Exit Menu  
 Menu Scroll  
 Increase/Decrease Setpoint  
(PRESS)

FIG. 2

## Chamber Loading

Article processing times and temperature uniformity are largely dependent on load density and positioning. Load the oven so that air circulation within the oven is not impaired. Here are some general guidelines:

Leave a space between articles on a shelf. Stagger articles from those on lower shelves.

Avoid placing articles or media against or within an inch of the walls especially on the lower shelf. Heated air from the lower plenum openings, designed to travel up the side walls, can have a slightly elevated temperature from set point and the rest of the chamber.

Use of large solid trays or foil on shelves limits heat to any articles placed on shelves above.

Do not overload the unit with large or high-density loads. This will show by non-uniform processing and/or long "heat-through" times where control display temp is slow to return or achieve set temperature.

For best processing performance for a single item, adjust one shelf so that the article is centered in the oven chamber.

## Menu Level Functions Guide

To access menu for common menu functions, refer to **Menu Guide** below: Menu setting changes are quick and easy with the our new 5-button digital microprocessor. Through the use of these controls you can: set the operating temperature, lock the set-temperature, select either degrees F or C, calibrate your unit to your independent device, and auto-tune your oven to your specific application.

## Digital Controller Function Buttons



Enter / Exit MENU



MENU Scroll



Changes digit cursor on set temperature



Decrease



Increase

### To set setpoint temperature



Decrease



Increase

Up and down arrow keys (shown left) are used to increase or decrease set-point control temperature as desired by user

### To adjust control to read in C or F temperature units



Hold 3 sec.



Hit ONCE



Use   to choose F or C  
Default set to F

Temperature units can be changed quickly between feranheit and centigrades using arrow keys.

### To lock setpoint temperature



Hold together 3 seconds



Lock setpoint by changing to '3'  
Default set to 0

### To calibrate control to independent probe/sensor



Hit ONCE



Hit ONCE



Use   keys to enter temperature shift in degrees

To calibrate oven, add (or subtract) the temperature differential, to the existing iNS value shown at prompt

### To Auto-tune oven



Hit ONCE



Use   keys to change setting  
Default set to 40%

All ovens are Auto-tuned at the factory using the 'At-1' option for faster response time. You may, however, want to Auto-tune your oven to your specific application. To do this, once at the 'At' prompt (at left), use arrow keys to initiate either Auto-tune option: 'At-1' (for 40% Auto-tune), or 'At-2' (for 100% Autotune). The 40% Auto-tune (At-1), will stabilize the oven temperature quicker and with less 'overshoot' than the 100%, but will be somewhat less precise. The 100% Auto-tune (At-2), will take longer to stabilize oven temperature but will be more precise, and take a little longer to complete the Auto-tune process.

## Control Self Diagnostics

Control prompts will only display when a fault or alarm condition exists.

### ALARM Codes "S.ERR" & "- - - -"

**Indicates Input Error**  
Check to make sure Thermocouple wiring is connected securely

### ALARM Code "E333"

**Indicates Internal Circuit Error**  
Turn Controller OFF and On. If problem remains, replace Controller

### ALARM Code "E111"

**Indicates Internal Memory Error**  
Turn Controller OFF and On. If problem remains, replace Controller

### ALARM "Over Maximum Temperature"

SUB1  
OUT

When the oven exceeds its maximum operating temperature by 10°F (5 °C) a safety alarm in the controller will cut power to the heating elements. Allow the units temperature to drop below its maximum temperature and/or cool before reset. To reset unit, power OFF and ON to clear alarm status. If problem remains, please contact technical support for assistance.



## Common Replacement Components

All replacement components are readily available and are easily replaced in the field.

COMPONENT	MODEL	VOLTAGE	PART #	COMPONENT	MODEL	VOLTAGE	PART #
Digital Controller	All	All	401-1230	Fuse (15 amp)	30, 40	All	Q-1190
Relay	All	All	401-1233	Fuse Holder (red)	All	All	Q-1198
Rocker Switch	All	115 Volt 230 Volt	201-2213 201-2213-1	Wire Shelf	10	All	101-1000
Thermocouple	All	All	701-6253	Shelf Supports (2)	10	All	101-1001
Friction Catch (set)	All	All	101-2221	Wire Shelf	20	All	201-2000
6' Cord & Plug	20, 30, 40	115 Volt 230 Volt	101-1403 101-1403-1	Wire Shelf	30	All	101-3000
6' Cord & Plug	10	115 Volt 230 Volt	101-1603 101-1603-1	Wire Shelf	40	All	201-4000
Fuse (10 amp)	10, 20	All	Q-1191	Shelf Supports (2)	20, 30, 40	All	101-3001

## ⚠ Periodic Oven Maintenance

The GCE Series Lab Ovens are designed to be virtually maintenance free. But operational safety requires periodic cleaning and chamber temperature accuracy verification. 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. Once a year, check the actual oven chamber temperature against a known accurate temperature measurement device. Maintain temperature accuracy to within 5 degrees F of the control setting. Calibrate the control as necessary. To clean exterior and interior surfaces, use a damp cloth or with an all-purpose cleaner. Avoid commercially available oven cleaners.

## Technical Support

If you have any questions or need technical assistance, please contact Quincy Lab Tech Support at

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

Quincy Lab, Inc.  
1925 N Leamington Ave  
Chicago, Illinois 60639

Visit us on the web at [www.quincylab.com](http://www.quincylab.com)

## 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 eighteen 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.

