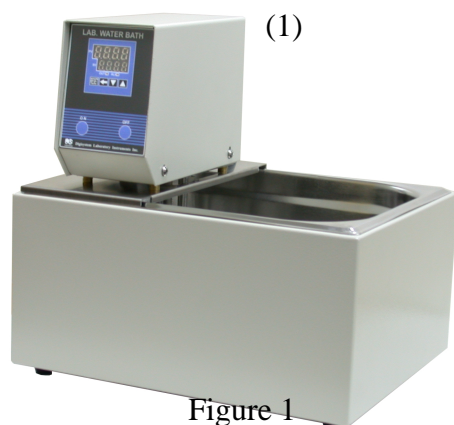


INSTRUCTION MANUAL FOR DSB-500D & DSB-1000D

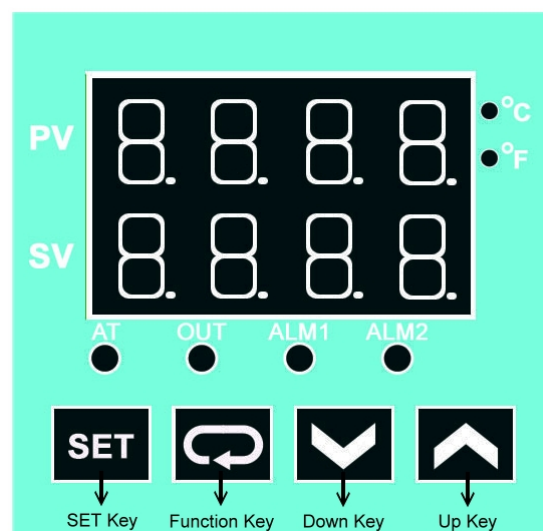


Name of parts:

- | | |
|---------------------|---------------------|
| (1) Controller | (2) Tank |
| (3) ON/OFF button | (4) Power indicator |
| (5) PID Controller | (6) Heater |
| (7) Pump Circulator | |

Steps:

1. Take “Controller” (1) out and set it into “Tank” (2) as Figure 1
2. Pour water into “Tank” until water level covers half height of “Tank”.
3. Connect with power supply. Please make sure the power voltage is the same as the voltage showing on the label stuck on the back of machine. You may see the “Power indicator’ (4) become red.
4. Press “ON/OFF Button”(3), then you may see the “Power indicator’ (4) become green. Wait for about 5 seconds; you can see from PID control panel the present temperature value (PV) in upper row and setting temperature value (SV) in lower row.
5. Press “Up Key” or “Down Key” to adjust SV value and then press “SET Key” to enter the value.
6. After finishing the work, please press “ON/OFF Button” (3) to turn off the power, and then the “Power indicator’ (4) become red.



Warning:

If water level is under the bottom of “Heater” (6), you must pour water into “Tank” to cover the heater. With the built-in over heating device, if the temperature is over 120°C, the power will be cut automatically.

Other functions:

Note: Before executing other functions, please follow “5. Setting lock” (c)to release “LOCK” status.
After executing other functions, please follow “5. Setting lock” to set “LOCK” status.

1. Setting point alarm:

(1) Setting upper-limit point for alarm: (When the difference between PV and SV is over upper-limit, the "Alarm Indicator" (ALM1) will light up.)

(a) Press **↔** twice. You will see **AL IH** in upper row and the setting point in lower row.

(b) Press "UP KEY" or "DOWN KEY" to set point, and press **SET** to enter the value. Press **SET** again to be back the PV/SV display.

(c) The initial value is 4.

(2) Setting lower-limit point for alarm: (When the difference between SV and PV is over lower-limit, the "Alarm Indicator" (ALM1) will light up.)

(a) Press **↔** three times. You will see **AL IL** in upper row and the setting point in lower row.

(b) Press "UP KEY" or "DOWN KEY" to set point, and press **SET** to enter the value. Press **SET** again to be back the PV/SV display.

(c) The initial value is 4.

2. Setting temperature unit:

(a) Press **SET** more than 3 sec.

(b) Press **↔** once. You will see **tPU** in upper row and the setting value in lower row.

(c) Press "UP KEY" or "DOWN KEY" to set temperature unit "C" or "F", and then press **SET** to enter value. Press **SET** again to be back PV/SV display.

(d) The initial value is C.

3. Setting PV shift (offset) value: (If the PV value is not correct, you can use this function to adjust the PV value).

(a) Press **SET** less than 3 sec.

(b) Press **↔** six times. You will see **tPOF** in upper row and the setting value in lower row.

(c) Press "UP KEY" or "DOWN KEY" to set shift value, and press **SET** to enter the value. Press **SET** again to be back the PV/SV display.

(d) The initial value is 0.

4. Setting Auto-tuning function:

(a) Press "UP KEY" or "DOWN KEY" to set SV value to be auto-tuning.

(b) Press **SET** less than 3 sec.

(c) You will see **At** in upper row and the setting value in lower row.

(d) Press "UP KEY" or "DOWN KEY" to choose "ON" to start or "OFF" to close auto-tuning function.

When auto-tuning function is on, you can see the "AT" indicator blanking. Once the auto-tuning function finish, the light of "AT" will extinguish.

(e) The initial value is OFF.

Note: (Auto-tuning function is that PID controller can depend on the ambient air temperature to find the best way to reach the setting temperature and let the setting temperature keep stable.)

5. Setting lock:

(a) Press **↔** four times. You will see **LoC** in upper row and the setting value in lower row.

(b) Press "UP KEY" or "DOWN KEY" to select locking status. **LoC** can lock all settings and **LoC2** can lock others than SV; When "off" is selected, the lock function will be off. After selecting, press **SET** to enter the value. Press **SET** again to be back the PV/SV display.

(c) If you press **↔** and **SET** simultaneously, the "Lock" status will be released.

(d) The initial value is **LoC2**.

6. During setting value, you may press **SET** anytime to be back PV/SV display.

SERVICE MANUAL

Caution: Always disconnect the power cord before troubleshooting.

Trouble	Cause	Remedy
Instrument inoperative	Power cord not connected to outlet.	Plug instrument in..
	Dead power output.	Change to different output.
	Current is overload, so the no fuse breaker on the behind of the controller	Push the button of the no fuse breaker to reset
Controller can't control the	Sensor is broken	Replacing a sensor

water temperature	PID controller	Replacing a PID controller
	Heater is broken	Replacing a heater
Pump Circulator doesn't work well	Pump Circulator is broken	Replacing a Pump Circulator
	Foreign bodies blockaged the pump Circulator	Sweep away the foreign bodies
The key of PID controller can't work	The keys has been locked	Please refer to page 2, Other functions 5. (c) to release the lock status.
Temperature is not stable	The initial setting value is not suitable for the ambient air temperature where the machine is located	Please refer to page 2, Other functions 4. to set auto-tuning function to solve this problem.
PV value is not correct	User's calibration thermometer is different from the factory's calibration thermometer	Please refer to page 2, Other functions 3 to adjust PV value

CIRCUIT DIAGRAM

