BIOSAFETY CABINET CLASS II, TYPE A2

HUYAir Bio2

- Complies with EN 12469, NSF 49, ISO 14644 standards
- Integrated microprocessor controller with 4.3-inch touch screen
- AC motor
- Warranty: 3 years

Dear customers,

We sincerely thank you for your trust and choice of our products. To ensure that the Biosafety cabinet class II, type A2 - **HUYAir Bio2** operates safely, effectively and durably, please read the user manual carefully before operating. This manual will provide all the necessary information on the installation, operation and maintenance of the equipment, helping you to maximize the performance of the cabinet and ensure safety during use. In addition, we also provide the electrical circuit diagram of the equipment and accompanying technical parameters to support you in using, maintaining and repairing the equipment effectively.

PRODUCTS DELIVERED WILL INCLUDE

- 01 Biosafety cabinet class II, type A2 – HUYAir Bio2
- 01 UV light
- 03 LED lights
- 02 Velocity sensors - USA
- HEPA filters (H14) – Camfil/AAF
- 02 Electrical sockets
- EBMpapst fan – Germany
- Power cord
- User manual
- Certificate of Quality (CQ)
- Warranty card

Here are some important safety instructions:

- Protective Equipment: Always wear goggles, gloves and protective clothing when using the cabinet to protect yourself.

- Equipment Check: Before use, ensure the cabinet and accessories are not damaged and are properly installed.

- Place the cabinet in the correct position: Place the cabinet on a flat and stable surface to avoid tipping or moving during operation.

- Use the appropriate power source: Connect the cabinet to the power source according to the manufacturer's instructions.

- Avoid direct contact: Do not place hands or any body part into moving parts of the cabinet while it is in operation.

- Turn off the cabinet when not in use: Disconnect the power supply when the cabinet is not in use to ensure safety.

- Professional Repair: Only trained and qualified personnel should repair the device.

Compliance with these safety instructions not only helps protect the user but also ensures that the Biosafety cabinet class II, type A2 - **HUYAir Bio2** operates stably and effectively throughout its lifetime.

We sincerely thank you and hope you will be satisfied with the **HUYAir Bio2** product!

1. BIOSAFETY CABINET CLASS II, TYPE A2 – HUYAir Bio2

1.1. PURPOSE OF USE

Biosafety cabinet class II, type A2 – **HUYAir Bio2** is designed to protect users, specimens, and the environment during work, commonly used in microbiological, medical, pharmaceutical and biotechnology research laboratories, where a high level of safety is required when working with potentially pathogenic agents.

1.2. SOME OUTSTANDING FEATURES AND CHARACTERISTICS

The **HUYAir Bio2** biosafety cabinet features a microprocessor controller and a 4.3-inch touch screen, providing precise monitoring and adjustment of operational parameters. The cabinet is equipped with an integrated airflow sensor with a wind alert mode that activates when the airflow speed falls outside the set range, ensuring stable performance and optimal protection for the user.

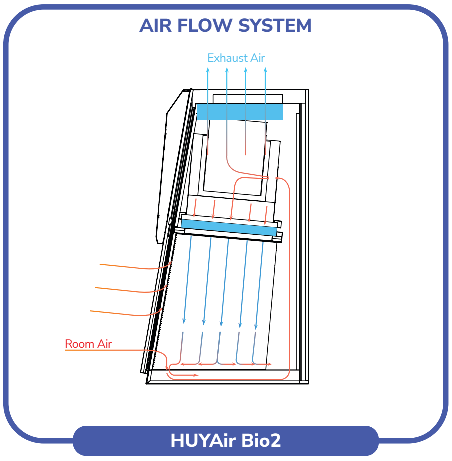
The cabinet’s warning system is highly comprehensive. When the filter and UV lamp need replacement, the system automatically alerts the user. Notably, the UV lamp and motor will automatically turn off when the fluorescent light is on or when the door is opened, protecting the user from UV exposure. The door alarm system also activates when the glass door is opened beyond 200 mm, with both audible and visual signals to ensure optimal safety.

