

# Water Bath Sample Concentrator

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**Cat. No. BT1611**

## Important Safety Information

- Please read this operation manual carefully before using the instrument. Failure to do so may result in serious burns or electric shock accidents.
- This product is an indoor Instrument.
- These units are designed for laboratory use by people knowledgeable in safe laboratory practices.
- The operator should never open or repair the instrument. Opening or repairing the instrument will void the guarantee and can cause accidents.
- The power plug should safeguard against an electric shock. The 3-pin plug supplied with the instrument should be matched with a suitable grounded socket.
- Make sure the rated electrical outlet load is no lower than the demand. Power cord should be replaced with the same type if it is damaged. Make sure there is nothing else on the power line. Hold the jack when pulling out the power line. Do not pull the power line. Do not put the power line in a place where there is a tripping hazard.
- 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. The distance between each device should be more than 100cm when there is more than one instrument.
- 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.
  - The instrument encounters liquid
  - The instrument gets soaked or burned
  - The instrument emits an abnormal sound or smell
  - The instrument is dropped or the outer shell damaged
  - The instrument functions abnormally.

## Maintenance

Power off when cleaning the instrument. Do not drop the cleaning fluid directly on the instrument when cleaning. Do not use corrosive cleaning fluid.

## Introduction

The Water Bath Sample Concentrator is used for the concentration or preparation of samples in large quantities (such as drug screening, hormone analysis, liquid phase, and sample preparation in mass spectrometry analysis).

It combines a precision water bath with nitrogen injection needles to concentrate samples. By blowing nitrogen into the surface of the heated sample, the solvent in the sample is quickly evaporated and separated to achieve an oxygen-free concentration of the sample.

## Features

- Independent adjustable needle valve to control the gas flow at each sample location
- Compatible with test tubes (dia. 10 – 29mm), conical flask, centrifuge tube, sample capacity of 1-50ml
- Circular turntable structure, 360° rotation for conventional sample support into and out of the water bath. Easy to operate
- 12 positions, with each sample position numbered, spring tube clamp fixed position
- LED real-time displays temperature and time
- All use of stainless steel. All components are anti-corrosion and resistant to organic solvents
- For concentrated toxic solvents, the entire system can be placed in a fume hood
- Built-in level sensor, anti-dry protection
- Suitable for a variety of test tubes with the gas needle aimed at the center of the test tube

