



Vacuum Drying Oven

Operation Manual

(Please read the instruction carefully before you use the machine)

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1. Safety Warnings



Prohibited Actions

- Do not store volatile, flammable, or explosive materials in this device, as they may cause fire or explosion.
- Do not place the device in areas exposed to rain, moisture, or water splashes to avoid risks of leakage, short circuits, or electric shock.
- Do not disassemble, repair, or modify the device unless you are a qualified technician. Improper handling may result in fire, electric shock, or serious injury.



Required Safety Practices

- Install the device on a stable and solid surface. An unstable installation may cause the equipment to tip over and result in injury.
- Use only the power supply specified on the nameplate of this device, and ensure the socket is properly grounded. Reliable grounding is essential to prevent electric shock or fire caused by electrical leakage.
- Always disconnect the power supply before performing any repair or maintenance to avoid the risk of electric shock or injury.
- Wear protective gloves when handling, repairing, or maintaining the equipment to prevent cuts or injuries from sharp edges.
- If any abnormal condition occurs during operation, immediately unplug the device and stop using it. Continuing to operate under abnormal conditions may lead to electric shock, fire, or further damage.

2. Main Features

- **Durable Construction:** The box is made of high-quality cold-rolled steel plate with a spray coating finish, providing both durability and an elegant appearance.
- **Premium Interior:** The inner chamber is made of high-grade stainless steel with rounded corners, ensuring easy cleaning and excellent performance.
- **Enhanced Sealing:** Features an adjustable door lock, reinforced observation window frame, and a new high-temperature-resistant silicone sealing strip for reliable airtight performance.
- **Intelligent Control System:** Equipped with a high-brightness LED digital display and intelligent PID controller for simple operation, precise temperature control, and programmable timing functions.
- **Efficient Heating:** Utilizes external wall conduction heating for rapid temperature rise and quick stabilization at the set temperature.
- **Clear Observation:** The door incorporates a double-layer glass design, allowing easy observation of samples during operation.
- **Inert Gas Port:** Standard inflation port included, enabling the introduction of inert gas into the chamber for specialized experiments.
- **Safety & Diagnostics:** Built-in over-temperature alarm, deviation correction, and sensor diagnostic functions to ensure safe and reliable operation.

3. Technical Specifications

Chamber Volume		24L	52L	91L	214.5L
Heating Method		Reduced pressure, four-wall heating			
Performance	Usage Temperature Range	RT +10°C ~ 250°C			
	Vacuum Range	<133 Pa			
	Temperature Resolution	0.1°C			
	Temperature Fluctuation	±1°C			
	Heating Time	80 min	100 min	120 min	120 min
Structure	Chamber	High-quality patterned stainless steel plate			
	Outer Shell	Cold-rolled steel plate, electrostatic spray finish			
	Insulation Layer	High-quality aluminum silicate cotton (CE certified)			
	Heater	Stainless steel electric heating tube			
	Observation Window	Bulletproof tempered glass			
	Vacuum Gauge	Pointer type, accuracy class 1.6			
	Nozzle Diameter	10 mm			
	Rated Power	0.8 kW	1.4 kW	2.0 kW	3.0 kW
Controller	Temperature Control	Dual-temperature intelligent PID			
	Temperature Setting	Touch button input			
	Temperature Display	Upper row: measured value (4-digit LED) Lower row: set value (4-digit LED)			
	Timer	0-9999 min (with delayed start function)			
	Operation Modes	Fixed value operation, timed operation, auto stop			

	Additional Features	Sensor deviation correction, overshoot self-tuning, internal parameter lock, power-off memory			
	Sensor	Pt100			
Safety Device		Over-temperature alarm (sound & light)			
Dimensions	Chamber Size (WxDxH, mm)	300x300x270	415x370x340	450x450x450	550x600x650
	Overall Size (WxDxH, mm)	480x480x606	560x540x680	640x590x780	740x740x1000
	Packaging Size (WxDxH, mm)	590x550x750	704x620x814	739x700x889	839x850x1109
Number of Partition Layers		2			
Partition Load Capacity		15 kg			
Partition Spacing		100 mm	140 mm	185 mm	265 mm
Partition Board		2			
Partition Frame		4			
Power Supply (50/60 Hz)		AC220V 3.6A	AC220V 6.3A	AC220V 9.1A	AC220V 13.6A
Net / Gross Weight (kg)		42 / 52	67 / 92	82 / 105	170 / 200

4. Instrument Operation & Display Instructions

4.1 Preparation Before Use

- 1) Ensure that a vacuum pump is available. Connect the left suction port of the vacuum oven control box to the vacuum pump using a vacuum rubber tube (inner diameter 9 mm).
- 2) Before connecting the oven to power, confirm that the power switch is in the OFF position.
- 3) Place the oven indoors in a well-ventilated area. Do not place flammable or explosive materials nearby.

