

# **General Incubator** **with Built-In Roller**

**Model : NB-205QR**

## **Operation Manual**



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## I. General Information

***NOTE : Before operating your Roller & Incubator, 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 describes 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 the customs or carrier.

**SERVICE** : N-BIOTEK products are designed and manufactured to give the user satisfactory service for many years. Should a N-BIOTEK product require servicing, trained service personnel are available from our Service Network throughout the country.

## II-1. Introduction

This Roller & Incubator is a general instrument which needed in typical laboratories. Microprocessor PID controller with feed-back system offers accurate temperature and shaking speed. This digital time controller is enable to do pre-engagement operation and use. This Roller & Incubator is very easy to display all of temperature, speed and time digitally. To adopt motorless and beltless Rotation System that is no noise and no vibration environment and is possible to have long life without special care or out of order. A soft-start and stop feature is fitted to most units, preventing from spilling samples and these product offers various holders and racks for various sizes and types vessel, including flasks, bottles and beakers.

## II-2. 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 and side of the unit and adjacent walls.

## II-3. Leveling

The unit should be leveled 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.***

## II-4. Before install

- 1) Please check to your electric condition.
  - 110/220V, 50/60Hz
- 2) Avoid a direct ray and light.
- 3) Avoid high humidity and dust air.
- 4) Avoid cold area (below 5°C).

## II-5. Specification

- 1) Dimensions (CHAMBER) : 480(W) X 435(D) X 695(H)mm  
(OVERALL) : 545(W) X 545(D) X 870(H)mm
- 2) Weight : 70 Kg
- 3) Temperature range : Ambient +5°C to 60°C
- 4) Temperature accuracy :  $\pm 0.1^{\circ}\text{C}$  at 37°C
- 5) Temperature controller : Digital PID Controller
- 6) Speed range : 2 - 30 RPM
- 7) Speed Increment : 0.1 RPM
- 8) Speed controller : Digital Display Feed Back Speed Controller
- 9) Jacket Type : Dry Wall Type
- 10) Timer : Digital Timer up to 99h 59min. or Continuous
- 11) Chamber Volume/Capacity : 142Liter / 2 Stairs Roller + 1 Shelve
- 12) Chamber Material : Stainless Steel
- 13) Motor : Motorless, Beltless
- 14) Power : 110/220V, 50/60Hz, 400W

## II-6. Features

- 1) Artificial intelligence system which maintains precise thermostatic control by using MICOM.
- 2) Suitable for bench space.
- 3) Provide 2 functions (Roller Culture and general culture) at the same time.
- 4) Shaking culture is beyond its vibration to shelves.
- 5) Control device (NB TAC system) makes uniform heating for natural convection.
- 6) Brushless DC motor provides low noise and no vibration.
- 7) LED indicates temperature, speed, time and state of power failure.

## III-1. Installation

- 1) Move to this Roller & Incubator at installation place and un-packing carefully.
- 2) The unit should be leveled 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 power plug.
  - 110/220V, 50/60Hz

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

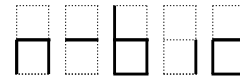
## III-2. Operation

- 1) Place the Power switch "**ON**" position which locate in rear panel (Right side).  
The digital readout will display as below.



(a) Temperature  
Display

- \* Present temperature  
in the chamber



(b)RPM and Time  
Display

- \* Above message is Controller  
displayed.

## III-3. Temperature Set-up

- 1) Place the Power switch "**ON**" position which locate in right side.  
Then, LED screen will displayed present temperature in the chamber.
- 2) Press the "SET" key, than LED screen displayed "Set-up" temperature and flicker continually.
- 3) Then, you can set-up the new temperature by UP (▲) and DOWN (▼) key as desired set-point temperature.
- 4) Press "**SET**" key again after set up the new temperature,  
than LED screen will be stop to flicker and saved as new temperature.

- \* If you don't press "**SET**" key after set up the new temperature,  
new set-up temperature will not save at all.

- \* Set-up Temperature range are Ambient +5°C to 60°C

## III-4. Time Set-up

- 1) Press the "RPM/TIME" key during the approximately 1 or 2 seconds until **LED** displayed "t 00.00" as below.



- 2) Press the "**SET**" key. Then **LED** displayed setting time and can be set the time using ▲ / ▼ key as desired set-point time.

At first, you can set the **hour** using ▲ / ▼ key and press "**SET**" key.

You can set the **minute** using ▲ / ▼ key after set the hour.

Press "**SET**" key again after set time (hour and minute),

than **LED** displayed as "**t SAVE**" as below.



\* Time set-point range is maximum 99hr59min or continuous.

\* If you want to using this incubator continually, you must time setpoint as **00:00**.

### III-5. Speed (RPM) Set-up

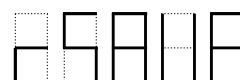
- 1) Press the "**RPM/TIME**" key during the approximately 1 or 2 seconds until **LED** displayed "**r 000**" as below.



- 2) Press the "**SET**" key than RPM will be flicker.

You can set the RPM using ▲ / ▼ key.

Press "**SET**" key again after set RPM, than **LED** displayed as "**r SAVE**" as below.



\* RPM set-point range is from 0.1 to 5.

--> Real RPM could be different displayed RPM (LED RPM)

## III-6. Installation and Detachment of Roller Apparatus

### 1) Installation the Roller

- After cleaning the surface of chamber or separating the roller, please connect the roller with the shaft correctly.

**Axis of rotation  
Connected with Motor**



**Shaft of Roller**



**Correct Connection**



### 2) How to detach the roller



\* NOTE : Make sure turn off the product first, before disconnect the roller from incubator



### III-7. Warning Messages



- 1) This message may be displayed as to
- RPM is setting 0 or less than minimum RPM.
  - Something forced not to move when the platform is moving.
  - Solution : Use your hand to move platform and push "STOP" button simultaneously and then push the "SET" button to increase RPM you want.



- 2) This message may be displayed as to
- Momentary noise symptom.
  - When the platform is moving faster than the RPM which you set.  
(This message may occur from 200RPM.)
  - Solution : These symptom will be recovered automatically within 3min or restart it.



- 3) This message may be displayed as to
- Finish operation after "TIME" Setting Mode.



- 4) This message may be displayed as to
- The electricity is on from power failure during "TIME" Setting Mode.
  - Solution : Push the "START" button again.



- 5) This message may be displayed as to
- The electricity is off during operation.
  - Solution : N(new record) will be changed to R(RPM) if you push the "START" button.

## III-8. Service and Check Point

***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.***

### 1. Unit will not function

#### (1) Electrical connection

Please dis-connect main power cable and connect again.

#### (2) Voltage supply

Please check to voltage.

#### (3) Fuse check

#### (4) Verify voltage on unit

#### (5) Defective power switch (check voltage at switch)



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