



Laboratory Equipment Manufacturer
www.mrclab.com



OPERATION

MANUAL

Orbital Shaking Bath

MODEL : WBT-550



PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

3, Hagavish st. Israel 58817 Tel: 972 3 5595252, Fax: 972 3 5594529 mrc@mrclab.com

MRC.VER.01-7.13

Power Checking:

1. Power input: 220V 7A 50Hz
2. Grounding is necessary for security.

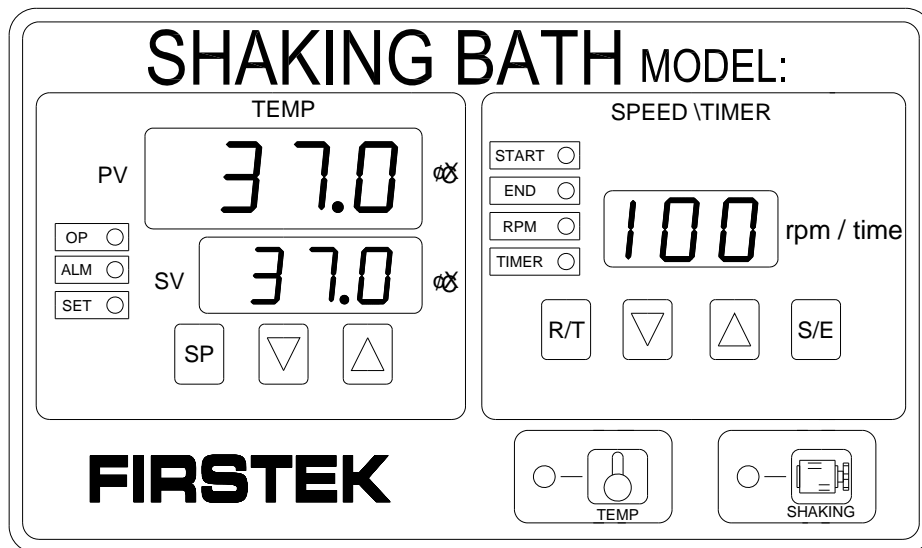
Cleaning:

1. Use carefully to extend the life time of machine.
2. If you will not use this machine for a long, please unplug and drain water out from the tank. Use a cloth with natural detergent to clean all elements and inner tank. After the inner tank and all elements are dried, you can put the cover on the tank for storage.
3. For regular cleaning, use soft and web cloth to clean the machine first. Then, use dry cloth to wipe the machine. If the machine has dirty spots, use natural detergent to clean them, and then use water to clean natural detergent.

Cautions:

1. Do not turn on the machine if there is no water in the tank.
2. Do not use corrosive liquid.

Control panel :



Temperature controller		Speed controller	
TEMP	Power ON/OFF Key for temperature	SHAKING	Power ON/OFF key for shaking
SP	Temperature setting key	R/T	RPM & TIMER switching key
▼	Down key	▼	Up key
▲	Up key	▲	Down key
OP	Heating indicator	S/E	START & END switching key
ALM	Point alarm indicator	START	Motor operation indicator
SET	Setting temperature indicator	END	Motor stop indicator
PV	Present temperature value	RPM	RPM indicator
SV	Setting temperature value	TIMER	Timer indicator

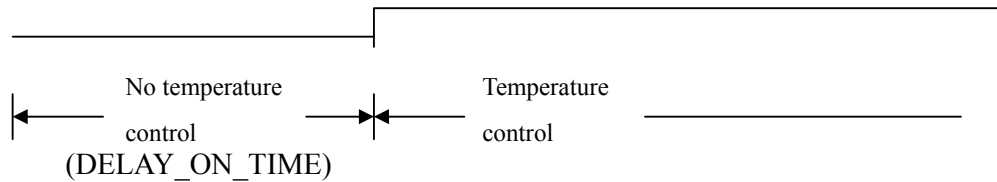
Temperature setting:

1. Press TEMP key to power on.
2. Press SP key until the SET indicator is illuminated. Then press ▲ ▼ key to set the desired temperature. Press SP key to input the value.

