

DW-SI-100B

Shaking Incubator

User Manual



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I . Safety tips

For your personal and property safety, the following must comply with !

1. The instrument must be reliably grounded
2. Please confirm that the local power supply meets the requirements before use.
3. Instruments should be used independent power socket.
4. Insert the plug
5. Do not plug the power cord with wet hand.
6. Do not pull the power cord to remove the plug
7. Do not damage the power cord or the power supply cord not appointed
8. Don't connect in the middle and use of soft wire of power extension cord
9. Do not insert your fingers, sticks or other objects into the air supply or air inlet
10. If there is abnormal state (burning smell, etc.) , immediately pulled out the power plug.
11. Do not perform repairs without authorization, improper repair can result in fire or electric shock.

The power plug must be unplugged in one of the following situations:

1. When power supply door is open.
2. When replacing the fuse.
3. When the instrument fails and cannot be used normally.
4. When the instrument stopped working for a long time and the power plug is full of dust.
5. When moving the instrument

II : Notes

Carefully reading the instruction before use, improper use will cause instrument damage or it can not work properly.

1. The equipment should be placed on hard and firm plane and make sure is level .
2. The instrument must be kept at a distance of about 10 cm from the wall.
3. Do not put the instrument at the edge of the stove or in direct sunlight.
4. Don't gravity to open or close the door .
5. Make sure the tray is at rest before opening the instrument door.
6. When the instrument is continuously cooled, it must be heated for every 10 days.

7. Check the flask clamp fixing screws regularly.
8. Do not open the instrument door frequently.
9. The surface of the instrument should not be in contact with volatile chemicals such as gasoline and banana oil.
10. Keep the inside and outside of the box clean, regularly clean up.

III. Brief introduction for the instrument

The new series of DW-SI constant temperature shaking incubator is designed for the needs of modern biological research experiments. It has beautiful appearance, easy operation interface, visual and alarm function, the micro-processing chip has high-precision control for instrument temperature and frequency.

The instrument is widely used in biological, chemical reactions, bacterial culture, fermentation, hybridization, enzyme and cell tissue research which has high requirements for temperature and oscillation frequency. It can be used both in shaking culture and static culture for microbial cell and various of bacterium. It has important and wide application in biology, molecular, medical, pharmacy, food, environment industry.

IV: Features

1. Integrated with incubator and shaker to save space and cost.
2. Three-dimensional eccentric drive mechanism, smooth and stable operation
3. Intelligent micro-processing controller with sound and light alarm function, tilting humanized operation panel, large LCD display with backlight , better visual effect.
4. With operating parameter memory save function, avoid tedious operation.
5. Encryption lock of running parameters of the , avoid wrong operation.
6. High precision frequency control system, frequency accuracy is ± 1 rpm.
7. With high precision temperature control, temperature control accuracy is ± 0.1 °C
8. The actual temperature deviated from set temperature more than ± 3 °C, instrument sends out sound -light alarm signal.

9. Unique automatic power-off protection for motor overheating or temperature runaway, .
10. With timing function, then instrument auto-stop with sound-light alarm.
11. Electronic control can debug closed circulation heating system, mute fan design.
12. Most advanced motor with large torque and long life,guarantees continuous working without maintenance

Wide range of detachable trays, flexible and convenient.

14. Mirror stainless steel chamber, stainless steel electrolytic polishing tray, spring, clamp flask.
15. Plastic spraying finishing, with large observation window.

V. Preparation before use

1. The instrument should be placed in a flat, dry and free of direct sunlight place.
2. To ensure smoothness during operation, the instrument must be placed horizontally.
Adjust the right front foot of the instrument to make the instrument land smoothly.
3. In order to ensure the constant temperature effect ,the instrument should have sufficient heat dissipation space , the equipment must be placed at least 10 cm away from the wall or the object.
4. Adopt power socket with a capacity not less than 1KW and an AC voltage of 220V.
5. Power on the machine by pressing the main power switch on the right side of the instrument.

VI. Control panel



Shaker 100B has no cooling and lighting functions.

1) Temperature and parameter settings:

1. Press the “Temp.” button, enter the temperature setting status. Temperature display flashes. You can press “◀”, “▼” and “▲” buttons to revise to the required values. Press “Temp.” again to quit setting status and the revised value will be stored.

