Operation Manual

BCEV-101

Environmental Chamber

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

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Please read this manual carefully before you use this equipment, so that, you can operate this equipment more expertly.

After you read this manual, please keep it properly, and read next time.

01 Using Areas

This type is widely used in Science research institutes, Universities, Laboratories and Productive enterprises.

The test principle is simulating temperature and humidity test environments, the specimens will be tested in the climatic environments.

Compared with other brand type, there are followings more advantages of **BCEV-101**:

- Observation glass door
- Higher test precision
- Easy to operate
- Using life is more longer

02 Main Specifications

Model	**BCEV-101**
Working Room Size	370×270×500mm (W×D×H)
Temperature Range	0℃ ~ +65℃
Humidity Range	50% to 95%RH
Internal Materials	SUS304 stainless steel
External Materials	High quality A3 steel plate
Observation window	✓
Forced Air Circulation	✓
Test shelf	Stainless steel plate ×2 pcs
Max Noise	＜65dB
Power supply	220V / 50Hz / Single phase Vietnam Plug type A / B / C
Power	500W

The features of structure:

- External material is used high quality A3 steel plate, the color of surface is sprayed with static technology. So it can avoid rusting and corrosion.
- Internal material is used high quality SUS304 stainless steel, the eight corners were designed to roundness. The surface of working room is smooth, and easy to be cleaned.
- The heat insulating material is superfine glass fiber cotton. This material has perfect insulating effect. So the test result can not be influenced by the environment temperature.
- There is the observation window on the door, users can view the test conditions of specimens conveniently. The material of window is double-layer tempered glass.
- The heat-resistance rubber sealing ring was installed in the edge of observation window, the temperature of working room is more accurate.
- In order to ensure the temperature fluctuation more stability, the heater was installed in the outside of working room. And users can clean the working room more conveniently.
- The temperature is controlled by micro computer technology. The auto-tuning function is realized by PID controlling. The temperature values are indicated by four digits LED window.

03 Installation Conditions

- When it is moved, users can not push on the window and bump with other hard objects.
- The floor of installation site should be level and stable.
- This machine can not be installed at strong sunshine, high temperature and high humidity environments.
- This machine should be kept away from the electromagnetic interference sources. The ground wire should be connected with ground.
- When users place the specimens into working room, the specimens can not be touched the internal wall of stainless steel.
- Before users connect the power cords with external power source, users should examine that, whether external power source is matching or not. You can know the power standard of this oven by above Main specifications.

Usage

1. Open the door and need the processing article to put the plank into the box up, close the door.

2. Connect power supply, insert the power supply plug into the AC outlet, the power switch of the front-panel place in the position of "open", the gauge appears the numeral manifestation at this time, meaning the equipment's enters work appearance.

3. Pass the operation temperature controller, you must set the temperature inside the box.

4. The instrument begins to work, temperature inside the box attains initial value gradually, time through the dry processing need after, handle a work completion.

5. Close power supply, need temperature inside the box to open to put the spirit valve after near to the environment temperature, relieve vacuum inside the box. Open the door, take out article.

04 Instrument Panel

1.Cycle&section button: Pressing the button can switch displaying the cycle or section under the current running status. It enters the state of cycle setting when pressing the button for 2s long, and it quits for another 2s.

2. Set&demand button: Press the button to the demand status, it can search the section, set time, set temperature and set humidity under the current running state, and it withdraw if re-pressing. It enters the section selecting state by pressing the button for 2s long. Press the button after selecting the section, it enters the section setting state, then press another 2s it quits the state. (When the cycle is set as 0 and the first period of time is 0 as well, then it will run the first segment of the program eternally.)

3. Descend button: When under the state of setting and internal parameter setting, the set parameter reduce one unit interval by pressing the button; if press long, the set parameter will reduce in succession.

4. Raise button: When under the state of setting and internal parameter setting, the set parameter will raise one unit interval; if press long, the parameter will raise in succession.