Timer setting:

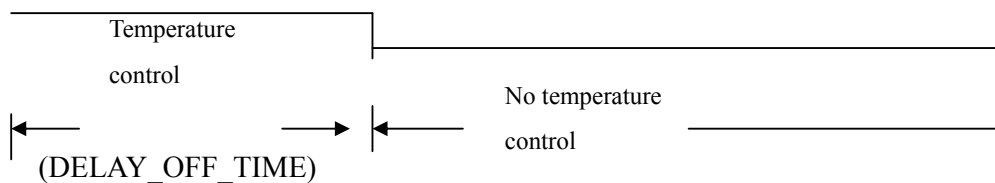
Time control has two functions (DELAY_ON and DELAY_OFF). Two functions cannot be executed at the same time.

1. DELAY_ON setting: press SP key for 5 seconds until °C/SV display shows AL-H. Then continue to press SET key until °C/SV display shows ON(DELAY_ON_TIME). Then use ▲ ▼ key to set the time value for DELAY_ON. For input value, press SP key for 5 seconds until °C/SV display shows SV value.



2. DELAY_OFF setting: press SP key for 5 seconds until °C/SV display shows AL-H. Then continue to press SET key until °C/SV display shows OFF(DELAY_OFF_TIME). Then use ▲ ▼ key to set the time value for DELAY_OFF. For input value, press SP key for 5 seconds until °C/SV display shows SV value.

(When the time for DELAY_OFF is up, the temperature controller will stop working. The beep sound will be heard and °C/SV display is flashing. Please press SP key to get back to °C/SV display.)



Point alarm setting and PV offset value setting :

- 1.Upper-limit point alarm setting: Press SP key for 5 seconds until °C/SV display shows AL-H(the initial value is 5°C). Use ▲▼ key to set value. For input value, press SP key for 5 seconds until °C/SV display shows SV value.
2. Lower-limit point alarm setting: Press SP key for 5 seconds until °C/SV display shows AL-L(the initial value is -5°C). Use ▲▼ key to set value. For input value, press SP key for 5 seconds until °C/SV display shows SV value.
- 3.PV offset value setting: Press SP key for 5 seconds until °C/SV display shows OFS(temperature adjustment value). Use▲▼ key to set value. For input value, press SP key for 5 seconds until °C/SV display shows SV value.

For example: If PV is 37°C and the reading value from thermometer is 37.5°C,please set PV offset value as 0.5°C. If PV is 37°C and the reading value from thermometer is 36.5°C,please set PV offset value as -0.5°C.

Parameters setting:

Action	PV display	SV display	Function
Press TEMP key (ON/OFF key). Once showing 888, press SP key for 5 seconds immediately	AbXX	Serl	Program version
Press SP key once	0.0(°C)	C_HI	Maximum operation temperature for compressor
Press SP key once	0	Addr	0=4-20mA output 1~100=RS485 address
Press SP key once	3.0	P	P value
Press SP key once	Random	I	I value

Press SP key once	0.04	d	d value
Press SP key once	2(S)	cyc	Cycle control value
Press SP key once	1	AL-S	Alarm mode
Press SP key once	0(H)	on	Compressor operation time (0=continuous)
Press SP key once	0(M)	oFF	Postpone time for start Compressor
Press SP key once	100.0(°C)	SPHI	Maximum Temperature limit

For input, press SP key until 888 showing on display.

*If alarm mode (AL-S) setting value is 0~4, the time unit for DELAY ON 和 DELAY OFF is minute.

* If alarm mode (AL-S) setting value is 5~9, the time unit for DELAY ON 和 DELAY OFF is hour.

