Operation Manual

BIGP 200 series

General Purpose Incubator

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

Index

01 The applicability

The new desk-style constant temperature incubator box, which integrated the company's experience for many years, having the properties of high quality, reliability and safety, adopting the manner of air forcing convection with the blower fan, giving help to the scientific research and the production, and providing the most credible guarantees.

02 The technology parameters

Mode	BIGP-201	BIGP-202	BIGP-203	BIGP-204	BIGP-205	BIGP-206	BIGP-501	BIGP-502
Power Voltage	AC220-240V 50-60HZ							
Range of Controlling Temperature	RT (room temperature) +5°C -- 65°C							
Precision of Controlling Temperature	±0.5°C							
Output Power	250W	200W	300W	400W	600W	750W	1300W	1500W
Volume	16L	35L	50 L	80L	160L	270L	420L	620L
Working Size(mm)	250×260×250	340×320×326	415×360×355	500×400×400	500×500×650	600×600×750	600×580×1355	840×600×1355
Appearance Size(mm)	530×480×420	620×490×490	690×500×500	780×530×560	630×790×810	890×740×910	780×750×1880	980×800×1800

Note:

1) The technology indexes are measured under the condition of 25°C, the relative humidity less than 85% and the constant temperature working;
2) The measuring temperature in door should adopt the mercury thermometer with ±1°C, and the mercury sensing temperature head should be place on the geometry center of the workshop.
3) Properties and functions of the product
   a) Controlled by the microcomputer, having the alarming function when the temperature exceeding.
   b) Mirror faces stainless internal bladder, the heating manner with the electrothermal film, quickly heating.
   c) Adopting the silicon rubber gland strip there is the glass window on the inner side of the outer door for the convenience of watching. When opening the door of the box, the micro cycling heating will stop, having no the defections of overshoot.
   d) The blower fan has the function of automatically changing the rotating speed, which avoiding the static difference as well as delaying the working life.

03 Operating method

The procedures of operating:

1. The operator must carefully read the operating specification, and kwon and familiar with the incubator, and then make the operation.

2. When operating the equipment, the requirement to the surrounding temperature:

A. Surrounding temperature: 5 ~ 40°C;

B.There should be no the strong illumination, no violence causticity air, and the drought must be well and the relative humidity must be under 85%.

C. Using power: AC220±10%, 50-60Hz, should have the reliable power outlet to ensure that the common working and the safety.

3. After checking there is no damage in the transportation, the following operation procedures should be made:

A. After installing the equipment in position, if the table-board of the ground is not even, it should be leveled up.

B. Switching on the power: inserting the three cores power outlet into the socket, and adjusting the power switch on the console to the position of “ON”, at this time, the power indicating light will be light, the number displaying will be on the temperature controller (PV display is to measure the temperature, and the SV is to set the temperature), which indicating the equipment has been the working state. When the left AL2 yellow lamplight, it indicates the blower fan is been the high speed working state.

C. If the setting temperature is 37°C, the heating lamp will be light, coming into the process of heating and temperature rising, after some time, the appearing value approach to the setting temperature, the heating lamp will light and ran out suddenly, repeating some times. In the common conditions, after heating for 90min, the temperature controlling will come into the constant temperate state.

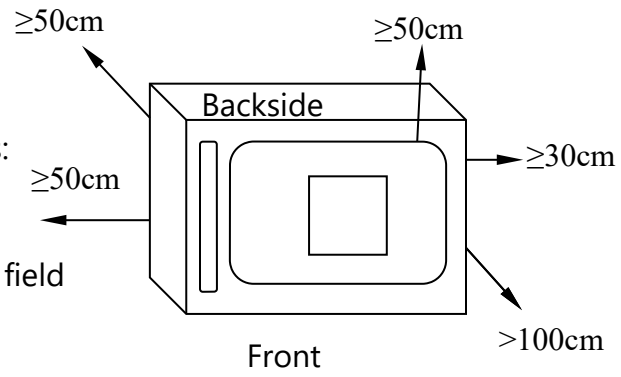
D. When the required temperature is lower, the two times setting manner could be adopted, if the required temperature is 37°C, the first time, the 35°C could be set, and when temperature overshoot begin dropping, the second setting could be 37°C, which could reduce or stop the temperature overshoot, and come into the constant temperature state as quickly.