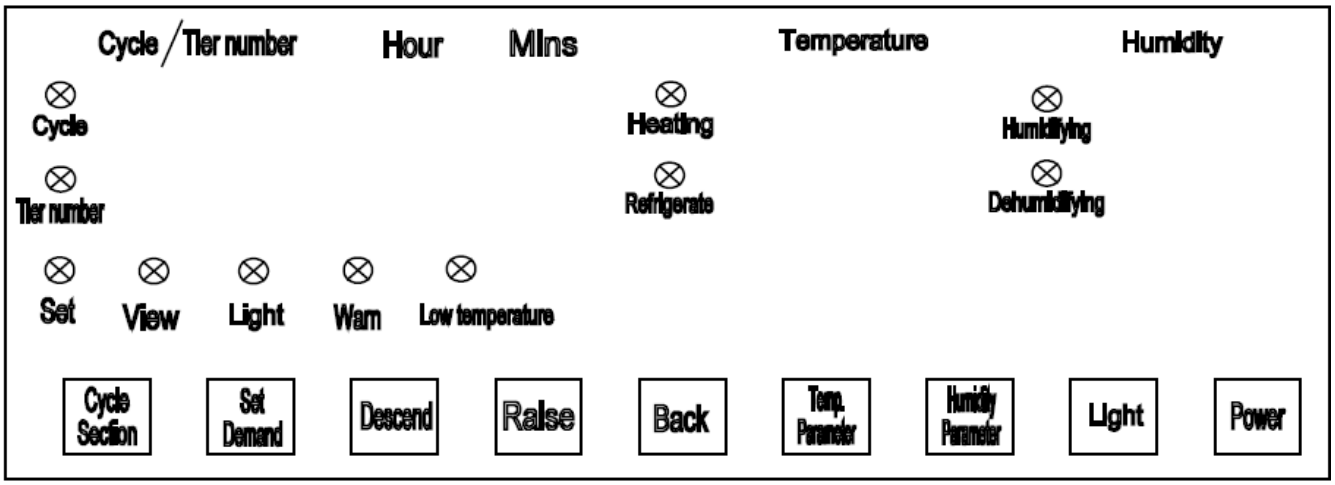
5. Back button: When in the state of every segment of the parameter set, it goes back to the previous parameter by pressing the button (it can only switch the parameter in the same section); when in the state of internal parameter set, it goes back to the previous parameter by pressing the button even to the first parameter. If the buzzer warning, it can be muted by pressing the button. Press 4s long under the state of ceasing, the controller restarts form the first section.

6. Temperature parameter setting button: Press the button 2s long, it enters the state of temperature parameter setting, it can set the every internal parameter by pressing the button; it withdraws by pressing 2s long.

7. Humidity parameter setting button: It enters the humidity parameter setting state by pressing the button 2s long; it can set the every internal parameter by the button, and it withdraws by another 2s.

8. Lighting button: It outputs the control delay by pressing the button.

9. Power button: The button of the switch control for the controller.
Under the every set state, if there is no operation during 30s, the program will withdraw the normal working state automatically.



05 Parameter Instructions

(1) The parameter setting of every section:

Press the demand button for 2s long, it enters the state of section selecting, the window of cycle displays "cH_ _". Select the needed tier number, then goes into the state of every parameter selecting by pressing the button. The range of the parameter is as below:

Hour: 0~99 hr
Minute: 0~59 min
Temperature: 0 ~ 60℃
Humidity: 0 ~ 99%RH

(2)Temperature parameter setting:

Enter the internal parameter setting state by pressing the temperature setting button for 2s, enter password LC=3. Under the state of internal parameter setting, it withdraws by re-pressing for 2s. The code of the parameter is as follows:

Parameter indicator	Name	Instruction of the function	Range (Factory setting)
AL	Alarming setting	When temperature is beyond SP+AL, the ALM indicator turn on. The buzzer sounds and the heating power turn off.	(0.0 ~ 60.0) 3. 0**℃**
ct	Refrigeration control Time delayed	The spacing interval of the refrigeration relay output must exceed ct.	(0.0 ~ 10.0Min) 3Min

Pb	Zero point adjust (intersection)	When the zero error comparatively smaller and the full point error comparatively larger, to update this value should be needed. Ordinary for Pt100,updating this value is rarely needed.	(-9.9~9.9) 0.0℃
PK	Full point adjust (intercept)	When the zero error comparatively larger and the full point error also comparatively larger, to update this value should be needed. PK=1000× (setting value –actual value) /actual value. For Pt100 adjusting this value is need at first time.	(-999 ~ 999) 0
rP	"rT+5"function	rP equal to the current room temperature. If the current setting temperature SP<=rP+5℃,then the refrigeration relay will always output.	0.0 ~ 60.0 (20.0)

