Mini Incubator Operation Manual

Model: MINI INCUBATOR
NB-201M

N-BIOTEK
Leading Life science

● Warranty

Thank you for choosing N-BIOTEK product.

This operation manual describes practical information such as performance, usage, cautions and notices for use of the product.

So, before using the product, please read it carefully all the safety instructions described in this manual and keep this manual for future use.

Model	**NB-201M**		
Date of Installation	mm-dd-year	**Supplier**	
Serial NO.		**Period**	1 year

N-BIOTEK product is warranted from defect in all parts and workmanship. This product is warranted for 1 (one) year against faulty components and assembly. Our obligation under warranty is limited to repairing and replacing the instrument or part after our examination.

This warranty does not extend to any N-BIOTEK products which has been misused, neglected, accident or mis-installation, application.

1. The free warranty service will be provided once the unit is proved to be defective by wrong workmanship after NBIOTEK or reliable distributor's examination.

2. The warranty period is 1 year from date of installation or 1 and Half year from the date of shipment from NBIOTEK, whichever is sooner as indicated in above table. This period is proved by serial number.

3. N-BIOTEK will not be responsible of free warranty service for the faulty caused by user's improper operation, excessive use, use of incorrect voltage & frequency, storage in wrong environment mentioned in Manual.

4.. Complete the above table after installation and keep this card. Then, present it to a dealer or N-BIOTEK when warranty repair is needed.

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● General Information on Precaution

Precaution is to prevent the possible accident or danger during operation. So, you must keep it.

Precaution is divided into caution and warning. And, each of them has following meanings.

Other marks..

1. Precaution for using the power cable

Do not make the power plug be pressed by back of the product.
(A space between the product and the plug must be 30cm at least.

The power outlet must be only for this product.
(Using various products simultaneously can cause a fire)
Clean the power plug with a dry towel and connect it properly.
(Foreign substances or unsafe connection can cause a fire.)

Do not bend the power cable hardly and do not make it to be pressed by heavy products.(When it is damaged, it can cause a fire.)

Do not touch the power code with wet hands. (It can cause an electric shock.)

Do not use the damaged power code and outlet.
(It can cause an electric shock and a fire)

When you see smoke coming from the product or smell something like burning or see any other strange symptoms, you have to cut off the power code and stop using it.
(It can cause an electric shock and a fire.)

2. Precaution for ground connection

Please ground before use the product, if you don't ground, you might get an electrocution when malfunction or an electric leakage occurs.

At the place where you can't ground,

* Please buy the equipment to prevent any electrical leakage.

* An electric shock, an electric leakage and a fire can be occurred without an electric leakage breaker.

Do not ground to these places; Gas Pipe, water pipe, pipe, lighting rod, telephone wire etc. * Wrong ground connection can cause electrical leakage which eventually results in fire

If you don't have the outlet for AC 220V, then bury it under the ground after connecting the ground line to copper plate.

* No ground connection can bring an electrocution, an electric leakage and a Fire.

3. Precaution for use

You must not disassemble, fix and remodel the product by yourself.
(You can damage the product to a fire and malfunction or get a property loss as well as experimental loss.

Do not use the product for different purpose.
(It can cause malfunction or poor function. Consequently, you will get a wrong result.)

Do not use an flammable spray near the product.
(The switch and other electric connection parts can cause a fire.)

When you use flammable substances such as benzene, thinner, alcohol and LP gas, please be careful .(It can cause a fire and an explosion.)

To prevent water and experiment material from going into the control panel during the experiment, make sure to clean the control panel with a dry cloth. (It can cause an electric leakage and a fire.)

Do not wash the product with excessive quantity of water, thinner, benzene and Petroleum. (It can cause an electric leakage, and malfunction or damage on the surface.)

Please leave the product power off when it is not in use.
(It is to prevent an eclectic leakage.)

Open and close the door softly and please use a door knob.
(A heavy shock can damage the product and breakdown the operating part.)

Do not detach the built-in lamp and electrical devices.
(It can cause an electric shock and a fire.)

Make sure to prevent foreign substances from getting into the sealing silicon of the door.
(The inflow of outside air can cause the change of temperature in chamber and discoloration of the packing part by a foreign substance.)

● Transportation, Storage and Location of Installation

1. Transportation

DO NOT try to slide or tilt the unit

Permissible ambient temperature range for transport: -10℃ to 60℃.

2. Storage

Do not keep it at place in High Humidity. Permissible ambient humidity: max. 70%
storage in a cold location is the place you transfer the unit to the installation site for start-up, condensation may form. In this case, Wait at least one hour until the incubator has attained temperature and is completely dry.

Please check the voltage & Hertz written on serial label.
(Over-voltage, under-voltage can damage the product and poor performance.)

