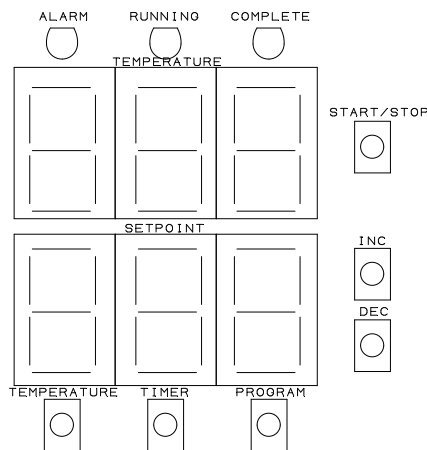




## Manual for Configuring the Genlab Prime Range of Incubators and Ovens

A premium range of ovens and incubators with bespoke software offering PID control, timer functions and temperature profiling as standard throughout the entire family. This new family of ovens offers tailor made software, designed over many years to offer the highest accuracy with greater control for optimum energy saving performance. A proprietary self tuning algorithm only available within this range will ensure a stable set point is achieved irrespective of the loading within the oven and has a built in independent over temperature shut down that is controlled by the operator.

The users controls are shown below:



The controls consist of:

Temperature display:	RED
Setpoint display:	GREEN
Alarm:	LED indicator (RED)
Running:	LED indicator (YELLOW)
Complete:	LED indicator (GREEN)
Start/Stop:	Keypad button.
Increment:	Keypad button.
Decrement:	Keypad button.
Temperature:	Keypad button.
Timer:	Keypad button.
Program:	Keypad button.

## Configuration

The oven can be used in one of three modes: On/Off, Timer, and Program. These modes are described in more detail in the sections below:

### 1. On/Off mode

In On/Off mode the oven is started and stopped manually by the user.

- To adjust the working temperature:
  - Press and hold the 'temperature button' for 2 seconds.
  - The 'setpoint display' will continue to show the setpoint as it is edited. The 'temperature display' will show "S" to indicate the setpoint is being edited.
  - Use the 'increment' and 'decrement' buttons to set the desired temperature in one degree steps.
  - When no keys have been pressed for 10 seconds, or if the 'temperature button' is pressed again, the new value will be stored and the temperature display will return to normal.
- To switch the oven on:
  - Press the 'start/stop button'.
  - The yellow 'running LED' will illuminate to show the oven is on, the 'temperature display' will show the current oven temperature, and the 'setpoint display' will continue to show the selected setpoint.
- To switch the oven off:
  - Press the 'start/stop button'.
  - The yellow 'running LED' will go out.
  - The 'temperature display' will continue to show the actual temperature as the oven cools.

### 2. Timer mode.

In timer mode the oven is started manually but will switch off automatically after a time selected by the user.

- To set the time interval:
  - Press and hold the 'time button' for 2 seconds, the 'setpoint display' will change to show the time the oven will stay on for in minutes. The temperature display will show "t" to indicate the time is being adjusted.
  - Use the 'increment' and 'decrement' buttons to set the desired time. The time is set in 5 minute steps up to 8 hours followed by 1 hour steps up to a maximum 99 hours.
  - When no button has been pressed for 10 seconds, or if the 'time button' is pressed again, the displays will return to normal and the new value will be saved.
- Oven is currently 'on':
  - Press the 'time button', if the oven is on and up to setpoint then the time period will start immediately, otherwise the time will start as soon as setpoint is reached.
- Oven is currently 'off':
  - Press the 'time button', the oven will come on and the timer will begin when the oven has reached the setpoint temperature.
- During time interval:
  - The yellow 'running LED' will flash.
  - The 'temperature display' will show the actual oven temperature and the 'setpoint display' will show the time remaining.
- Timer Pause:

- The timer will automatically pause if the oven temperature falls more than 5 degrees below the set point and will remain in pause mode until it is within 1 degree of the setpoint. To indicate this feature, the timer display will flash the time remaining.
- When the timer expires:
  - The oven will turn off.
  - The yellow 'running LED will go out.

### 3. Profile mode

In program mode the oven will cycle automatically through a series of up to eight steps. Each step will consist of a temperature, a ramp, and a time. The oven will warm up over the ramp time and then be held at the step temperature for the step time before moving on to the next step. Once the last step has been completed the oven will switch off. The step time will only begin once the oven has reached the step temperature.

