



Laboratory Equipment Pty Ltd

**INSTRUCTION MANUAL
FOR CONSTANT TEMPERATURE
BENCHTOP INCUBATOR**

Laboratory Equipment Pty Ltd

"Proudly Australian Owned and Operated."

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Summary

WP25AB is the essential experiment equipment of modern medicine, biology and biochemistry industry departments for bacterium and microbe culturing and scientific research.

Structural Features

- Cold rolling steel electrostatic spraying exterior, novelty and nice
- Stainless steel or cold rolling steel corrosion- resistant inner chamber
- Door with magnetic rubber seal ensures seal ability
- Pointer or intelligent thermal control instruments can be used. The intelligent thermal control instrument uses the PID control program, digital display window and touch button and has an over-temperature alarm and timing function

Main Technical Parameters

Model	Voltage	Temp. Range	Temp. fluctuation	Heating Power	Interior Dimensions
WP25A WP25AB	240V/50-60Hz	RT+5~65°C	±0.5°C	180W	260x260x260

Notes:
'A' means intelligent thermal control instruction (No A means pointer instrument)
'AB' means intelligent thermal control instruction, stainless steel chamber (No B means steal inner chamber)

Working Conditions

- Voltage: 240±22V; Frequency: 50Hz
- Ambient Temperature: 5~40°C
- Relative humidity: < 90%
- Atmosphere Pressure: 80~106KPa
- No intensive shake and corrosive gas around
- Avoid direct sunlight or other hot or cold source

Operation

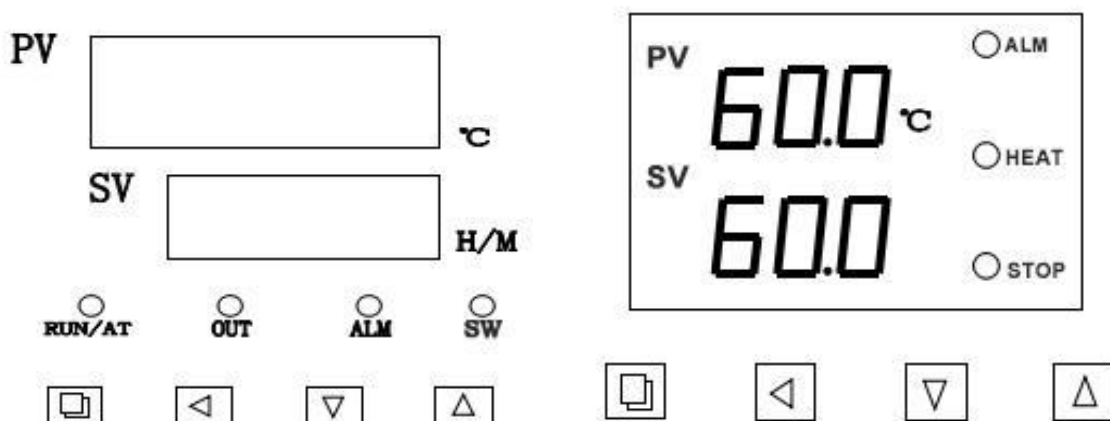
- Put the instrument on the flat ground or table.
- Plug in the corresponding charge and ensure all the grounding terminals of the power outlet are grounded.
- Turn on the power switch; then the power light is on. Set the temperature according to the needs of the culture. The temperature control instrument will indicate the temperature in the chamber after it starts to heat.
Notes: Rotate the button on the temperature controller for the pointer instrument (refer to the temperature controller instruction for digital instrument); put the culture in after the temperature keeps stable for 30 min.
- Turn off the power after completing the experiment, then the instrument will stop working.

Safety Information

- Complete the grounding at first then choose the wire twice of the power cord as the grounding wire.
- Keep the inner chamber clean
- No culture under the chamber; cultures should not be put too close to ensure the air circulation.

Controller operation instruction

1. Panel Instructions



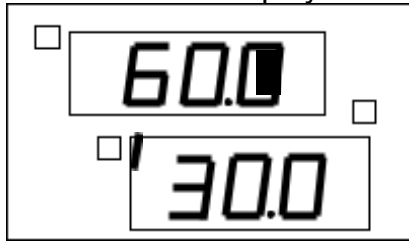
2. Indicator definition

- “RUN/AT” indicator: This indicator is bright when the controller is running, when the runtime is over, this indicator is not bright. When the controller enters the auto-tuning of PID, this indicator is flashing.
- “OUT” indicator: If the heater output turns on, this indicator is bright, else this indicator is not bright.
- “ALM” indicator: When the over-temperature alarm occurs, this indicator is bright.

