



Laboratory Equipment Manufacturer
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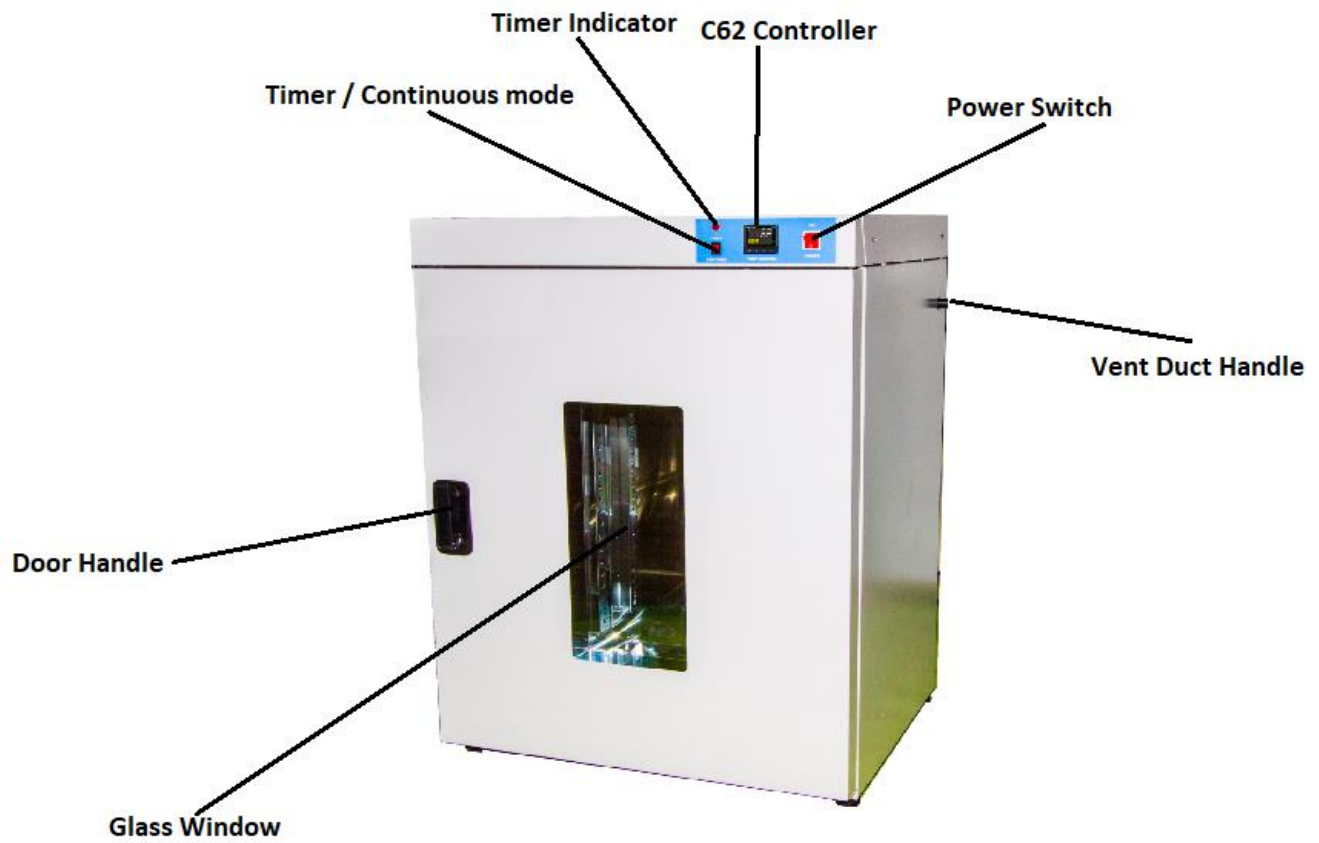


Operation manual for

DFO – DFI Series



General Overview



Main Temperature Controller



Number	Key	Description / Function
③		For setting and calling up parameters.
④		To increase the value of digits.
⑤		To decrease the value of digits.
⑥	R	Revert /STOP/Restart Timer (For machine with timer use only)
⑦	PV	To display process value, menu symbol and error code.
⑧	SV	To display set point value, parameter value or control output value.
⑨	C	Process Unit Indicator- Celsius
⑩	ALM 123 Indicator	Over-Heat Temperature. Lights on when actual temperature over the set temperature 5°C, and turns off the heater.
⑪	OUT 1 2	Control output lamp 1. Light on when heater is activated
⑫	MANU	Lamp flashes during Manual Mode operates
⑬	COMM	Communication indicator
⑭	TUNE	Lamp flashes during auto-tuning operates
⑮		Lock indicator


Setting parameter


The PV display indicates the parameter symbol, and the SV display indicates the selected value of the selected parameter.

Setting the Temperature (Continuous mode)

Put the front switch on CONTINUES

Turn on the temperature controller/power switch. The temperature displays light up and after a few seconds, the upper display shows the present value (PV) temperature. The lower display shows the set value (SV) or set temperature.


Press  to increase temperature gradually.


Press  to decrease temperature gradually.


Setting the Temperature (timer mode)



Put the front switch on TIMER

Turn on the temperature controller/power switch. The temperature displays light up and after a few seconds, the upper display shows the present value (PV) temperature. The lower display shows the set value (SV) or set temperature.

Press  to increase temperature gradually.

Press  to decrease temperature gradually.


Press number ③ twice. PV display , SV display 1.0

Press   to increase or decrease time gradually. Setting time upon what you need.

The timer will start from the temperature reach setting.

For example:


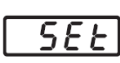
1.5 = 90 seconds (1.5 minutes), 1.0 = 60 seconds (1.0 minutes) 0.5 = 30 seconds.

Press number ③ once. PV display , and SV display 1.0 → It mean the time will counting down 1 min after temperature reach to the setpoint.






User Calibration (only if needed)

Each unit is calibrated in the factory before shipment. The user can still modify the calibration in the field.

There are two parameters: Offset Low (OFTL) and Offset High (OFTH) for adjustment to correct an error in the process value.

Press and hold the  key until the setup  Menu page is obtained.

Then, press  key to scroll to the parameter .

Press  key several times to scroll to the parameter OFTL to calibration low value. Send your low signal to the sensor input of the controller, then press and release the  key. If the process value (the upper display) is different from the input signal, the user can use  and  to change the OFTL value (the lower display) until the process value is equal to the value the user needs. Press and hold the  key


for 5 seconds to complete the low point calibration. A similar procedure is applied for high scale calibration.

The two points OFTL and OFTH construct a straight line. For the purpose of accuracy, it is best to change the value same on the two points as possible.

Auto-Tuning (only if needed)

Instrument has been set the best PID value; we suggest executing auto-calculating when temperature is unstable. Enter auto-calculating:

Press  and hold until appears  on the display then release.

Press  and hold at least 5 seconds. The TUNE indicator will begin to flash and the auto-tuning procedure is beginning.

After the Auto-Tuning process is completed, the TUNE indicator will stop flashing and the unit will revert to PID control by using its new PID values. The PID values obtained are stored in nonvolatile memory.

Note: To enable auto-tuning the lock parameter should be set to 1000.