E. When opening the glass door and sampling, the heater and the cycling blower fan will stop, and when closing the glass window, the heater and the blower fan begin running in gear, which avoid the opening doors heating and closing door overshoot.

F. During the incubating, not open the glass inner door, especially opening the inner door for long time to affect the temperature in the box, unless placing or taking the things in the box. If opening or closing inner door of the box for a long time, the temperature will fluctuate, and this is natural.

G. According to the requirement, choosing the incubating time, after the incubating, turn the power switch to the “OF”, if don’t take the things away, please not to open the door of box.

04 Operating method to the intelligent temperature controller



1. Preparations before operation

The product should be operated in the following conditions:

1.1 Ambient temperature: 5°C～40°C,
Relative humidity not bigger than 85%.

1.2 No intense vibration source and strong magnetic field nearby;

1.3 The product should be placed steadily and horizontally in a room without dust, direct sunshine or corrosive gas.

1.4 Sufficient space should be left around the product as shown in the right figure above and not be placed below the fire alarm.

1.5 For power voltage of the product, refer to technical indicators（Table 1）.

1.6 The product should be placed rationally with adjustment to the position and quantity of shelf unit, into which working articles are put. Sufficient space should be left up and down and all around. （＞100mm）The weight should be such as not to bend or deform the shelf unit..

2. Power on

2.1 Close the door of the box, the handle should be vertically downward;

2.2 Turn on the power and the indicator light is on;

2.3 The controller enters the working mode after about 4 seconds of self-checking procedure (Figure 1)

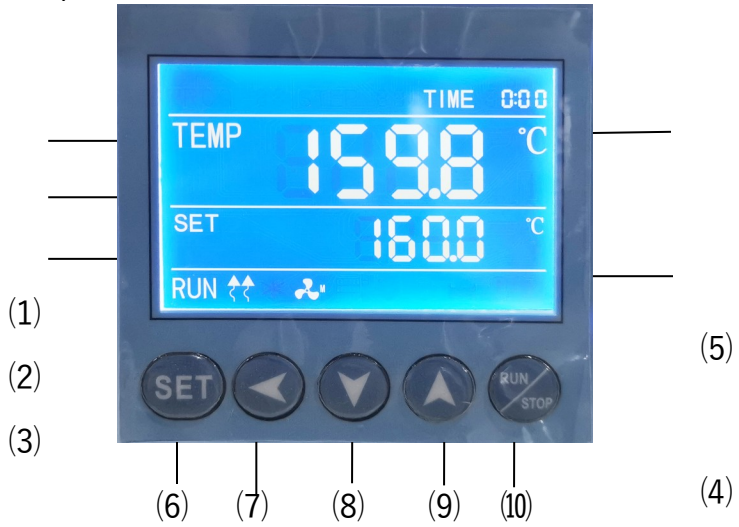


Figure 1

2.4 Indicator light description

1) TEMP area (PV): display the measured temperature;
2) SET area (SV): display the set temperature;
3) Heating lamp: the lamp is on when there is heating output;
4) Fan indicator light: on when there is fan output;
5) TIME: Time display window; display running time or parameter value;

2.5 Button description

1) SET button: used to modify the set value or enter the internal parameter setting, in the parameter setting state, long press the set button for more than 3 seconds to exit;
2) Shift key: used to shift the set value, internal parameters and view the ambient temperature;
3) Decrease key: used to modify the set value, various parameters, or start/stop auto-tuning;
4) Increase key: used to modify the set value, internal parameters, or view the remaining period (X)
5) RUN/STOP: Press for 3 seconds to run or stop the controller.

2.6 Check temperature control accuracy

1) Select a digital thermometer with a resolution of 0.1℃ that has passed the verification and is within the verification period as a standard and put it into the product work room, and ensure that the sensor temperature sensor is in the geometric center of the work room.
2) Choose a point within the temperature control range of the product and set the SV temperature control value. When the PV measurement value is equal to the set value, keep it at a constant temperature (1 ～ 2) hours or so (depending on the product specifications, the constant temperature time may vary) , Observe that the difference between the actual measured temperature value of the standard thermometer and the measured value displayed by the controller PV should be ≤±0.5℃.