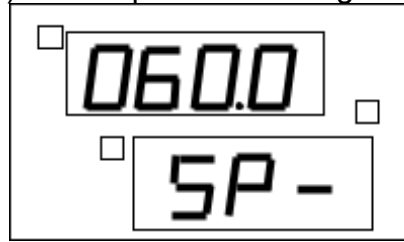
3. Operation and using

- When the controller is switched on, display windows show “In index (P, C, K, S)” and the value of temperature range for 3 seconds, then it starts running.
- Temperature and time settings:
 - Press the “Set” button, the controller runs into the temperature setting state.
 - Re-press the “Set” button, the controller runs into the time setting state. In setting state, you can use the “◀”, “▼” and “▲” buttons to get the required settings.
 - Press the “set” button again, it returns from the setting state and the settings are saved automatically.
 - If the time is set as “0”, the controller will run continuously, the display window of “SV” will display the set point temperature. If the time set value is not equal “0”, timers start time when the measuring temperature reaches the set point temperature, the display window of “SV” will display the runtime.
 - If En = 0, when the runtime is over, the “sV” window will display “End”, the buzzer will sound for 30s, off all outputs;
 - If En = 1, when the runtime is over, the “sV” window don’t show “End”, the buzzer sounds for 30 seconds, temperature Continue to constant temperature; After the end of operation, long press" shift / run" button for 3 seconds can restart the timer operation.

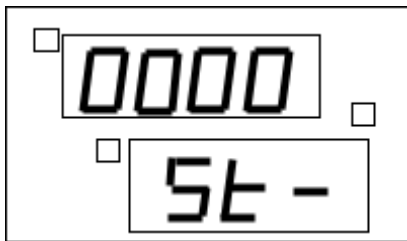
(1) The normal display



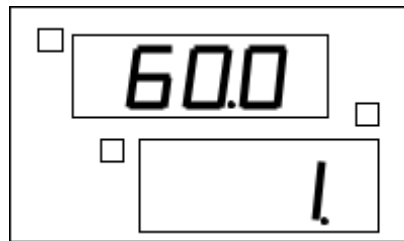
(2) the temperature setting state



(3) the time setting state



(4) Timing display



3) When the temperature alarm, the buzzer will sound," ALM" lights. If a change in temperature setting and over-temperature alarm," ALM" lights up, but no songs buzzer.

4) When the buzzer sounds, it can be muted by pressing any button.

5) “◀” button: In the setting state, it can shift the set value by pressing the button.

6) “▼” button: In the setting state, it can reduce the set value by pressing the button. If you press and hold the button, the set value will reduce continuously.

7) “▲” button: In the setting status, it can increase the set value by pressing the button. If you press and hold the button, the set value will increase continuously.

8) In setting state, the controller will return to run status if without any key press in one minute.

9) If the display window shows “----“, it indicates the fault of temperature.

4. AT function

When the temperature control effect is not ideal for system tuning. Self-tuning process temperature can have bigger overshoot, the users in a system setting before please consider this factor.

In not running state, the controller will enter the auto-tuning of PID by pressing the “◀” button for 6s,"RUN/AT" indicator flashes, it will be not bright when the auto-tuning of PID is completed. In the state, compressor into normally open mode, when the auto-tuning of PID after the end of a group of PID parameter, parameter automatic save and return to the normal mode of operation. When running the auto-tuning of PID, it can be stopped by pressing the “◀” button for 6s again. In the auto-tuning of PID state,if the temperature alarm, no songs buzzer and" ALM" don't light ,but the heating alarm relay automatic disconnect.And" set" keys to effective. In the system self-tuning process regardless of whether there is a constant temperature time setting, controller display window lower always display the temperature setting value.

5. Internal parameters settings

Note: All the internal parameter has been adjusted when factory test. Forbidden to modify them except Sensor Correction parameter.

Press the “Set” button for 3 seconds, and the controller will display the password prompt “Lc”. Adjust the password to the required value, then press the “Set” button again, it will run into the internal parameter setting state. if you press the “Set” button for another 3 seconds, it will return to the running state.

