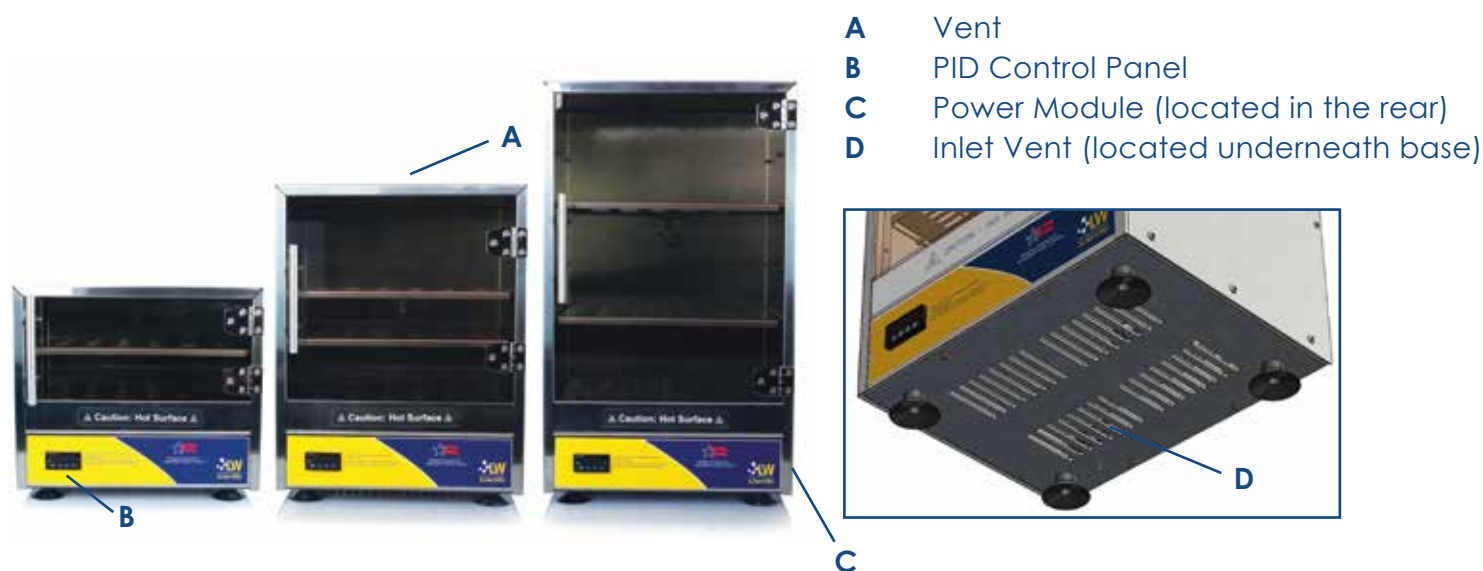




Model pictured:

USA Incubator

Not all features available on all models - see back page for model specifications.



Introduction

The digitally controlled USA Incubators from LW Scientific are perfect for various applications such as cultures, egg incubation, test kits, fluid bag warming, and other microbiological uses in pediatric, physician, and hospital labs. This new line of incubators is designed, engineered, and assembled in the USA by LW Scientific Atlanta. They provide better temperature stability and accuracy with the digital PID microprocessor controls, and the convection heat provides excellent heat distribution and uniformity. The LED temperature display shows constant temperature in Celsius or Fahrenheit. The acrylic door allows the viewing of the chamber contents without disrupting the temperature environment. The stainless steel components are corrosion resistant and easy to clean. The LW Scientific Incubator is perfect for those labs requiring better temperature accuracy and a small footprint.

Read this instruction manual thoroughly before attempting to operate the incubator. Every operator should receive appropriate training before using this incubator. LW Scientific is not responsible for any injury caused by misuse or abuse of this equipment.

Included Accessories

- 1 adjustable shelf (10 liter)
- 2 adjustable shelves (20 & 30 liter)

Safety

Caution: Read and follow the operating instructions fully before use.



Warning: Surface can become hot during use.