3. Operation steps

1) Temperature setting: Press the "SET" button once, the value of the SET window flashes, indicating that the temperature can be set as required, and the required temperature can be set through the "increase", "decrease" and "shift" keys. Press the "SET" key again to return to the standard display mode.
2) Timing function: Press the "SET" button twice, when the time is set to 0, there is no timing function; when the time is set to 0, the controller has a timing function, press the "SET" button, the TIME value flashes, indicating the time can be set as required. Use the

"increase", "decrease" and "shift" keys to set the required time value. When the time is up, the TIME window displays the "END" buzzer, and you can press any key to silence it.

Note: ① Each time you modify a parameter, you need to press the "SET" key to confirm and the modification is effective.
② After setting all the parameters, press the "RUN/STOP" key and wait for about 3 seconds to start running.

4. Ways to improve the accuracy of temperature control

4.1 After the product has been used for a period of time, the temperature control accuracy should be checked according to the method 2.6, if it exceeds ±1℃, it can be corrected according to the following method:

4.1.1 Enter the parameter setting, find the " PK " symbol,

Press 按 PK = 4000× $\frac{(\text{Standardable value} - \text{Measured value PV})}{\text{Measured value PV}}$

After the formula is calculated, it shall be modified on the basis of the original PK value at the time of delivery (Note: One correction is not accurate, and the correction can be repeated until it meets).

5. Function parameter table

In the standard state, press the SET key and the shift key at the same time for more than 3 seconds, the LCD screen displays the LK code, and you can enter the password setting level interface.

(1) When LK is displayed in the output area of the LCD screen, press the plus or minus key or the shift key to make LK=0000, and press the SET key to enter the user parameter level setting;

Sheet 5

Symbol	Name	Setting range	Description	Factory set value
Pn	Work group in operation	0～8	For program control only. To set up the work group for operation of meters. When GP is set as 8, Group 8 is for fixed value control.	Optional
Cy	Number of cycle in a period	0～99	Special parameter for program control. When CY is 0, the meter will run between the work group all the time. When CY is not 0, the meter will shut down automatically after CY in the group.	Optional
dy	Appointment boot selection	0-99：:59	0: No appointment; for other values, after pressing the run key to start, it will automatically delay the dy time and then start the machine.	
ut	UV time	0-200 minute	Turn off the UV lamp after ut time, ut=0, turn off the UV lamp manually	Optional
uS	UV switch	0-1	0: Turn off the UV light 1: Turn on the UV light	Optional

(2) When LK is displayed in the output area of the LCD screen, set LK=0003, and press the SET key to enter the equipment manufacturer's parameter level setting;
The parameter hierarchy menu of the equipment manufacturer is as follows:

Sheet 6

Symbol	Name	Setting range	Description	Factory set value
tM	Setup of maxi temperature permissible by the instrument	full range	Stop heating beyond maxi temperature and give alarm	
Po	Boot mode	0～2	** Expression is faulty **when PO =0, after open the power, the controller in a stopped state, by long press star/stop key is up and running ** Expression is faulty **when PO =1, after open the power, the controller will be running; ** Expression is faulty **when PO =2, running from last power began to run.	
AL	Setup of alarm	0～100.0	When the temperature exceeds the value of SP+AL, the alarm light is on and the alarm is output (with HOLD function).	
Pb	Zero adjustment (intercept)	-100.0～100.0	When the zero error of the instrument is greater and the full scale error is smaller, the value should be adjusted. As a rule with Pt100 the value is seldom adjusted	
PK	Adjustment of full scale (slope)	-1000～1000 S	When the zero error of the instrument is smaller and the full scale error is greater, the value should be adjusted. PK=4000 × (specified value－actual display value)/actual display value and as a rule with Pt100 the value is adjusted first.	
PA	Onboard room temperature sensor correction	-30-30	When there is an error between the on-board room temperature sensor and the actual situation, adjust the value	

2b	The second zero correction	-100-100	When the second channel zero error is large and the full scale error is small, adjust this value. Generally, Pt100 rarely adjusts this value.	
2K	Second channel full scale adjustment	-1000～1000	When the zero error of the second channel is small and the full-scale error is large, adjust the value. PK=4000×(mercury thermometer value-display value)/display value, generally Pt100 adjust this value first.	

