

## **211 SERIES**

High Performance Incubator

INSTALLATION AND OPERATION MANUAL

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This unit is a general purpose air incubator for professional, industrial or educational use where the preparation or testing of materials is done at approximately atmospheric pressure and no flammable, volatile or combustible materials are being heated. This unit is not intended for hazardous or household locations or use.

# INTRODUCTION

The Model 211Series of High Performance Incubators have been designed for general purpose incubation (<65°C), as well as those applications requiring higher temperatures (up to 80°C).

The Smart Chek™ Temperature Control System provides temperature control within the incubator. The microprocessor maintains excellent temperature accuracy and stability. Desired temperature is set and displayed digitally on the large display. An independent, user settable safety thermostat protects samples and the incubator from overheating in the unlikely event of a primary controller failure.

A uniform temperature environment within the chamber is maintained by mechanical convection or fan assisted heating. This type of heating also speeds temperature recovery after the door of the incubator is opened.

The interior of the Model 211Series Incubators is constructed of mirror finished stainless steel. The exterior is made of cold rolled steel to resist corrosion and provide strength. The insulated door incorporates a glass viewing area for observing samples without disrupting the temperature environment within the chamber.

Your safety and satisfaction require a complete understanding of this unit. Read the instruction manual thoroughly before operating the incubator. All operators should be given adequate training before using the 211 Incubators. **NOTE:** Any alterations or modifications of the incubator may void the warranty and may result in injury.

## **WARRANTY**

National Labnet guarantees that the *Series 211* Incubators that you have received meets its published specification. The *Series 211* Incubators is guaranteed to be free of defects in materials and workmanship for a period of one year from the date of purchase. This guarantee is valid only if the unit has been used in accordance with the instructions in this manual and for its intended purpose. Labnet International, Inc. shall not be responsible for consequential damages or damages resulting from the abuse or misuse of this equipment. Labnet International, Inc.'s liability shall be limited to the repair or replacement of the unit or refund of the purchase price, at Labnet International, Inc.'s discretion.

In the event that service is required, contact Labnet's Service Department at 732-417-0700. 8:30 am to 4.30 pm EST. A return authorization number must accompany any items being returned for service.

Labnet International, Inc. reserves the right to alter the specifications of the *Series 211* Incubators without notice. This allows the incorporation of improvements as they are developed.

Please fill in the following information. This information will be required in the event that service becomes necessary. The unit serial number is found on the data plate located on the back of the unit.

Serial Number \_\_\_\_\_

Date of Purchase \_\_\_\_\_

# SPECIFICATIONS

	211D	211DS	211DHS
Temperature Range	Ambient +5° to 80°C	Ambient +5°* to 80°C	Ambient +5°* to 80°C
Shaker speed	n/a	20-400rpm (±2rpm)	20-400rpm (±2rpm)
Shaker max load	n/a	1.8kg**	1.8kg**
Rotisserie speed	n/a	n/a	4-20rpm (±2rpm)
Rotisserie capacity	n/a	n/a	10 x 35x300mm bottles
Temperature Uniformity	±0.5°C	±0.5°C	±0.5°C
Temperature Accuracy	±0.1°C	±0.1°C	±0.1°C
Temperature Set / Display	Digital / digital	Digital / digital	Digital / digital
Temperature Control	Microprocessor	Microprocessor	Microprocessor
Overtemperature Safety	Independent, user settable	Independent, user settable	Independent, user settable
Door	Magnetic gasketed, insulated	Magnetic gasketed, insulated	Magnetic gasketed, insulated
Viewing Area in Door	9.25D x 13.5"H, glass	9.25D x 13.5"H, glass	9.25D x 13.5"H, glass
Working Area	1.6 cu ft	1.6 cu ft	1.6 cu ft
Exterior Construction	Cold rolled stainless steel	Cold rolled stainless steel	Cold rolled stainless steel
Interior Construction	Mirror finished stainless steel	Mirror finished stainless steel	Mirror finished stainless steel
Exterior Dimensions	21.75D x 16.75W x 23.125"H	21.75D x 16.75W x 23.125"H	21.75D x 16.75W x 23.125"H
Interior Dimensions	16.25D x 11.5W x 14.94"H	16.25D x 11.5W x 14.94"H	16.25D x 11.5W x 14.94"H
Standard Accessories	Adjustable Leveling Feet 2.5 Steel Shelves 12 Shelving Points	Adjustable Leveling Feet 2.5 Steel Shelves 12 Shelving Points	Adjustable Leveling Feet 2.5 Steel Shelves 12 Shelving Points
Voltage Requirements	120V / 50/60Hz 230V/ 50/60HZ	120V / 50/60Hz 230V/ 50/60HZ	120V / 50/60Hz 230V/ 50/60HZ
Power / Current	780W / 6.5A / 115V 780W/3.3A/230V	780W / 6.5A / 115V 780W/3.3A/230V	780W / 6.5A / 115V 780W/3.3A/230V

