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IncuShaker

Stackable Incubator Shaker

User's Manual

LOM-7450/7450-CO2/7450-L



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Please read this user's manual carefully before using the product.

 **Note**

Please read this manual carefully before installing the equipment. Please follow all the instructions contained in this manual during operation. Otherwise, the user shall be responsible for any consequence arising therefrom including potential bodily harm and/or property damage.

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2. Contents contained in this manual, including all technical data, specification, and performance figures, subject to change without notice.

Preface

Thank you for choosing IncuShaker Series Incubator Shaker. Your trust and support in MRC LTD. are greatly appreciated.

MRC Incubator Shaker Series is model designed for shaking and heat samples according to the research and experiment needs in modern biology. State-of-the-art embedded microprocessor system is utilized in the equipment for its powerful data processing ability, outstanding stability, excellent interference resistance, and high precision control ability of the temperature and frequency of the instrument. Sophisticated manufacturing process, aesthetic product design, and user-friendly interface are elegantly incorporated into the production of the instrument.

Incubator Shaker is widely used in biology, microbiology, medicine, pharmaceuticals, food science and environmental science, including various biological and chemical reactions that require high precision control of temperature and frequency, bacteria culture, fermentation, and hybridization, and enzyme and cell tissue research. It is also applicable to both static and dynamic culture of microbial cells and strains.

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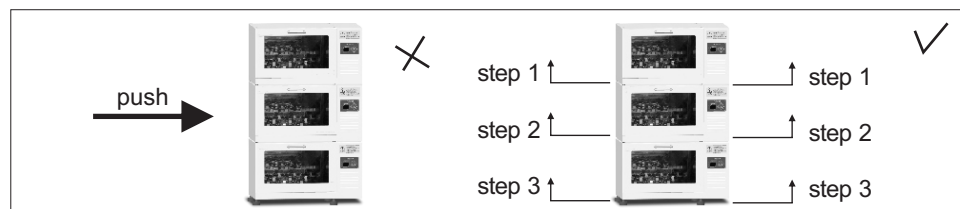
1. Unpacking Guide

Note

01. Please contact the manufacturer or your local representative immediately if the instrument is upside down upon unpacking.
02. Inspect package and contents upon receipt of the instrument. If the instrument is damaged or if there are any missing accessories according to the packing list, please contact the manufacturer immediately.
03. Place the instrument on a level and firm surface for use to avoid vibration and noise.
04. Please make sure the power is disconnected and the instrument is not loaded when moving the instrument. Please move instrument individually before stacking them.

Warning

Lifting the instrument by hand should be prohibited. Please use a lift or a forklift or other lifting apparatus to raise or move the instrument.



05. When stacking multiple instruments, please make sure the floor load bearing ability is no less than 1.5 times of the total weight of the instruments. Please place the instruments beside a wall or on top of a floor with reinforced beam to ensure good loading condition.
06. Please use the specified fuse and make sure to disconnect power when replacing the fuse.
07. Please unplug the instrument during maintenance.
08. Do not clean the instrument with corrosive or flammable liquid and make sure this type of liquid is kept away from the instrument.

1. Unpacking Guide

09. Please use a power supply specified on the nameplate on the right side of the instrument.
10. The maximum load of an individual unit is 15 kg. When three units are stacked, the maximum speed is 250 rpm for the top unit and 300 rpm for the middle. When the instruments are running with the maximum load, it is recommended to set the rotation speed no more than 250 rpm.
11. Please make sure the vent of the instrument is kept away from other vents or heat sources. Otherwise, the compressor may not be able to start normally or start frequently during the cooling process.
12. Please make sure the gas supply type is in accordance with the requirements and all the pipes are correctly and firmly connected. Please set the gas pressure as specified. Any wrong pipe connection or inappropriate air pressure settings may cause a CO₂ gas leak. High CO₂ concentration may harm your health and potentially lead to suffocation or death.
13. Please ensure sufficient ventilation when using CO₂. CO₂ concentration will increase in a small confined room and high CO₂ concentration is harmful to health. In addition, please avoid direct inhaling of CO₂ when opening the compartment door of the product.
14. Please place the 4 small footings of the instrument on top of the 4 big fixed footings when stacking multiple units.



Unpacking Procedures

1. Place the instrument on a level surface with caution. Remove the packing material and inspect if the instrument is damaged.
2. Please find the packing list, in the user manual, in the plastic documents pouch inside the packing box.
3. Check the packing list in the manual make sure there are no missing accessories. Otherwise, please contact the manufacturer immediately.

2. Overview

2.1 Description

LOM-7450 are a stackable incubator shaker models with cooling function. The instrument can be used individually or stacked on top of each other to save floor space. Flip-down door style allows independent operations of stacked instruments, which makes batch treatment of samples easy. The triple-eccentric counterbalanced drive, with a circumferential oscillation diameter of 2.6 centimeters, provides dependable and durable operation of the instrument. Speed terminal feedback system guarantees high precision oscillation within the speed range of 30 to 300 rpm. Innovatively combined PID and fuzzy control technique makes into reality less than 0.1 °C temperature fluctuation within 4 °C to 60 °C range. LOM-7450-CO2 are a stackable incubator shaker model equipped with a CO₂ incubator. It is configured with accurate CO₂ and humidity monitoring system that ensures stable pH level for high-efficiency cell culture.

