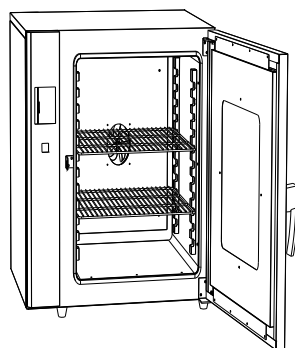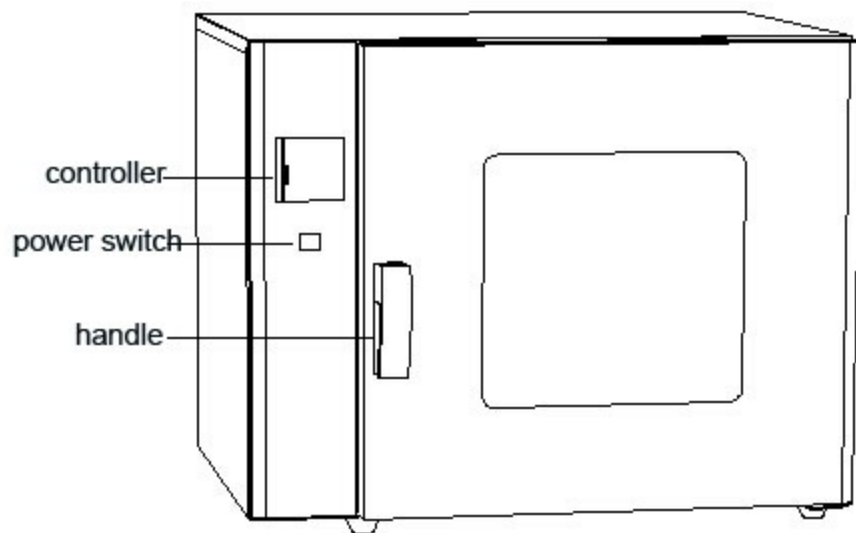**BioLAB**

Operation Manual

General Purpose Oven

Thank you for Choosing Biolab products. Please read the "Operating Instructions" and "Warranty" before operating this unit to assure proper operation.

Index

01 Product Pictures

controller

power switch

handle
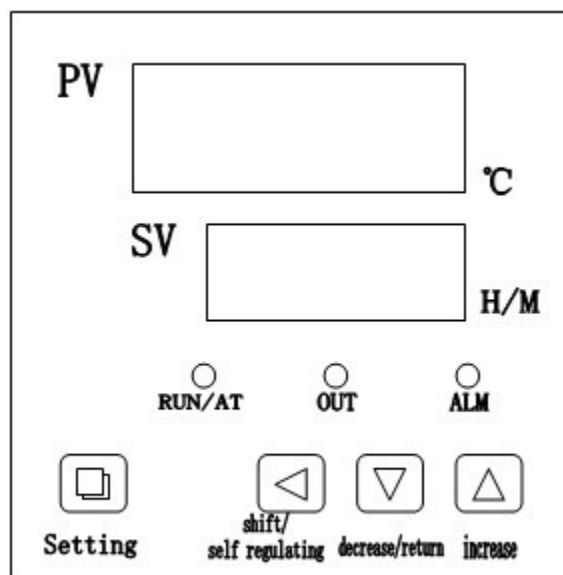
Use method
Make sure the switch is in the "off" position before power on, check whether it is broke circuit or leakage, connect power, turn on power switch.

02 Panel Display

Indicator

1."RUN/AT" indicator: it is on when running, it is out when over
flashing when auto-setting

2."OUT" indicator: it is on if there is heating output, or it is out

3. "ALM" indicator: it is on when over-temperature alarming, or it is out

4. WL and WH is invalid indicator

03 Operation and use method

1) When power is connected, the upper screen displays "InP", the lower screen displays "scale value", it will enter normal status after 3 seconds.
2) The reference and setting of temperature and soaking time.

A: If no timing function
Press "set" key, to access temperature setting mode, the lower screen displays "SP", the upper screen displays setting temperature (the units digit flashing first), then modify the needed setting value via shift, increase and decrease key; press "set" key again to log out setting mode, the modified setting value will be saved automatically. It will return to normal display model without pressing any key in one minute.

B: If with timing function
press "set" key, to access temperature setting mode, the lower screen displays "SP", the upper screen displays setting temperature (the units digit flashing first), then modify the needed setting value via shift, increase and decrease key ;press "set" key again, enter setting mode of soaking time, the lower screen displays "ST", the upper displays soaking time setting value (the units digit flashing first), press "set" key again to log out setting mode, the modified setting value will be saved automatically

When the soaking time is set to "0", it means without timing function, controller run continuously, the lower screen displays setting temperature; when setting value is not "0", the lower screen displays running time or setting temperature, the last decimal point is on, after measured temperature reach to setting temperature, timer start timing, the decimal point is flashing, time is up, running stops, the lower screen display "End", with continuous beeper, after running is over, long press "decrease /restart" key to reboot.

