



MINI DRY BATH

BAC22-100NC



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1. Introduction

Mini Dry Bath is best designed instrument which is microprocessor-controlled. It is widespread used for samples of the preservation and reaction, DNA amplification, foreseeability of electrophoresis and so on. Please do read this operation manual carefully before using the instrument.

1.1 Instrument Content

Mini Dry Bath Incubator 1set
Power Adapter 1piece
Operation Manual 1piece
Certificate of Quality 1piece

1.2 Structure

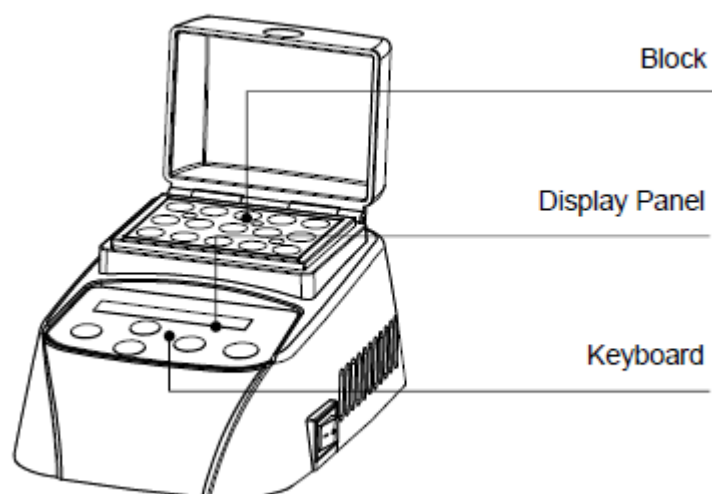


Figure 1

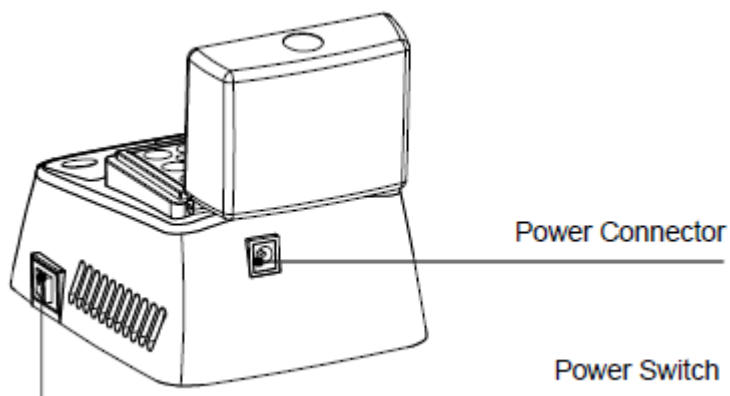


Figure 2

1.3 Installation

1.3.1 Put the instrument on the working table reposefully.

1.3.2 Connect power and instrument through the power adapter. Power voltage should during 100-240V~

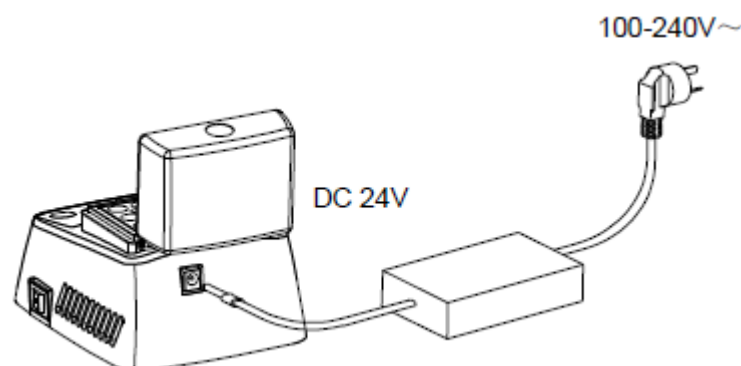


Figure 3

1.3.3 Turn on the power switch on the right side. The incubator runs the program to the setting temperature automatically. Heating always costs 15 minutes.

