

Thermoblock model 603/3

Reference JDS002

User Manual



Thank you for purchasing our Nahita Dry Bath. This Manual for users contains function and operation of the Instrument. In order to use the Instrument properly, please read this Manual carefully before using the Instrument. Keep it for later use when you meet with difficulties.

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Safety Warnings and Guidelines

1. Important operation information of the security:

Before the users' operation, they should have a perfect conception of how to use the Instrument. Therefore, read this Manual carefully before using it.



Operation before reading the Manual is forbidden. Operation not according to the Manual will bring about serious burning or even electric stroke accident. Read the guidelines and directions below and carry out the countermeasure according to them.

2. Security:

The operation, maintenance and repair of the Instrument should comply with the basic guidelines and the remarked warning below. If you don't comply with them, it will have effect on the scheduled using life of the Instrument and the protection provided.



This product is a normal and an indoor Instrument.



Read the Manual carefully before operation, or the accident will happen. The tester who only has special knowledge in wiring equipment can operate this Instrument.



The operator should not open or repair the Instrument, which will lose the qualification of repair guarantee or occur accident. If there is some wrong with the Instrument, the company will repair it.



Before power on, guarantee the voltage used should be accord to the voltage needed, and the rated load of electrical outlet should not lower than the demand. If the electric line is damaged, you should replace it with the same type. You should assure there's nothing on the electric line and you should not put the electric line in the ambulatory place. Hold the jack when you pull out the electric line, and don't pull the electric line.



During the normal operation, the temperature of metal block will be very high. There will be scald or boiling of the liquid. Therefore strictly prohibit any part of the body to touch the Instrument from scald.



The Instrument should be put in the place where there is low temperature, little dust, no water and no sun or strong lamp. What's more, the place should be good aeration, no corrosively gas or strong disturbing magnetic field, far away from central heating, camp stove and other hot resource. Don't put the Instrument in the wet and dusty place. The vent on the Instrument is designed for aeration. Don't backup or cover the vent in order to keep from high temperature. If you use the more than one Instrument at one time, the distance between them should be more than 100cm.



Power off when you finish your work. Pull off the connector plug when there's long time no use of the Instrument and cover it with a cloth or plastic paper to prevent from dust.



Pull the connector plug from the jack at once in the following case, and contact with the vendor:

- There is some liquid flowing into the Instrument;
- Drenched or fire burned.
- Abnormal operation: such as abnormal sound or smell.
- Instrument dropping or outer shell damaged.
- The function has obviously changed.

3. The maintenance of Instrument

The well in the block should be cleaned by the cloth stained with alcohol to assure good heat translation between the block and the test tube and no pollution.

If there are smutches on the Instrument, clean them with cloth.



Power off when cleaning the Instrument.

When cleaning the well, don't drop the cleaning liquid in the well.

Corrosive cleaning liquid is strongly prohibited.

4. After service

a). The content of the repair guarantee:

Within one month after delivery, the company will be responsible for exchange the Instrument when there is error caused by the material or production.

Within twelve months after delivery, the company will guarantee to repair the Instrument when there is error caused by the material or production.

The Instrument which needs to repair should send to the repair department of the company. The carriage to the company is taken charge by the consumer and the carriage to the consumer is taken by the company. The repair beyond the guarantee should pay the cost of the material.

b). The range of the guarantee:

The damage caused by improper use and maintenance, use under wrong condition, repair with no permission of the company or re-equipment is beyond guarantee range.

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The First Chapter: Introduction

The dry bath is a new product controlled by the miniature computer, which can be widely used for the preservation and reaction of the samples, the amplification of DNA, the pre-denaturation of the electrophoresis and blood serum coagulation.

Features of this product as follows:

- Temperature and time digital displayed in LED;
- Display of setting temperature and the count down time to the constant temperature;
- Using metal blocks to avoid sample pollution;
- Easy replacement, cleaning and disinfecting of metal blocks;
- Built-in over-temperature protection, more reliable for using;
- Calibrating temperature discrepancy;
- Buzzer alarm in the end of temperature control duration.