\* When the shaker is in use the lowest temperature is ambient +10°C (as the shaker adds heat to the system)

\*\* The shaker maximum load (four 1L flask with 200ml of liquid in each) can only be used at maximum 250rpm

## RECEIVING AND INSPECTION

*Your satisfaction and safety require a complete understanding of this unit. Read the instructions thoroughly and be sure all operators are given adequate training before attempting to put the unit in service. NOTE: This equipment must be used only for its intended application; any alterations or modifications will void your warranty and may cause injury.*

- 4.1 Inspection:** The carrier, when accepting shipment, also accepts responsibility for safe delivery and is liable for loss or damage. On delivery, inspect for visible exterior damage, note and describe on the freight bill any damage found, and enter your claim on the form supplied by the carrier.
- 4.2** Inspect for concealed loss or damage on the unit itself, both interior and exterior. If any, the carrier will arrange for official inspection to substantiate your claim.
- 4.3 Return Shipment:** Save the shipping crate until you are sure the unit is complete and working to your satisfaction. If for any reason you must return the unit, contact your service representative for authorization and supply the data plate information.
- 4.4** Verify that all of the equipment indicated on the packing slip is included with the unit. Carefully check all packaging before discarding. This unit is equipped with 2 large shelves, 1 small shelf, 12 shelf clips and 4 leveling feet.

# INSTALLATION

Local city, county, or other ordinances may govern the use of this equipment. If you have any questions about local requirements, please contact the appropriate local agency. Installation may be performed by the end user.

Under normal circumstances this unit is intended for use indoors, at room temperatures between 5° and 40°C, at no greater than 80% Relative Humidity ( at 25°C ) and with a supply voltage that does not vary by more than 10%.

- 5.1 Power Source:** Check the data plate for voltage, cycle, phase and ampere requirements. If matched to your power source, plug the power cord into a grounded outlet. **VOLTAGE SHOULD NOT VARY MORE THAN 10% FROM THE DATA PLATE RATING.** This unit is intended for 50/60 Hz application. A separate circuit is recommended to preclude loss of product due to overloading or circuit failure.
- 5.2 Location:** In selecting a location, consider all conditions which might affect performance, such as heat from radiators, ovens, autoclaves, etc. Avoid direct sun, fast-moving air currents, heating/cooling ducts and high-traffic areas. Allow a minimum of 5cm between the unit and walls or partitions which might obstruct free air flow.
- 5.3 Lifting / Handling:** This unit is heavy and care should be taken to use appropriate lifting devices that are sufficiently rated for these loads. Units should only be lifted from their bottom surfaces. Doors, handles and knobs are not adequate for lifting or stabilization. The unit should be completely restrained from tipping during lifting or transport. All moving parts, such as shelves and trays should be removed and doors need to be positively locked in the closed position during transfer to prevent shifting and damage.
- 5.4 Leveling:** The unit must sit level and solidly. Leveling feet are to be installed in the holes at the base of the unit. Turn them clockwise to raise the level. If the unit must be moved, turn the leveling feet in all the way to prevent damage.
- 5.5 Cleaning:** The unit was cleaned at the factory, but not sterilized. Remove all interior parts, if assembled and clean the inside of the chamber thoroughly with a disinfectant that is appropriate to your application. Make sure to rinse the cleaned surface with a damp cloth, using water only, and dry the surface with a clean cloth. **DO NOT** use chlorine-based bleaches or abrasives, as this will damage the

stainless steel surfaces. A similar periodic cleaning is recommended.



