Biological Indicator Incubator

Cat. No. BT118

Thanks for choosing Biological Indicator Incubator. This operation manual describes the function of the instrument. To ensure that correct operation of the instrument, please read the manual carefully before using it. Please keep this manual for later use.

IMPORTANT SAFETY INFORMATION

Users should understand how to use the instrument properly before operating it. Please read this operation manual carefully before using the instrument.

The operation, maintenance and repair of the instrument should comply with the basic guidelines and warning below. Ignoring these instructions will affect the life of the Instrument and safety precautions.

- This product is an indoor Instrument which conforms to Standard B style- I type- GB9706.1.

- The operator should never open or repair the instrument. Opening or repairing the instrument will void the guarantee and can cause accidents.

- The instrument should be used in an area with low temperature, little dust, no water, no sunshine or hard light and with good air circulation. Do not use where there is corrosive gas or a strong magnetic field. Keep far away from central heating, camp stove and other hot sources. Do not put the instrument in a wet and dusty area. The vent on the instrument is designed for aeration. Do not wall up or cover the vent.

- Power off when not in use. If the instrument will not be used for a long period, unplug, and cover with a piece of cloth to protect it from dust.

- In case of the following, unplug the instrument at once and contact BT Lab Systems.

    o The instrument comes into contact with liquid

    o The instrument gets soaked or burned

    o The instrument emits an abnormal sound or smell

    o The instrument is dropped or the outer shell damaged

   o The instrument functions abnormally.

MAINTENANCE

The instrument and the accessories should be cleaned with a cloth dampened by alcohol.
If there are smudges on the instrument, clean it with a dry cloth.

INTRODUCTION

The Biological Indicator Incubator is an instrument which is microprocessor-controlled. It is used for samples of preservation and reaction, DNA amplification, and electrophoresis.

OVERVIEW

Block

Display Panel

Keyboard

Power Connector
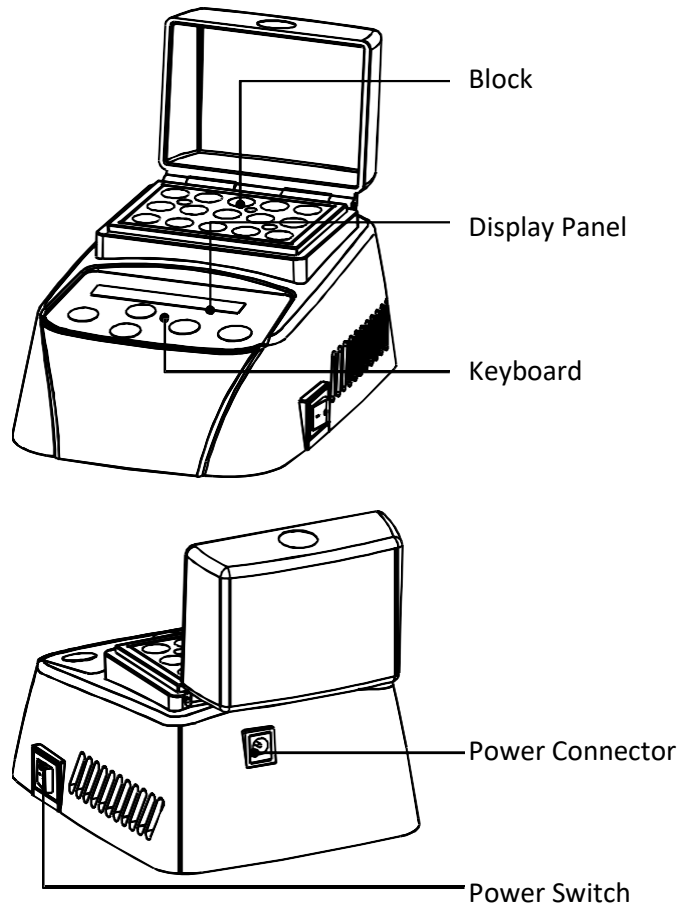
Power Switch

Turn on the power switch on the right side. The incubator runs the program to the setting temperature automatically. Heating always takes 15 minutes.

When it achieves the setting temperature, put the tubes into the block, close the thermo lid.

TECHNICAL SPECIFICATIONS

- Power Input: DC24V

- Maximum Power: 50W

- Average Power: 15W

- Temperature Range: Ambient Temp + 5°C-100°C

- Timer Range: 1-999 seconds or minutes

- Temp. Control Accuracy: ≤± 0.5°C

- Display Accuracy: 0.1°C

- Heating Time: ≤15 minutes (from 20 to 100°C)

- Ambient temperature: 5-35°C

- Dimensions: 110 x 156 x 92mm

- Weight: 1.0kg

SAFETY WARNING

- The incubator is an indoor use instrument.
- Read operation manual carefully before operation. Only the expert of wiring equipment can operate this instrument.
- The operator should not open or repair the instrument. Doing so will void the guarantee or cause accidents.
- The instrument should be placed in area of low temperature, with little dust, no water, no sunshine or hard light, and of good air circulation, no corrosive gas or strong disturbing magnetic field, and far away from central heating, camp stove and other hot source. Do not put the instrument in wet and dusty place.
- Main switch is on the rear
- Power input interface is on the rear of the instrument. Push "I" to power on the device, and push
- "O" to power off the device.DC12V /24V. Input is anode, outer ring is cathode.
- Power off when operation is finished. If not using the instrument for a long period, pull off the connector plug and cover with a cloth to protect it from dust.