The Second Chapter: Characteristics

1. The normal working condition:

The room temperature: $5^{\circ}\text{C} \sim 30^{\circ}\text{C}$

The relative humidity: $\leq 70\%$

The using power: AC220V \pm 22V 150VA 60Hz \pm 1Hz

2. The basic parameters and the function.

The basic parameters:

Fuse	250V 2.5A $\Phi 5 \times 20$
Dimension (mm)	225 \times 160 \times 197
Weight (kg)	3

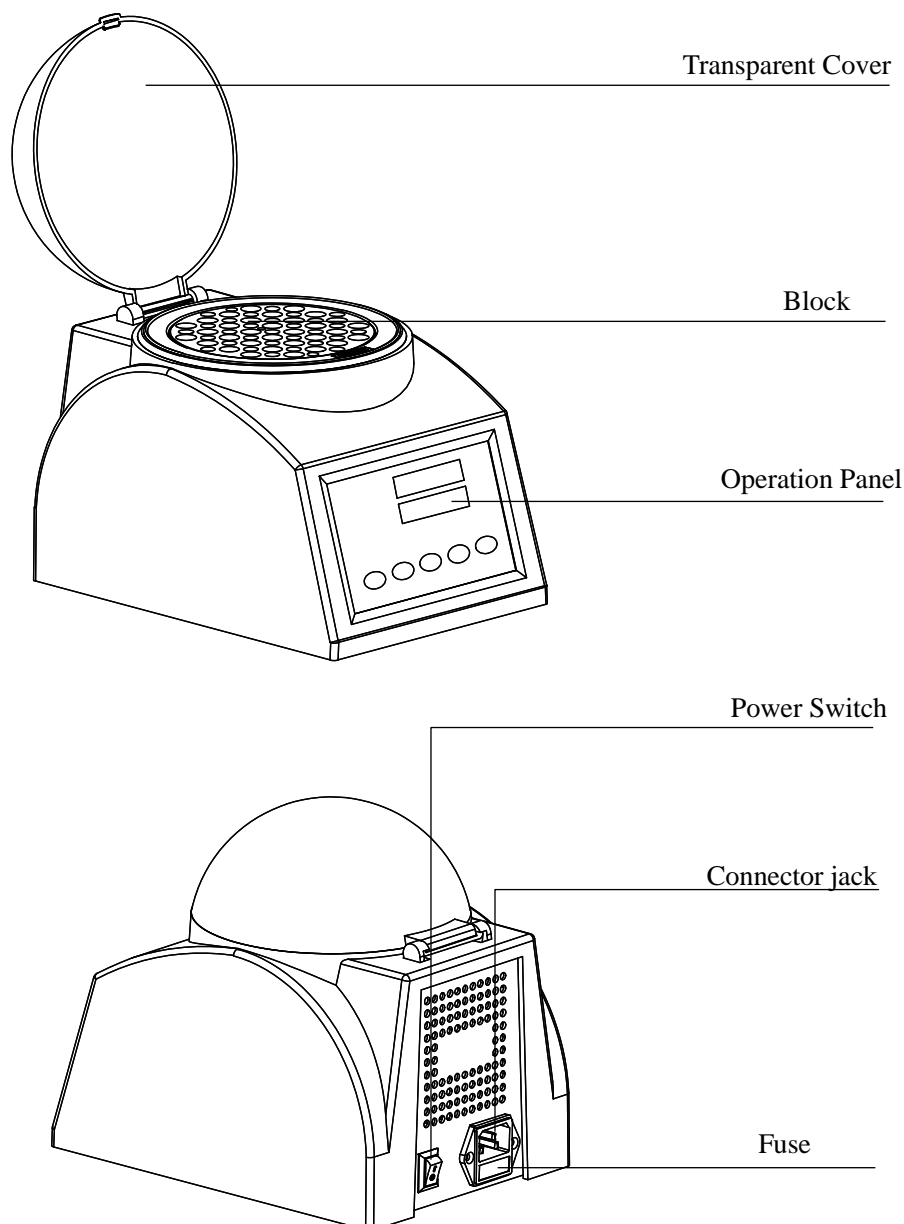
Performance:

- Scope of the temperature-control: $5^{\circ}\text{C} \sim 100^{\circ}\text{C}$
- Time for temperature increasing: ≤ 25 minutes (From 20°C to 100°C)
- Accuracy of the temperature-control: $\leq \pm 0.5^{\circ}\text{C}$
- Accuracy of the display: 0.1°C
- Homogeneity of the block temperature: $\leq \pm 0.5^{\circ}\text{C}$
- Maximum of heating power: 150W
- The max temperature: 105
- The longest time set: 99 h 59 min
- The segment of the temperature-control: 1
- Display: LED

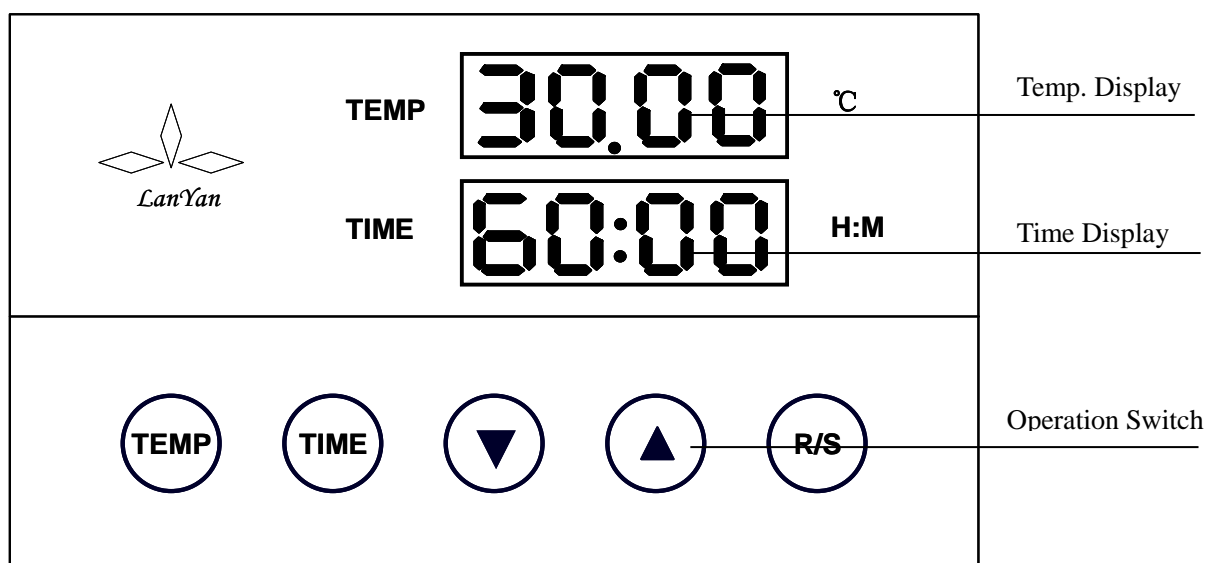
The Third Chapter: Basic Operation Instruction

This chapter will introduce the construction of the Instrument, operation panel and the function of all buttons as well as preparing work before starting-up. You should be familiar with this chapter before starting-up when you use the Instrument first time.


1. Construction





2. Operation panel:





3. Button instruction:

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Setting temperature button: used together with increasing button and decreasing button to set the operation temperature required.
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Setting time button: used together with increasing button and decreasing button to set the operation time required. The time is count down while operating.
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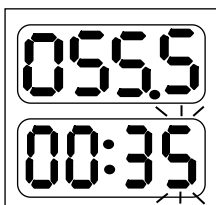
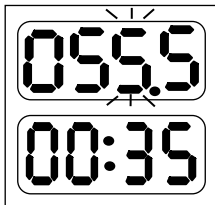
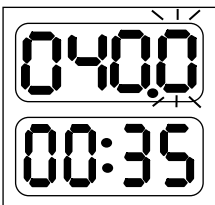
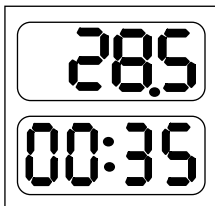
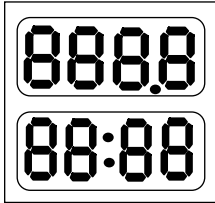
Decreasing button: decrease the figure set;
- 

Increasing button: increase the figure set;
- 

Run/stop button: Run when you press the button once after setting the temperature and the time. Stop when you press this button for 2s.