1.3.4 When it achieves the setting temperature, put the tubes into the block, close the thermo lid.

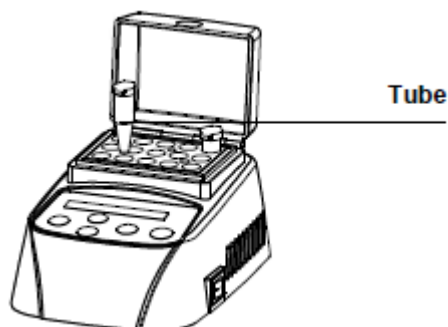


Figure 4

2 Specification

Type	Mini Dry Bath
Power Input	DC24V
Power	60 W
Temperature Range	RT+5 °C - 100 °C
Timing Range	1min - 999min or 1sec - 999 sec
Temp. Control Accuracy	$\leq \pm 0.5^{\circ}\text{C}$
Display Accuracy	0.1°C
Heating Time (from 20 °C to 100 °C)	$\leq 15\text{min}$

Ambient Temperature	5°C ~ 35°C
Dimension (WxDxH)	110mm×156mm×92mm
Net Weight	1Kg

Table 1

3. Safety Warning



The incubator is a normal and an indoor using instrument.



Read operation manual carefully before operation. Only the expert of wiring equipment can operate this instrument.



The operator should not open or repair the instrument by himself. Otherwise, the instrument will lose the qualification of repair guarantee or cause accidents. The company will repair the instrument based on warranty description.



The instrument should be put in the place where of low temperature, little dust, no water, no sunshine or hard light, and of good aeration, no corrosively gas or strong disturbing magnetic field, and far away from central heating, camp stove and other hot resource. Do not put the instrument in wet and dusty place.



Main switch is on the rear of the device. Push “I” to power on the device, and push “O” to power off the device.



Power input interface is on the rear of the instrument. Power voltage input is DC12V/24V. Input is anode, outer ring is cathode.



Power off when operation finished. If long period do not use the instrument, pull off the connector plug, cover a cloth on the instrument to prevent from dust.

4. Operation Guide

4.1 Key Function

START/STOP----Start or stop the operation program

PROG.-----Select operation program

▲▼ -----Set Temperature or Timing value

➡ -----Enter value set or move cursor

4.2 Programming

Press "PROG.", select option program, e.g. P2. Press " ➡ " to enter temp setting. Press " ➡ " to move cursor. Press " ▼▲ " or " ▲▼ " to set timing. Two segments could be set in each program. " ■ " indicates temp. or timing of segment 1. " ■ " indicates temp or timing of segment 2.

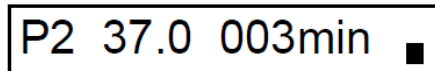


Figure 5

Temperature and Timing of Segment 1

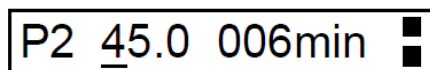


Figure 6

Temperature and Timing of Segment 2

4.3 Time Unit Changing

Press " ➡ " 2 seconds under timing setting, timing unit alternatively changes between min and sec.

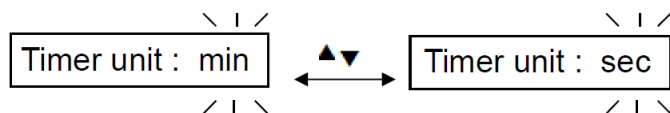


Figure 7

Press ▲▼ to select min or sec. Press " ➡ " to confirm.

4.4 Program Start and Stop

4.4.1 Press "PROG.", nine preset programs P1,P2,P3,P4,P5,P6,P7,P8,P9 could be selected.

4.4.2 When power on, the temperature rises to setting temperature of segment 1 automatically. It display "NOTOK" when heating while it display "OK" when it achieves the setting temperature.



Figure 8

4.4.3 Press "START" to run the segment 1. " ■ " which indicates segment

1 flickers. When segment 1 finishes, the program starts segment 2." ■ " which indicates segment 2 flickers, and it begins to count down.

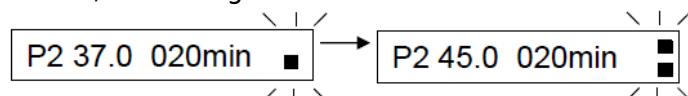


Figure 9

4.4.4 Buzzer alarm when it counts to 0 at segment 2. "PROGRAM END" displays on LCD. The incubator keeps the temperature of segment 2. Press any key to return the operating interface. It turns to the setting temperature of the current segment. When it achieves, "OK" is displayed on LCD. Press "START" to run the program again.