2. Long press the Temp. key for 3 seconds then the under row of the display window shows password prompt “Lc” and the upper row shows password area. Press shift key “◀”, “▲” and “▼” to revise the password then press Temp. key. If the password is not right the controller returns to the normal display status otherwise the controller enters the temperature inner parameter setting status. Press Temp. key again to revise the parameters. Long press Temp. key for 3 seconds to quit setting status and the parameters

will be stored automatically.

Inner parameters table -1

Parameter prompt	Parameters	Parameter function explanation	Factory default vale (Range)
Lc-	Password	If Lc=3, parameter can be checked and revised.	0
AL-	Over temperature deviation alarm	If measured temp.>Set temp.+AL, alarm light is on and buzzer rings and heating is cut off	(0~100.0°C) 5.0
T-	Control period	Temperature control period	(1~60s) 5
P-	Proportional band	Time proportional action adjustment	(1 ~ Range Values
I-	Integral time	Integral action adjustment	(1~1000s) 200
d-	Differential time	Differential action adjustment	(0~1000s) 200
cT-	Compressor startup delay	Compressor delay protection, two start up time≥ cT minutes	(0.0~10.0min)3
Pb-	Zero setting	Adjust the sensor (lower temperature) measurement error. Pb= Actually measured value-instrument measured value	(-12.0~12.0°C) 0
PK-	Full scale adjustment	Adjust the sensor (higher temperature) measurement error. PK=1000* (actual temperature-instrument measured temperature)/instruments measured temperature	(-999~999) 0

Inner parameter table -2

Parameter prompt	Parameter	Parameter function explanation	Factory default value (range)
Lc-	Password	If Lc=9, the parameter could be checked and revised.	0
Co-	Deviation value for cutting off heating output	When the measured temperature≥ Set temperature + Co, cut off the heating output	(0~50.0) 5.0
Ad-	Communication address	Local communication address.	(1~16) 1

rH1-	Temperature range value	Max. value of the set temperature.	(0~100.0℃) 100.0
rH2-	Speed value range	Max. value of the set speed.	(0~500RPM) 300

Speed and parameter settings:

1) Press the “Speed” button, enter in the speed setting status. Speed display flashes. You can press “◀”, “▼” and “▲” to revise the values. Press “Speed” again to quit setting status and the revised value will be stored.

2) Long press the speed key for 3 seconds then the under row display shows password prompt “Lc” and the upper row shows password area. Press shift key “◀”, “▲” and “▼” to revise the password then press speed key. If the password is not right the controller returns to the normal display status otherwise the controller enters the speed inner parameter setting status. Press speed key again to revise the parameters. Long press Speed key for 3 seconds to quit setting status and the parameters will be stored automatically.

Inner parameter table

Parameter prompt	Parameter	Parameter function explanation	(range)Factory default value
Lc-	Password	If Lc=3 the parameter could be checked and revised.	0
F1-	memory function in case of power off	0:No memory function when power off 1:Have memory function when power off	(0~1) 1
F2-	Acceleration time	The time which motor from the halted state to the highest speed	(0~200S) 30
F3	Deceleration time	The time which is from high speed to the halted state	(0~200S) 20
F4	Gear ratio	Big gear diameter/small gear diameter	(1.0~20.0) 5.0

F5	The speed highest	The rated speed of motor / 100 , when the motor rated speed is 3000 RPM,P4 = 3000/100 = 30	(1~100)30
F6	Show sensitive area no	Please contact with me while using this parameter	(1~9)1 Note: do not modify

Time setting

Press the "Time" button to enter the time setting status, time display flashes. You can press "◀", "▼" and "▲" to revise the values. Press "Time" key again to quit setting status and the revised value will be stored.

Operation methods

1. When the controller is powered on, display windows all lighted, then it starts running within 2 seconds.

2. Timing function

When the timing time is "0", there was no time function, the controller run continuously; When the timing value is not "0", when motor running starts timing (using the countdown), motor stops running when timing is over, the time display shows "End", buzzer, click on the "start/stop" button, can restart the operation.

Note: If the timing time changed during operation, the controller restarts the timing according to the new set time.