LOM-7450-L are a stackable incubator shaker model that provides 9 levels of lighting which meets most needs of plant, seed, microbial, and viral cell culture.

The instrument can be operated under continuous or 0 to 999 hours timed mode. Up to 6 segments of parameters' programming automates environmental condition moderations and treatment time change for the same sample.

Sliding rail structure of the shaking platform makes sample operations convenient. Large chamber size accepts flasks up to 5 liters.

2. Overview

2.2 Features

● Large view window	Minimizes the need to open the lid.
● LCD dot-matrix display	Displays settings and measurements.
● User-friendly interface	Enables intuitive control panel and menu selections.
● Multi-segment programming	Automates operation under different sample treatment needs.
● Extra long timing up to 999 hours	LCD displays remaining time, end-of-study sound and light alarm.
● Soft start and smooth acceleration	Soft start technique guarantees smooth acceleration and prevents samples from spilling.
● Open door cut-off switch	Stops motion when opening the chamber door to protect users from potential accidental injury.
● Sliding rail design of the shaking platform	Convenient replacement of clamps.
● Open door light-on switch	Lamp is automatically turned on when opening the door to help user handle various operations. Note: The lighting switch is deactivated when the chamber door is open; The lamp will always be on.
● Automatic adjustment of PID parameters	PID parameters are automatically adjusted according to different conditions.
● Drainage groove	Built-in drainage groove makes it easy for getting the liquid outside of the chamber when cleaning the instrument.
● Multiple safety features	Safety lock control, refrigerator overload protection, overtemperature protection, overtemperature alarm, thermal runaway protection, sensor malfunction alarm, and automatic shut-down system when malfunctioning ensures safe operation.
● Stackable instrument	Saves floor space.
● Automatic defrost	Automatically defrosts the evaporator in the refrigerator; no need to manually defrost the frost buildup. Temperature rise is less than 1.5 °C during defrosting.

2. Overview

2.3 Specifications

Model	LOM-7450	LOM-7450-CO2	LOM-7450-L
Temperature Settings Range	4°C~60°C		
Temperature Control Range	Ambient temperature minus 15 °C to 60 °C (lowest 4 °C)		
Environmental Condition	Temperature10°C~35°C Humidity20~80%RH		
Temperature Control Precision	0.1 °C (in constant temperature state)		
Temperature uniformity	±0.3°C (37°C)		
Rotation Speed	0rpm, 30rpm~300rpm		
Speed Precision	±1 rpm		
Oscillation Range	Φ26mm		
Program Segments	6		
Timer Range	0~999h		
Platform Size	740×500mm		
Platform Number	1		
Maximum Capacity	50ml×90/250ml×30/500ml×18/ 1000ml×12/500ml×6		
Standard Configuration	500ml×18 clamps		
Power	<1100W		
Power Supply	AC220V±22V 50Hz±1Hz		
Overall Size	1240mm×777mm×670mm		
Net Weight	220kg(single unit)		
CO ₂ Concentration Rang	-	0-20%	-
CO ₂ Concentration Precision	-	0.1%	-
CO ₂ Detecting sensor	-	Infrared	-
Chamber Humidity	-	≤95%	-
Illuminance Control Range	-	-	0-20000LX
Illuminance Control Levels	-	-	9 Levels

2. Overview

Illuminance Levels for models with lighting function:

Illuminance Level	Illuminance (Lx)
0	Natural Light in Chamber
1	3000
2	6000
3	9000
4	11000
5	13000
6	16000
7	18000
8	20000

Remark: Listed temperature control range and uniformity are measured when the lighting function is off for model LOM-7450-L. The lighting function of the model may affect the temperature uniformity and cooling effectiveness.

3. Preparation

3.1 Placement Conditions

The instrument must be placed on a firm and level surface. The total weight of the instrument when fully loaded must be taken into consideration. There must be sufficient space left around the instrument. It should be at least 50 cm between the instrument and the wall or any two adjacent instruments.

Warning

- Lifting the instrument by hand should be prohibited. Please use a lift or a forklift or other lifting apparatus to raise or move the instrument.
- The CO₂ concentration may increase and do harm to your health if using the instrument in a small confined room.

Please ensure sufficient ventilation when using the instrument with CO₂ function on. The gas concentration will increase in a small confined room and high concentration of CO₂ is dangerous for human health. Additionally, please avoid direct inhalation of the CO₂ gas when opening the chamber door.

3.2 Ambient Conditions

- Environmental temperature condition: 10°C ~ 35°C
- Humidity condition: 20 ~ 80% RH

3.3 Space Conditions

- Instrument size with door closed(W X D X H): 124×78×67cm
- Instrument size with door open(W X D X H): 124×132×67cm
- Overall size when stacking three units(W X D X H): 124×78×200cm

Please leave adequate space around the instrument to help the cooling system of the instrument to dissipate heat and future maintenance. It should be at least 50cm between the instrument and the wall or any two adjacent instruments.

3.4 Power Supply Conditions

Please use the power supply voltage as listed on the nameplate at the right side of the instrument.

4. Safety Instructions



Please make sure to follow the safety instructions!