The Fourth Chapter: Operation Guide




1. Temperature and time set:






a). The LED will display “8” as the chart when the Instrument powers on and the Instrument goes into the initial state with the sound of “du...”.


b). About 2s later, the figure 28.5 is the block’s current temperature; 00:35 in the time display is the last set time.



c). Press the button of  and keep off at once. Now, the value in the temperature display is the former setting temperature. As shown in the left drawing, the last digital of the setting temperature is flickering. If you want to set the temperature to 55.5°C, do as follows:


The flickering digital can be changed. Press  or  to turn “0” to “5”. Then press  once and the flickering digital skip to first one.



Pressing  another time, then the flickering digital skips to the second one, and you can turn “4” to “5” by pressing .

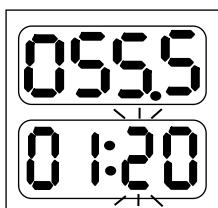
Press  a third time. After the flickering digital skip to the third one, you can change “0” to “5”. Here the setting temperature is 55.5°C. The system will accept the new setting temperature after 8s.

d). Press  and keep off at once, the value in the time display is the former setting time. Shown in the left drawing is 00:35(35minites). At same time, the last digital is flickering. If you want to change the time to 01:20, do as follows:

The flicker digital can be changed. Press  or  to chage the last digital from “5” to “0”.

Press  once and the flickering digital skips to the first one.

Press  once more and the flickering digital skips to the second one. Then press  to turn “0” to “1”.



Press **TIME** a third time, and the flickering digital skips to the third one. Then you can turn “3” to “2” by pressing the button of **▲** or **▼**. Now the setting time is 01:20(1 hour and 20minutes). The system will accept the new setting after 8s.

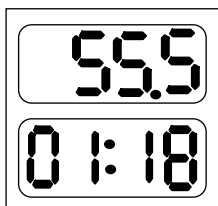
Notes: If the time setting is 00:00, meaning the time of operation is forever, the Instrument run constantly in setting temperature.

2. Operation and stop:



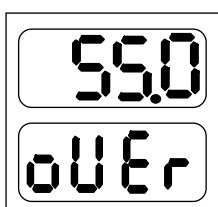
- a) After the accomplishment of the temperature and time setting, press the button of **R/S** and keep off at once, and the Instrument begins to operation. The temperature rises with the sound of the “du...”.

Meanwhile, there is current temperature in the temperature display, and the radix point is flickering regularly during the rise process.



When the temperature stops to rise, the flickering also stops. “:” in the time display begins to flickering, then the counting down starts.

When the timing is stopped, the operation is also stopped. The buzzer alarms. Current temperature in the temperature display and “over” in time display mean “over”, the accomplishment of the operation.



Notes : Press **TEMP or **TIME** during operation, you can look up the setting temperature and time but can't change them.**

- b). After the accomplishment of the operation, the Instrument is in over mode waiting for new declaration.
Then pressing **TEMP** and **TIME** can reset the temperature and the time. Pressing **R/S** it will operate according to last setting.
- c). Press **R/S** for 2s during the operation, it will stop to run. Press this button again, then it will continue.

