



Microbiological Incubator **LMML-D100**

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1. Safety Measures

- 1) The heating incubator must be well grounded to ensure safety.
- 2) The heating incubator should be placed in a room with good ventilation conditions and no inflammable and explosive materials or toxic substances around it.
- 3) There is no explosion-proof device in a heating incubator, don't put inflammable and explosive materials into it for heating.
- 4) Do not overcrowd the objects in the incubator, especially around the temperature sensor, making room for hot air circulation.
- 5) Do not wipe the machine's surface with acid alkali or corrosive substances. The inside and outside of the incubator should be kept clean. If it is not used for a long time, cover it properly and store it in a dry room.

2. Introduction

Microbiological Incubator LMML-D100 is a constant temperature vertical incubator with a 30 L capacity and a temperature range of 5 to 66°C. Equipped with an intuitive touch-screen interface for easy operation and programming. Constructed from high-quality stainless steel, boasts a removable shelf for easy cleaning. Our incubator has a spacious interior and a clear-view window for easy observation.

3. Features

- Microprocessor controller with temperature correction
- Enhanced with leakage protection safety feature
- Include backup temperature control for uninterrupted operation
- Silicon sealing ring for reliable and secure sealing
- Anti-hot handle for safe and comfortable usage
- Large LCD screen display
- Distinctive air duct design for optimal temperature uniformity

4. Specifications

Model No.	LMML-D100
Capacity	30 L
Temperature Range	RT+ 5°C to 66°C
Temperature Resolution	0.1 °C
Temperature Fluctuation	± 0.5°C
Temperature Uniformity	±1°C
No. of Shelves	2
Power Consumption	180 W
Power Supply	AC 220 V; 50 Hz
Chamber Dimension(W×D×H)	300 × 300 × 350 mm
Packing Dimension(W×D×H)	510 × 500 × 700 mm
Net Weight	28 Kg
Gross weight	34 kg

5. Applications

Microbiological Incubator is well-suited for scientific research, industrial production, and various laboratory settings including medical, pharmaceutical, biochemistry, and agricultural applications.