※The products have been strictly tested before leaving the factory. When the technical indicators meet the requirements and work normally, no correction is generally required.

05 Precautions and maintenance

1. The outer shell of the incubator box must be grounding in effect to ensure the safety.
2. The incubator box should be placed indoor with good draught, and there should be not the tinder and the easily bursting things near it.
3. The incubator box has no the device defending exploding, and the tinder and the easily bursting things should not be placed in it.
4. The things placed in the box should not be over crowded, and some space must be remained for the convenience of the air cycling.
5. The outer and inner of the box should be clear. If there is long time not using, the neutrality grease or the Vaseline should be brushed on the electroplated parts to preventing from rusting, the plastic anti air cover should be placed on the box, and place the incubator box in the dry room to avoid hurting the temperature controlling instruments for the humidity.
6. If the relative humidity in the incubator box is not enough when incubating, a water dish could be placed in it, and the water will vaporize naturally, the relative humidity will get 90%.
7. In summer, the surrounding temperature is relative high, when the setting temperature is lower than 40 °C, the air condition should be adopted to drop the surrounding

temperature to remain 25°C ~ 28°C, to avoid the temperature losing controlling and producing the static difference.

8. The instrument should not be used in the condition of the high voltage, huge current, strong magnetic field to avoid interrupting the temperature controller and electric shocking.
9. When plating the parts and the surface painting, should remain clean, if not using for a long time, the neutrality grease or the Vaseline should be brushed on the electroplated parts to preventing from rusting, the plastic anti air cover should be placed on the box, and place the incubator box in the dry room to avoid hurting the temperature controlling instruments for the humidity.

06 Trouble removal

S.N.	Failure	Reason for presuming	The handing ways for failure
1	No power when starting	The power outlet has no current or badly connecting	Checking and repairing
		Coming line interrupting of power.	Changing it
		Switch of the power doesn't open or run	Open (closing) the switch, changing it
		Not installing the cartridge fuse or burn out	Installing the right cartridge fuse, and checking the reason, then starting after repairing
2	PV screen displaying….	The instrument or the sensor Pt100 does not work	Changing it, Pt100=0°C ,it is 100 Ω
3	The temperature not rising or after at some degree, not ring, but dropping	The setting temperature is lower the RT (surrounding temperature)	Resetting SV≥RT+5 °C
		The timing of the instrument booting T≠0	Setting T1=0
		The inner glass window is closed, but not closing the switch of the door	Adjusting the inner door's locking
		The "heating light" temperature controller is on	The controlled silicon or the integrated piece does not work, changing it
		There is voltage between two sides of the heating tube	The connector of the heating tube is hurt or dropped.

		When over 60 °C, temperature suddenly not rising	The heat protection of the temperature relay, after nature cooling, it could restore.
4	Big difference of the displaying and actual temperature		Refer to the specification, and repair it.
5	Producing the static difference	Displaying temperature > setting temperature	Reducing the RT temperature, and modifying the "OUT-",
		Displaying temperature < setting temperature	Increasing the "OUT-"
		Blower fun does not run	Repairing it
		The sensor (Pt100) connects not well	Connecting it once more.
7	The noise of the motor is big	The vane of blower fan touching the wind way board	Placing the gasket to increasing the height.
		The motor is blocked or no grease	Change it
6	Temperature could not be controlled	The heating light of temperature controller is on and not off	Changing the temperature controller
		When heating light of temperature controller if off, but the temperature is still rising	Changing the dual controlled silicon BTA16

07 Packaging list

S.N.	Class	Name	Unit	Amount	Remark
1	File	Operating specification	Set	1	
2	File	Packing list	Set	1	
3	Spare parts	Core for the fusible cutout	piece	2	

The things listed in this list are consistent with practicality. Packing operator: 2

BIOLAB SCIENTIFIC LTD.
3660 Midland Avenue, Suite 300, Toronto, Ontario M1V 0B8 Canada
Email: contact@biolabscientific.com Tel: +1 707 533 1445
Website: www.biolabscientific.com