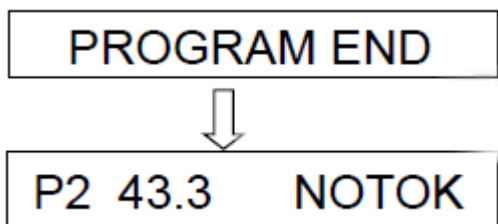


Figure 10

4.4.5 Press "START/STOP" continuously for 1 second, program stops, timing ends.

4.5 Temperature Calibration

If there is deviation between the actual temperature and the displayed temperature due to some reasons, you can do as follows to calibrate it.

NOTE: The instrument uses two temperatures adjustment to ensure its veracity. It is linearly adjusted on 40°C, and 100°C. 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 when calibration.

The temperature of the instrument has been adjusted before it is sold. Do not use this function freely. Adjustment Methods:

4.5.1 Start up the instrument, it enters waiting interface.

4.5.2 Inject olefin oil into one of the cone-shaped wells. Put a thermometer into this well (the precision of the thermometer should be 0.1. 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.

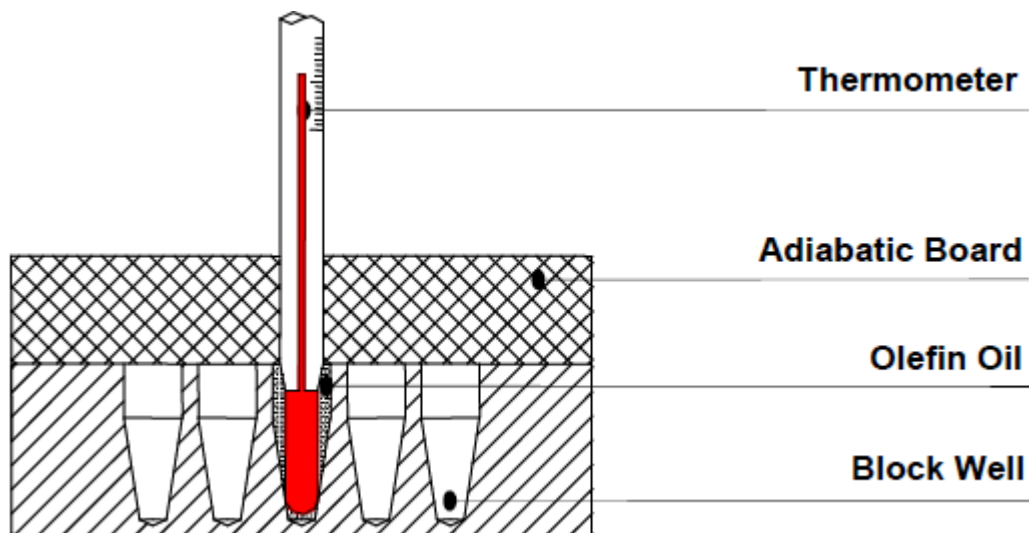


Figure 11

4.5.3 Press "▲" and "▼" simultaneously under no operating status. The program turns to the right interface. The program auto controls temp. to 40°C, the sign "*" flickers ceaselessly. When it achieves 40°C, cursor arises under decimal, "Adj" and "*" flicker ceaselessly together.

4.5.4 After 20 minutes, the temperature value of thermometer is 38.8°C, press " " or " " to amend the display value to 38.8. Press "Start" to confirm. Program saves the value and temperature rises to 100°C automatically. The sign "*" flickers ceaselessly.

4.5.5 When temperature achieves 100°C, cursor arises under decimal, "Adj" and "*" flicker ceaselessly together.

4.5.6 After 20 minutes, the temperature value of thermometer is 99.0°C, press " " or " " to amend the display value to 99.0. Press "Start" to confirm.

4.5.7 Program turns to interface for operating as the right chart.

After temperature calibration, the temperature display is the same as the practical temperature of block.

NOTE: To ensure temperature accuracy, keep the temperature 20 minutes when it achieves adjust temperature.

During temperature calibration, press "▲" and "▼" simultaneously to cancel the calibration. The system keeps the former calibration. Do not press "▲" and "▼" simultaneously unless is really needed.

