BIOBASE®

Forced Air Drying Oven
BOV-V30/45/65/125/230/625F
User Manual

BIOBASE GROUP

Version 2020.07

Preface

Thank you for purchasing BIOBASE Drying Oven.

Using object

This manual is intended for the laboratory technologists operating this instrument. Before using the product, please carefully read this manual. Keep this manual in a safe place for easy reference. If you do not follow the precautions described in this manual, we will not guarantee the maintenance.

Statement

Jinan Biobase Biotech Co., Ltd (hereinafter referred to as "Biobase") has the final interpretation of this manual.

The Company shall be responsible for the safety, reliability and performance of the product only if all of the following requirements happened:

1.Assembly operations, expansion, re-adjustment, improvement and repair by the Company recognized professionals.

2.All repairs involving replacement parts and supporting the use of accessories, supplies are original of the Company (original) or approved by the Company.

3.The related electrical equipment is according to national standards and the use of the manual requirements.

4.Product operation is carried out according to the instruction manual.

Disclaimer

Biobase shall not be liable for any equipment failure or damage, or for any direct or indirect damage that may occur during the use of the equipment.

1.Malfunction or damage due to violation of the instructions, precautions, and intended use of this manual.

2.Malfunction or damage caused by repair or alteration of the other company.

3.Malfunction or damage caused by use instruments of other company at the same time.

4.Malfunction or damage caused by operating environment not corresponding to the specified operating environment (power conditions, installation environment, etc).

5.Malfunction or damage caused by natural disasters such as earthquakes and floods.

6.Malfunction or damage caused by the company unaware of the movement or transfer (transport) after installation.

Content

1. Installation and Operating Conditions

1.1. This equipment should be placed in a room with good ventilation, shading, and cool conditions. The equipment and walls must be more than 10 cm away. Do not place flammable or explosive materials around it.
1.2. When the equipment is used for the first time, there may be slight fumes and odors due to spray and rust-proof coating. This does not affect the use, it will disappear after one or two uses. Therefore, it is best to open the doors and windows for a while when using for the first time.
1.3. The power box should be in accordance with the specified voltage and be reliably grounded to ensure safe use.
1.4. Do not place excessively indoor objects. Space for air convection must be allowed to facilitate hot air circulation and discharge of humid exhaust gas.
1.5. When the door is opened or the item is put in for a long time, the temperature setting should be lowered or the power switch should be turned off for 5 to 10 minutes (depending on the length of the door opening time) to reduce the occurrence of temperature and avoid unnecessary loss.
1.6. In order to maintain the appearance of the equipment, please do not use acid or alkali and other corrosive materials to wipe the surface, the box can be cleaned regularly with a dry cloth.
1.7. The fuse box of the equipment is equipped with a fuse. If the equipment is not energized, first check whether the fuse tube is in good condition. Please cut off the power when checking and replacing the fuse tube. And replace the same type of fuse tube.
1.8. The oven doesn’t have explosion-proof function, do not put flammable and explosive substances in.
1.9. Please turn off the power after using.

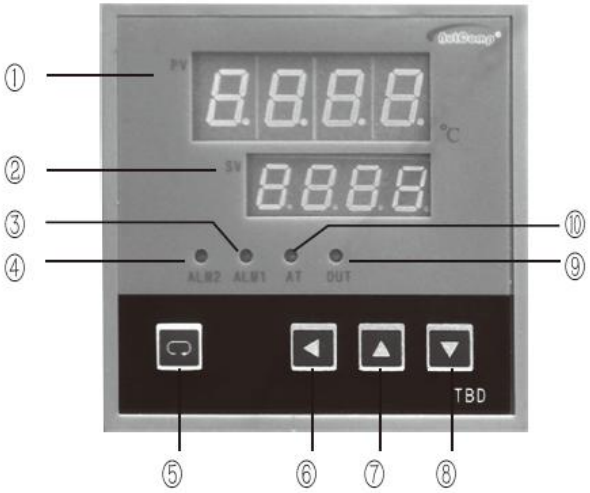
2. Product Structure

2.1. External material: cold-rolled steel with anti-bacteria powder coating.
2.2. Stainless steel inner chamber, round angle structure, adjustable shelves.
2.3. Double-layer glass observation window, adjustable airtight buckle lock.
2.4. PID microprocessor intelligent temperature controller.
2.5. Over-temperature protection.
2.6. Optional independent temperature protector