3. Memory function in case of power off

1) With memory function when power off: The controller power on again after the blackout, speed in the halted state

2) With memory function when power off: Controller power on again after the blackout, speed keeps in the running state at the last power failure

4. Motor start and stop.

Click "start/stop" button to start or stop the motor. "Run" lights up when the motor start and lights off while it stop, "stop" lights up.

5. Door control function

If the door opens, "Door open" lamp lit up or it will go off. If the door switch is on during operation, the controller will automatically stop running, and then turn off the door switch, the controller will automatically start running.

6.Speed alarm

When the motor with over-voltage, under-voltage, over-current, illegal hall signal failure, etc, controller returns to the stop mode automatically, the speed area displays "Err", "alarm" light, buzzer. Please shut off the power when fail, check the motor connection carefully and power on again after confirmed.

7. Over temperature alarm, buzzer, "alarm" light. If the over temperature alarm is caused by revising the set temperature value, then the "alarm" light is on but the buzzer does not ring.

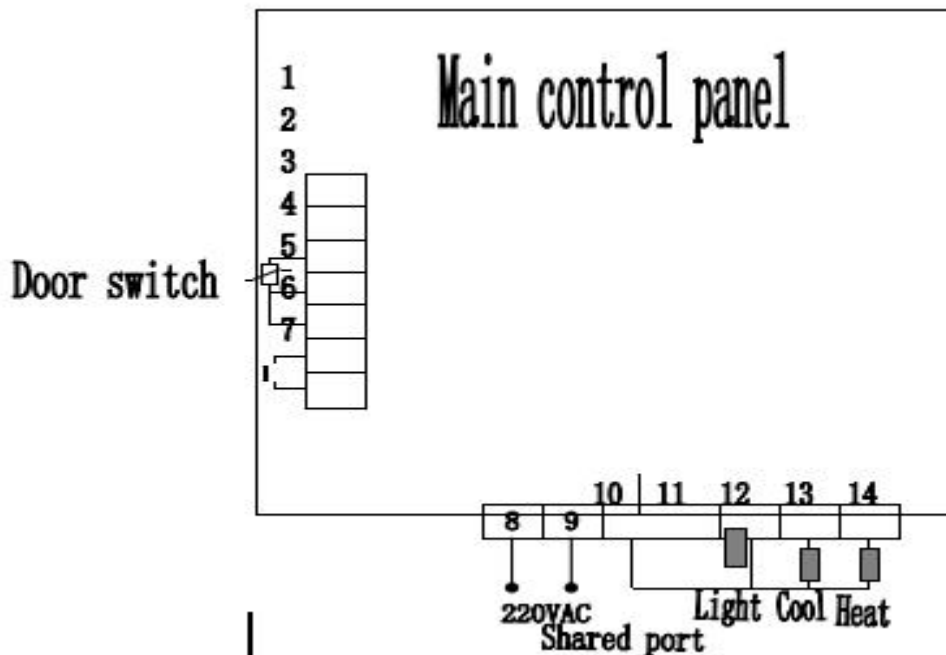
8. Press any key to eliminate the buzz.

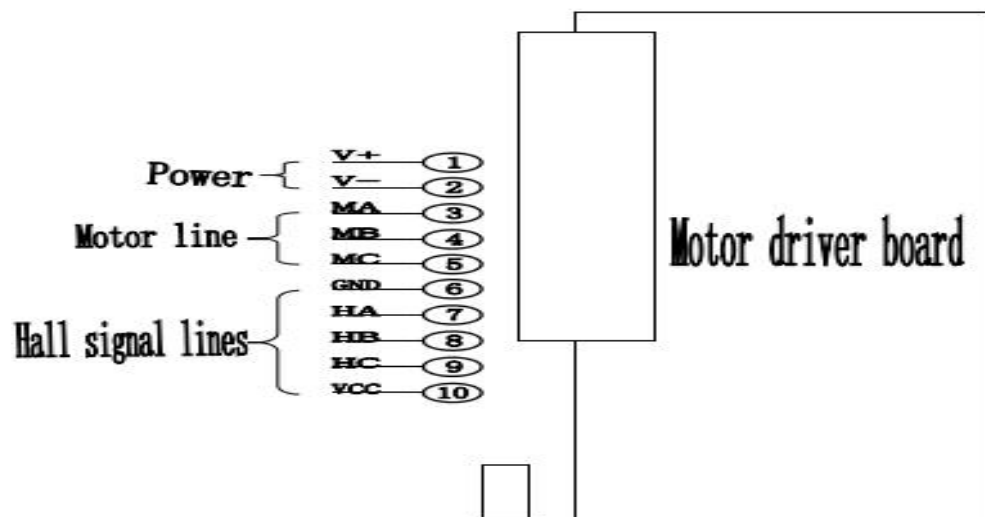
9. Press the "backlight" key open LCD backlight