Do not install in humid place.
(It causes an electric leakage accident and a corrosive of the product.)

Keep this product out of the direct ray of sun and do not install at a hot place or a place that is near an electric heat.
(The proper room temperature is 20℃ ~ 30℃.)

3. Location of installation and ambient conditions


Prohibition

Do not put flammable substances near the product. (It can cause a fire)


Compliance

When you install the product, you have to put the distance of at least 30cm from the wall. To completely separate the unit from the power supply, power plug must be disconnected. Install the unit in the way that the power plug is easily accessible and can be easily pulled in case of danger.


Compliance

Install the unit at a flat surface, free from vibration and in a well-ventilated location. (If the ground is not flat, it can cause an excessive vibration of the product.)


Compliance

When you move the product, hold the door and other movable parts of the product with a tape. (When the product is moved, the movable door can cause injury of you and damage of the product.)


Compliance

When you move the product, you must lift up the product. (Pushing or pulling the product can damage the bottom part of the product.)


Compliance

Excessive CO2 is harmful to human when in high concentrations. Any excess amount of CO2 has to be led out via ventilation or by connection to a suitable exhaust system.


Prohibition

When you move the product, do not lay it down or reverse the head to bottom. (It can cause a malfunction.)

● Prerequisite and Configuration

1. Prerequisite

Inspection of Boxes

When you have received the instrument which is well boxed, inspect the box carefully to check any transit damage.
Please report any damage to the carrier or to your local NBIOTEK distributor immediately.

Location

The incubator is designed to operate at temperature 5℃ above ambient, and recommended to operate at minimum ambient(temperature in the place for use), 18℃. Maximum Room Temperature is 32℃.

To avoid place for use this incubator is as below.

1. Near Equipment generating heat or cold air to incubator.
2. Directly Sunlight Exposed to incubator
3. Uneven ground or table.
4. The place where is being vibrated

Cleaning before use

Before conducting cell culture, It is recommended to clean up entire chamber and shelves and water tray by using dry cloth with at least 70% Ethanol mixed of 30% distilled water.

2. Configuration.

<Figure #1> Front side

<Figure #2> Inner side and rear side

<Figure #3> Rear of Incubator

<Figure #4> Basic Parts included in the package

1. Stainless Steel Shelf (2)
2. Stainless Steel Water Container for humidity (1)
3. Power Cord (1)

4. DC12V Car Jack (1)

5. AC DC Adapter (1)

● Feature and Specification

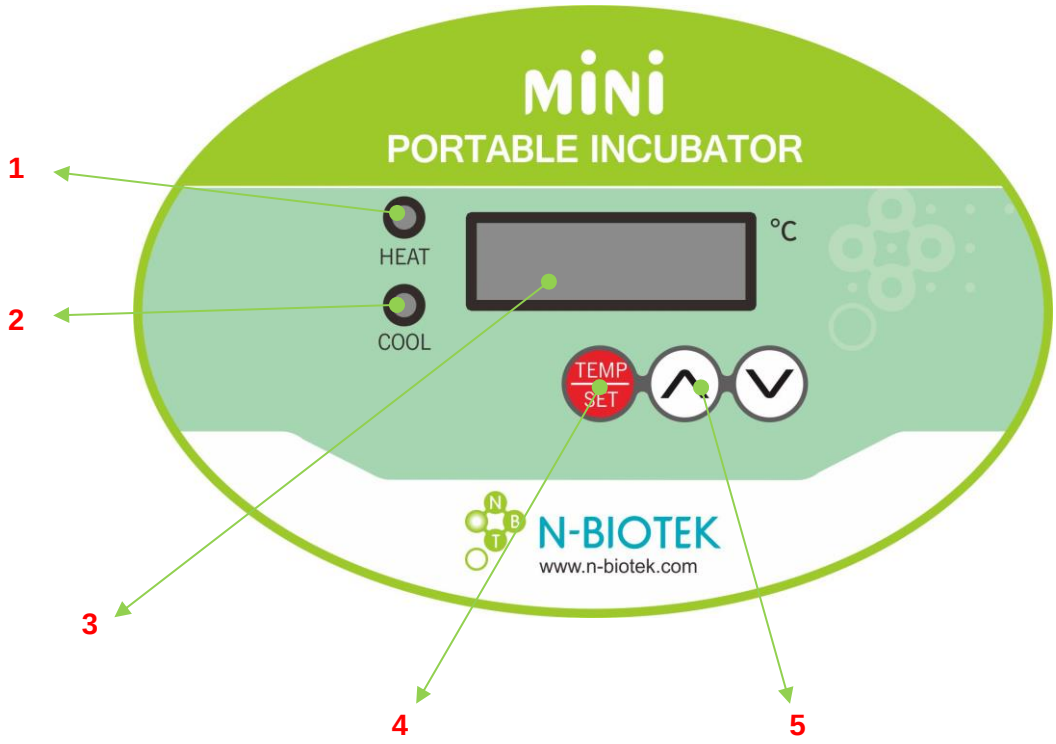
1. Feature

1. Light weight, easy to carry concept of 16liter potable mini incubator.
2. Compact size for the use inside workstation or clean bench.
3. Precise temperature control by Peltier. (ambient -8’C, lowest temp. is 15’C at 24’C RT)
4. Suction fan makes air flow from the bottom to middle for effective temperature control.
5. 12V cigar jack provided for transport in a car.