(3) Humidity parameter setting:

Enter the internal parameter setting state by pressing the button for 2s, enter password LC=3. Under the internal parameter setting state, it withdraws by re-pressing the button for 2s. The range of the code is as follows:

Parameter indicator	Name	Instruction of the function	Range (Factory setting)
P2	Proportional band	Adjustment of proportional function. The larger of P2 the less influence of proportional function, and less of the system gain which only effect humidifying. When in humid tropical condition, it can reduce the value of P properly, P=3~5%RH for instance.	0 ~ 99 (5)%RH
cS	Return difference of dehumidity	When the temperature is higher than (set value+cS)%RH, and the delay is longer than ct, the compressor has dehumidity output. It only takes effect when SP>rP+5℃.	0 ~ 99 (5) %RH
dS	Shut of dehumitity	When the humidity is lower than (set value+dS)%RH, close the dehumidity output, the dehumidity indicator turns off. It only takes effect when SP>rP+5℃.	-5 ~ 5 (1) %RH

rc	Dehumidity temperature Compensation factor	It is to compensate of temperature reduce when dehumidity, and it relates to the system. It can be set as factorysetting parameter. And it only takes effect when SP>rP+5℃.	0.0 ~ 60.0 (2.0)
rt	Adjustment of humidity sensor	It is to adjust the difference caused by sensor measurement. Actual measure value= The measured temperature+rt	-30 ~ 30 (0) %RH
AS	Low temperature proction	When the measured temperature is lower than AS, close the function of humidity and dehumidity. It can carry out mono-temperature control.	0 ~ 60.0 (10.0) ℃

The operating procedure for customer

Example: The equipment needs 10 working cycle time, every cycle time has 2 sections. The first section needs 12 working hours, the temperature is in control of 30℃ and the humidity is in control of 60%RH; the second section needs 12 working hours, the temperature is in control of 10℃ and the humidity is in control of 50%RH.

Answer: Press the cycle button for 2s long and enter the cycle setting state, the window of cycle displaying flicker. The cycle time can be adjusted as “10” through the button of “raise” or “descend”, and it withdraws by pressing the button long. Then press the set & hold button for 2s and enter the section selecting state, the light of set light. The window of cycle displays “cH”, the window of hour flickers, the section can be set as “2” by pressing the button of “raise” or “descend”. Continue to press the set & demand button, it can enter the adjusting state of every corresponding parameter. The window of cycle displays the first section “01”, the hour window flickers and displays the set time of the current section. The first segment of time can be set as 12 hours through the button of “raise” or “descend”, then press the set & demand button, the minute window flickers and the time is set as 0min. Press the set & demand button, the temperature window flickers, adjust the temperature of first section to30℃; re-press the set & demand button, the temperature window flickers, adjust the temperature of first section to 60%RH; continue to press the button and enter the second section of parameter setting, set the second section of time as 12 hours like above mentioned, the minute is 0, the temperature is 10℃, the humidity is 50%RH. Press the set & demand button after the temperature of the second section is set, and then turn back to the set first section of parameter. It can be withdrew by pressing the set & demand button for 2s.

The option of control parameter: The controller can select the function of “rT+5”according

to the value of rP (when the temperature is lower than the environmental temperature +5℃, have the compressor running). If the environmental temperature is 25℃, the set temperature is 30℃, then the compressor runs. When using, the user should enter the correct current interior temperature.

The controller enter the running status, the blower outputs, the indicator lighting, the controller runs under the parameter set by the user. When operating, the window of cycle displays the accumulated running time, the calculating of time is counted down, the hour window displays hour, the minute window displays minute, and it also has second indicating. The temperature window displays the current measured PV, the light window displays the current intensity of illumination output. The program switches automatically to the second section of working status after it ends running the first segment of time. The running cycle add one when running ends, and it circles in turns. When the running cycle is up to the set cycle, the program will end automatically, the temperature window displays “End”, the buzzer sounds for 30s, the indicator turns off, and all the output closes. Now can press “Back” button for 4s to restart, or switch power button, then the controller is shut down.