The **HUYAir Bio2** cabinet utilizes an EBMpapst centrifugal fan motor from Germany, renowned for its energy-saving capabilities, noise reduction, and extended filter lifespan. When the glass door is fully closed, the motor automatically reduces power to 30% to conserve energy while maintaining clean air within the workspace. The premium HEPA filters from Camfil (Sweden) or AAF (USA) with 99.999% efficiency at 0.3 μm ensure optimal filtration performance.

The cabinet’s design includes double walls and internal pressure to completely prevent and isolate hazardous air. Special ventilation grids at the front and sides provide optimal protection for both the user and the products. The cabinet's exterior is made of 1.2 mm thick galvanized steel with chemical-resistant powder coating, the interior chamber is made of 0.8 mm thick SUS 304 stainless steel, and the UV-blocking tempered glass door, 5-10 mm thick, features a counterweight design, making it easy to raise and lower the door

1.3. AIR FLOW SYSTEM

The airflow system of the **HUYAir Bio2** operates by drawing surrounding air through the front and side vents, creating an inward airflow. This airflow is divided into two parts: 30% is filtered through the exhaust filter and discharged outside, while the remaining 70% is evenly distributed across the surface of the supply HEPA filter, forming a vertical downward airflow that ensures a clean and safe working environment.



1.4. SOME OUTSTANDING FEATURES AND CHARACTERISTICS

Model	HUYAir Bio2 – 900	HUYAir Bio2 – 1200	HUYAir Bio2 1500	HUYAir Bio2 – 1800
External dimensions (W_A x D_B x H_C)	1050 x 850 x 1480 mm	1380 x 850 x 1480 mm	1685 x 850 x 1480 mm	1990 x 850 x 1480 mm
Internal dimensions (W_D x D_E x H_F)	950 x 580 x 600 mm	1225 x 580 x 600 mm	1560 x 580 x 600 mm	1865 x 580 x 600 mm
External dimensions with support stand	1095 x 850 x 2210 mm	1400 x 850 x 2210 mm	1705 x 850 x 2210 mm	2010 x 850 x 2210 mm
Net weight	210 kg	240 kg	270 kg	330 kg
Motor	AC			
Control	Microprocessor with 4.3 – inch touch display			
Downflow velocity	0.35 m/s			
Inflow velocity	0.51 m/s			
Brightness	>750 lux			
Noise level	<65dB			
Voltage – Frequenciens	220 – 240V 50 – 60 Hz			
Power	630W	650W	360W	650W

2. OPERATING INSTRUCTIONS

2.1. INSTALLATION INSTRUCTIONS BEFORE OPERATION

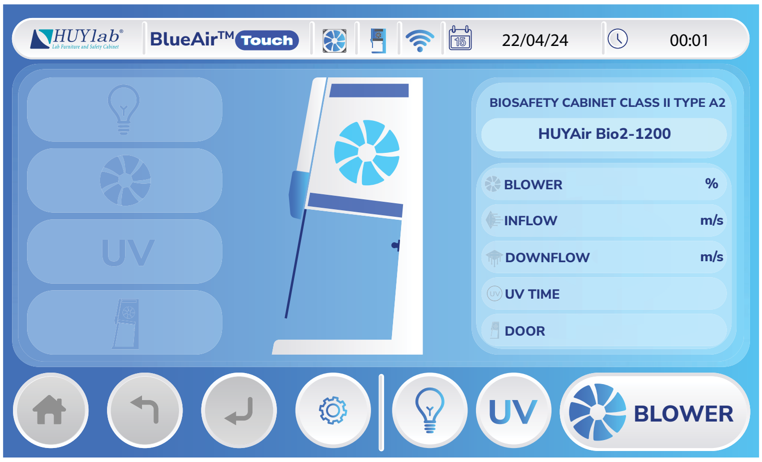
Installation location: Place the **HUYAir Bio2** on a flat and stable surface to ensure it does not sag. Avoid placing the cabinet in humid environments or narrow corners to ensure the space is suitable for the size and requirements of the device. The cabinet should be placed in a closed room, away from walkways, doors, windows, and away from fans, vents or other air handling equipment.