2. Specification

Item	Specification
Chamber volume	15.2 Liter
Temperature range	15'C ~ 45'C at ambient 25'C
Temperature accuracy	±0.25'C at 37'C
Temperature control	Micom
Display	LED display
Cooling & Heating	By peltier (thermoelectric element)
Shelf	2(Stainless steel) / Maximum 3
In & Outside material	ABS resin
Inside dimension	224W x 220D x 340H (mm)
Outside dimension	292W x 333D x 433H (mm)
Weight	6.8kg
Power frequency	DC12V, AC100 ~ 240V, 50Hz~60Hz
Power consumption	DC-COLD : 46W, HOT : 48W AC-COLD : 63W, HOT : 63W
Option	
203M-SHELF	Additional Stainless Shelve (1 piece)
201M-Hole	Access port

● Control Panel



1. HEATING INDICATION LAMP
2. COOLINGING INDICATION LAMP
3. Temperature LED display
4. Temperature setting button
5. Adjustment button

● Operation

1. Place and install the product.

Install the product at the desired place and check the level in all directions
(side by side, front to back and ground).

2. Connect the power

Prior to connect the power plug, make sure that the POWER S/W is off

3. Power switch on

Turn on the power switch in line of power cable. Then, digital LED will display current temperature n chamber after below message passed in short time.

Temp. Display

4 Setting temperature

a. Connect the power, then the LED screen will display the temperature in the chamber.
b. Press the "TEMPSET" key, then, the LED screen will flicker and display.
c. Then, input the desired temperature by pushing UP (▲) and DOWN (▼).
d. Press "TEMP/SET" key again after putting the desired value. “SAVE” is shown up on the LED screen as below.

Note

If you don't press "SET" key after set-up, the new set-up value will not be saved at all.

Set-up Temperature range is 15'C ~ 45'C at ambient 25'C.

5 Calibration for temperature

Compliance

Please follow up below procedure for calibration in case of discrepancy between actual value (measured by reliable measurement device) in chamber and displayed value.

Caution

Measure Temperature after incubator is stabilized in which takes about more than 2 hours (you might want to perform this stabilization process at night before home)

Please note that low deviation range such as ±0.1 ~ 0.3% may not be corrected precisely by this calibration.

a. Press and hold "CAL/SET" for 10 seconds. Then, LED will be flickering as below.

Channel 1 is at chamber's Main Temp calibration stage.

Press UP (▲) as much as difference from measured value by precise analyzer if it is higher.

Press DOWN (▼) as much as difference from measured value by precise analyzer if it is lower.

Ex) If measured temperature is 38℃ and Display shows 37℃, then press up 1℃.

Note

* Calibration range for temperature is ±5℃
* To go to next channel is to press "CAL/SET" button. After 5th channel, the LED is back to temperature display.

Compliance

No Function! Just skip this stage by pressing set button once.

Compliance

No Function! Just skip this stage by pressing set button once.

c. Calibration Setting: Heating control

NOTE

Channel 5 is to set heating control point and is designed to prevent a significant temperature overshoot. This mode is preprogrammed in the factory and should NOT be adjusted by the user.

6. Alarm

Turn alarm system On by pressing alarm button for about 5 seconds. When switching alarm on or off, a short alarm will come out. When alarm is on, LED LAMP off. When Alarm system is off, LED LAMP of alarm is lighting to indicate that alarm system is disarmed.

In order to activate alarm system, it should maintain ±2℃, ±1% to set point for 3 minutes.

This course is recognised as stabilizing process.
After stabilizing process, alarm system will be armed and alarm event is as below.

Alarm Activation :

Temperature (bird singing)

- If it stays out of ±1℃ from set point for 8~9 minutes, it will give you an alarm.
- Pressing mute button once will give 10mintues delay.
- Alarm will automatically stop once temperature is recovered into tolerance range.
- Pressing mute button once will give 10mintues delay.

Door Open :

Alarm comes out 30 seconds after door opening. And no alarm come out if closed within 30 seconds.

- If door closed during alarm, alarm will stop immediately.
- Pressing mute button in the situation of door open will give 3 minutes alarm delay.