- Lifting the instrument by hand should be prohibited. Please use a lift or a forklift or other lifting apparatus to raise or move the instrument.
- Make sure whether the local power supply voltage is suitable for use.
- The instrument must be properly grounded.
- Use independent power supply.
- Do not use extended power cord.
- Do not drag the power cord when unplugging.
- Do not use non-specified nor damaged power cord.
- Only professional personnel are allowed to open the power box.
- Tighten the fixing handle on the aluminium platform.
- Ensure good ventilation of the room.

The power supply must be unplugged under any of the situations below:

- When moving the instrument
- When opening the power box
- When changing the fuses
- When the instrument is malfunctioning
- When the instrument is not in use

5. Installation

Note

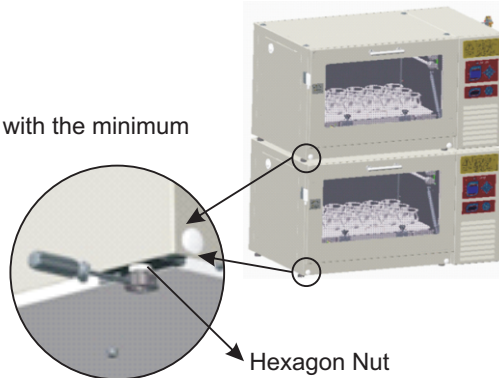
Lifting the instrument by hand should be prohibited. Please use a lift or a forklift or other lifting apparatus to raise or move the instrument.

5.1 Tools Requirement

- 2 adjustable wrenches
- 2 cross screwdriver
- 1 spirit level
- 1 lift or forklift or other lifting apparatus with the minimum loading to be 250 kg

5.2 Installation

- Place the instrument on the ground as instructed in Chapter 3.1;
- Adjust footings: as shown in the figure, 1 of the 4 footings is adjustable.
- Repeat step b to stack instruments.



Footing Adjustment Method:

- After stacking the the instrument, turn the hexagon nut down using the wrench to loosen.
- Insert the screwdriver into the adjustment hole and turn the footing. After the instrument the leveled (the 4 footings are at the same level), turn the hexagon nut up to tighten.

Note

Please make sure each instrument is level and not shaking when stacking multiple of them. It is forbidden to load the instrument more than 15 kg of the maximum load. It is for bidden to exceed the maximum speed, especially for instruments at the 2nd and 3rd levels.

★ Connect CO₂ gas tank

- Install a regulator with flow control valve onto the gas tank (see optional accessories table). Please choose a regulator with the primary preset pressure to be 25 MPa (250kg/cm², 3500l b/in²), and secondary preset pressure to be 0.6 MPa (2.0kg/cm², 30psiG).
- Using the provided pipe to connect the regulator with the instrument. The gas inlet port is positioned at the right side of the instrument (as shown in figure 1).

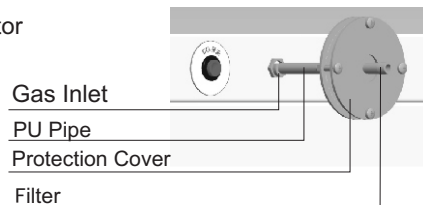


Figure 1

5. Installation

- Adjust the secondary flow control valve to point the pointer to 0.1 – 0.2MPa (as shown in figure 2). It may cause the pipe connect the incubator and the inlet port to fall off and the leak of the CO₂ gas if the secondary pressure is too high. High CO₂ concentration will do harm to your health and may cause suffocating and death. Maintenance is required if the inner pipe falls off.

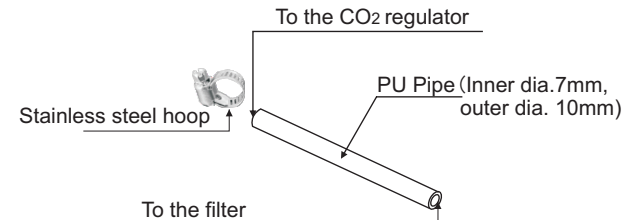


Figure 2

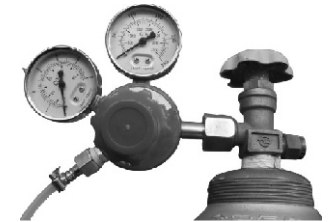
- Check if there is leak at the connections (pipe with regulator, pipe with inlet port of the instrument, and pipe with filter).

- Connection components

A. Schematic diagram



B. Actual picture



Note:

- Do not turn the pressure adjustment rod on the regulator when changing the gas tank. It will change the secondary pressure if the pressure adjustment rod is turned and more adjustment will be needed. It may cause the pipe connect the incubator and the inlet port to fall off. Maintenance is required if the inner pipe falls off.
- Inspect the connection of the pipe regularly to ensure it is safely connected. If the pipe is damaged or aged, change pipe.
- Use the stainless steel hoop to tighten the connection point of the PU pipe and the filter to prevent the pipe from falling off and leakage of gas.
- The CO₂ gas purity is more than 99.99%. Low gas purity may cause blocking of the filter or damage of the electromagnetic valve.