## Normal Operating Conditions

Ambient temperature: 5°C ~ 35°C

Relative humidity: ≤ 70%

## Technical Specifications

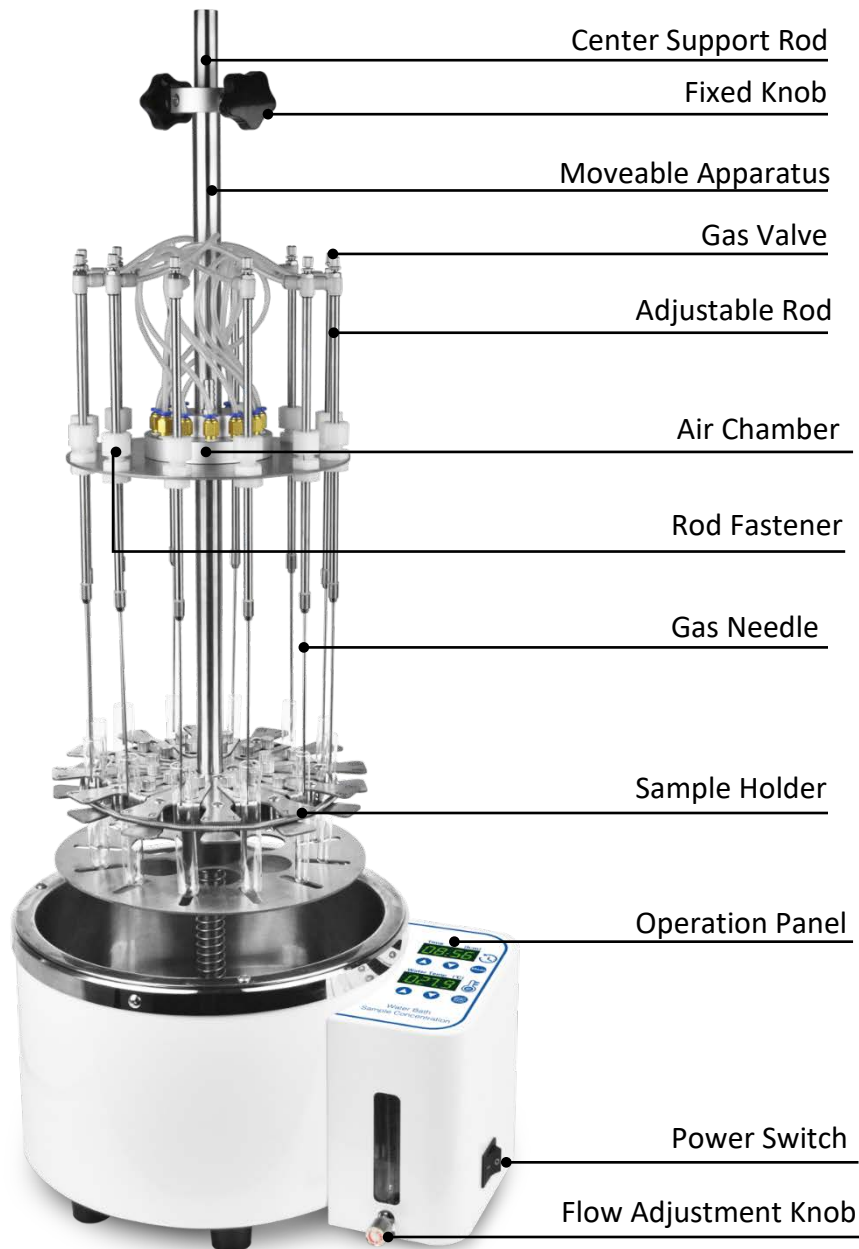
Model	BT1611
Temperature Range	R.T. +5°C ~ 100°C
Time Range	1min – 99h59min
Temperature Accuracy	≤ ±0.5°C
Display Accuracy	±0.1°C
Temperature Uniformity (60°C)	≤ ±0.5°C
Heating Time (40-100°C)	≤ 30mins
Number of sample positions	12
Test Tube Range	Φ10-29mm (liquid volume 1-50ml)
Max. Lift Stroke	200mm
Max. Gas Pressure	0.2Mpa
Max. Flow Rate	15L/min
Gas-In Joint Outer Diameter	Φ7mm
Needle Length	100mm
Heating Power (W)	1000
Fuse	250V 8A Φ5x20
Working Size	Φ260 x 150mm
Dimension (mm) (L x W x H)	390 x 300 x 850
Weight (kg)	9.5