- **The incubator should be set to a normal body temperature under normal operating conditions. The incubator should not be set at a temperature above 150 degrees F (66 C). If the incubator is set to a higher temperature, there could be a risk of personal burn injury.**
- Do not leave the unit unattended for extended periods. Regularly monitor the incubator when in use.
- Connect only to a power supply that provides a safety ground terminal.
- Ensure that the power switch is easily accessible during use.
- To avoid injury, do not check temperature by touch. Use the temperature display or a thermometer.
- Do not block or restrict ventilation slots.
- If liquid is spilled inside the unit, disconnect it from the power supply and have it checked by a competent person.
- It is the user's responsibility to carry out the appropriate decontamination if hazardous material is spilled on or inside the equipment.

Unpacking & Set Up

- 1 Carefully unpack the incubator, saving packing materials in the unlikely event you need to return the item. Immediately contact your distributor if you detect any damage. If you need to return the incubator to LW Scientific, please use the original packing material.
- 2 Place the incubator on a flat, stable surface away from any edges. Ensure that the controls are set in the "OFF" position.
- 3 The LW Scientific USA Incubator comes with adjustable shelves (one with the 10 liter size, and 2 with the 20 and 30 liter sizes). To insert shelves, open door fully and angle the shelf for clearance, allowing shelf to rest on pins.
- 4 Connect the included power adapter to the incubator. Next, plug it into a properly grounded electrical outlet. (Use only the supplied power adapter and plug.)
- 5 Congratulations! You are now ready to use your LW Scientific USA Incubator.

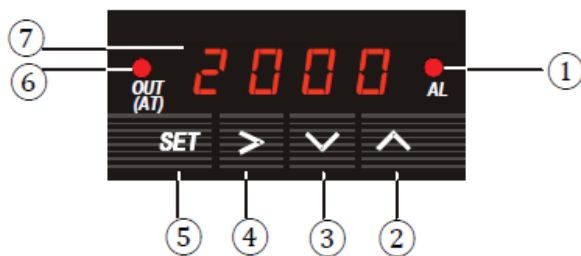


Figure 1. Front panel

- 1 AL- Alarm
- 2 Value increment/Select next parameter
- 3 Value decrement /Select previous parameter
- 4 Auto tuning /Digit shift
- 5 Set/Confirm
- 6 Output - indicate heating element is on.
- 7 The temperature of the incubator (Process Value, or PV) is displayed during operation. The target temperature (Set value or SV) is displayed when flashing by pressing the ^ or key once.

Operation

The unit is ready for your immediate use. All control parameters, calibration and tuning has been preset. No adjustments are necessary.

To turn on the incubator, switch the power switch located on the rear, to the ON position. Allow the incubator to reach the set temperature and stabilize. After approximately 45 minutes, the unit is ready for use. The incubator shelves are adjustable. The shelves may be placed on any of the shelf pins to accommodate your samples. If you are running single or small samples, it is recommended that you place a shelf in the center of the incubator and use it for your samples. The incubator temperature sensor is located in the center of the unit and this will provide the most even temperatures.

The incubator should be placed several inches away from any wall or other equipment for proper ventilation.

NOTE: Bottom of unit will be warmer than shelves due to its proximity to heating elements and may not be appropriate for samples. We recommend that only adjustable shelves be used for samples.

Using the PID Temperature Controller

This incubator has been calibrated for accuracy and the unit has been shipped from LW Scientific set to 100 degrees Fahrenheit. The PID Temperature controller will be illuminated when the power is turned on to the incubator. Once turned on, the PID will show the actual temperature of the interior of the incubator, and the temperature will gradually increase until it reaches the SET temperature. The incubator should reach 100 degrees within 30 minutes, depending on ambient/initial temperature. It will possibly over-shoot the set temperature slightly, but will settle onto the correct temperature within a few minutes. It is best to turn your incubator on at least 45 minutes prior to use.

LW Scientific has preset all programming functions of the PID controller as it shipped from the factory in Atlanta. There are many complicated programming functions built into the PID controller, which should not be altered by the customer. The only 3 functions that may need to be altered by the customer are "Set Temperature", "Change from F to C", and "Temperature Offset".

Change Set Temperature

Press $\wedge$ or V once to display Set Temperature. The display will blink.

Press $\wedge$ or V again to increase or decrease the Set Temperature value.

Wait 8 seconds and the new Set Temperature value will take effect and stop blinking.

Change from Fahrenheit to Celsius

If the units need to be changed to Celsius, access the PROGRAM MODE on the PID controller as shown in the flow chart below.