Warning

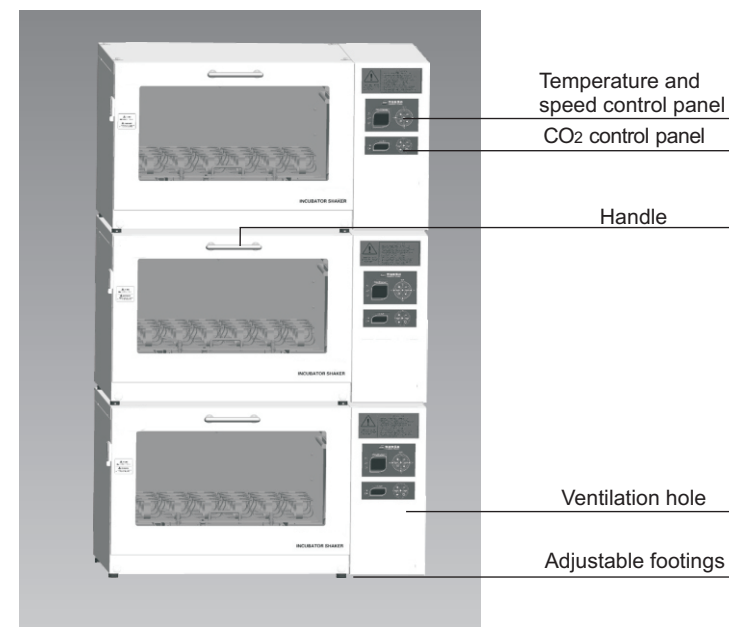
Make sure the gas supply meets the specified requirements. Make sure all the pipes are properly connected. Make sure the gas pressure settings are correct. Wrong pipe connection or pressure settings may cause CO₂ leakage. High CO₂ concentration will do harm to your health and may cause suffocation and death. Alternative methods should be taken if there is no sufficient ventilation in the room to guarantee safety. These methods include gas monitoring and alarming system. Maintain correct gas pressure can prevent gas leakage.

6. Operational Instruction

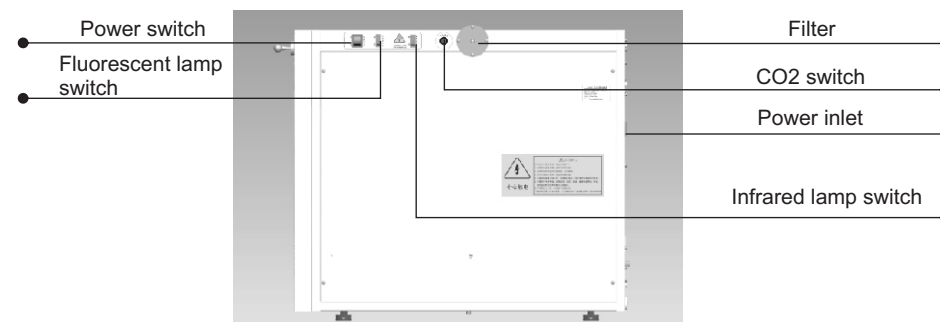
- The instrument should be placed in a clean and dry environment. Any heat source or heat dissipation outlet and direct sunshine should be avoided.
- Adjust the instrument footings to level the instrument and make sure the instrument can operate smoothly.
- Please make sure the instrument is placed at least 50 cm away from the wall and other objects.
- Please use a dedicated power outlet with a capacity no less than 1.3 kW and AC 220 V.
- It is not allowed to use gasoline, banana oil, and any other volatile chemicals to contact with the outside coating of the instrument.
- No experiment samples are allowed in the control panel.
- No excessive force should be used when opening and closing the incubator door to prevent the instrument from being damaged.
- Please reduce the times of opening the incubator door to help maintain constant temperature and save CO₂.
- After the instrument cooling function is used for 10 days continuously, a heating dehumidification process is recommended. Recommendation: heat the instrument to 45 °C and last for half an hour.
- Inspect the fastening screws on the flask clamp regularly to prevent it from falling off.
- Please clean the instrument regularly.
- Please check if the v-belt at the bottom of the instrument is not loosened after using the instrument for 6-12 months. Press the middle part of the v-belt inward about 10 mm. Please check the abrasion condition of the v-belt after using the instrument for 2 years and change the same type of v-belt (Z1000) if necessary.
- Please disassembly the side plate at the right and back of the instrument to clean out dust on the condenser and fan to ensure good heat dissipation and high cooling efficiency.
- Dehumidification is required if the humidity of the instrument is too high.
- Ensure good ventilation of the room.
- Please make sure the air circulation is sufficient when using CO₂. The CO₂ concentration will increase in a small confined room and do harm to your health. Also, please avoid direct inhalation of the CO₂ gas when opening the the incubator door.

