

LABdex



Cooling Incubator

LX502CI User Manual

Index

Sr.no	Title	Page no
1.	Safety Measures	2
2.	Introduction	4
3.	Features	4
4.	Specifications	5
5.	Applications	6
6.	Instrument Introduction	7
7.	Operations	10
8.	Troubleshooting	12
9.	Accessories	13

1. Safety Measures

1.1 Must prohibit items

The following items could cause serious injury or death

- Do not put volatile flammable and explosive stuff in the machine, otherwise, it could cause an explosion or fire.
- Do not place the device exposed to rain, moisture, or splashing, as this may result in electrical leakage, short circuit, or electric shock.
- Non-professional technicians must not disassemble, repair, or modify the equipment, otherwise it may cause fire or electric shock to personnel due to improper operation.
- Do not damage the power plug or the power cord. If it is damaged, the power cord must be replaced. Otherwise, it may cause fire or electric shock.

1.2 Must confirm items

The following items may cause personal injury, equipment damage, and related property damage

- This equipment should be installed on firm ground, otherwise could cause staff injury because of the drop-down of the equipment.
- Please use the special power supply that is indicated on the nameplate. This equipment must be installed on the ground, otherwise could cause electric shock and fire because of electric leakage.
- Do not touch the power plug with wet hands, otherwise there is a risk of electric shock.
- Before any repair or maintenance, the power must be disconnected to prevent electrical shock or injury.
- Wear gloves when repairing and maintaining the equipment to prevent injury.
- Do not damage the power cord or use the non-specified power cord, do not connect the power cord in the middle section and use long soft wire, otherwise it may lead to electric shock or fire.
- Do not remove the power plug during the operation, do not pull the power cord by pulling the power cord.
- If you find that the equipment is running abnormally, unplug the power plug immediately and stop the equipment.

1.3 Necessary Consideration

The following items could cause staff injury or equipment

- Adjust the feet so that the equipment is installed horizontally, ensuring all four feet are in full contact with the support surface. There should be no gaps or instability.
- Use a dedicated power outlet with a grounding wire. Ensure the power plug is securely connected when in use.
- Unplug the power cord before removing the equipment.
- Be cautious when touching the inner wall of the door, as if it may be hot.
- Only professional technicians should disassemble the machine. Repairs and part replacements should be carried out by qualified personnel.
- Internal parameters should be set only by designated management personnel to avoid disrupting the controller program's function due to incorrect settings.
- Ensure the equipment is installed at least 20 cm away from walls and other objects.
- Open and close the door gently to avoid causing damage to the equipment.
- The equipment's surface should not encounter volatile chemicals such as gasoline or thinner.

2. Introduction

Cooling Incubator LX502CI is multi-function and multi-purpose device that comes with a microprocessor controller system and LCD colour touchscreen display. The inner chamber is made up of mirror stainless steel and the outer chamber is made up of Cold rolling steel electrostatic spraying exterior. Designed with over temperature alarm and digital temperature limiter function. It is suitable for several constant temperature experiments and environmental tests at -10~65 °C, water analysis, microbe culture of BOD/ bacteria, plant breeding, sample preservation so on.

3. Features

- It has an LCD color touchscreen display
- Double evaporator switching defrosting system
- Equipped with R134a and air-cooled hermetic compressor
- It has a forced air convection function
- Over temperature alarm, and digital temperature limiter function
- Designed with a double door, an inner door is made up of high-quality glass for observation of samples, and an outer door is made up of with magnetic strip with good sealing

Cooling Incubator LX502CI

4. Specifications

Model No.	LX502CI
Volume	250 L
Load per rack	15 kg
Shelf number	18
Shelf space	35 mm
Inner chamber dimensions (W x L x H)	600 x 500 x 840 mm
Cycle mode	Forced convection
Temp. range	-10~65°C
Temp. resolution ratio	0.1°C
Temp. motion	High temp.: ±0.5°C Low temp.: ±1°C
Temp. uniformity	±1°C
Inner chamber	Mirror stainless steel
Outer shell	Cold rolling steel electrostatic spraying exterior
Insulation layer	Polyurethane
Heater	Stainless steel heating tube
Compressor	Air cooled hermetic compressor
Cryogen	R134a
Defrost structure	Double evaporator switching defrosting
Test hole	43 mm
Controlled external power supply	Universal socket (one) Built in waterproof socket(one)
Temp. control mode	Color screen LCD program
Temp. setting mode	Touch button setting or Touch screen type
Timer	0~99.9h×30 Segment
Operation function	Program operation
Sensor	PT100
Safety device	Over temperature alarm, Digital temperature limiter

Cooling Incubator LX502CI

Power rating	1.2 kW
Power supply current rating	AC220V / 5.5 A
Exterior dimensions (W x L x H)	760 x 760 x 1530 mm
Net weight	100 kg
Packing dimensions	880 x 870 x 1700 mm
Gross weight	140kg

5. Applications

Used for incubation of microorganisms, preservation of samples, determination of enzymatic activities temperature control, plant breeding and environmental tests.