Press SET

Enter code 0089 and press SET

Press the V until "CorF" shows

Press SET and use the $\wedge$ button to choose "O" for Celsius

Press SET, and then the $\wedge$ button until you see "END"

Press SET to exit

Change Temperature Offset

The temperature offset will not normally need adjustment; however, if the incubator ever needs an offset to correct for differences between DISPLAYED TEMP and ACTUAL TEMP inside the chamber, the PID controller can compensate for that. If the offset needs to be changed, access the PROGRAM MODE on the PID controller as shown in the flow chart below.

Press SET

Enter code 0089 and press SET

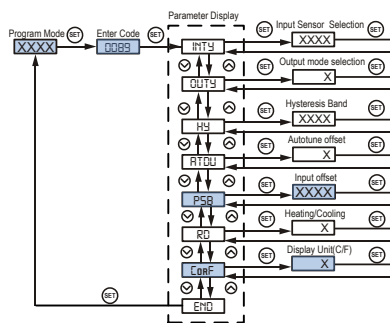
Press the down arrow until "PSb" shows

Press SET and enter the offset value (for example enter "1" to offset by 1 degree)

*For negative values, shift to the very left digit, press down key until "-" shows

Press SET, and then the $\wedge$ button until you see "END"

Press SET to exit



- (1) Press SET to enter setting mode ;
- (2) Press DOWN , UP and LEFT to enter parameters ;
- (3) Press SET to confirm ;
- (4) Press DOWN or UP to select the new parameter.

Table 1. PID parameters, Incubator

Code	Description	Setting Range	Initial	Note
INTY	Inty	Input Sensor Type	-99.9~600.0°C; -99.9~999.9°F	K
END	End	Exit		K
CorF	CorF	Display Unit	0: °C 1: °F	1
RD	rd	Control Function	0: Heating 1: Cooling	0
PSB	PSb	Input Offset	-100~100(deg)	0
HY	Hy	Hysteresis Band	0~9999	3
OUTY	outy	Control Output Mode	0, 1, 2, 3, 4, 5	2

If any other parameters need to be altered, please call the LW Scientific technical support team at 800-726-7345 before making changes.

Cleaning & Maintenance

No routine maintenance is required.

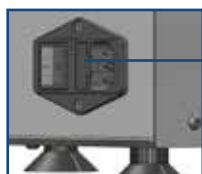
Unplug the power cord prior to cleaning. If a spill occurs, use appropriate cleaning procedures as required for radiation or biohazard control.

Both the interior and exterior should be wiped down with a soft cloth periodically to prevent any build-up of dust and grime. Do not immerse the incubator in water or pour liquid into the chamber. DO NOT use chlorine-base bleaches or abrasives as these may damage the unit.

Replacement of Fuses

Your incubator is protected by a pair of fuses. These fuses are 5A, 5x20mm fast acting fuses and are located within the power entry module. To check or replace the fuses do the following:

- 1) Turn the power switch off.
- 2) Disconnect the power cord from the wall outlet.
- 3) Disconnect the power cord from the power entry module on the rear of the unit.
- 4) Carefully open the fuse drawer with a small flat screwdriver or similar tool.
- 5) Visibly check the fuses. If the filament is broken or the glass is discolored, replace fuse.



Fuse Drawer

Incubator Troubleshooting

Unit does not have power:

Ensure unit is connected to outlet and outlet is powered.

Unit does not have power:

Check unit fuses. Replace if blown.

Unit does not heat:

Ensure set temperature is higher than ambient temperature.

Temperature reading does not seem accurate:

Check internal temperature with calibrated thermometer and adjust PID offset.

Unit still not operating correctly:

Contact LW Scientific service department.

Warranty

LW Scientific instruments have a one (1) year limited warranty. This warranty is not valid on normal wear and tear, cosmetic damages caused by chemicals, solvents, and/or cleaning solutions, as well as acts of God.

Please register your product online at: www.lwscientific.com/warranty_form.

Important: Warranty information must be completed within 30 days of purchase.

Specifications

Construction

Stainless Steel
Acrylic see-through door
Adjustable stainless steel shelves
Suction-cupped rubber feet

Temperature

Ambient +2°C to 65°C
Accurate to +/- 0.5°C
Programmable temperature correction

Controls

PID Controller
Simple keypad input
Digital LED display

Alarm

Visual alarm alerts when actual internal temperature exceeds programmed temperature

Power

300 watt, 115v AC / 230v AC



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