7. Structure

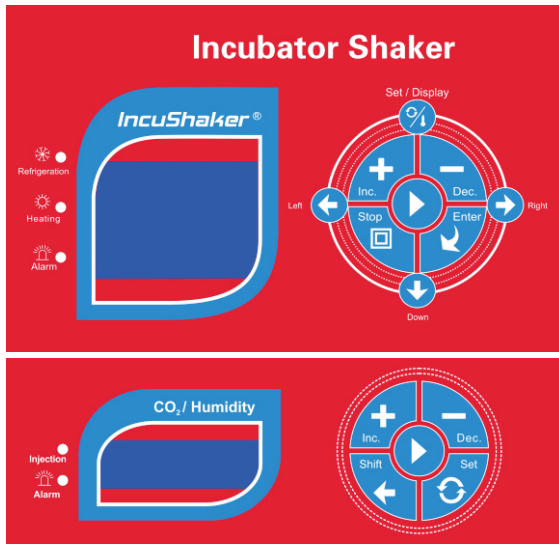
● Product Front View



● Product Side View



8. Control Panel

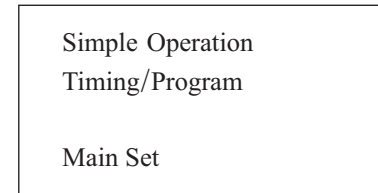


Indicator Light: red light indicates alarm is on; green light indicates the heating or cooling function is on.

- A : Press the button to enter the settings menu when in “Simple Operation” or “Timing Program” modes.
- B : Press the button to move the flashing cursor to the right when setting multiple digits. When the cursor is at the right most digit, press the button to move it to the first digit.
- C : Press the button to move the flashing cursor to the left when setting multiple digits. When the cursor is at the first digit, press the button to move it to the last digit.
- C : Press the button to move the cursor down. If the cursor is at the bottom line, press the button to move it to the top.
- D : Press the button to change the settings (for example, “YES/NO”, “ON/OFF”, or number 0 to 9).
- D : Press the button to change the settings (for example, “YES/NO”, “ON/OFF”, or number 0 to 9. Long press the button can change value continuously).
- E : Press the button to confirm your current settings.
- F : Press the button to start the instrument when it's in “Simple Operation” mode.
- G : Press the button to stop the instrument when it's in “Simple Operation or Timing/Program” mode.

9. Settings

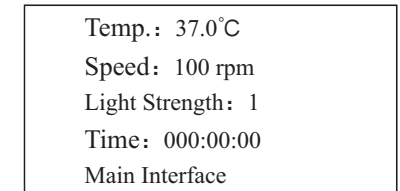
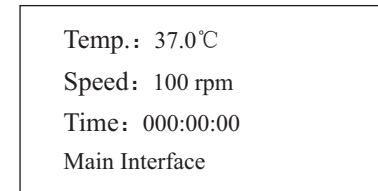
Turn on the power switch at the right side of the instrument after the instrument is properly placed. “Thanks for choosing MRC LTD. products” will be shown on the display window. The function selection menu will be displayed after 2 seconds.



Press “” button to choose the operation and press “” to confirm.

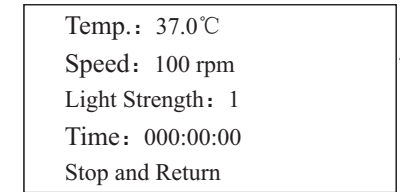
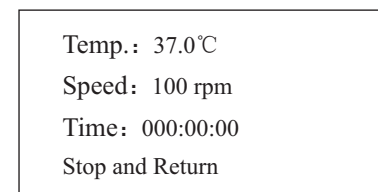
A. Simple Operation

Choose “Simple Operation” on the Main Menu and press the “” button to confirm. The display window will then show the Simple Operation Settings menu.



(For models with illuminating function)

Press “” button to choose the parameter that needs to be modified; press “” or “” button to move the cursor to the digit that needs to be modified and press “” or “” button to modified the current number; Press “” button when the cursor is at back to main interface to return to the main interface. Press the “” button (wherever the cursor is) to enter “Simple Operation” page.





(for models with illuminance function)

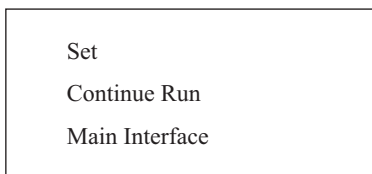
9. Settings



When the cursor is at "Stop and Return"

Press the  button to stop the operation and return to the main interface.


Press the  button, the instrument will stay in normal operation and enter the "Simple Operation Settings" page.

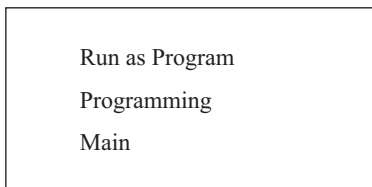
Press the  button to stop the instrument and enter the Simple Operation Settings page.





Press the  button to choose the function according to the page displayed and press the  button to enter the corresponding page.

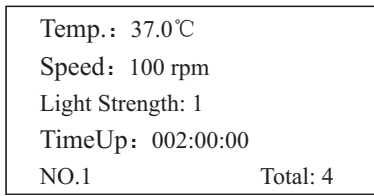
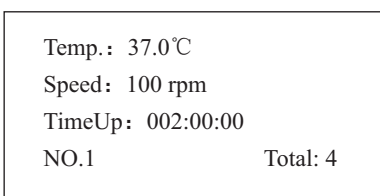
B. Time/Program Controlled Operation

Choose the "Timing/Program" at the function selection menu and press the  button to enter the Time/Program Controlled Operation page.



Press the  button to choose the function according to the page displayed and press the  button to enter the corresponding page.

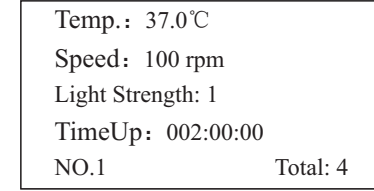
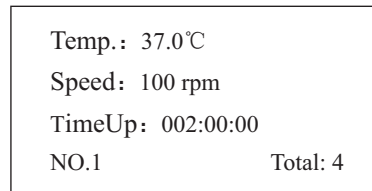
1. The instrument will run with the previously entered program if choosing the "run current program". Enter "Timing/Program" page.



(for models with illuminance function)


9. Settings

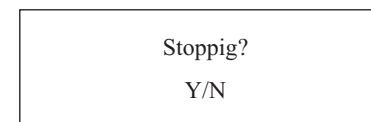
The instrument will enter the next segment of program to run.







(for models with illuminance function)

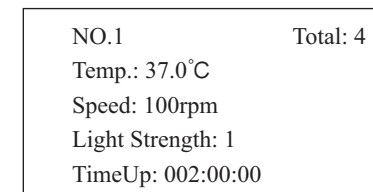
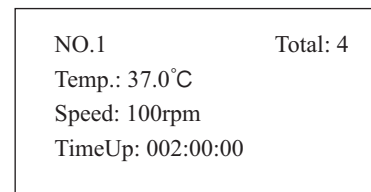
The buzzer will sound 5 times after finishing running the program. Return to "Timing/Program" page.

When "Timing/Program Operation" shows on the display window, press the  button to choose whether to continue running.












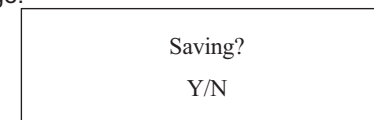
Press the  or  button to choose "YES/NO" and press the  button to enter the next page.

When "Timing/Program Operation" shows on the display window, press the  button to enter the editing page of the current program.



(for models with illuminance function)

Press the  button to choose the parameter needs to be modified; press the  or  button to move the cursor to the digit that needs to be modified and press the  or  button to modify the current value; press the  button to enter the next programming page. After the last segment of program is edited, press the  or  button to choose "YES/NO" according to the message displayed and press the  button to enter the next page.



9. Settings

2. Choose "Programming" to enter the program page.

Set Programs:
Total(1-6): 4
Main Interface

Press the "+" and "-" button to modify the number of program segments and press the "Enter" button to enter the program page.

NO.1 Total: 4
Temp.: 37.0°C
Speed: 100rpm
TimeUp: 002:00:00

NO.1 Total: 4
Temp.: 37.0°C
Speed: 100rpm
Light Strength: 1
TimeUp: 002:00:00

(for models with illuminance function)

Press the "↓" button to choose the parameter that needs to be modified; press the "→" or "←" button to move the cursor to the digit that needs to be modified and press the "+" or "-" button to modify the current value; press the "Enter" button to enter to the next program segment. After the last segment is edited, press the "+" or "-" button to choose "Y/N" according to the message displayed and press the "Enter" button to enter the next page.

Saving?
Y/N

C. Instrument Settings

Choose "Main Set" on the main page and press the "Enter" button to enter.

Basic setting
Com. Addr. Set
Temp. Setting
Main Interface

9. Settings

Press the "↓" button to choose a function and enter the "Enter" button to enter the corresponding operation page.

a) Basic settings

Speeding Alarm:
ON/OFF
Overheat Alarm:
ON/OFF

Press the "↓" button to choose the parameter that needs to be modified; press the "+" or "-" button to choose "OFF/ON" and press the "Enter" button to save the parameter setting and return to the "Main Set" page.

b) Contact information settings








Set Com. Addr.:
XX(0-32)
-

Press the "→" or "←" button to choose the parameter that needs to be modified; press the "+" or "-" button to change the number (contact information settings is effective only in multi-instrument network) and press the "Enter" button to save the parameter settings and return to the "Main Set" page.

c) Temperature control parameters settings by choose Temp. Setting.

Set Password:
XXXX
Return Main Set







9. Settings

Press the “” button to choose the parameter that needs to be modified or “Main Interface”; press the “” or “” button to move the cursor to the digit that needs to be modified and press the “” or “” button to change the value; press the “” button to enter the password and enter the “password setting” page if the password entered is correct; press the “” button to enter password and enter the auto adjust the temp. parameters page if the password entered is correct.

Note: In order to prevent misoperation, the manufacturer will keep the original password. If the password is lost, please contact the customer service department of the manufacturer immediately.

C.1 Password Setting Page

Set Password:
XXXX
Return Main Set

Press the “” button to choose the parameter that needs to be modified or “Main Interface”; press the “” or “” button to move the cursor to the digit that needs to be modified and press the “” or “” button to change the value; press the “” button to save the password and return to the instrument settings page (the password is not saved if the cursor is at back to the instrument settings).







C.2 Temperature Control Parameters Settings

Temp. Display
Temp. Calibrate
Temp. Setting
Return Main Set


C.2.1 Temperature Display







T1: 37.0°C (+0.0)
T2: 37.0°C (+0.0)
T3: 37.0°C (+0.0)
T4: 37.0°C (+0.0)

9. Settings

Press the “” button to choose the parameter that needs to be modified; press the “” or “” button to move the cursor to the digit that needs to be modified and press the “” or “” button to modify the value (-5 to 4, resets at -5); press the “” button to save the current parameters and return to the temperature control parameter settings page; T1, T2, T3, T4 are the current temperature values of the 4 temperature sensors inside the incubator, the value in the bracket is the temperature difference between the sensor value and the precise temperature detector value; (for example: T1: 37 °C, means the temperature sensor shows the temperature inside the incubator, if the precise temperature detector at the same spot of the sensor shows the temperature to be 36 °C, -1.0 will be shown in the bracket, ie (-1.0)).


C.2.2 Temperature Calibration

A: 04.0°C (00.0)
B: 10.0°C (00.0)
C: 20.0°C (00.0)
D: 37.0°C (00.0) 

The value outside of the bracket is the target temperature value, the value inside the bracket is the difference between the actual temperature and the target temperature; the temperature values of A, B, C, D, E, F listed in the small to large order are (04.0, 10.0, 20.0, 37.0, 50.0, 60.0). Press the “” button to choose the parameter that needs to be modified; press the “” or “” button to move the cursor to the digit that needs to be modified and press the “” or “” button to change the current value (-9 to +9); press the “” button to save the current parameter settings and return to the temperature control parameter settings page.

C.2.3 Temperature Settings

Temp.is
auto adjusting
Don't touch the
pad. About 2hours

It will enter the next page after 2 seconds or if pressing the “” button.

Temp.parameters
is Auto Adjusting
Please hold on

Press the “” button to exit the temperature control parameters settings.

Choose the temperature control parameter settings to enter the corresponding settings. The whole process takes about 2 hours. During this process, the power should not be cut off and the incubator door is not allowed to be opened. Otherwise

9. Settings

the temperature parameters may be inaccurate and other unpredictable problems such as imprecise temperature control or temperature out of control may occur during normal operation.

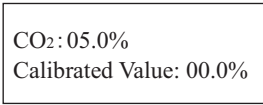
d) CO₂ Settings

Press the “↺” button and enter the CO₂ concentration settings. Press the “←” button to move the cursor to the digit that needs to be modified and press the “+” or “-” button to change the current value. Press the “▶” button after the settings are finished.

e) CO₂ Calibration

During normal operation, press the “←” button first and then the “-” button to enter the CO₂ concentration calibration mode. The first line shown on the display window is the current CO₂ concentration the sensor measures and the second line is the target value. Press the “←”, “+”, and “-” buttons to adjust the target value. Press the “↺” button again and then the “-” to enter normal operation. The calibrated value is saved and the CO₂ calibration is now successful. If press the “↺” button in the calibration mode, the instrument will exit the CO₂ concentration calibration mode, the calibrated value are not saved. If press the “▶” button in the calibration mode, the instrument will exit the CO₂ calibration and the target value is not saved and reset to factory settings.

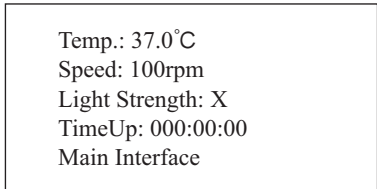
The instrument will exit the CO₂ calibration automatically if there is no operation in 10 seconds in the CO₂ calibration mode and the target value is not saved.



CO₂: 05.0%
Calibrated Value: 00.0%

f) Illuminance Setting

During the normal operation, press the “↓” button when “Light Strength: X” is shown on the display window to make the cursor flashing at the X point. Press the “+” and “-” buttons to choose the required level and the illuminance setting is finished.

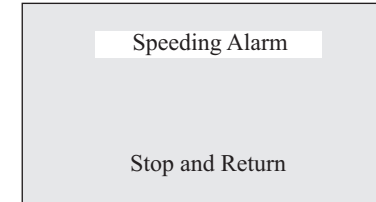


Temp.: 37.0°C
Speed: 100rpm
Light Strength: X
TimeUp: 000:00:00
Main Interface

10. Alarm System

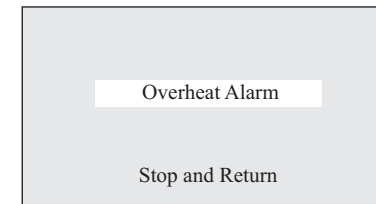
Alarm prompt:

● Overspeed alarm interface



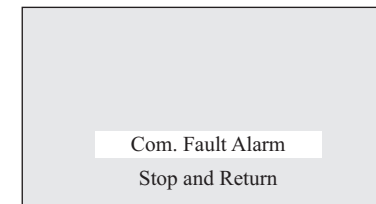
The “Overspeed Alarm” line will keep flashing, the buzz will sound intermittently, and the instrument will stop running.

● Overtemperature alarm interface



The “Overtemperature Alarm” line will keep flashing, the buzz will sound intermittently, and the instrument will stop running.

● Communication Failure Alarm Interface



The “Communication Failure Alarm” line will keep flashing.

● Door Open Alarm

The buzz will sound every 2 minutes.

10. Alarm System

- CO₂ concentration high alarm (when the CO₂ concentration is 1% higher than the set value)

CO₂: 06.0%
Humidity: 50%

Alarm indicator light will flash and the buzz will sound. Press any key to stop the buzz but the alarm indicator light will remain flashing.