4.2 Operation Steps

- 1) Place the materials to be dried into appropriate containers, then put them on the partition inside the oven.
- 2) Close the oven door and shut the air release/fine adjustment valve.
- 3) Switch on the vacuum pump:
 - Open the suction valve to start pumping.
 - When the vacuum gauge reaches just above the required vacuum level, close the vacuum valve before switching off the pump.
 - Use the air release/fine adjustment valve to fine-tune to the desired vacuum level.
- 4) Connect the oven to power. Set the temperature and time parameters according to the controller instructions, then start the operation.
- 5) After drying is complete:
 - Switch off the power.
 - Slowly open the air release valve to return the chamber to atmospheric pressure (wait until the vacuum gauge pointer returns to zero).
 - Open the door carefully and remove the items. If the chamber is still hot, allow cooling or use heat-protective gloves/tools.

4.3 Controller Operation



Panel indication

1) Temperature and Timer Settings

- Press the SET button to enter the temperature setting mode:
 - a. Lower display: SP (Set Point)
 - b. Upper display: temperature setting value (flashing digit can be adjusted using shift/increase/decrease keys).
- Press SET again to enter the constant temperature time setting mode:
 - a. Lower display: St (Set Time)
 - b. Upper display: time value (flashing digit can be adjusted using shift/increase/decrease keys).
- Press SET again to save and exit. Values are stored automatically.

2) Password and Internal Parameters

- Long press SET for 3 seconds → lower display shows Lc (Password).
- Upper display shows the password value (can be adjusted using shift/increase/decrease keys).
- If the password is incorrect, the controller will automatically return to the normal display mode. If correct, you can enter internal parameter settings.
- Long press SET again for 3 seconds to exit; new parameters will be saved automatically.

4.4 Internal Parameter

Table 1 - Basic Control Parameters

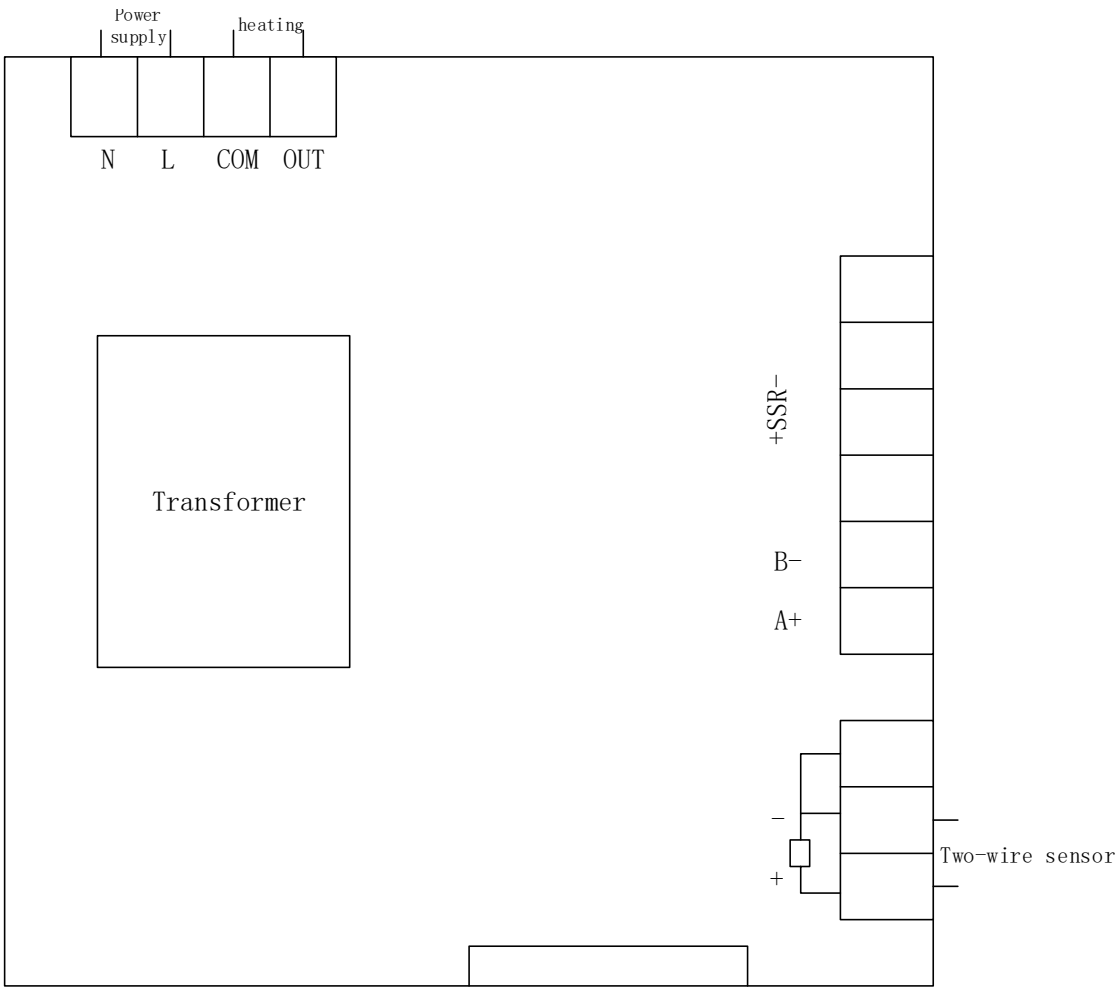
Parameter indication	Parameter Name	Function Description	(Scope) Factory value
Lc-	Password	When Lc=3, parameter values can be viewed and modified.	0
AL-	Over-temperature deviation alarm	When the measured temperature \geq (set temperature + AL), the alarm light turns on, the buzzer sounds, and heating output is cut off.	(0 ~ 100°C) 5.0
T-	Control cycle	Heating control cycle.	(1 ~ 60s) 5
P1-	Proportional band (low-temperature zone)	Time-proportional adjustment.	(1.0 ~ Range value) 35.0
I1-	Integral time (low-temperature zone)	Integral adjustment.	(1 ~ 1000s) 200
d1-	Differential time (low-temperature zone)	Differential adjustment.	(0 ~ 1000s) 200
P2-	Proportional band (full range)	Time-proportional adjustment.	(1.0 ~ Range value) 35.0
I2-	Integral time	Integral adjustment.	(1 ~ 1000s) 200
d2-	Differential time	Differential adjustment.	(0 ~ 1000s) 200
dc-	Low-temperature zone inflection point	When set temperature \leq dc, control is in the low-temperature zone.	(0 ~ Range value) 80.0
Pb-	Zero offset correction	Corrects sensor error at low temperatures. $Pb = \text{Actual value} - \text{Measured value}$.	(-50 ~ 50°C) 0
PK-	Full-scale correction	Corrects sensor error at high temperatures. $PK = 1000 \times (\text{Actual} - \text{Measured}) / \text{Measured}$.	(-999 ~ 999) 0