06 Recovery Processing

When the temperature sensor goes wrong, and the measured temperature is higher than 60℃ or incomplete circuit, the upper of temperature window displays “□□□”. When the temperature is lower than -5℃, the bottom of temperature window displays “□□□”.If the humidity sensor goes wrong, the upper of the window displays “□□”, or the bottom displays“□□”. When observing the above mentioned situation, please check the connection carefully. If nothing goes wrong with the connection, please replace the sensor.

(!) Hint specially

1) Products are generally tested through strict tests. The environment temperature outran feat scope, will cause the temperature manifestation value and actual temperature error margin inside the box, if outrun the technique index sign scope of, can revise, concretely the step according to the temperature controller operating instructions to press to need to carry on correction.
2) Instrument is under the normal work appearance, if open a box of time to lead to grow, after closing a box of door temporarily temperature inside the box is some fluctuations,

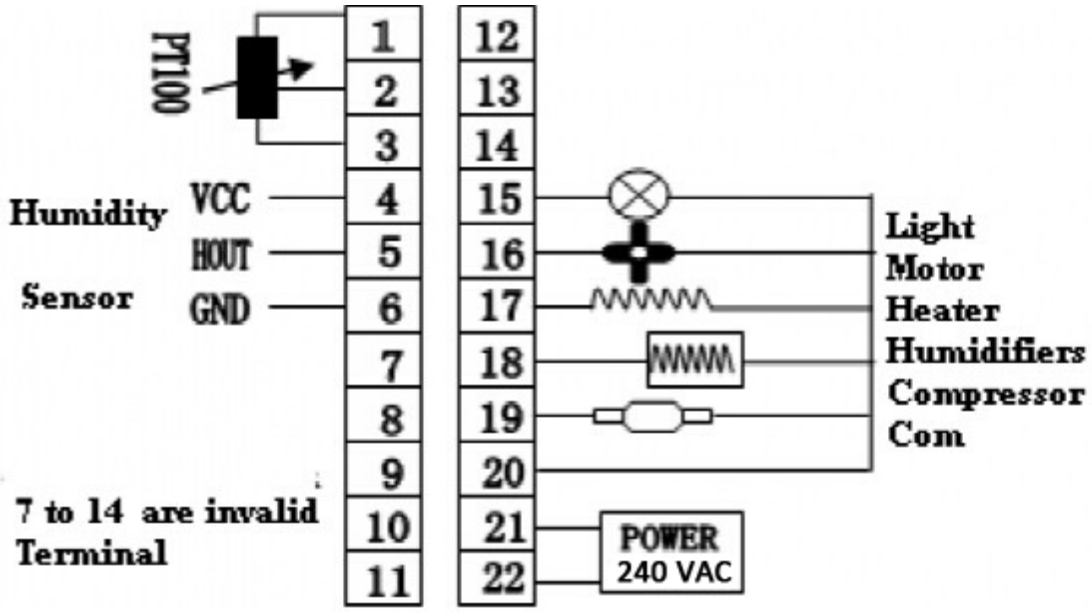
this is the normal phenomenon.

3) Attention of testing: The thermometer that test inside the box use wants to use 1.0 mercury thermometer of the accuracies, and put mercury to the center in the box.

Regulation

1) Chemistry product of the combustibility and volatility isn't put absolutely into the box.
2) If appear circumstances, such as abnormality, smell and smoke...etc. during the period of use, please turn off power immediately, the customer shouldn't absolutely to fix blindly, should notify our company, it is looked into to fix by the professional personnel.
3) The box inner part and the equipment's surface want to usually wipe to sweep by keep, the clarity of the increment glass. Don't use sour, the alkali or other causticity aqua to wipe outward appearance noodles.
4) The equipment's don't work for long-term, it should be pulled out power cable in order to prevent the equipment's hurt a person. Should press the usage condition to circulate periodically (general the quarterly degree) for 2-3 days also to banish the dampness of the electric appliances part, avoid a relevant spare part of damage.

07 Electrical Circuit Diagram



Accessories:

Item	Name	Quantity
1	User manual	1 pc
2	Test shelf	2 pcs
3	Fuse	2 pcs

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