3) There is something wrong with sensor
If the upper screen displays "------" it means there is something wrong with sensor, temperature is outside of measured range or controller fails , controller will disconnect heating output automatically, and beeper keeps beeping and alarm indicator is on, please check the temperature sensor and connection.

When over-temperature alarming, beeper beeps, "ALM" alarm light is on; when lower-temperature alarming, beeper beeps, "ALM" alarm light is flashing, if change setting temperature result in over-temperature alarming , "ALM" alarm light is on, without beeper.
4) Press any key to mute
5) "Shift " key :press this key to modify setting value .
6) "Decrease" key: press this key to decrease setting value, long press this key to continuously decrease setting value

7) "Increase" key: press this key to increase setting value, long press this key to continuously increase setting value
8) in setting mode, without pressing any key within 1 min, it will return to normal mode automatically.

A) Auto-Setting
 Please proceed with auto-setting if the control effect of temperature is not ideal .if temperature soaring seriously when auto-setting, take this factor into consideration fully before user proceed with system auto-setting

   Under non-setting status, long press "shift/At" for 6 seconds to enter auto-setting , "RUN/AT" light flashing, this light stops flashing after auto-setting is over, controller will obtain a better PID parameters and the parameters will be saved automatically. during auto-setting, long press "shift/At" for 6 seconds to stop auto-setting .

   When auto-setting, if there is over-temperature, "ALM" alarm light is out, no beeper, but the heating alarm relay will be disconnected automatically. "set" key is unavailable during auto-setting. when auto-setting, no matter whether there is soaking-time setting, the lower screen always displays setting temperature.

B) Interior parameters
Long press "set" key for 3 seconds, the lower screen displays password prompt "Lc ", the upper screen displays password value, to modify the needed password value via increase, decrease and shift .press "set" key again, if the password value is incorrect, it will return to normal mode automatically .if the password value is correct, then enter setting status of interior parameter, press "set" key again to modify parameter in turn .press "set" key for 3 seconds to log out and the parameters will be saved.

04 Interior Parameter-1

| Parameter	Parameter name	Parameter function	(range) Factory default
Lc-	Password	When "Lc=3", check and modify parameter	0
ALH-	Over-temp. alarm	When test temperature > setting temperature, the alarm indicator is on, beeper beeps, disconnect heating output	(0.0～100.0℃) 20.0
ALL-	Lower-temp. alarm	When test temperature ＜ setting temperature, the alarm is on, beeper beeps, disconnect heating output	(0.0～100.0℃) 20.0
T-	Control cycle	Heating control cycle	(1～60seconds) note: 1
P-	Proportion	Time proportion adjustment	(1.0～scale) 35.0
I-	Integral time	Integral action adjustment	(1-1000seconds) 200
d-	Differential time	Differential action adjustment	(0～1000seconds) 200
Pb-	Zero adjustment	Modify error margins of sensor (low temperature) Pb=actual temp.–test temp.)	(-12.0～12.0℃) 0.0
PK-	Full scale adjustment	Modify error margins of sensor (high temperature) PK=1000*(actual temp.-test temp.) /test temp.	(-999～999) 0

Inter parameter -2

Parameter Code	Parameter	Instruction of Parameter	(Range) Factory Default Value
Lc-	Password	View and modify parameter when it shows "Lc=9"	0

ndA-	Temperature Alarm	0: Alarm triggered for upper deviation only 1: Alarm triggered for both upper&down deviation.	(0～1) 0
ndt-	Timer Setting	0: No timer function 1: With timer function. When it reaches set temperature (and begins to stay at constant temperature), it shows running time on down display 2: With timer function, it shows running time on down display	(0～2) 1
Hn-	Constant Temperature Timing	0: Count by minute；1: Count by hour	(0～1) 0
EH-	Should constant temperature control continues after timing is over	0: Cut off heat output after timing finishes 1: Constant temperature control continues after timing finishes	(0～1) 0
oPn-	Door Control Function	0: Disable the function of door open judgment 1: Enable the function of door open judgment	(0～1) 0
nP-	Maximum Power Output	Percentage of maximum heating power output	(0～100%) 100
Co-	Cut off Deviation of Heating Output	Cut off heat output when "detected temperature≥set temperature + Co	For Pt100 sensor: (0～100.0℃) 50.0 For Cu50 sensor: not available
SPL-	Minimum Temperature Setting	Minimum set temperature	For model PCD-C3000,(-50.0～0.0) For other model: (0.0～0.0)0.0