Et-	Timing function	ET=0: no timing; 1: timing starts at power-on; 2: timing starts when set value is reached.	(0 ~ 2) 2
Lc-	Password	When Lc=9, parameter values can be viewed and modified.	0
Co-	Heating output cut-off deviation	When measured temperature \geq (set value + Co), heating output is stopped.	(0.0 ~ 50.0°C) 5.0
Hn-	Constant-temperature timing unit	0: minutes; 1: hours.	(0 ~ 1) 0
En-	End-of-operation constant temperature	En=0: output off after completion; En=1: maintain constant temperature.	(0 ~ 1) 0
Lt-	Max. power output	Maximum heating output percentage.	(0 ~ 100) 100
oP-	Door control function	0: disabled; 1: enabled.	(0 ~ 1) 1
rH-	Range value	Set according to measurement range.	FCD:(0~400.0°C) 250.0
ad-	Communication address	Device address for communication.	(1 ~ 32) 1

Table 2 - Internal Parameters

Parameter Indicator	SP	St	Lc	AL	T	P	I	d
English Name	SP	St	Lc	AL	T	P	I	d
Parameter Indicator	Pb	Pk	Co	Hn	oP	rH	En	Lt
English Name	Pb	Pk	Co	Hn	oP	rH	En	Lt

5. Instrument Wiring Diagram



6. General Faults and Troubleshooting

Fault Phenomenon	Possible Cause	Troubleshooting Method
No display at startup	Power supply not connected	Check if the power socket has voltage
	Power plug not properly inserted	Ensure the plug is securely connected
	Power switch not turned on	Turn on the power switch (located on the right side of the instrument)
	Fuse damaged	Replace with a fuse of the same specification
Measured temperature exceeds set value or high-temperature alarm is triggered	Door not closed tightly	Close the door securely
	Instrument not yet stabilized at set temperature	Wait until the temperature stabilizes
After power on, temperature is not displayed and does not rise	Power cord not properly connected	Reconnect the power cord securely
	Sensor malfunction	Contact StonyLab for repair
	Heater failure	Contact StonyLab for repair
During vacuuming, the vacuum gauge pointer does not move	Door or valves not closed	Check and close the door and valves
	Dust on sealing strip or glass	Clean the sealing strip and inner glass with a damp cloth
	Vacuum gauge failure	Contact manufacturer for repair

7. Warranty

Warranty is effective from the date of purchase and is non-transferable.

For more details about the warranty, please refer to the link below:

stonylab.com/pages/warranty

For any inquiries or assistance, feel free to contact us:

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This instruction manual is subject to change without prior notice.