6. Instrument Introduction

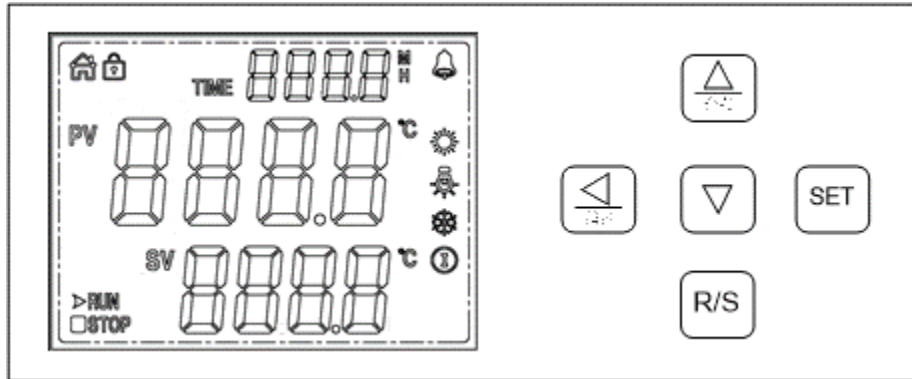


Figure-1

1. 【🏠】 : Lighting when normal
2. 【RUN】 : Lighting when controller working
3. 【STOP】 : Lighting when controller stopped
4. 【🔔】 : Lighting when upper temp. Deviation alarm or Abnormal temperature measurement. Twinkle when lower deviation alarm
5. 【☀️】 : Lighting when power output.
6. 【⚙️】 : Lighting when cooling output Twinkle when delay start
7. 【🌀】 : Lighting when illumination output

6.1 Description

1) Turn on the power: PV shows “Sr6P”, SV shows “v03”, and enters the normal display state after 3 seconds.

2) Parameter: Press Set Key for 3 seconds, show Lc on the PV Line Set Lc=1 --- PV Show Cc(cycle),

▲

SV show the value, Press ▲ ▼ to change the value; Press Set Key, PV show Sen

▲

(Segment) SV shows the Value, Press ▲ ▼ to change the value; Press Set Key for 3 seconds, save the change, and log out.

3) Setting Temperature and Timer:

Cc=1, Sen=1

Press the Set Key to set the Temp.

Press the Set Key again, to set the timer

SEn#1

Press the Set Key, to set the Temp and Timer of the first segment

Press the Set Key for 3 seconds, save, and log out.

Cooling Incubator LX502CI

4) Parameter table

Parameter	Name	Describe	Factory Default
Lc	Password	"Lc=3"	0
ALH	Upper deviation over temperature alarm.	Measurements Temp > SettingTemp.+ ALH	(0~50.0°C)5.0
ALL	Lower deviation over temperature alarm.	Measurements Temp. <Setting Temp.+ ALL Note: invalid when ALL=0	(-50.0~0°C)0
Ct	Compressor start delay.	Compressor start-up delay protection time, the minimum time interval between stop and restart ofthe compressor.	(0~600 seconds) 180
FIL	Filter coefficient.	Temperature measurements filter coefficients.	(1~200) 50
Lt	Floodlightoff-delay.	When the light is turned on, it will automatically close after delaying the LT time. If the "Lt = 0" delay is invalid, the illumination lamp must be manually turned off.	(0~30 minutes)2
Cnd	Compressor Start-stop mode.	Only the compressor intermittently working can be effective! 0: Automatic start-stop compressor (judged automatically by controller) 1: Manual start-stop compressor(using up and DN values)	(0~1)0
uP	Compressor boot threshold.	Only the compressor works intermittently and "Cnd = 1" iseffective!	(-10.0~10.0°C) 0.4
dn	Compressorclosing threshold	If the "temperature measurement value (> temperature setting value +uP) and the starting delay time of the compressor arrive, start the compressor. If "temperature measurement value < temperature setting value + dn", close the compressor.	(-10.0°C~uP)0.4
P	Proportionalband	Time-proportional affect regulation	(0.1~80.0°C) 10.0
I	Integration time	Integral action regulation	(1~2000S) 500
d	Differential time	Differential action regulation.	(0~1000S) 200
T	Cycle	Heating control cycle.	(1~60S) 5
Pb	Correction of Measuring Temp	It is usually used to correct errors in cryogenic measurements.	(-50.0~50.0°C)0