SPH-	Maximum Temperature Setting	°Maximum set temperature	For Pt100 sensor: (0 ~ 400.0) 300.0 For Cu50 sensor: (0~100.0)
Addr	Correspondence Address	Correspondence address of this equipment Refer to Notice.3	(1 ~ 32) 1

05 Wiring Layout
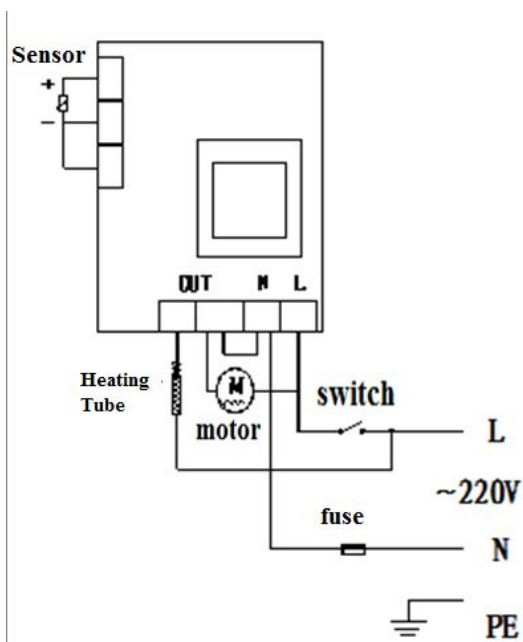
Notice

1. Samples should not be kept too closed to each other in order to avoid affecting air convection inside the chamber. Please make sure the equipment is correctly grounded so as to ensure safety.

2. Do not get water onto the observation windows when temperature is rising in order to avoid glass crack.

3. This drying oven is not explosion-proof product.

4. Do not put volatile and inflammable objects into the oven to avoid explosion

5. Based on different needs, user can unblock the air outlet at the upper back of the oven to escalate drying.

06 Repair and Maintenance

a. Regular Maintenance:

(1) It should always keep the equipment clean. Window glass should be cleaned with soft cotton fabric but should not be cleaned with corrosive chemical solvent to avoid chemical reaction or glass scratch.

(2) If the equipment is not being used for a long time, it should smear neutral oil or Vaseline onto galvanized parts to prevent corrosion. Cover the equipment with plastic dust cover. Keep it under a dry indoor environment to avoid moist.

b. Regular Repair:

If you operate according to our manual and breakdown happens, please follow below steps for trouble shooting. If problem cannot be solved, please contact our after-sales department. We will offer you help.

b. Regular Repair:

If you operate according to our manual and breakdown happens, please follow below steps for trouble shooting. If problem cannot be solved, please contact our after-sales department. We will offer you help.

a. Breakdown, Analysis and Solution

Breakdown	Analysis and Solution
1. No response after connecting to power and turn on power switch	＊For power supply failure. Please seek assistance from electrician ＊For case of heater burn out, please use multimeter with "Ohm" unit to test the resistance value of heater's two ends. If resistance value is 0 which means short-circuit happens to heating wires. In this case, switch could trip often. If resistance value is hundreds KOhm or infinity which means open circuit happens ＊Power switch blade is off ＊Power switch lights on, check the control circuit board and cables
2. Temperature fails to rise	＊Check if timing met set value. ★Many customers do not know about this function. When set timing is over then heater and fan will stop working so that temperature cannot rise. ＊Check if fan can work, if not(please use multimeter to test the voltage of fan pin and see whether it is with 220V), please contact us to mail you replacement. ＊Use a multimeter to check if there is output from the control panel. Please check it according to the drawing; (Drawings attached).
3. Fan fail to work	＊The result will be that heating can function but no circulation inside the interior chamber so that temperature rises slowly. Please contact us to replace the fan.
4. Broken Handle	＊Contact our company to replace the handle.
5.Differential between the temperature showing on controller display and the one showing on mercurial thermometer which is put inside the chamber	Precondition of troubleshooting: ＊The thermometer should be qualified by testing department before being used. ＊Where to put the thermometer: Please hang the thermometer in air inside the chamber's center. Thermometer should not be put on the shelf to detect temperature. ＊Please refer to above attached parameter instruction.
6. Temperature display fluctuates or stills. Or it shows abnormality	＊It identifies that there is something wrong about the temperature sensor. Our company will have it replaced.

like "————"	Remark: Sensor is with Pt100 platinum resistance, with 2 blue wires and 1 red wire.

Accessories

1. Warranty card, manual, quality certificate
2. 2 shelves

Technology parameter

Name Model	Inner chamber(mm)			Exterior size (mm)			Voltage (V)	Power (KW)	temp. °C	Fluctuation °C
	H	W	D	H	W	D				
BOGP-101	350	350	350	530	640	550	220	1.0	+5 ~ 250	±1%
BOGP-102	450	450	350	630	740	550		1.2		

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