3. Technical Parameters

Model	BOV-V30F	BOV-V45F	BOV-V65F	BOV-V125F	BOV-V230F	BOV-V625F
Capacity	30L	45L	65L	125L	230L	625L
Temp. Range	RT+5~300℃					
Temp. Precision	0.1℃					
Temp. Fluctuation	±0.5℃					
Ambient Temp.	5~40℃					
Timing Range	1~9999min					
Shelves No.	2 pcs					3 pcs
Power Consumption	800W	1200W	1600W	2300W	3000W	5000W
Power Supply	220V±10%, 50/60Hz					380V/50HZ
Internal Size(W*D*H) mm	310*310*310	350*350*350	400*360*450	500*450*550	600*500*750	660*760*1250
External Size(W*D*H) mm	460*510*695	500*550*735	540*550*840	636*680*915	730*670*1220	895*925*1830
Packing Size (W*D*H) mm	550*570*765	620*585*800	640*640*905	730*720*1000	900*800*1350	1000*1080*2000
Gross Weight(kg)	51	56	61	71	105	160

4. Control Panel



1. Measured value display
2. Setting value display
3. Alarm 2 indicator
4. Alarm 1 indicator
5. Set key
6. Shift key,
7. Addend key
8. Reduction key
9. Main control output indicator
10. Auto tuning indicator

5. Instructions of Operation

The upper row of digital tubes displays the measured temperature, and the lower row displays the set temperature

Press the SET key shortly, the temperature setting state will be entered

The parameters can be corrected by the▼, ▲ keys, press the SET key to enter the time setting state

Adjust time by After the▼, ▲ keys, after confirm, return to normal display screen.

AT (temperature auto tuning)

It need to re-adjust the temperature if the temperature fluctuations is more than 5 degrees, or can't meet the requirements of the temperature.

For example:

After setting the required temperature of 100 degrees, press the button  5 seconds, AT indicator is on, then enter the auto tuning state. Can't open the door or pump, can't reset, can't shut off the power in this process. The meter will automatically calculate the heating rate. AT indicator will be off after 30 mins. the instrument will control the temperature according to new program and in order to achieve high precision temperature control.

Parameter list:

Code	Value range	Function	Factory value
SP	SPL~SPH	Temperature setting	Random
ST	0～9999min	Time setting	0
press set key over 5 seconds			
Lock	0~9999	Parameter lock	0
SC	-50.0~+50.0℃	Process value biasing	0℃
SCK	0.700~1.300	Process value sloping	1.000
Lock: ××××（But ask the manufacturer for）			
P	0.1~50.0℃	Proportional Band	5.0℃
I	1~400	Integral Time	40s
d	0~100	Derivative Time	10s
T	1~200	Control Period	20s(2s)
AL1	-20~+20℃	alarm value	5℃
ET	0~2	Function option the regular time	2
dP	0~1	Point changing	1
PT	1~30min	Print gap time	1min
Addr	0~32	This machine mail address	0
Pr	1~100	Upper limit constant temperature power percentages	20%
SPL	Measuring range lower limit ~SPH	Temperature setting value lower limit	Measuring range lower limit
SPH	SPL~ Measuring range upper limit	Temperature setting value upper limit	Measuring range upper limit

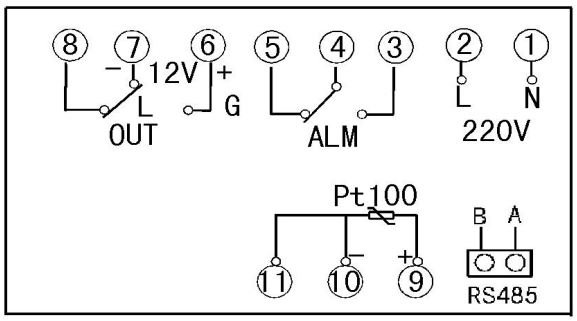
Description:

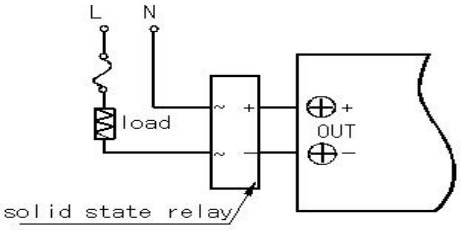
1) Through press ▲ ▼ or ＜ key, revise parameters rapidly， The necessaries being over affirms modification according to set key, Otherwise invalidate. Think that Lock is 0, Only when SC/ SCK is parametric may revise; Think that Lock is XXXX， Except SC /SCK, all parameters may revise.
2) SC is process value biasing, SCK is process value sloping. May amend the measurement error that cause from sensor to other arouses. Be in appearance when not having been amended (SC=0;SCK=1.000), While zero position error of appearance is bigger may adjust SC,SC= Standard value － Measure value; While full degree error of appearance is bigger may adjust

SCK,SCK= Standard value / Measure value.