## Section

# 6

- 6.1 Power Switch:** The main power I/O (On/Off) switch controls all power to the unit. It must be in the I/ON position before any systems are operational.
- 6.2.1 Shaker power switch** controls the power to the shaker motor. It must be in the I/ON position before the shaker can operate. (Models 211DS and 211DHS only)
- 6.2.2 Shaker speed knob** allows for speed adjustments of the shaker. (Models 211DS and 211DHS only) Speed range is 20-400rpm.
- 6.3.1 Rotisserie power switch** controls the power to the rotisserie motor. It must be in the I/ON position before the rotisserie can operate. (211DHS only)
- 6.3.2 Rotisserie speed knob** allows for speed adjustments of the rotisserie. (211DHS only) Speed range is 4-20rpm ( $\pm 2$ rpm)
- 6.4 SMART CHEK Temperature Control System:** This control consists of the digital display and UP/DOWN arrow pads for inputting set point temperatures and calibration.
- 6.5 Safety:** This control, on the rear of the unit, is equipped with an adjustment knob and a graduated dial marked "0 to 10". Completely independent of the Temperature Control System, the Safety guards against any failure which would allow temperature to rise past the set point. If temperature rises to the safety set point, the Safety takes control of the heating element and allows continued use of the incubator until the problem can be resolved or service can be arranged.
- 6.6 Heating Indicator:** This pilot light is on when the Temperature Control System has activated the heating element to reach and maintain set point.
- 6.7 Safety Light:** This pilot light comes on when the Safety controller is activated. Under normal operating conditions this pilot light should never be on.
- 6.8 Circuit Breaker:** Located on the lower left rear of the unit, the breaker is manually resettable and offers protection against power source variations. Protection is in addition to the automatic high-temperature limit designed into the heating element itself.



**Figure1.**

**211 DHS** High Performance Hybridization Incubator

## OPERATION

- 7.1** Check power supply against unit serial plate. They must match.
- 7.2** Plug the service cord into the grounded electrical outlet. Push the power switch to the ON position, and turn the Safety to its maximum position, clockwise.
- 7.3** **SMART CHECK Temperature Control System:** Enter desired set point temperature. To enter set point mode on the controller, press either the Up or Down arrow pad one time. The digital display will start to blink, going from bright to dim. While blinking, the digital display is showing the set point. To change the set point, use the Up and Down arrow pads. If the arrow pads are not pressed for five (5) seconds, the display will stop blinking and will read the temperature of the unit. Allow the incubator at least 24 hours to stabilize.
- 7.5** **Calibration:** The unit was calibrated at the factory at 37°C; however it is recommended that the unit be recalibrated once it is in its working environment and has been stable at set point for several hours. Place a certified reference thermometer inside the chamber where it can be easily viewed. Make certain it is not touching any shelving or chamber walls. Allow the temperature to stabilize again until the temperature remains constant for 60 minutes. Compare the reading on the reference thermometer with the digital display. If there is a difference, put the display into calibration mode by pressing on both the Up and the Down arrow pads at the same time and holding them in for about five (5) seconds or until the two outside decimal points start to flash. When the decimal points are flashing, the display can be calibrated to match the reference thermometer by pressing on the Up or Down arrow pads until the display reads the correct value. Allow the incubator temperature to stabilize and repeat if needed.
- 7.6** **Set Safety Controller:** As mentioned in step 7.2, the Safety should be initially set to its maximum position, to allow the unit to stabilize. Once the incubator is stable at the desired set point, turn the Safety counterclockwise until the Safety Light turns on. Then, turn the Safety clockwise just until the Safety Light turns off. This will set the Safety Controller at approximately 1°C above the Smart Check Temperature Control System.

## CLEANING AND ROUTINE CARE

Both the interior and exterior of the incubator should be wiped down with a soft cloth periodically to prevent any build-up of dust and grime.

Any spills in the interior of the incubator should be cleaned immediately. Cleaning may be performed with a soft, damp cloth. If required, the chamber may be disinfected. Before using any disinfectant or cleaning agent, check with the product manufacturer to ensure the product will not damage the stainless steel interior of the incubator. After cleaning the incubator, rinse the cleaned surface with a damp cloth, using water only. Dry with a clean cloth.

Do not pour liquid into the chamber or immerse the unit in liquid. DO NOT use chlorine based bleaches or abrasives as these will damage the stainless steel.

## SERVICE AND TROUBLESHOOTING

Always make a visual inspection of the incubator and control panel when troubleshooting. Look for loose or disconnected wires that may be the source of trouble.

**9.1** In the event the incubator does not operate properly, check the following before calling for service:

**A. Is electrical power reaching the unit?**

- Check to see if the unit is plugged into the power supply.
- Check to see if the circuit breaker has tripped.
- Check to see if the Main Circuit Breaker has tripped.

**B. Unit will not heat?**

- Verify that the Main Control is set at desired set point.
- Verify that the High Limit is set higher than Main Control.

**C. Unit will not maintain temperature?**

- Verify that Main Control is set at desired set point.
- Verify that the High Limit is set higher than Main Control.
- Check to see if circulating fan is running.
- What is the ambient room temperature. Fluctuation in ambient room temperature will have an effect on stability of the incubators temperature.

**9.2** If following these troubleshooting suggestions does not solve the problem call Labnet Service Representative at 732 417-0700.