Installation environment: HUYAir Bio2 should be placed in a laboratory with stable environmental conditions, with a temperature of 5-40°C and a maximum humidity of 80% non-condensing. Ensure the work area is clean and safe for optimal operation of the device.

Check the power source: Use 220V/50-60Hz power source to supply the cabinet. The power source must be stable. In case the power source is unstable, consider using a voltage stabilizer to protect the cabinet.

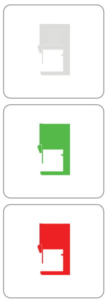
2.2. EQUIPMENT OPERATING INSTRUCTIONS:

Step 1: Connect the power cord and supply power to the device, turn on the power switch next to the screen. After the cabinet starts up, the main screen interface will appear.



Step 2: Close/open the glass door

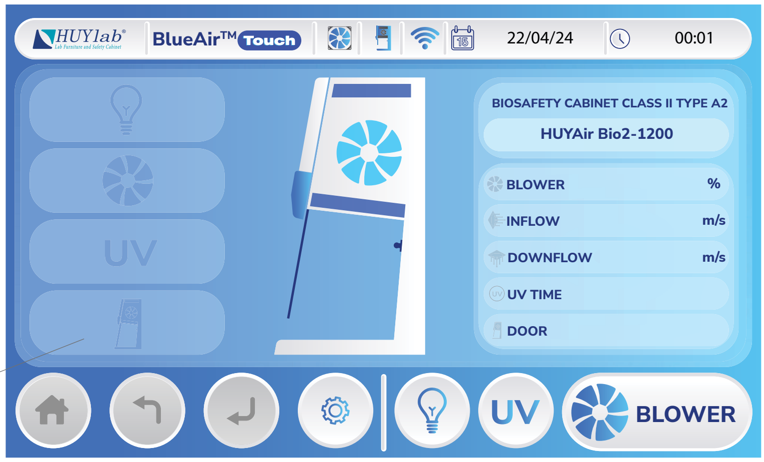
The opening/closing of the glass door is done manually, the opening/closing status of the door is displayed on the screen as follows:



The door is in the closed state.

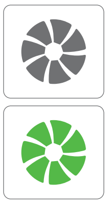
The door is open

The door is not in the right position



Step 3: Turn the fan on/off

Press the "BLOWER" button on the main screen to turn on/off the fan, the fan operating status is displayed as follows:



The fan is on

The fan is off

Note

- When the door is opened, the fan will operate at the set level.
- When the door is closed, the fan operation level is reduced by 30% from the set level and automatically turns off 1 minute after the door is closed.

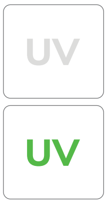
Step 4: Turn the UV light on and off

Press the "UV" (UV) button on the main screen to turn on/off the UV light, the working status of the UV light is displayed as follows:

UV Light Status Display Position

UV Light Set Time Display Position

UV Light On/Off Button



UV light is on

UV light is off

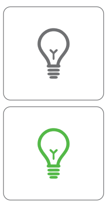
Note

- The UV light is only on when the cabinet door is closed.
- When the UV light is on, other devices (fan, LED) will be turned off.
- If the UV lamp runs out of the set time or the cabinet door is opened unexpectedly, the system will automatically turn off the UV lamp and restore the status of other devices to the state before the UV lamp was turned on.