- | | |
|----------------------------|---|
| | 0 : Alarm function disable |
| | 1 : AL-H & AL-L w/ standby sequence |
| TIMER Unit : Minute | 2 : AL-H & AL-L w/o standby sequence |
| | 3 : AL-H w/ standby sequence; AL-L w/o standby sequence |
| | 4 : AL-H w/o standby sequence; AL-L w/ standby sequence |

5 : Alarm function disable

6 : AL-H & AL-L w/ standby sequence

TIMER Unit : Hour 7 : AL-H & AL-L w/o standby sequence

8 : AL-H w/ standby sequence; AL-L w/o standby

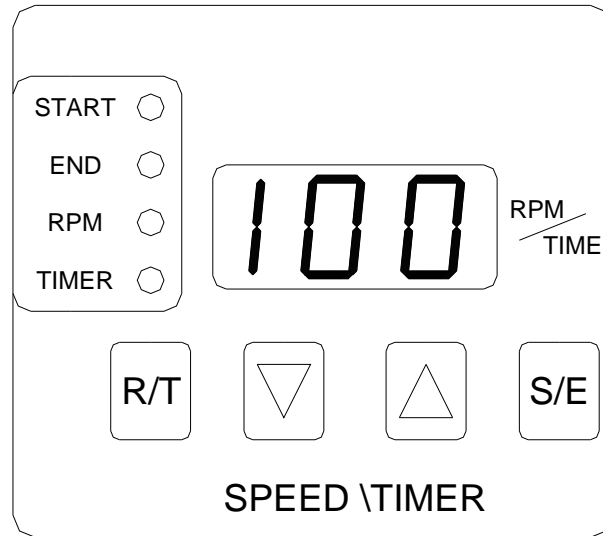
sequence

9 : AL-H w/o standby sequence; AL-L w/ standby

sequence

* With standby sequence: It means that the alarm output would be temporarily disabled until when PV value reaches SV value. Then, alarm output will start to operate.

Speed control panel :



R/T	RPM & TIMER switching key
▼	Up key
▲	Down key
S/E	START & END switching key
START	Motor operation indicator
END	Motor stop indicator
RPM	RPM indicator
TIMER	Timer indicator

Speed setting:

1. Press SHAKING key to power on. After power on, if the START and RPM indicator are illuminated at the same time, it means no timer function. Use ▼▲ key to set speed value. Then, the machine will start to operate.
2. After power on, if END and RPM indicators are illuminated at the same time, it means timer function is ready to operate.

Timer function setting:

1. After power on, press R/T key and S/E for 5 seconds at the same time. Then,
timer function is ready to operate. START indicator is flashing.
2. The display will show 0, 1, 3, or 7. (The initial value is 0.)
 - 0 : No TIMER function
 - 1 : Having TIMER function (time unit is second)
 - 3 : Having TIMER function (time unit is minute)
 - 7 : Having TIMER function (time unit is hour)
3. Use R/T key to set 0,1,3, or 7. Then press S/E key and the display shows 888.
The value will be input.

TIMER function operation :

1. After timer function is set and power on, END and RPM indicator will be illuminated at the same time. The display shows RPM value. Use ▼▲ key to set RPM value.
2. After speed setting, press R/T key and then RPM indicator will be extinguish and TIMER indicator will be illuminated. The display will show 000. Use ▼▲ key to set time value.
3. After speed and timer setting, press S/E key to start operation.
4. Press R/T key to switch display for speed and time value.
5. When the operation time is up, the beep sound will be heard. Press any key to stop beep sound.

Troubleshootings :

Trouble	Cause	Remedy
Temperature can't go up or goes up too slowly.	Temperature controller broken or error settings for temperature controller	Replace a new temperature controller or reset the parameters
	Broken heater	Check heater
	Abnormal voltage	Check voltage
	Broken Pump circulator	Replace a new pump circulator
	Foreign bodies blocked the pump Circulator	Sweep away the foreign bodies
Temperature display shows ErL or ErH	Broken temperature controller or broken temperature sensor	Replace a new temperature controller or a new sensor
SHAKER can't operate normally	Broken speed sensor or error setting	Replace a new sensor or reset parameters
SHAKER display shows ErH	Broken speed controller or broken motor	Replace a new speed controller or a new motor
SHAKER display shows ErL	Broken speed controller or Foreign bodies blocked	Replace a new speed controller or sweep away the foreign bodies

Circuit diagram:

