

# HYBRIDIZATION INCUBATOR OPERATING MANUAL

Model: NB-202 / 202R



**N-BIOTEK**  
Leading Life science

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# 1. PREREQUISITES

## 1.1. General Information on Precaution

- Precaution is to prevent the possible accident or danger during operation. Therefore, you must keep it.
- Precaution is divided into caution and warning. And, each of them has following meanings.



If you don't keep this warning, you can get an accident or a fire.



If you don't keep this caution, you can get injured as well as a property loss.

### Other Marks



## 1.2. Precaution for Connecting the Power Cable



You have to use the product under specified electrical conditions.

(If you use the product at the place in different power pressure, it causes a fire and malfunction of the product.)



Do not make the power plug be pressed by back of the product.

(A space between the product and the plug must be 20 cm 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 hard 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 cord with wet hands. (It can cause an electric shock.)



Do not use the damaged power cord and outlet.

(It can cause an electric shock and a fire.)



Remove  
plug

When you see smoke comes out from the product or smell something is burning or see any other strange symptoms, you have to pull out the power cord and stop using it.  
(It can cause an electric shock and a fire.)

### 1.3. Precaution for Installation



Compliance

Use it with the proper voltage.

Please check the voltage & Hertz written on serial label.

(Failure to do so could damage the product and cause poor performance.)



Prohibition

Do not install or use at relative humidity over 80%.

(It causes an electric leakage accident and a corrosive of the product.)



Prohibition

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 indoor temperature is 20°C ~ 30°C.)



Prohibition

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



Compliance

When you install the product, you have to put the distance of more than 20 cm from the wall.



Compliance

Install at a flat and solid ground.

(If the ground is not flat, it can cause a vibration of the product.)



Prohibition

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



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 hold up the product.  
(Pushing or pulling the product can damage the bottom part of the product.)

## 1.4. Precaution for Use



You must not disassemble, fix and remodel the product by yourself.  
(You can damage the product throughout a fire and malfunction or get a loss from a different study results than the original purpose.)



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



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



When you use inflammable 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 of the surface.)



When you don't use the product or clean it, please pull out the power plug.  
(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.  
Also, your hands can be stuck between the door and body.)



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



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

## 1.5. Precaution for Ground Connection



Compliance

Please ground before use the product. If you don't ground, you can be electrically shocked when malfunction or an electric leakage occurs.



Compliance

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.



Prohibition

Do not ground to these places; gas pipe, water pipe, pipe, lighting rod, telephone wire, etc.

- \* Wrong ground connection can occur an electric shock, an electric leakage and a fire.



Compliance

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 occur an electric shock, an electric leakage and a fire.

## 2. GENERAL INFORMATION & INTRODUCTION

### 2.1. Information

- **Note :** Before operating your equipment, take a few minutes to familiarize yourself with the contents of this manual.
- **Important :** The material in this manual is for informational purposes only.  
The contents and the product it describe are subject to change without notice.  
The manufacturer makes no representations or warranties with respect to this manual. In no event shall the manufacturer be liable for any damages, direct or incidental, arising out of or related to the use of this manual.
- Your satisfaction and safety will be assured by a complete understanding of this equipment. Awareness of the stated cautions and warnings, compliance with recommended operating parameters, and periodic maintenance requirements are important for safe and satisfactory operation.  
The unit should be used for its intended application ; alterations or modifications will void the warranty.
- **Inspection :** This equipment was carefully packed and thoroughly inspected before leaving our factory. Responsibility for its safe delivery assumed by the carrier upon acceptance of the shipment; therefore, claims for loss or damage sustained in transit must be made upon the carrier. So, if you receive this equipment in the customs or carrier, please check all packing box immediate before undertake from your customs or carrier.
- **Service :** N-Biotek products are designed and manufactured to give the user satisfactory service for many years. Should N-Biotek product require servicing, trained service personnel is available from our Service Network throughout the country.

### 2.2. Introduction

- This incubator is one of general instruments which needed in typical laboratories.  
This incubator is designed for incubating all kinds of reagents and media in the flask, tube and others. Also, this incubator is equipped with 'digital PID controller' and LED display which displays time and temperature.

### 3. LOCATION & LEVELING & BEFORE INSTALLATION

#### 3.1. Location

- Choose a site free from rapidly changing ambient temperature conditions or one which will experience high rises in ambient temperature during the summer months.

To assure proper ventilation, allow a minimum of 2 inches(5cm) of the clearance between the rear & side of the unit and adjacent walls.

#### 3.2. Leveling

- The unit should be levelled in all directions(side by side, front to back, and ground).

**WARNING:** For personal safety, this apparatus must be properly grounded.

Do not, under any circumstances, cut or remove the third(ground) prong from the power cord.

#### 3.3. Before Installation

- 1) Please check to your electric condition.
- 2) Avoid a direct ray and light.
- 3) Avoid high humidity and dust air.
- 4) Avoid cold area(below 5°C).



## 4. SPECIFICATION & FEATURES

### 4.1. Specification

Items	Unit	NB-202	NB-202R
<b>Temperature</b>			
range	°C	Ambient +5°C to 80°C	Ambient +5°C to 80°C
accuracy	°C	±0,3°C at +37°C	±0,3°C at +37°C
safety		Over temperature protector S/W	Over temperature protector S/W
control		Microprocessor digital PID	Microprocessor digital PID
<b>Display</b>		LED Display	LED Display
<b>Speed range</b>	rpm	Variable 2 to 35rpm	Variable 2 to 35rpm
<b>Rack capacity</b>	mm, ea	40(Ø)x200(D)mmx8ea 40(Ø)x120(D)mmx8ea	40(Ø)x200(D)mmx8ea 40(Ø)x120(D)mmx8ea
<b>Rocker platform</b>	mm		300x250(mm)
<b>Chamber dimension</b>	mm	320(W)x350(D)x370(H)mm	320(W)x350(D)x370(H)mm
<b>Overall dimension</b>	mm	415(W)x465(D)x540(H)mm	415(W)x465(D)x540(H)mm
<b>Power</b>	V/ Hz	110/220V, 50/60Hz, 400W	110/220V, 50/60Hz, 400W

### 4.2. Features

- 1) Safety hybridization procedures
- 2) Microprocessor control
- 3) Stabilized rotation
- 4) Outer glass door
- 5) Safety switch (Thermal cut-off)
- 6) Easy-to-change bottle racks
- 7) Synchronous use of rotator and rocker (NB-202R)

## 5. INSTALLATION & OPERATION

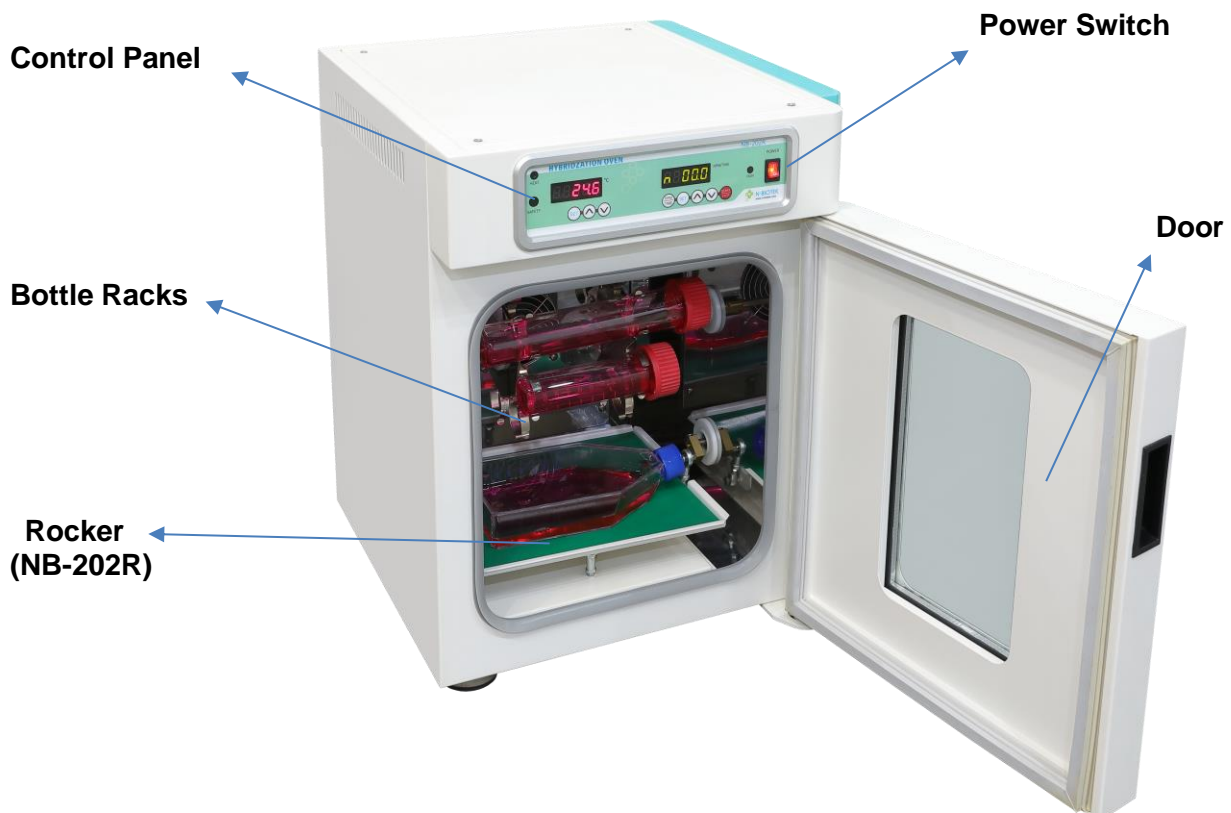
### 5.1. Installation

- 1) Move incubator to installation place and unpack carefully.
- 2) The unit should be levelled in all directions(side by side, front to back, and ground) and vibration free place.
- 3) Connect electric power plug.
  - \* Check to electric condition before connect the power plug.

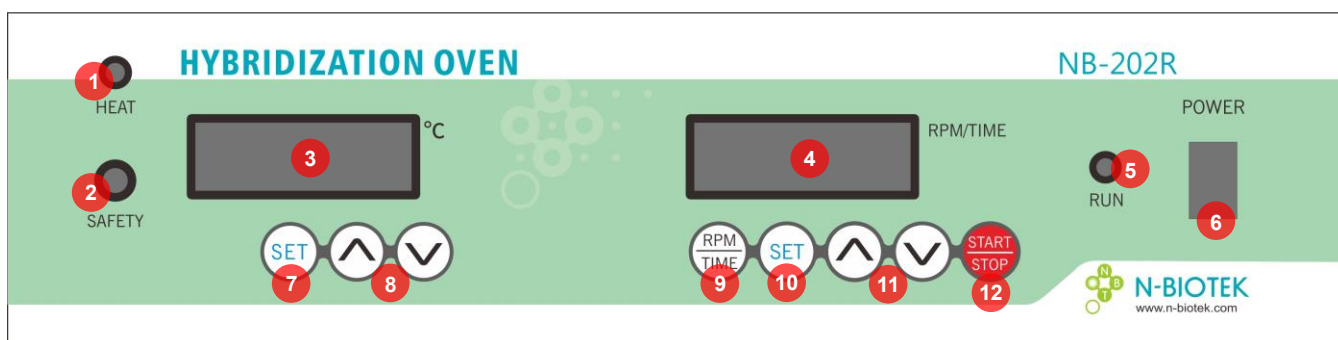
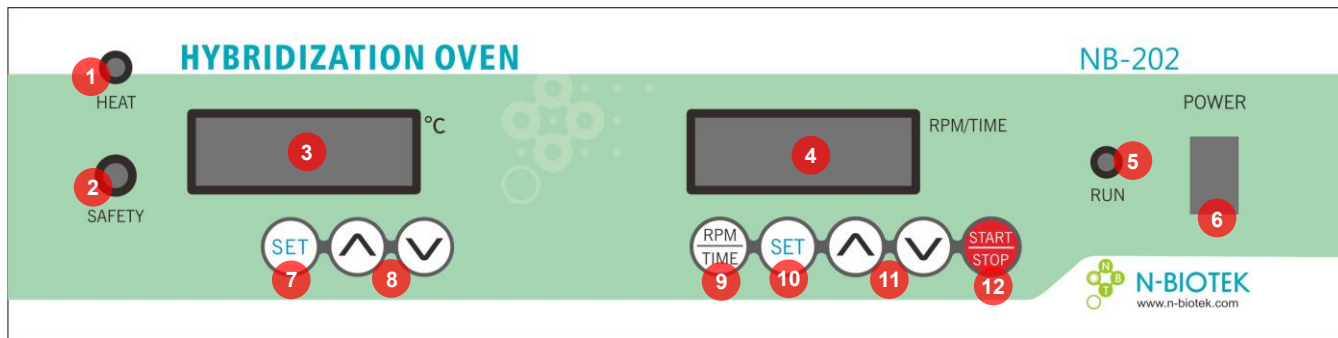
**WARNING:** Before connect the power cable to the plug, turn off the power switch.