- To set the program:
  - Press and hold the 'program button' for 2 seconds, the 'setpoint display' will change to show the temperature for the first step. The temperature display will show "S 1" to indicate that the setpoint for step one is being adjusted.
  - Use the 'increment' and 'decrement' buttons to set the desired temperature.
  - Press the 'start/stop' button to move on and set the ramp for step one.
  - The 'setpoint display' will show the ramp time in minutes, the 'temperature display' will show 'r 1' to indicate the ramp for step one is being adjusted.
  - Use the 'increment' and 'decrement' buttons to set the desired ramp time. A ramp time of zero indicates the oven should heat up as quickly as possible.
  - Press the 'temperature button' to enable hold-back. The 'temperature display' will change to 'rh1' to indicate hold-back is enabled for step one.
  - If hold-back is enabled the ramping up of the oven temperature will be paused if actual temperature drops more than five degrees behind the ramp.
  - Press the 'timer button' to disable hold-back and revert to normal ramp.
  - Press the 'start/stop' button to move on and set the time for step one.
  - The 'setpoint display' will change to show the step time in minutes. The temperature display will show "t 1" to indicate the time for step one is being adjusted.
  - Use the 'increment' and 'decrement' buttons to set the desired time.
  - Press the 'start/stop' button to move on and set the parameters for steps 2 to 8 in the same way, with the temperature display showing "S 2" and "t 2" etc.
  - If the step time is left at zero for any step then the program will end at that point.
  - When no button has been pressed for 5 seconds, or the 'program button' is pressed again, the displays will return to normal and the new program will be saved.
- Oven is currently 'on':
  - Press the 'program button', if the oven is on then the program will start immediately.
- Oven is currently 'off':
  - Press the 'program button', the program will start immediately.
- During program:
  - The yellow 'running LED' will flash.
  - The 'setpoint display' will alternate between time remaining for the program step and the step number; "st2" for example.
- When the program finishes:
  - The oven will turn off.
  - The yellow 'running LED will go out.
  - The green 'complete' LED will come on.

## Over-temperature Function

An independent over temperature safety shut down is standard on all Prime ovens and incubators. To set, simply turn the dial to the appropriate trip point. The trip is adjustable between 40 to 300 deg C on the oven ranges and 30 to 100 deg C on the incubator ranges. If the temperature of the oven exceed the trip point, 'Er1' is displayed on the top red display and the alarm LED is illuminated. Heating is then disabled until the reset button is pressed and the temperature falls below the trip point.

A test procedure of the safety function can be done regularly by pressing the test button, then resetting in the same manner as above.

## Calibration of Ovens

Ovens can be calibrated to control against a calibrated sensor by a full system calibration procedure as shown below.

- Position the sensor within the oven at a place where you prefer the oven to be calibrated
- Press Increment and Decrement buttons together for 2 seconds
- The top display shows 'Lo ' and all 3 LEDs will flash together to indicate calibration mode.
- The lower display shows the target temperature for the lower calibration point. This value can be adjustable using increment and decrement buttons. Press start/stop button and the oven will control to this value.
- When the oven stabilises at this desired point, press the increment and decrement button to match the bottom temperature display against the calibrated display from the external calibrated probe.
- Once the displays matches, press the start/stop button to confirm the low calibration point.
- Repeat the above procedure for hi calibration point.
- Press start/stop to confirm the hi calibration point and go back to normal operation mode.

Note: To exit calibration procedure without any values being saved, hold Increment and Decrement together for 2 seconds

## Error messages

Er1	Overheat trip Indication Press reset button to reset when oven cooled down
Er2	Temperature High (10 deg C over setpoint – software alarm check) Press start / stop to reset
Er3	Temperature Low (10 deg C under setpoint – software alarm check) Press start / stop to reset
Er4	Probe failure, contact factory for replacement probe Press start / stop to reset after new probe installed

Note: The right-most decimal point of the 'setpoint display' is illuminated as an indication that power is being applied to the heating element. This point will flash as it reached set point as a representation of the PID values tuning to the desired set point.

## Setup

Setup parameters can be accessed as follows:

From the main screen with the oven 'off' hold the 'program button' down then press and release the 'timer button'.

The screen will prompt for the entry of a PIN number. Numbers are entered using the buttons as below:

Temperature button = 1

Time button = 2

Programme button = 3

Dec button = 4

Inc button = 5

Start/Stop button = 6

The PIN to access the setup screens is 151424.

Use the 'Temperature button' and 'Program button' to move backwards and forwards through the setup parameters.

Use the 'Increment button' and 'Decrement button' to edit values.

Press and release the 'Timer button' to save the changes and return to the main screen.

The setup parameters are:

"TIR"	(on/off)	Enable/Disable timer function.
"PRG"	(on/off)	Enable/Disable programmer function.
"TLO"	(on/off)	Enable/Disable low temperature alarm.
"FAN"	(No/Yes)	Fan fitted.
"LOP"	0 – 100	Midpoint Power at low calibration point.
"HIP"	0 – 100	Midpoint Power at high calibration point.
"SET"	MAX - 0	Maximum Set-point available to user.