## Overview

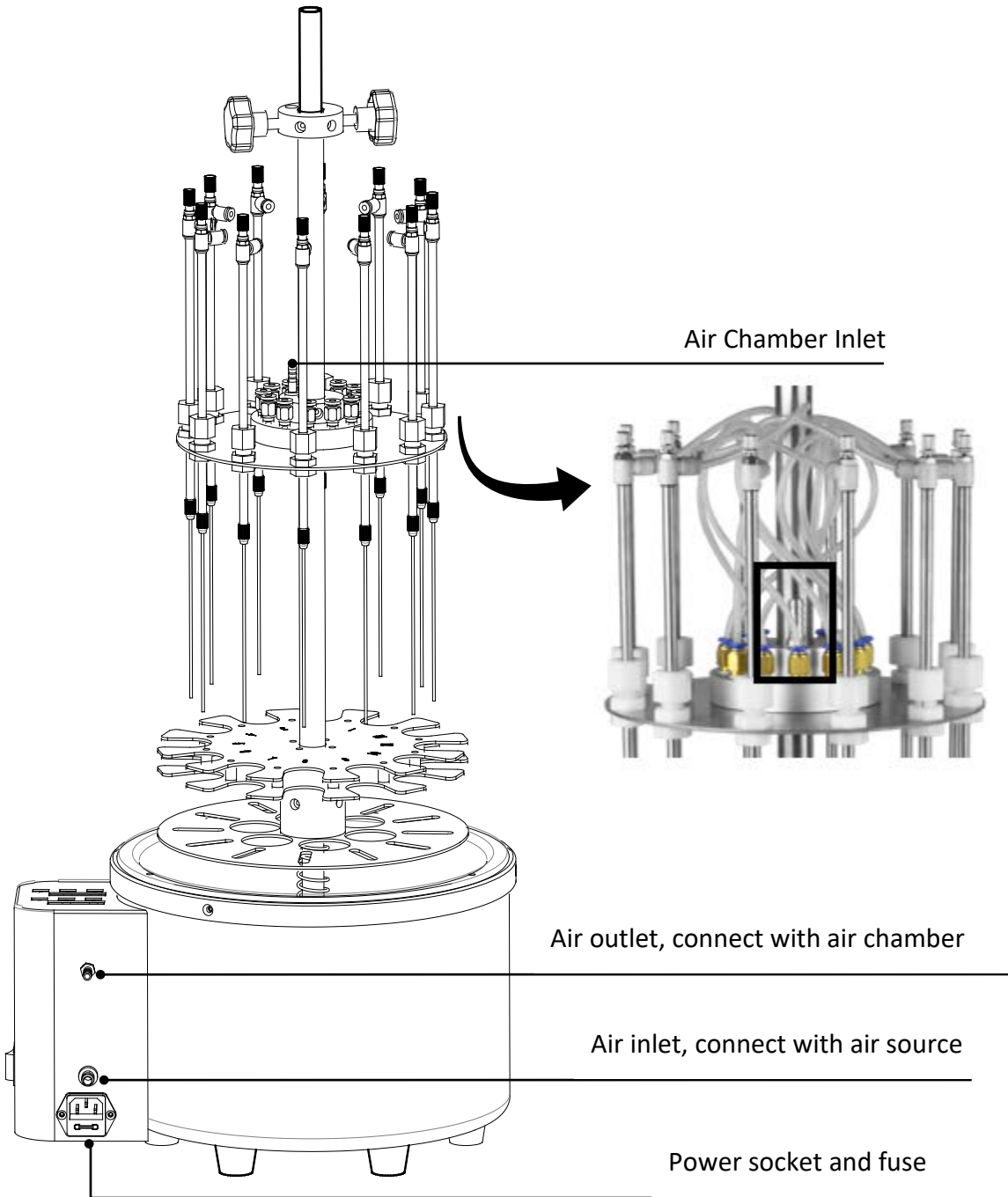
This section describes the instrument's mechanical structure, operation panel, and functions of each key, as well as preparation before turning the power on. Please learn this section well before operating the instrument for the first time.