3) P for setting proportional band. When take place regular oscillation of controlled temperature, the proportional band should be increased and if controlled temperature drifts irregularly we ought to decrease the proportional band.
4) I for setting the integral time. When the system takes place regular oscillation ought to I for setting proportional band. When take place regular oscillation of controlled temperature, the proportional band should be increased and if controlled temperature drifts irregularly we ought to decrease the proportional band. ncrease integral time and if the system controlled can not remove the static deviation in a long time ought to decrease the integral time.
5) D for setting the derivative time. Increasing the derivative time can decrease the overshoot of the system.
6) T is Control Period, Relay output ≮20s,SSR and thyristor output≮3s continuous output,1s.
7) AL1 is alarm value 1, Measure value giving an alarm after deflecting setting value ｜AL1｜℃, AL1 is set up giving an alarm for being to reach the end point at 0，Upper limit alarm for AL＞0, low Limit alarm for AL＜0.
8) At the regular time function option parameter ET is 0，No regular time function，Time sets up a menu concealing；ET is 1 or 2，Demonstrate time setting up menu ST. If ST is 0, Do not mind time then, ET is 1, After the electricity on the instrument, Reckon by time beginning, ET is 2, While the temperature reaches setting value start timing. Adopt countdown way at the regular time, Begin to reckon by time，the upper row displays the Remain in time value，Reckon by time being over, the upper row displays STOP，Run stoppage，Export a cutoff, Have intermittent buzz sound prompting at the same time, Push down any key but noise reduction. After press start/stop key over 3 seconds, Can start or stop procedure work.
9) dP is that the temperature is sure to change option , dP is 0 , temperature display has no point, dP is 1 , temperature display has point.
10) Pr is Upper limit constant temperature power percentages, Generally, The function big or preserving heat if systematic power allocation is prejudiced is very good, Pr value responds to small, Can prevent from rushing the temperature; Whereas Pr value responds to then big, Can improve litre of temperature speed. One system is different generally in different setting up under the temperature from P , I , D parameter that adjust reaches, Suggest setting up temperature adjusting parameter being able to reflect system inertia nearby in the room temperature, But be used for the high temperature litre of temperature is possibly slower time end, Effect adjusting Pr value now being ok to make system can reach very good controlling within entire range.

6. Wiring Diagram





7. Trouble Shooting

Common failures and Solutions:

Phenomena	Causation	Treatment Method
No power supply	a. poor plug contact or line broke	a. Connect the plug and line.
	b. Fuse protector is broken.	b. Change the fuse protector.
No temperature rising inside container	a. Low setting temperature	a. Readjust and set temperature
	b. Heater is broken.	b. Change the heater
	c. Temp. controller is broken	c. Change the temperature controller
	d. Temp. sensor is loose.	d. Screw up the sensor nut.
	e. Temp. sensor is broken	e. Change the temperature sensor.
No temperature rising alarm	a. Set temp. of Detached tem. limiter is low	a. Readjust the temperature 30℃ above setting temperature.
	b. Detached temp. limiter sensor is broken.	b. Change the detached temperature limiter sensor
Temperature cannot reach the setting point.	a. Exhaust port is fully opened	a. Shut off the exhaust port.
	b. The container is overfilled, no hot air convection.	b. Decrease amount of sample to improve convection condition.
The fan doesn't work.	The fan motor is broken	Stop work and check electric capacity and motor
Displaying-------	The sensor is broken	Change the sensor
Display STOP	Time-up	Press the program key for 3s to start

8. Warranty

8.1. Warranty is 12 months from EX-factory date (excluding consumable accessories).
8.2. Biobase would not be liable for any repair of damage caused by improper operation.
8.3. If the warranty has been expired, Biobase would still responsible for repair with relative charges.
8.4. Biobase would provide necessary technical data for maintenance companies or personnel trained by Biobase engineers.

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