Cooling Incubator LX502CI

	Deviation	Lead = Actual Temperature -Instrument Measurements	
PL	Correction of Measuring Temp Slope	usually used to correct errors in high-temperature measurement. PL= 1000* (Actual Temperature Value - Instrument Measured Value)Instrument Measured Value	(-999~999)0
Pon	Power failure protection	When this function is enabled, the controller will be able to continue running with the parameters set before it is powered on again after power failure.	(0 ~ 1)1
Adr	Address	communication address.	(1 ~ 32) 1

6.2 Button Function

- 1) **【▲】**: “INC” button. In the setting state, click this button to increase the set value. If users keep pressing this button, the value will increase continuously.
- 2) **【▼/SET】**: “DEC” button. In the setting state, click this button to reduce the set value. If users keep pressing this button, the value will reduce continuously. It has the setting function when modifying internal parameters.

7. Operations

Method Of Using

When the controller is switched on, the display window shows the version number for 2 seconds, then it starts running.

1) Alarm temperature setting

Under the normal state, the window displays the temperature alarm set value. Click the "INC" or "DEC" button, and the set value starts flashing, at this point, the required temperature alarm setting can be modified through the "INC" and "DEC" buttons. About 2 seconds after stopping the operation, the controller will return to the normal state, and the set value will be saved automatically.

2) View temperature measurement

In the normal state, press the "INC" and "DEC" button for about 3 seconds, The right decimal point will light up. At this point, the window displays the measured temperature value. Click the "INC" or "DEC" button again, the controller will return to the normal state.

3) Over temperature alarm

In the normal state, when the temperature measurement exceeds the alarm temperature setting value, the window alternately displays " - A - " and the alarm setting value, and the controller will cut off the output automatically.

4) Abnormal temperature measurement alarm

If the window shows the prompt "---", it indicates that the temperature sensor has faults or temperature exceeds the measuring range or the controller itself is faulty, the controller will cut off the output automatically, Please check the temperature sensor and its wiring carefully.

5) View and Set Internal Parameters

In the normal state, press the "INC" and "DEC" buttons for about 6 seconds, and the window alternately displays "Lc" and password value, the required password value can be modified only by the "INC" button. Then click the "DEC" button, and the controller will enter the internal parameters setting state. Press the "DEC" button for 3 seconds, it will return to the normal state, the set value will be saved automatically.

Cooling Incubator LX502CI

Parameter table

Prompt	Name	Function description	(Setting range)
Lc	Password key.	When "Lc=3", enter the next parameters.	0
Pb	Temperature deviation correction.	It is usually used to correct errors in low-temperature measurements.	(-50 ~ 50°C)0
PL	Temperature Slope.	It is usually used to correct errors in high-temperature measurements.	(-199 ~ 199)0
SPH	Max set value.	The maximum temperature set point value.	(0 ~ 400)

8. Troubleshooting

Fault	Reason	Solution
The power director doesnot show.	Without power.	Inspect the plug.
	Fuse broken.	Change fuse.
Temperature control shows “□□□□”.	Sensor broken.	Change sensor.
	Controller broken.	Change controller
Evaporator frost or chamber with frost.	Open the door frequently when doing the low-temperature test.	Over 50 degrees make it dry and reduce the open door.
	Left a hole with a bad seal.	Inject the inner hole with rubber.
	Door opening.	Close the door.
Hard to bring down the temperature.	Evaporator frost.	Dry the chamber.
	The environmental temperature is too high.	Down environment temperature.
	Fan works or not.	Check the fuse and fan.
	Compressor works or not.	Change Compressor.
	The compressor works but not refrigeration.	Check the cryogen.
		Check the ice or oil block.
Specification mixed.	Setting correct and restart.	
Temperature consistently rises.	Evaporator frost.	Dry the chamber.
Abnormal knocking.	Circle Fans loose.	Check and adjust.
	Condenser, fan, and compressor loss.	Check and adjust.
Bad evenness degree.	Sample hot.	Reduce sample quantity.
	Evaporator frost, windblock.	Dry the chamber and restart.
Controller instability.	The power does not match.	Change the Power.
	Voltage instability.	Make sure the stability voltage.
Hard to make the temperature up.	Over-Temp. setting too low.	Adjust the temperature correctly.
	The meter setting is too low.	Set the temperature correctly.
	The meter heating director ison but without an input function.	Change the meter.
	The meter is heating but the heaterdoesn’t work.	Change the heater.
	The fan doesn’t work.	Change the fan or fuse.
	Sensor broken.	Change sensor.

9. Accessories

Standard Accessories

Shelf: 2pcs

Optional Accessories

- Spare shelf
- RS485 interface
- Printer
- Program controller
- Remote control
- U-disk storage



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