



## VACUUM OVEN

BER1J1

# INDEX

1. Safety warning before use	2
2. Main features of product	3
3. Technical Specification	4
4. Instrument operation and display instructions	6
5. Instrument wiring diagram	9
6. General faults and troubleshooting methods	10

# 1. Safety warning before use

The following matters may cause serious injury or death to personnel in accidents



Must prohibit items

1. Do not store volatile, flammable, or explosive materials in this device, as it may cause explosions or fires.
2. Do not place this device in a place that is exposed to rain, moisture, or may splash water, otherwise it may cause accidents such as leakage, short circuit, or electric shock.
3. Non professional technicians are not allowed to disassemble, repair, or modify equipment, otherwise improper operation may cause fire or electric shock accidents to personnel.

The following matters may cause personal injury, equipment damage, and related property losses.



Must comply with items

1. This device should be installed on a solid ground. If the ground is not solid enough or the installation location is not suitable, personnel may be injured due to equipment overturning.
2. Please use the dedicated power supply indicated on the nameplate of this device, and the power socket must be grounded. This device must be reliably grounded to prevent accidental electrical leakage that may cause electric shock or fire.
3. Before carrying out any repairs or maintenance on this equipment, be sure to disconnect the power supply to prevent electric shock or personal injury.
4. When repairing or maintaining equipment, it is necessary to wear gloves to prevent personal injury caused by touching edges or sharp corners.
5. If any abnormalities are found in the operation of the device, immediately unplug the power plug and stop the device from running. Operating under abnormal conditions may cause electric shock or fire.

## 2. Main features of product

1. Temperature controller LCD screen display, multiple sets of data displayed on one screen, intelligent PID temperature control system, equipped with PT100 high-precision sensor, high temperature control accuracy.
2. LCD vacuum degree display instrument, accuracy level 0.5, Mpa, Kpa, bar, Psi, kgf/cm<sup>2</sup> Five pressure units can be switched freely, with high pressure accuracy level and convenient use
3. The box is made of high-quality cold-rolled steel plate, and the surface is treated with spray coating technology, with a beautiful and elegant appearance.
4. The inner wall is made of high-quality stainless steel, and the four corner arcs are easy to clean and have good performance.
5. The heating method adopts the outer wall conduction heating method, which has the characteristics of fast heating speed and short constant temperature time.
6. The middle of the box door adopts a double-layer glass structure, making it easy to observe the dried sample.
7. Equipped with an inflation port as standard, it is convenient to use inert gas to charge the studio for experiments.
8. This product has temperature over temperature alarm, deviation correction, and sensor diagnostic

functions.

### 3. Technical Specification

Model		BER1J1
Heating method		Reduced pressure, four wall heating conduction
performance	Operating temperature range	RT+10-250°C
	Use vacuum degree range	<133Pa
	Temperature resolution	0.1°C
	Temperature fluctuation	±1°C
	Heating time	80min
structure	studio	High quality French stainless steel plate
	Shell	Cold rolled steel plate, surface electrostatic spraying
	Insulation layer	High quality aluminum silicate cotton (with CE certification)
	heater	Stainless steel electric heating tube
	Observation window	Bulletproof tempered glass
	Vacuum gauge	LCD display, accuracy level 0.5
	Diameter of nozzle	10mm
	Rated power	0.8kW
controller	Temperature control method	Dual temperature intelligent PID
	Temperature setting method	Touch type button settings
	Temperature representation method	LCD color screen, multiple sets of data displayed on one screen
	Timer	0-9999 minutes (with timed waiting function)
	Running functions	Fixed value operation, timed operation, automatic stop
	Additional features	Sensor deviation correction, temperature overshoot self-tuning, internal parameter locking, power-off parameter memory
	Sensor	pt100
Safety devices		Overtemperature sound and light alarm

Specification	Studio (width * depth * height mm)	300*300*270
	Appearance (width * depth * height mm)	480*480*606
	Outer packaging (width * depth * height mm)	590*550*750
	Internal volume	24L
	Number of partition layers	2
	Partition load-bearing capacity	15kg
	Partition spacing	100mm
	Rated current of power supply (50/60Hz)	AC220V/3.6A
	Net weight/gross weight (kg)	42/52
Accessories	partition	2
	Partition frame	4
Can add configurations		Silicone connecting tube, vacuum pump filter, vacuum pump, WIFI control module

Table 1

## 4. Instrument operation and display instructions

### 1. Panel indication

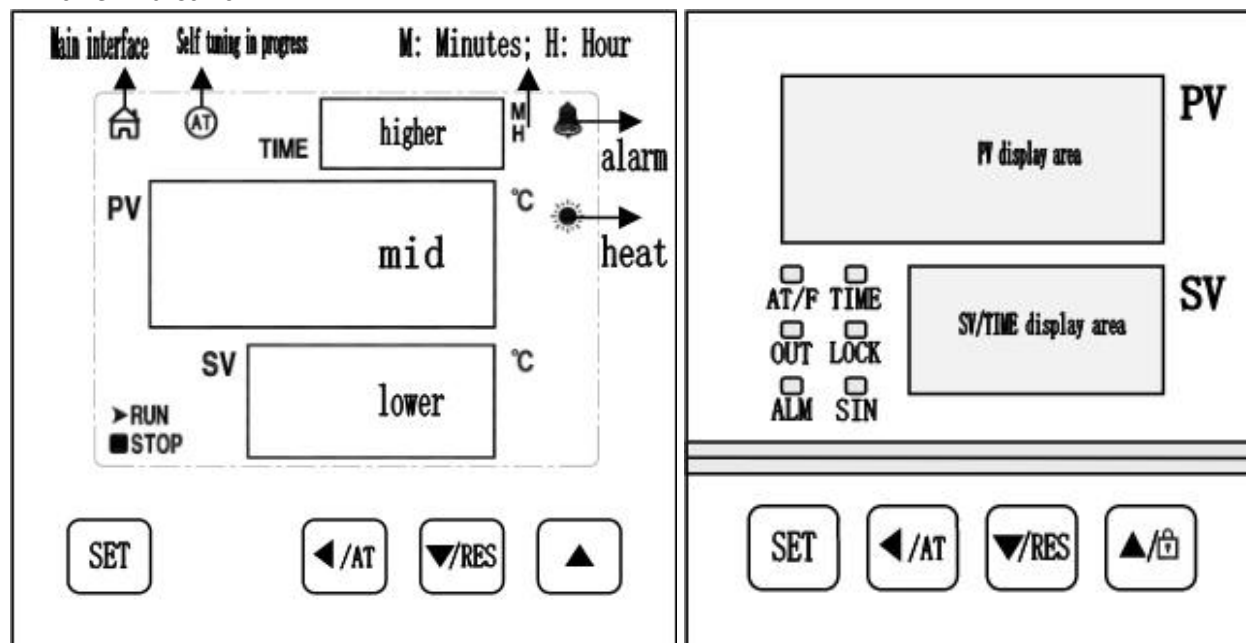


Figure 1

Definition of indicator lights:

1. Main interface indicator light: This light will light up during normal operation and turn off when entering

the set state.

2. "RUN" and "STOP" indicator lights: At the end of the timer, the "STOP" light will turn on, and in other states, the "RUN" light will turn on.
3. "AT" indicator light: This light flashes during self adjustment, otherwise it goes off.
4. "Alarm" indicator light: When there is an upper deviation over temperature alarm or abnormal temperature measurement value, this light will light up; when there is a lower deviation over temperature alarm, it will flash; otherwise, it will turn off.
5. "Heating" indicator light: When heating output, this light will light up, otherwise it will turn off.

4.2 Operation and usage method In the main interface display state, click the **【 Settings 】** button to enter the temperature setting state. The middle area displays the prompt "SP", and the lower area displays the temperature setting value. Use the **【 Shift 】**, **【 Increase 】**, and **【 Reduce 】** keys to modify to the desired setting value; Click the [Set] button again to enter the time setting state. The prompt "ST" will be displayed in the middle area, and the time setting value will be displayed in the upper area. Use the [Shift], [Increase], and [Decrease] keys to modify to the desired setting value; Click the "Settings" button again to exit this setting state and the set values will be automatically saved.

#### 4.3 Viewing and Setting of Internal Temperature Parameters

Note that the internal parameters have been adjusted before leaving the factory, and other parameters cannot be modified except for temperature correction and adjustment parameters In the main interface display state, long press and hold the [Set] button for 3 seconds. The password prompt "Lc" will be displayed in the middle area, and the password value will be displayed in the lower area. Use [Increase], [Reduce], and [Shift] to modify the desired password value. Then click the [Set] button. If the password value is incorrect, the instrument will automatically return to the main interface display state. If the password value is correct, enter the internal parameter setting state, and click the [Set] button to modify each parameter in sequence. During this process, long press the [Set] button for 3 seconds to exit this state, and the parameter values will be automatically saved.

Please refer to the table below for details:

Explanation: In the parameter table, the temperature setting value is abbreviated as SP, and the temperature measurement value is abbreviated as PV. Parameter Table-1 指示符	Name	Parameter Function Description	(Scope) Factory value
Lc	Password	When Lc=3, parameter values can be viewed and modified.	0
ALH	Upper deviation Over temperature alarm	When $PV > SP + ALH$ , there is an upper deviation over temperature alarm.	(0~100.0°C) 20.0
ALL	Lower deviation Over temperature alarm	When PV Explanation: When ALL=0, the lower deviation alarm is invalid.	(0~100.0°C) 0

P	Proportional band	Time proportional adjustment. Explanation: When P=0, it is an ON/OFF control.	(0~300.0°C) 35.0
I	Integral time	Integral adjustment.	(1~2000s) 300
d	Differential time	Differential action regulation.	(0~1000s) Note 1
T	Control cycle	Heating PID control cycle.	(1~60s) Note 2
Pb	Correction of measurement temperature deviation	Usually used to correct errors generated during low-temperature measurements. Pb=actual temperature value - PV	(-50.0~50.0°C) 0
PL	Measurement temperature slope correction	Usually used to correct errors generated during high-temperature measurements. PL=1000 * (actual temperature value - PV) ÷ PV	(-999~999) 0
Addr	Mailing address	Local communication address.	(1~32) 1
Loc	Set lock	0: Temperature or time settings can be modified; 1: Prohibit modifying temperature or time settings.	(0~1) 0

Table 2

Note 1: PT100 type: 200; K-type thermocouple: 150

Note 2: PC-D8007 (relay output) type instrument: 20; Other: 5

Indicator	Name	Parameter Function Description	(Scope) Factory value
Lc	password	When Lc=567, parameter values can be viewed and modified.	0
rST	recovery Factory value	0: Cancel restoring factory values; 1: Confirm factory reset.	(0~1) 0

Table 3

1. Digital vacuum instrument usage function

2. Power on/off: Press and hold the "ON/OFF" (left) button for more than 3 seconds to turn on or off.

3. Reset: Under atmospheric pressure or when there is no pressure in the pipeline, press and hold the "Zero" button for  $\geq 3$  seconds to reset.

Unit switching: Short press the "Unit" (right) button to cycle through pressure units in sequence

## 5. Instrument wiring diagram

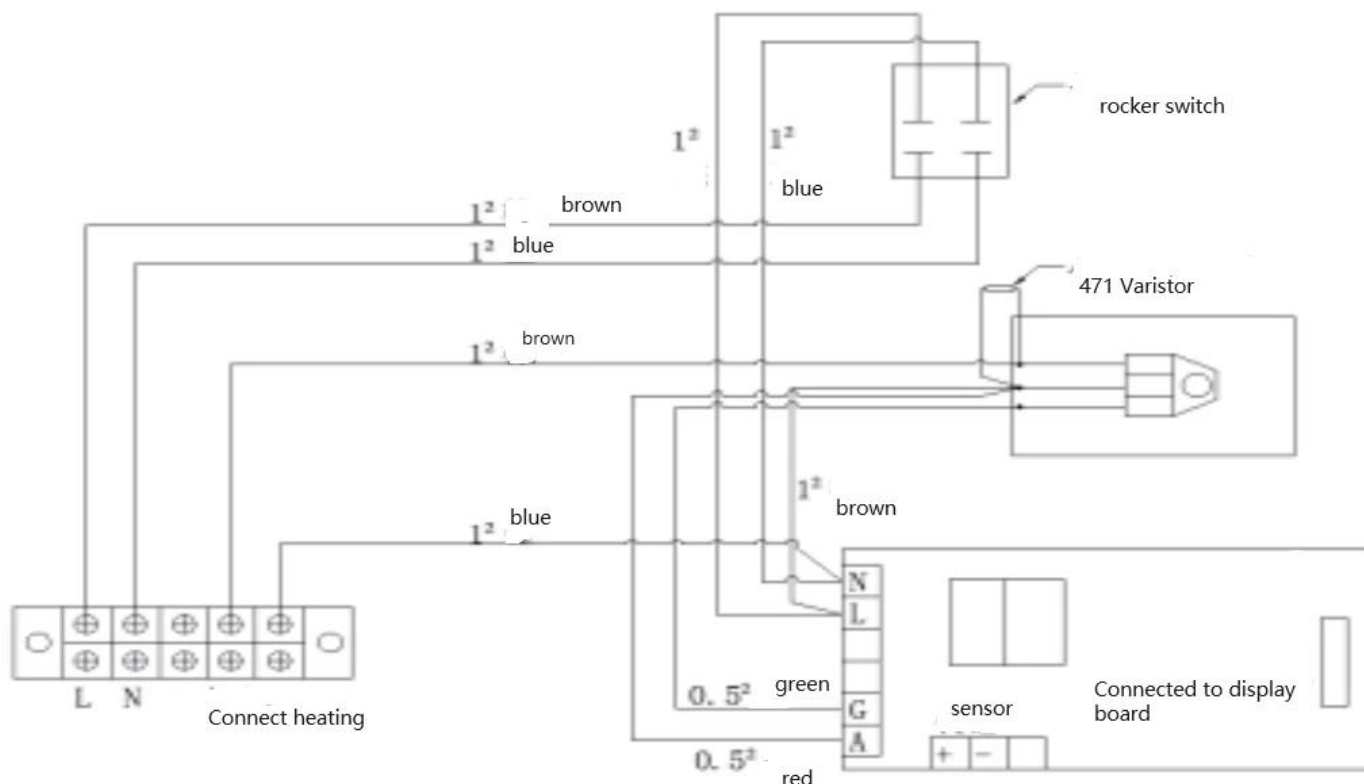


Figure 2

## 6. General faults and troubleshooting methods

Fault phenomenon	Fault inference	Fault handling methods
No display on startup	Power supply not connected	Check for voltage in the power socket
	The power plug is not properly plugged in	Check if the contact between the power plug and the socket is reliable
	The power switch is not turned on	Turn on the power switch on the right side of the instrument
	The fuse on the box is damaged	Replace the power fuse with the same specification
The measured temperature is higher than the set temperature or the instrument enters a high temperature alarm state	The box door is not tightly closed	Close the box door tightly
	The instrument has not yet entered a constant temperature state	Wait for a moment before making an observation

After turning on, the temperature does not display and does not rise	The power cord is not properly plugged in	Insert the power cord properly
	Sensor malfunction	Notify the factory for repair
Fault phenomenon	Fault inference	Fault handling methods
When vacuuming, the vacuum gauge value does not change	Check if the doors and valves are not closed	Check and close doors and valves
	There is dust on the sealing strip and glass,	Wipe the rubber strip and the inner surface of the glass clean with a damp cloth
	Vacuum gauge broken	Notify the factory for repair

Table 4



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