OPERATION

Key Function

START/STOP	Start or stop the operation program
PROG.	Select operation program
Press upward or Downward arrow	Set Temperature or Timing value
Press right facing arrow	Enter value set or move cursor

Programming

Press "PROG.", select option program, e.g. P2. Press right facing arrow to enter temp setting. Press right facing arrow to move cursor. Press up or down arrow to set timing. Two segments could be set in each program one solid box indicates temp. or timing of segment 1. Two solid boxes indicate temp. or timing of segment 2.

Time Unit Changing

Press right facing arrow for 2 seconds under timing setting, timing unit alternatively changes between min and sec.
Press up or down arrow to select min or sec. Press right facing arrow to confirm.

Program Start/Stop

Press "PROG." Nine preset programs P1,P2,P3,P4,P5,P6,P7,P8, P9 could be selected.
When the power is on, the temperature rises to temperature of Program 1 automatically. It displays "NOTOK" when heating. It displays "OK" when it achieves the setting temperature.

Press "START" to run program 1. One solid box which indicates Program 1 flickers. When Program 1 finishes, the program starts Program 2. Two solid boxes which indicates Program 2 flickers, and it begins to count down.

A buzzer alarm sounds when it counts down to 0 at Program 2. "PROGRAM END" displays on LCD. The incubator keeps the temperature of Program 2.

Press any key to return to the operating interface. It turns to the setting temperature of the current program. When it achieves the temperature, "OK" is displayed on LCD. Press "START" to run the program again.

Press "START/STOP" continuously for 1 second, program stops, timing ends.

TEMPERATURE CALIBRATION

If there is deviation between the actual temperature and the displayed temperature, you can do as follows to calibrate it.

NOTICE:

The instrument uses two temperature adjustments to ensure its accuracy. It is linearly adjusted on 40 degrees C, and 100 degrees C. The temperature accuracy will be within ±0.5 degrees C after the double temperature adjustment. Both the circumstances and the block temperature should be lower than 35 degrees C when calibrated.

Notice: The temperature of the instrument has been adjusted before it is sold.

Adjustment Methods

Start up the instrument, it enters waiting interface.

Inject olefin oil into one of the cone-shaped wells. Put a thermometer into this well (the precision of the thermometer should be 0.1. The temperature ball should be immerged into the cone-shaped well). Heat insulation material is needed on the block to separate it from the oil.
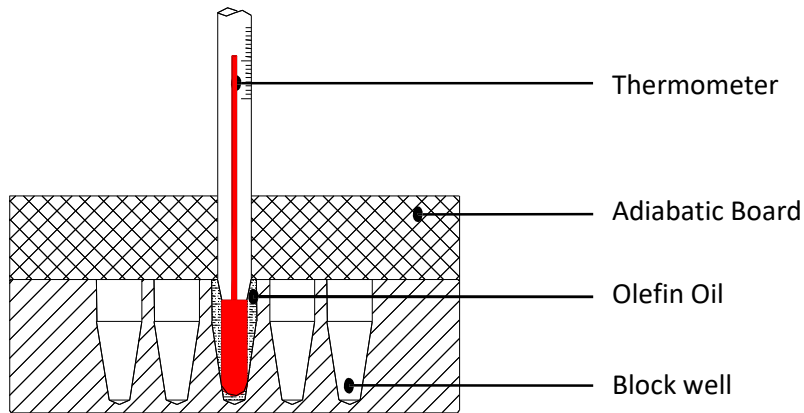
Press the up arrow and down arrow simultaneously under no operating status. The program turns to the right interface. The program auto controls temp. to 40 degrees C, an asterick displays and flickers. When it achieves 40 degrees C, cursor displays under decimal, "Adj" and asterick flicker together.

After 20 minutes, the temperature value of the thermometer is 38.8 degrees C, press up arrow or down arrow to amend the display value to 38.8. Press "Start" to confirm. Program saves the value and temperature rises to 100 degrees C automatically. The sign asterick flickers. Press Start.

When temperature achieves 100 degrees C, cursor displays under decimal, "Adj" and asterick flicker together.

After 20 minutes, the temperature value of thermometer is 99.0 degrees C, press up arrow or down arrow to change. Press Start.

Program turns to interface.

After temperature calibration, the temperature display is the same as the temperature of the block.

NOTICE! To ensure temperature accuracy, keep the temperature 20 minutes when it achieves adjusted temperature.

NOTICE! During temperature calibration, press up arrow and down arrow simultaneously to cancel the calibration. The system keeps the former calibration. Do not press up arrow and down arrow simultaneously unless needed.

MAINTENANCE

Please periodically clean the wells in block with alcohol dampened cloth. Use cloth dampened with soap to clean the surface of the instrument. Power off before cleaning the instrument. Do not put cleaning fluid into the well of block.

TROUBLE SHOOTING

Issue	Possible Causes	Solution
No readout on the display when power is on	No power	Check the power
	Broken switch	Contact BT Lab Systems
	Broken Controller	Contact BT Lab Systems
"open1" or "open2" in the temperature display with a beep alarm	"open1": block temperature sensor is broken. "open2": lid temperature sensor is broken	Contact BT Lab Systems
"short1" or "short2" in the temperature display with a beep alarm	"short1": block sensor is broken "short2": lid sensor is broken	Contact BT Lab Systems
"err1" or "err2" in the temperature display with a beep alarm	"err1": block sensor is broken "err2": lid sensor is broken	Contact BT Lab Systems
Pressing a button does not work	Broken film switch	Contact BT Lab Systems

TECHNICAL SUPPORT

BT Lab Systems offers technical support for all of its products. If you have any questions about the product's use or, operation, please contact BT Lab Systems at the following:

E-Mail: info@BTLabSystems.com