3. Temperature error adjustment

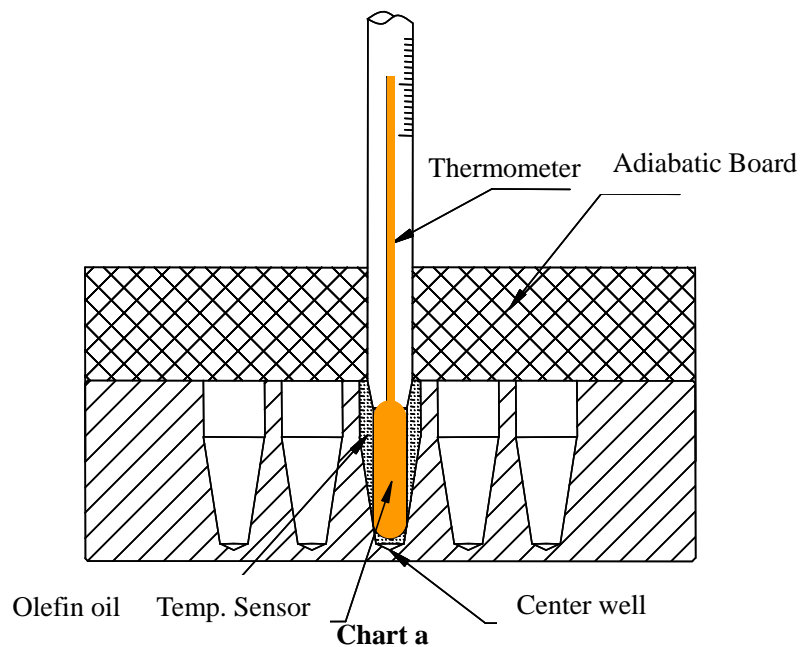
The temperature of the Instrument has been adjusted before it is sold out. But if there is deviation between the actual temperature and the displayed temperature due to some reasons, you can do as follows to correct the error.

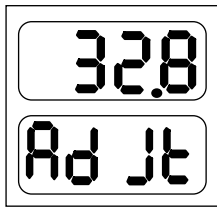
Notes: The Instrument uses double temperatures adjustment to ensure its veracity. This means it is linearly adjusted on 40°C and 100°C two points. The temperature veracity will be within $\pm 0.5^\circ\text{C}$ after the double temperature adjustment.



Both the circumstances and the block temperature should be lower than 35°C.

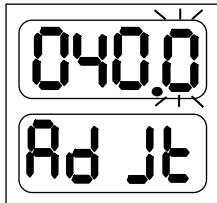
Adjustment methods as follows:

- a). After the startup of the Instrument, it enters waiting interface. Make sure the temperature in display is below 35°C. If the temperature is higher than 35°C, you should wait until the temperature is below 35°C.
- b). Inject olefin oil into one of the cone-shaped wells, and then put a thermometer into this well (Make sure the precision of the thermometer should be within 0.1°C and the temperature ball should be absolutely immersed into the cone-shaped well). Heat insulation material is needed on the block to separate it from the circumstance. Seeing from chart a.



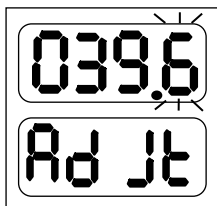






- c). Press  and  contemporary to enter the temperature adjustment interface as the left drawing. Now the “ Ad Jt” in the time display means it has been in adjustment procedure; the temperature displayed is current temperature and begins to rise to 40.0°C automatically.



When the temperature reaches to 40°C, the decimal digit begins to flicker, waiting for the calibrated value of 40°C. Read out the actual value from the thermometer after 20 minutes.

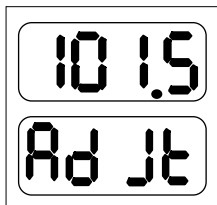
Notes: Please read the actual value after 20minutes’ constant temperature to ensure the adjustment precision.







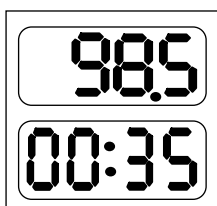
If the actual readout is 39.6°C, you can input 39.6 in the temperature display by pressing  and  or . Then press  to confirm the input.



- d). After the confirmation the Instrument rises to 100°C automatically. In the same way, the temperature reaches to 100°C waiting for the adjustment. After 20minutes’ constant temperature you can read the actual value from thermometer and input to the temperature display.



Notes: Please read the actual value after 20minutes’ constant temperature to ensure the adjustment precision.



If the actual readout is 101.5°C, you can input 101.5 in the temperature display by pressing  and  or . Then press  to confirm the input.