Parameter list-1:

Parameter indicator	Name	Instruction of the Parameter's function	(Setting range) factory set value
Lc-	Password	when Lc=3 ,then we can see and modify parameters	0
AL-	Alarming setting	When the temperature is beyond “SP+AL”, the Alarm indicator turns on. The buzzer sounds and the heater output turns off.	(0~100°C) 5
T-	Control cycle	The heat control cycle of temperature	(1~60S) Note 1
P-	Proportional band	Adjustment of proportional parameters.	(1.0~rH) 30
I-	Integration time	Adjustment of integration parameters.	(1~1000S) 400
d-	Differential time	Adjustment of differential parameters.	(0~1000S) 200
Pb-	Zero point adjust	When the zero error is comparatively larger, to update this value should be needed. Pb=measure value –actual value	(-50~50°C) 0
PK-	Full point adjust	When the full point error is also comparatively larger, to update this value should be needed. PK=1000×(measure value –actual value)/ actual value.	(-999~999) 0
Et-	Timing function	When ET = 0, no timing function; 1 electric start timing, 2 to the value set start timing.	(0~2) Note 2

Note 1 : If the selection of relay output, the heating control cycle should be selected in 20 seconds, the other models for 5 seconds.

Note2 : if FCD-300X series, a timing function for 2, other models for 0.

Parameter list-2:

Parameter indicator	Name	Instruction of the Parameter's function	(Setting range) factory set value
Lc-	Password	when Lc=9,then we can see and modify parameters	0
Co-	Turn off the heat output deviation	when “PV≥SP+Co”, Turn off the heating output.	(0.0~50.0°C) 5.0
Hn-	Constant temperature time mode	0 : minutes time ; 1 : hours time	(0~1) 0
En-	End of operation temperature	En = 0 end of run off output; En = 1 end run to constant temperature;	(0~1) 0
Lt-	Maximum power output	The heating output maximum power percentage;	(0~100)100
rH-	Range of temp setting	The value of temperature setting.	Note 3

Note3 : FCD-30XX: 0~400.0°C(300°C); FCD-31xx: 0~100.0°C(100°C);
FCD-3Kxx: 0~1200°C(1200°C); FCD-3Sxx: 0~1600°C;(1500°C)

Parameter list-3:(LCD series this parameter table as the standard, digital series this parameter table for matching)

Parameter indicator	Name	Instruction of the Parameter's function	(Setting range) factory set value
Lc-	Password	when Lc=23,then we can see and modify parameters	0
Fc	Fahrenheit temperature switch	1: for Fahrenheit temperature display; 0: Celsius temperature display	(0~1)0
bd	internal parameters	Customers should according to the Initial value	(0~1)0
ad	Address	Communication address	(0~32)1
p-t	Print interval	When p-t=0,no print	(0~9999s)0s

English name and parameter indicating the symbol table

						P	I	d
	■	■	■	■	■	■	■	■
	Pb	PE	Ca	Hn	oP	rH		
	■	■	■	■	■	■		

6. Wiring

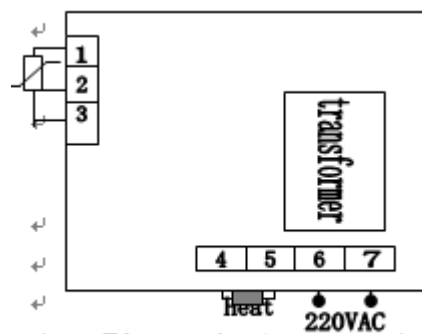


Figure 1 (FCD-3xx0)

Fault analysis

Problems	Reason	Solution
No power	Plug is not plugged in or line breaks	Plug well or replace the plug
	Fuse breaks	Replace the fuse
Temperature does not increase	Temperature sensor breaks	Replace the sensor
	Heater breaks	Replace the heater
	Inner wire joints loose or poor contact	Fasten wire joints

Installation and Maintenance

- Ground (table) should be flat.
- 20-30 cm away from the wall is fine
- Ventilate well, dust volume is small, and humidity is no more than 85%.
- Keep the equipment clean and dry.
- No stacked items on the box.

Storage and Delivery

Store the equipment in the environment where temperature is around -20~+40°C and relative humidity is less than 80%;