6. Instrument Introduction

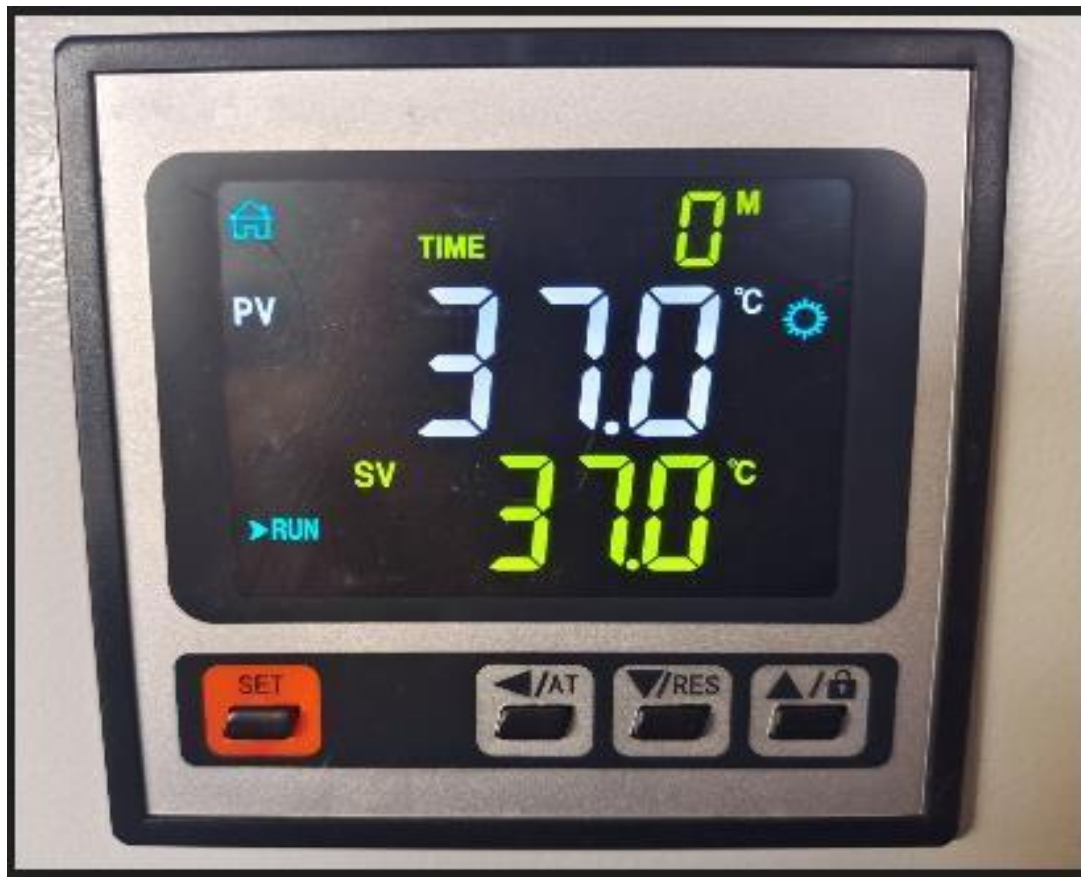


Figure-1

Indicator Definition:

1. **Lock:** It's lighted on in the lock screen state, otherwise it's off.
2. **[At]:** It flashes during temperature self-tuning, otherwise it's off.
3. **[Alarm]:** It is lighted when there is a temperature deviation or abnormal temperature measurement. When there is a low-temperature deviation, this light flashes.
4. Undernormal conditions, the light is off.
5. **[Heating]:** It is lighted when there is heating output, otherwise it is off.
6. **[A]:** It's lighted when there is a timing reservation, otherwise it is off.
7. **[Run / Stop]:** Only stop lighted after timing finished, in normal status, Run is on.
8. **[↑ / → / ↓]:** Flashes during temperature rise, keep constant temperature and temperature drop.

Key Definition:

SET: In the display of the main interface, press this key to enter the temperature and timesetting state, Long press this key for 3 seconds to enter the internal parameter setting state.

【◀/AT】: Press this key in the setting state to shift and modify to set value.

【▲/🔒】: In the display of the main interface, long press this key for 6 seconds to enter the temperature self-tuning state.



▼/RES : In the setting state, click or long press this key to decrease the set value. at the end of operation main interface, long press this key for 3 seconds to restart the operation.

Add/lock the screen: Click or long press this key in the setting state to increase the set value, If the screen lock function is selected, click this key to lock or unlock the screen at the main interface.

7. Operations

7.1 Setting for without timing and time

1) Temperature set without timing function:

Press the **"Set"** key to enter the temperature setting state, the upper PV row shows the current actual temp., and the lower SV row displays the temperature setting value, modified to the required setting value by AT, increase and decrease key; then press the **"Set"** key again, keep "0000" at time zone, and press set key again to exit the setting state and the modified temp. setting value will be saved automatically.

2) With timing function:

Press the **"Set"** key to enter the temperature setting state, the upper PV row shows the current actual temp., and the lower SV row displays the temperature setting value, modified to the required setting value by AT, increase and decrease key; then press the **"Set"** key again to enter the time setting state, the TIME zone displays "0000", modify to the required time by AT, increase or decrease key. After time setting, press the **"Set"** key again to exit the setting state, the modified setting value will be automatically saved.

When the time is set as "0000", it means there is no timing function, the instrument runs continuously and the temperature setting value is displayed in the lower row. When the setting time is not "0000", the operation time is displayed in the lower row, when the timing is finished, the instrument stops working, **"End"** is displayed on the screen, and the buzzer sounds. After the timing operation, long press the **"decrease/RES"** key for 3 seconds to restart the operation.

7.2 Abnormal temperature measurement alarm

- 1) If it is displayed on the upper row of the controller, it means that the temperature sensor is faulty the temperature exceeds the measuring range or the instrument itself is faulty, the instrument automatically stops heating, the buzzer continuously sounds, and the alarm light is always on. Please carefully check the temperature sensor and its cables.
- 2) The instrument will alarm when over temperature, the buzzer beeps, the **"ALM"** light is always on and stop heating. When lower temperature deviation, the buzzer beeps, and the **"ALM"** light flashes. If over temperature alarm is caused due to a change in temperature setting value, the **"ALM"** lights on, but the buzzer does not sound.
- 3) When the buzzer sounds, press any key to silence.
- 4) **"Shift" key:** Press this key in the setting state to make the set value shift for modification; long press this key for 6 seconds to enter the temperature self-tuning selection state in the normal display state.
- 5) **"Dec" key:** Press this key to decrease the setting value in the setting state, long press this key to continuously decrease the setting value. In the normal display state, when the timing operation is finished, long press this key for 3 seconds to restart the operation.
- 6) **"Inc" key:** Press this key to increase the setting value in the setting state step by step, long press this key to make the setting value continuously increase. Press this key to turn on or off the backlight of the LCD screen in the normal display state.

7.3 System Self-tuning

- When the temperature control effect is not ideal, the system can be self-tuning.
- In the process of self-tuning, the temperature will have a large overshoot.
- Carefully consider this before the user carries out the system self-tuning. Long press the "shift" key for 6 seconds in the non-setting state to enter the system's self-tuning selection state.
- The upper row displays "AT", and the lower row displays "OFF", canselect the display to "on" or "off" by increasing or decreasing the key. When "on" is displayed, press the "Set" key to enter the system self-tuning state, 【AT】 indicatorflashes, and the self-tuning is performed.
- When self-tuning is completed, 【AT】 indicatorstops flashing, the controller will get a better set of PID parameters, and the parameters will be automatically saved. Long press the "shift" key for 6 seconds to stop the self-tuning.
- In the process of system self-tuning, if there is an upper deviation over the temperature alarm, the "ALM" light is not on and the buzzer does not sound, but the heating alarm relay will be automatically disconnected. The "set" key is invalid during system self-tuning.

7.4 Setting for temperature parameters

- Long press the setting key for 3 seconds, the password prompt "LC" will be displayed onthe upper row and the password will be displayed on the lower row.
- Modify the required password through the increase, decrease, and shift keys, then press the setting key again, if the password is not correct, the instrument will automatically return to the normal display state.
- If the password is correct will enter the internal temperature parameter setting state.
- Click the setting key again to modify each parameter in turn.
- Long press the setting key for 3 seconds to exit the state and the setting parameters will be saved automatically.
- See the table below for details as follows:

Internal parameter table

Symbol	Name	Description	Factory set value
Lc	Password Lock	The parameter value can be viewed and modified when "LC = 3".	0
ALH	Over temperature alarm	When "temperature measurement value > temperature setting value + HAL, there will be an upper deviation overtemperature alarm.	(0~100.0°C)20.0
ALL	Lower deviation temperature alarm	When the temperature measurement value < temperature setting value - ALL, there is a lower deviation temperature alarm.	(0~100.0°C) 0

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		Note: when "ALL = 0", the lower deviation alarm is invalid.	
P	Proportional	Time proportional function adjustment.	Note 1
I	Integral time	Integral action adjustment.	(1~2000 seconds) 200
d	Differential time	Differential action regulation	(0~1000 seconds) 200
T	Control time	Heating control time	(1~60 seconds) Note 2
Pb	Correction of temperature measurement deviation	It is usually used to correct the error in low-temperature measurements. Pb = Actual temperature measurement - instrument temp.	(-50.0~50.0 °Q) 0
PL	Temperature measurement slope correction	It is usually used to correct the error in high-temperature measurements. PL = 1000 * (actual temperature value - instrument measurement value) ÷ instrument measurement value.	(-999~999) 0
Address	Communication address	Reservation, invalid.	(1~32) 1
Loc	Setting Lock	0: the temperature or time setting value can be modified.	(0~1) 0

Note 1: CU50 type: (0.1-100.0 °Q 20.0; others: (0.1-300.0 °Q 35.0.

Note 2: the factory default value of the relay output control cycle is 20 seconds, others are 5 seconds.

8. Troubleshooting

Problems	Causes	Solution
No power supply	Socket without power.	Change socket.
	Not plugged or wire broken.	Plug well or connect the wire well.
	The fuse is open.	Change fuse.
	The power switch is not on.	Switch on.
No temperature increasing	Setting the temperature is too low	Adjust the setting temperature.
	An electric heater is broken	Change the electric heater.
	The temperature sensor is broken.	Change the temperature sensor.
	Temperature sensor loose.	Tighten the sensor connecting the wire.
Big deviation in temperature	The temperature sensor is broken.	Change the temperature sensor.
Temperature out of control	Temperature sensor detached.	Fix the sensor.
	Controller broken or thyristor broken.	Change controller or thyristor.

9. Accessories

- Multi-segment programmable control
- Built-in printer
- RS 485 interface
- UV sterilizer
- Multi-segment programmable control

Item	Name	Category	Qty.
1	Heating incubator	Machine	1 Set
2	User Manual	Document	1Copy
3	Fuse	Spareparts	1pc
4	This packing list	Document	1 pc



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