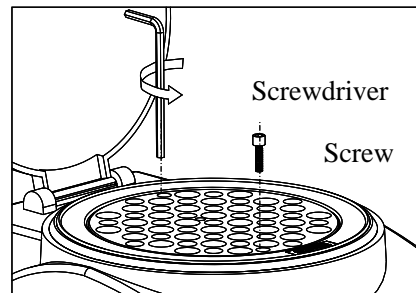


- e). After both of the temperatures have been adjusted, press  and  contemporary to escape the temperature adjustment interface and return to waiting interface.

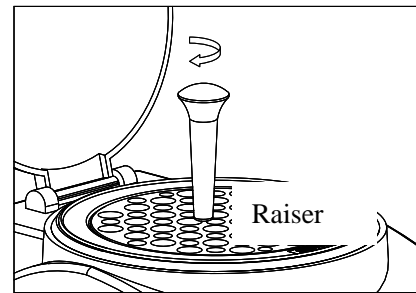
Notes: Press  and  contemporary during the adjustment to escape the adjustment procedure. The changed value is of on effect.

4. The exchange of the metal block

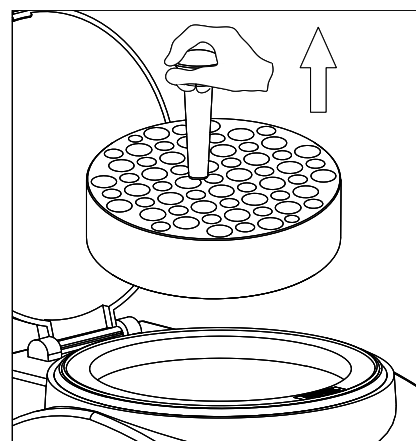
a) Pull out the two screws which fix the block to the heating board with the screwdriver.



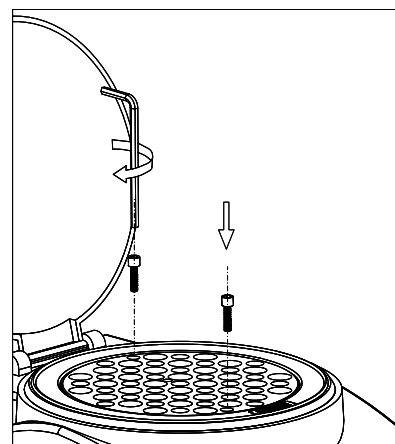
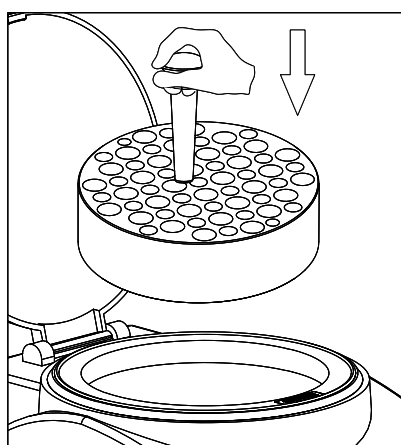
b) Fix the raiser in the center well of the block.



c) Pull out the raiser with the block.



d) Screw the raiser from the block, and fix it to another block you needed. then put it onto the Instrument and fix it with the screws.



Notes: there maybe a little difficult to exchange the block, you should be patient.

The Fifth Chapter: Error Analysis and Recovery Processing

Error analysis and recovery processing:

NO.	Fault phenomenon	Cause analysis	Recovery processing
1	No signals on the display when the instruction is powered on.	No power	Check the connection of power
		Broken Fuse	Exchange fuse (250V 2.5A Φ 5x20)
		Broken switch	Exchange the switch
		Others	Contact to the seller
2	The actual and displayed temperatures are quite different.	Broken sensor or loose contact of the block	Contact to the seller
3	“ERR” in the display with the alarm of “du...”	Broken sensor or the environmental temperature is below zero.	Contact to the seller
4	No heating of the block	Broken sensor.	Contact to the seller
		Broken SSR	
		Broken heater	
5	Press invalid	Broken switch	Contact to the seller