### 5.2. Operation

- 1) Main Part



## 2) Detailed Control Panel



- 1 HEAT LAMP : If heater is heated, lamp is flashing
- 2 SAFETY LAMP: Lighting in case of Thermal cut-off is activated by over temperature
- 3 TEMPERATURE DISPLAY
- 4 RPM/TIME DISPLAY
- 5 RUN LAMP : It is on as long as Bottle Racks/Rocker working
- 6 POWER SWITCH
- 7 SET BUTTON : Use to set Temperature
- 8 INCREASE/DECREASE BUTTON : Use to increase/decrease Temperature in set up mode
- 9 RPM/TIME BUTTON : Use to switch RPM and Time
- 10 SET BUTTON : Use to set RPM and Time
- 11 INCREASE/DECREASE BUTTON : Use to increase/decrease RPM and Time in set up mode
- 12 START/STOP BUTTON : Use to Start or Stop a run

## **6. TEMPERATURE & RPM & TIME SET-UP**

### **6.1. Temperature Set-up**

- 1) Press SET button, then LED screen shows set-up temperature and flickers continually.
- 2) Then, you can set-up the new temperature by using INCREASE/DECREASE button.
- 3) After setting the value, press SET button again to SAVE.
  - \* If you don't press SET button after set-up the new temperature, new set-up temperature will not be saved at all.

### **6.2. RPM Set-up**

- 1) Press SET button, then LED screen shows set-up RPM and flickers continually.
  - 2) Then, you can set-up the new RPM by using INCREASE/DECREASE button.
  - 3) After setting the value, press SET button again to SAVE.
    - \* If you don't press SET button after set-up the new RPM, new set-up RPM will not be saved at all.
- \* RPM range is from 2 to 35.

### **6.3. Time Set-up**

- 1) Press RPM/TIME button to change to Time setting.
- 2) Press SET button, then LED screen shows set-up Time and flickers continually.
- 3) Then, you can set-up the new Time by using INCREASE/DECREASE button.
- 4) After setting the value, press SET button again to SAVE.
  - \* If you don't press SET button after set-up the new Time, new set-up Time will not be saved at all.

## 7. SERVICE AND CHECK POINT

### 7.1. Matters that Require

**WARNING:** Service should only be performed by qualified service personnel.

Before replacing any electrical or mechanical components, disconnect unit from its electrical power source. If electrical power is required for service, exercise extreme caution as LINE VOLTAGE is present.

- If the unit is not function,
  - 1) Electrical connection  
→ Please disconnect main power cable and try to connect again.
  - 2) Voltage supply  
→ Please check to voltage.
  - 3) Fuse check
  - 4) Verify voltage on unit
  - 5) Defective power switch  
→ Please check voltage at switch.

Thank you for purchasing our Hybridization Incubator.

This operation manual includes practical information such as performance, usage, and 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.

## WARRANTY

<b>Item</b>	Hybridization Incubator	<b>Model</b>	NB-202/202R
<b>Date of Installation</b>	mm-dd-year	<b>Supplier</b>	
<b>Serial NO.</b>		<b>Period</b>	1 year

N-BIOTEK provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

1. The free warranty service will be provided once the unit is proved to be defective by wrong workmanship after N-BIOTEK or reliable distributor's examination.
2. The warranty period is 1 year from the date of installation or 1 and half year from the date of shipment from N-BIOTEK, 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, and storage in wrong environment mentioned in manual.
4. Complete the above table after installation and keep this card. Then, present it to dealer or N-BIOTEK when warranty repair is needed.

Signed By



President Daeyong Kim  
N-BIOTEK, INC.