## STRUCTURE

### Front Side



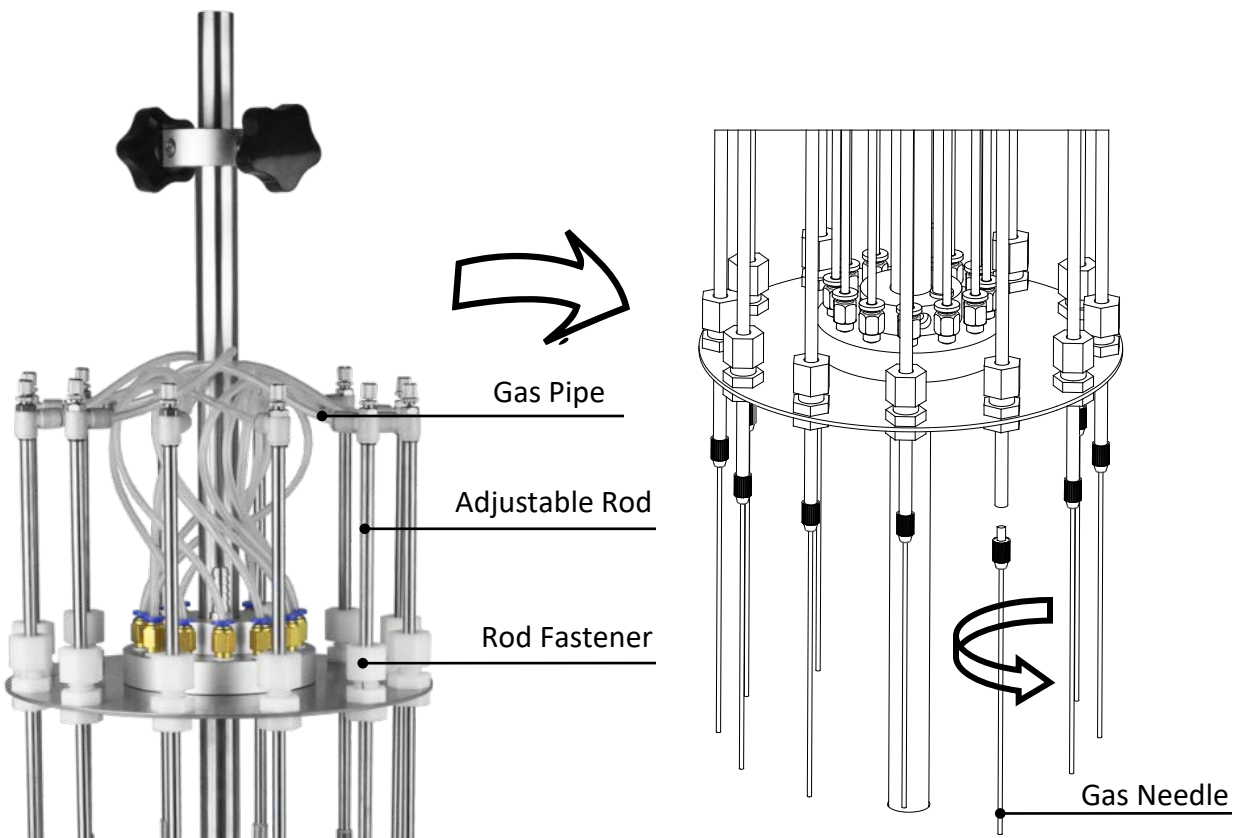
**Back Side**



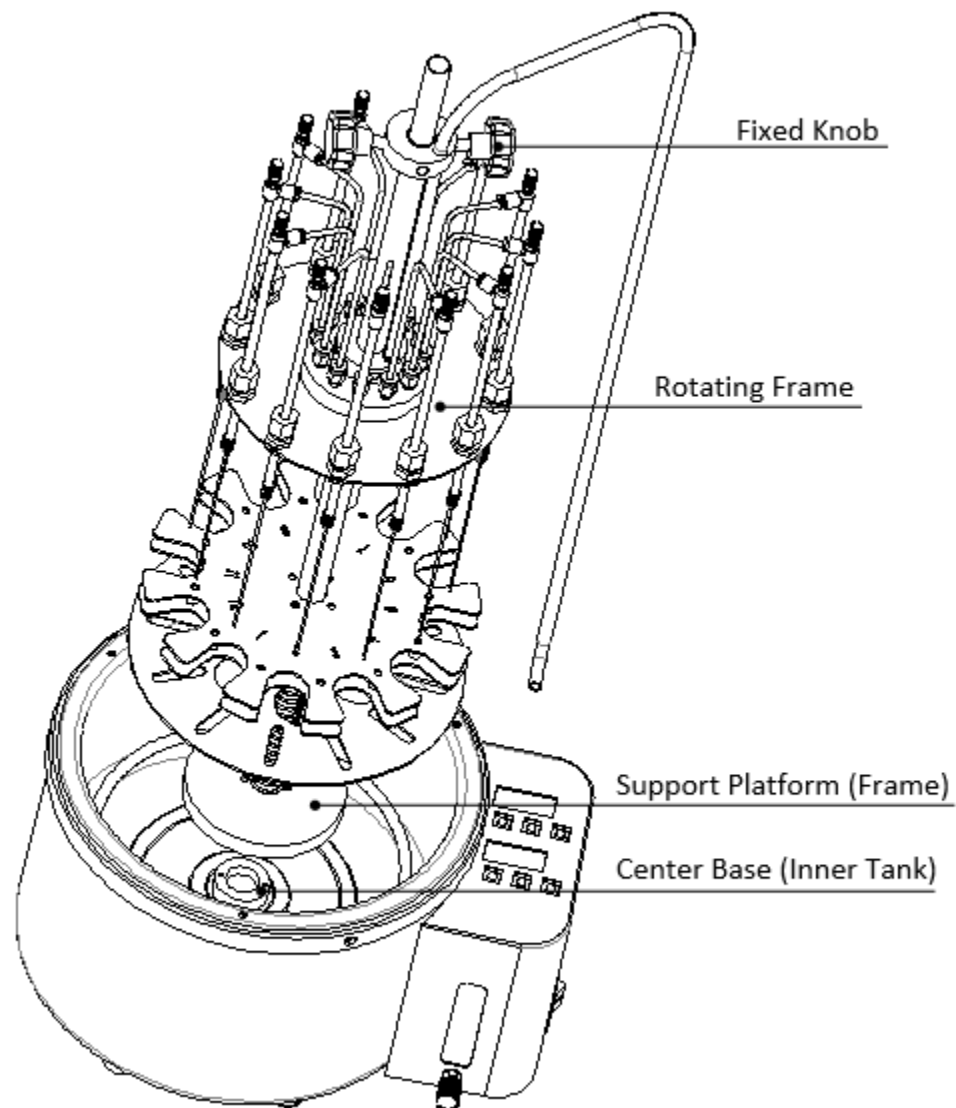
## INSTRUMENT INSTALLATION

### *Gas Needle Installation*

1. Place the center apparatus vertically on the table.
2. Loosen the rod fastener on the top platform, then insert the adjustable rod into the fastener.
3. Connect the air chamber gas pipe to the needle valve located on top of the adjustable rod by fully inserting the gas pipe into the needle valve.
4. Repeat steps 2 and 3 for the remaining adjustable rods.
5. Screw in the gas needle, counterclockwise, to the bottom of the adjustable rod, then hand tighten.