10. Without key pressed within 1 minute in the setting state, the controller will automatically return to the normal display state.

11. If "----" is displayed on the upper display of the controller, it indicates that the temperature sensor or the controller itself is faulty. Please carefully check the temperature sensor and its wires.

Electric circuit diagram

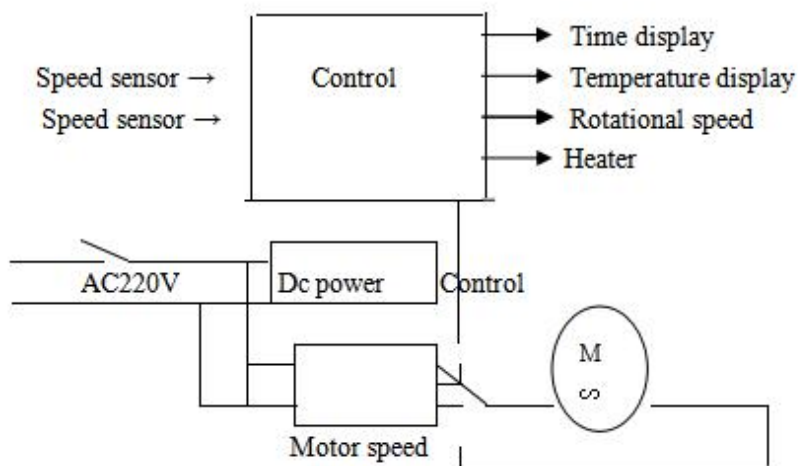




VII. Technical parameters

Model	DW-SI-100B
Rotation frequency	20-300rpm
Frequency Accuracy	±1rpm
Vibration Amplitude	Φ25mm
Max. Capacity	50mL×20 or 100mL×16 or 250 mL×12 or 500mL×9
Standard configuration	50mL×4 、 100mL×4、 250mL×3、 500mL×3
Tray Size	450ml×370mm
Timing Range	0-999hr
Temperature range	RT+5℃~60℃
Temperature accuracy	±0.1℃(constant temperature state)
Tray Quantities	1
External dimension(mm)	600×580×510 (mm)
Package Size (mm)	740×700×660 (mm)
Net weight	72kg
Power	320W
Power supply	AC220~240V ,50~60HZ

VIII:Electrical principle diagram



IX:Troubleshooting

Phenomenon	Reason	Solution
Instrument doesn't work, panel no display	No power	Check if the instrument power plug plugged in; is there power in power socket, if the power switch turned on
	The fuse burned	Change with same specification fuse
Instrument works, LCD screen no display	The same circuit with high frequency interference sources	Press the parameter modification/confirm button to resume display; eliminate the same line interference source or set up a dedicated line
Large temperature fluctuations	Refrigerating system not correct	According to the instruction manual reset
The measured temperature is too high and often enters the over-temperature alarm state.	The control temperature is too high	Open the back vent of instrument
Large noise	Instruments placed uneven	Adjust the left foot after of the instrument to make the instrument placed smoothly
	porous tray loose	Tighten the four corners fastening nut of the tray
	Clamp flask loose	Take out the tray, fastening clamp flask nuts with random attached to the tool

X:After-sales service

The warranty for the incubator is 14 months from delivery(except for the heating elements). If damaged due to non-human factors or can not work normally during warranty period,, our company is responsible for free repair or replacement of product parts. Beyond the warranty, we try our best to provide convenience for customers.

Packing List

Item	Qty.
Instrument	1 Set
Fuse	1pc
User Manual	1

The items listed in this list match the contents contained in the box.

Packing date:

Packing inspector:

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