Step 5: Turn on/off the LED light

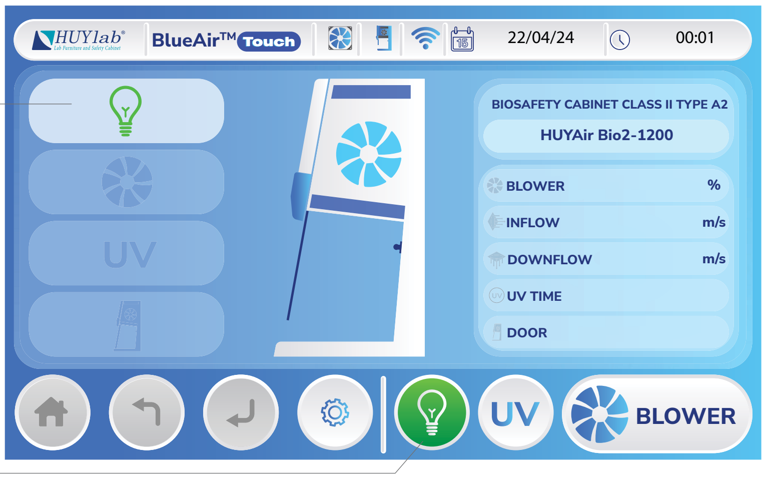
Press the button on the main screen to turn on/off the LED light, the working status of the light is displayed as follows:

LED Light Status Display Position



Đèn LED đang được tắt

Đèn LED đang được bật



LED Light On/Off Button

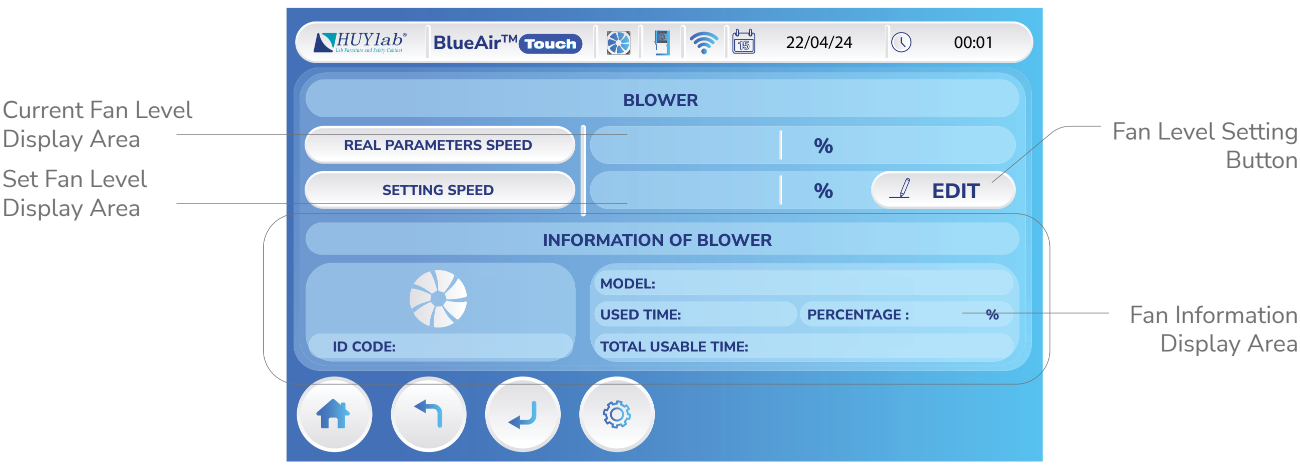
2.3. SYSTEM INSTALLATION INSTRUCTIONS

On the main screen interface, press the SETTING button to enter the system settings interface.

2.3.1. FAN LEVEL SETTING

Step 1: In the system setting interface, press **"BLOWER",** then the device password and press "ENTER" to enter the fan level setting page.

Step 2: On the fan settings page, press the **"EDIT"** button and enter the desired fan