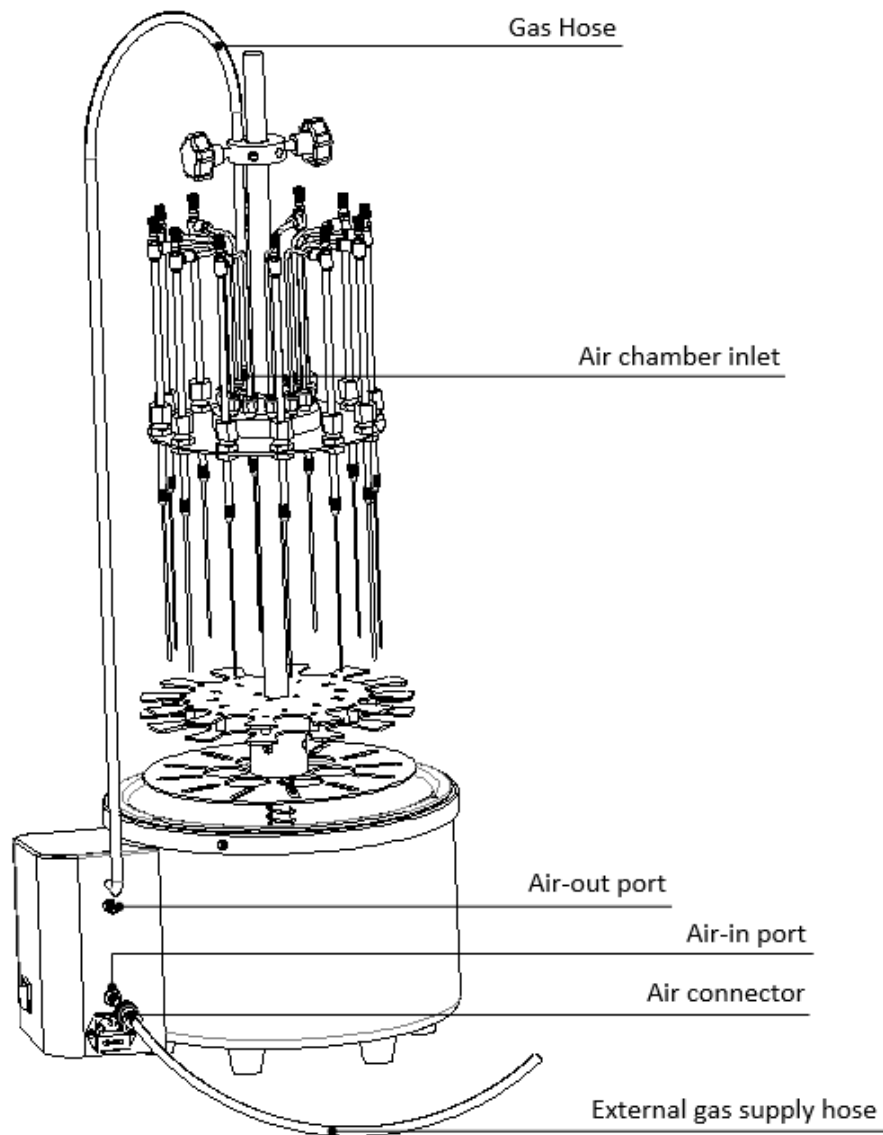
## Rotating Frame Installation



1. Place the assembled rotating frame into the inner tank. The support platform of the frame must be stacked onto the center base of the inner tank.
2. Adjust the height of the frame.
  - a. Loosen the fixed knobs, press down to move the frame to the desired height, then tighten the knobs.
  - b. To raise the frame, loosen the fixed knobs and the internal springs will automatically push the frame back up.

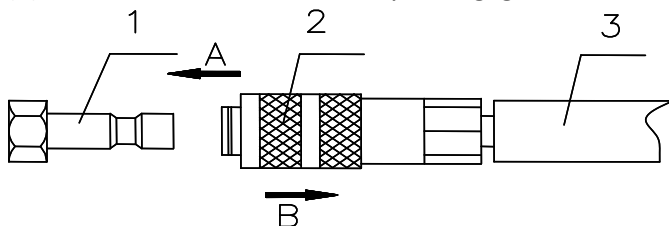


## Gas source assembly

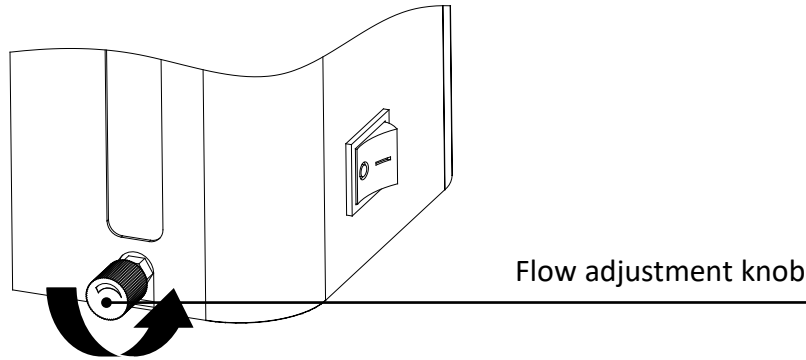


1. Connect one end of the gas hose to the air chamber inlet and the other end to the Air-out port. The gas hose must be fully inserted onto both joints.
2. Connect the Air connector to the Air-inlet joint, then connect the other end of the Air connector to the external gas supply.

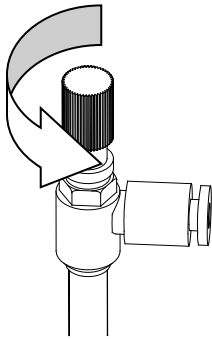
As shown in the figure below, direction **A** will fasten the Air connector (2) to the Air-inlet joint (1). Direction **B** will automatically disengage the connector (2) from the Air-inlet joint (1).