- CO₂ concentration low alarm (when the CO₂ concentration is 1% lower than the set value for no less than 15 minutes)

CO₂: 03.0%
Humidity: 50%

Alarm indicator light will flash and the buzz will sound. Press any key to stop the buzz but the alarm indicator light will remain flashing.

- No gas intake alarm


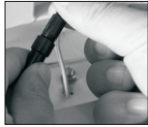
The no gas intake alarm will show on the display window if the instrument remains in the CO₂ concentration low status for more than 5 minutes. The alarm indicator light will flash and the buzz will sound. The electromagnetic gas valve will be closed automatically. Press any key to cancel the alarm status and the instrument will stop operation.

No Inject
Humidity: 50%

11. Troubleshooting

Troubleshooting			
Error		Cause	Solution
LCD Display	Sound		
Overspeed alarm	Intermittent-siren	Speed difference more than 5 rpm	Contact local sales/service
		Electrical malfunction	Contact local sales/service
		Electric motor failure	Contact local sales/service
Over-temperature alarm	Intermittent-siren	Temperature difference more than 3 degrees	Contact local sales/service
		Temperature sensor damaged	Change sensor
		Cooling system failure	Contact local sales/service
		Heating system malfunction	Contact local sales/service
Communication failure		Communication cable not connected	Connect communication cable
		Communication cable interrupted	Restart instrument
	Intermittent-siren	Door open	Close incubator door
		Sensor damaged	Change sensor
No gas intake	Intermittent-siren	Empty CO ₂ gas tank	Change CO ₂ gas tank

11. Troubleshooting

Instructions		
Display window off Platform not shaking	No power	Plug not connected
		Power outlet out of power
		Power switch off
Burned fuse	Change to a new fuse with the same specification	 Position: at the power outlet
		 Position: inside the electrical cabinet
Platform shaking but the display window malfunctioning	High frequency interference source exists in the same power line	Press the confirm button to recover display Remove interference source of the same power line or use a dedicated power line
Display window on but platform not shaking	Poor contact of door switch	Contact local sales/service
High temperature fluctuation	Frequent door opening	Reduce times of door opening and decrease the time consumed when opening the door
Loud noise	Unleveled instrument	Adjust footings to level the instrument
	Loose platform	Fasten the fixing screws of the platform
	Loose flask clamp	Fasten the fixing screws of the flask clamp

GUARANTEE CARD

Save this card carefully please. When you need service, contact the service company with card & invoice.

Guarantee Card			
User Name		Telephone	
Address			
Zip Code		E-mail	
Product Name		Model	
Serial number		Purchase Date	
<p>● Warranty Scope 1. Warranty period is 12 months from purchase date.</p> <p>● One of the following circumstances, not the implementation of the warranty:</p> <ol style="list-style-type: none"> 1. Surpasses the maintenance term of validity; 2. The product damage cause is because of maintenance, storage & use wrongly; 3. Because maintenance & dismantle without leave to bring damage; 4. Modification receipt or haven't the receipt and the certificate of maintenance; (in addition to able to prove the machine's warranty period of validity); 5. Product model and serial number with maintenance certificate is unmatched or modification; <p>Because of the irresistible strength creates damage.</p> <p>Customer tel.: 972-3-5595252 Dear User, the above information should be filled and stamped into force by seller.</p>			

Maintenance records				
The following completed by the maintenance staff.				
First	Name of service		Maintenance date	
	Address		Telephone	
	Maintenance sheet number		Maintenance staff signature	
Second	Name of service		Maintenance date	
	Address		Telephone	
	Maintenance sheet number		Maintenance staff signature	
Third	Name of service		Maintenance date	
	Address		Telephone	
	Maintenance sheet number		Maintenance staff signature	

Packing List

Name		Qty	Note
Stackable Incubator Shaker		1	
Accessories	Power Cord	1	
	Liquid Collection Tray	1	
	Fuse	1	AC250V/10A
	Cross Screwdriver	1	
	M8 Star Nut	2	Platform handle backup
	User Manual	1	
	Certificate	1	
	Wrench	1	
	Filter	1	For Model LOM-7450-CO2 only
	Filter Protection Package	1	For Model LOM-7450-CO2 only
	Gas Pressure Regulator	1	For Model LOM-7450-CO2 only
	Stainless Steel Hood	4	For Model LOM-7450-CO2 only
	PU Pipe (5 m)	1	For Model LOM-7450-CO2 only
	Aluminium Foil	1	For Model LOM-7450-CO2 only

Optional Accessories

Name	Specifications	Name	Specifications
Flask Clamp	50ml	Test Tube Rack	40 × ø16 mm
Flask Clamp	100ml	96-Well Microplate Holder	96
Flask Clamp	150ml		
Flask Clamp	200ml	Multifunction Spring Frame	
Flask Clamp	250ml		
Flask Clamp	500ml	Flask Clamp	
Flask Clamp	1000ml	Aluminium Foil	800×500
Flask Clamp	2000ml	Adjustable Test Tube Clamp Component	
Flask Clamp	3000ml		
Flask Clamp	5000ml	Conical Flask Clamp	5000ml
Test Tube Rack	40 × ø14 mm		