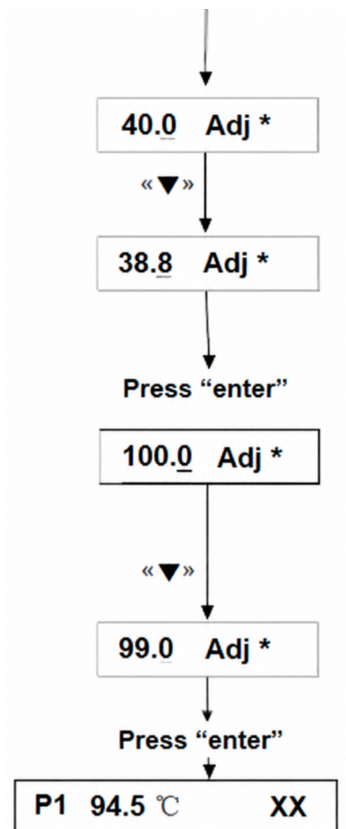


Figure 12

5 Maintenance



Please make periodic cleaning for wells in block with alcohol mull. Use mull with clean paste to clean surface of the instrument.



Power off before cleaning the instrument. It is forbidden decanting cleaning fluid into the well of block.

6 Failure Analysis and Trouble Shooting

Phenomenon	Possible Causes	Processing Procedure
No Signals on the display when power on	No power Broken switch Broken Controller	Check the power Exchange the switch Contact with the seller
“open1” or “open2” in the temperature display with the alarm of beep	“open1”: block temperature sensor is broken “open2”: lid temperature sensor is broken	Contact with the seller
“short1” or “short2” in the temperature display with the alarm of beep	“short1”: block sensor is broken “short2”: lid sensor is broken	Contact with the seller
“err1” or “err2” in the temperature display with the alarm of beep	“err1”: block sensor is broken “err2”: lid sensor is broken	Contact with the seller
Press invalid	Broken film switch	Contact with the seller

Table 2

Appendix 1

Wiring Diagram of Mini Dry Bath

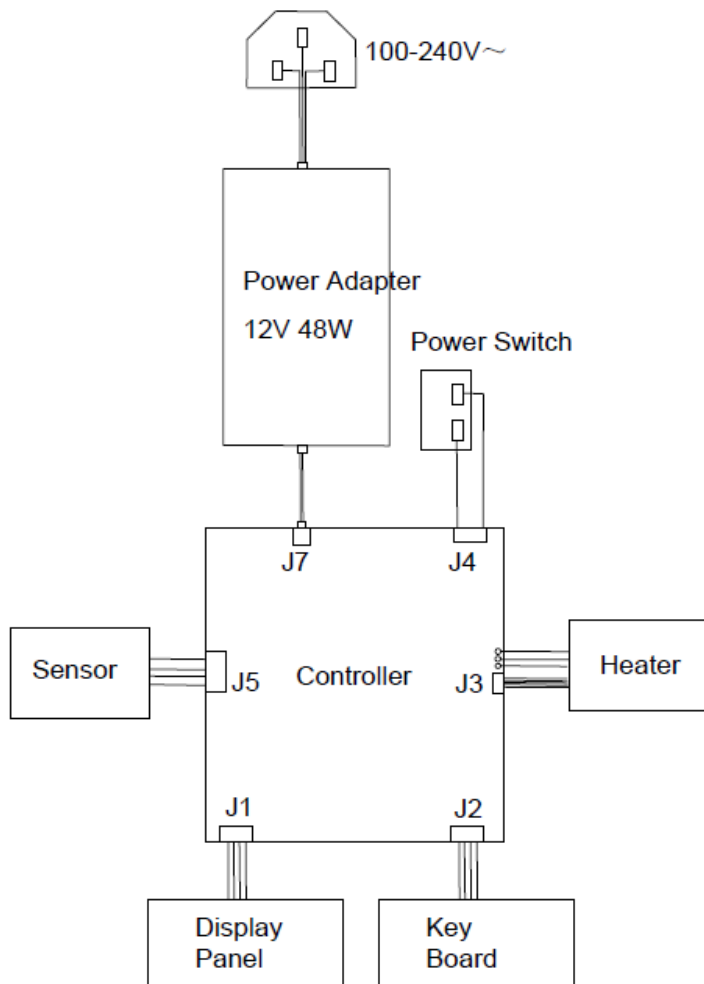


Figure 13

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