- Adjust the size of the total gas inflow volume using the flow adjustment knob.  
Turn the knob counterclockwise to increase the flow and clockwise to reduce the flow until it closes.



- Adjust the needle valve of any single gas path to turn on or off the gas flow for this gas path.  
Turn the gas valve knob counterclockwise to increase the flow and clockwise to reduce the flow until it closes. Adjusting the gas valve will also change the size of gas flow for the gas path.







- Open the input gas supply valve, turn on the gas, then use the flow adjustment knob and gas valve knob to reach the appropriate flow rate as needed.

**NOTE:** The pressure of the input gas should not be more than 0.2Mpa. Too much pressure from the gas source will cause the gas chamber seal to become loose and gas will leak from the air chamber.

- After the gas path is connected, add pure water to the water bath to about 30mm from the top of the tank.

## OPERATION PANEL

### Key Functions

-  Increases the value
-  Decreases the value
-  Press to run operation after setting time/temp value  
Hold for 2 seconds to stop the operation
-  To switch between a timer or continuous operation



## OPERATION GUIDE

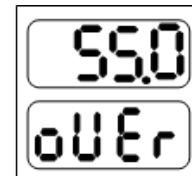
### Temperature and Time Setting

1. Power the unit on. The LED will display “8” as it enters the initial state.
2. The temp. value will display the block’s current temperature and the time will be the same value as the last operation.
3. Press either of the arrow keys for the temperature and the values will change to the last saved temp. setting. The last digit of the setting value will begin to flicker.
4. Press and hold the temperature arrow key to change the temperature value. When the desired target is reached, release the arrow key and the unit will automatically save. Press and hold the arrow key for 2s to continue to modify the temperature value.
5. Follow the same steps to change the time value after pressing either of the arrow keys for the time setting.  
**NOTE:** Setting the time value to 00:00 will keep the instrument running continuously at the setting temperature



### Start/Stop

1. After the temperature and time values have been set, press the Start/Stop key to begin the instrument operation.
2. The temperature will start to rise as the current temperature is displayed.
3. Hold the start/stop key for 2s to pause the operation, then press the key again to continue.
4. When the operation is complete, the instrument will sound an alert, the temperature value will display the current temp. and time value will display "over"
5. The unit will go into standby mode. Press the arrow keys to change the values or press the start/stop key to start the operation again using the same value setting.



### TROUBLESHOOTING

Issue	Possible Causes	Solution
No signal display when powered on.	No power	Check the power connection.
	Broken Fuse	Exchange fuse (250V 8A Φ5x20)
	Broken Switch	Exchange the switch
	Other	Contact BT Lab Systems
The actual and displayed temperatures are different.	Broken sensor or loose contact to the block	Contact BT Lab Systems
"ERR" in the display with an alarm sound.	Broken sensor or room temperature is below zero	Contact BT Lab Systems
Block not heating	Broken sensor	Contact BT Lab Systems
	Solid state relay damage	
	Broken heater	
Key does not work	Key is broken	Contact BT Lab Systems

## **WARRANTY**

Our company guarantees that this unit is warranted against defective material and workmanship for a period of one year from the date of shipment. We will repair or replace the defective equipment returned during the warranty period free if the equipment has been used under normal laboratory conditions and in accordance with the instruction in this manual. The following defects are specifically excluded:

1. Damage caused by accident, misuse, or abuse
2. Damage caused by disaster
3. Repair or modification by anyone else without our authorization
4. Corrosion due to the use of improper solvent or sample
5. Defects caused by improper operation
6. Use of fittings or other spare parts supplied by different manufacturers

This warranty does not apply to platinum wire and all the accessories.

A return authorization must be obtained from us before returning any product for repair on a freight prepaid basis.

For any inquiry or request for repair service, please contact BT Lab Systems via the email below.

E-Mail: [info@BTLabSystems.com](mailto:info@BTLabSystems.com)

## **TECHNICAL SUPPORT**

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

E-Mail: [info@BTLabSystems.com](mailto:info@BTLabSystems.com)