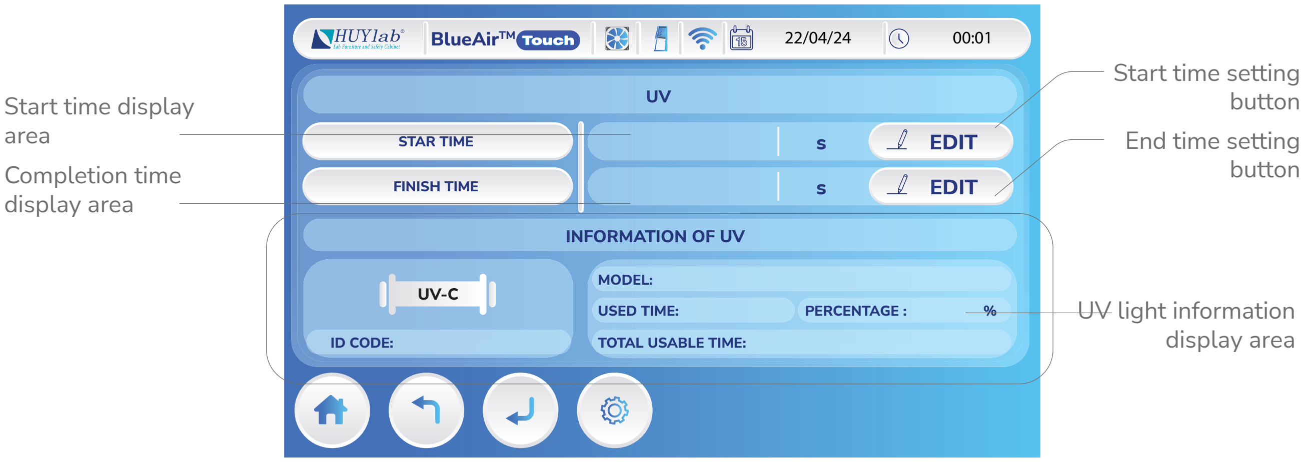


Step 3: Press "ENTER" to confirm or "BACK" to cancel and exit.

2.3.2. SETTING THE OPERATING TIME OF THE UV LAMP

Step 1: In the system settings interface, click " UV " to enter the UV light on/off time setting page

Step 2: On the fan setting page, press the "EDIT" buttons and enter the desired UV lamp start time and end time.

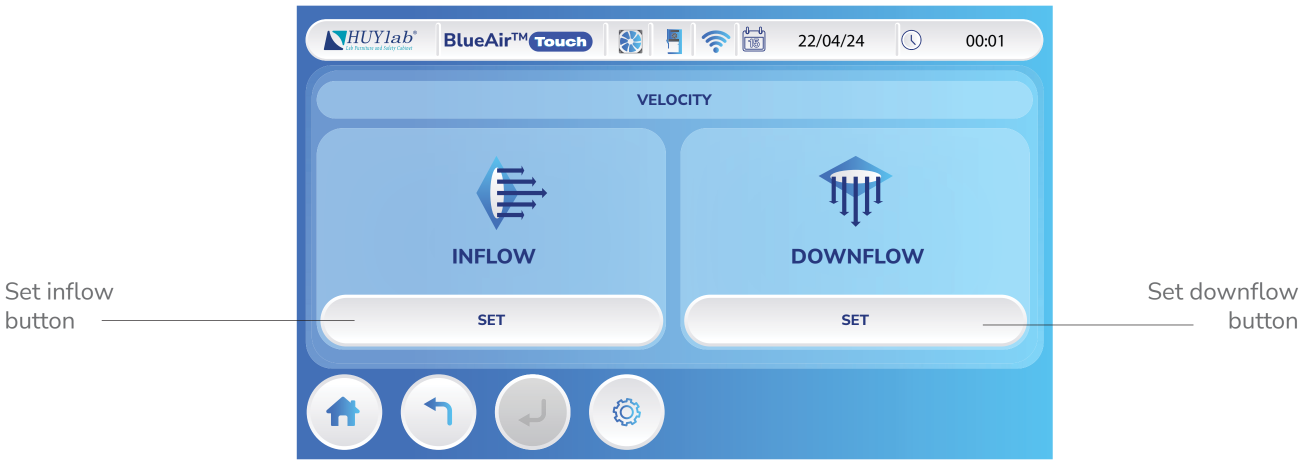


Step 3: Press "ENTER" to confirm or "BACK" to cancel and exit.

2.3.3. SETTING WARNING THRESHOLD FOR WIND SPEED SENSOR

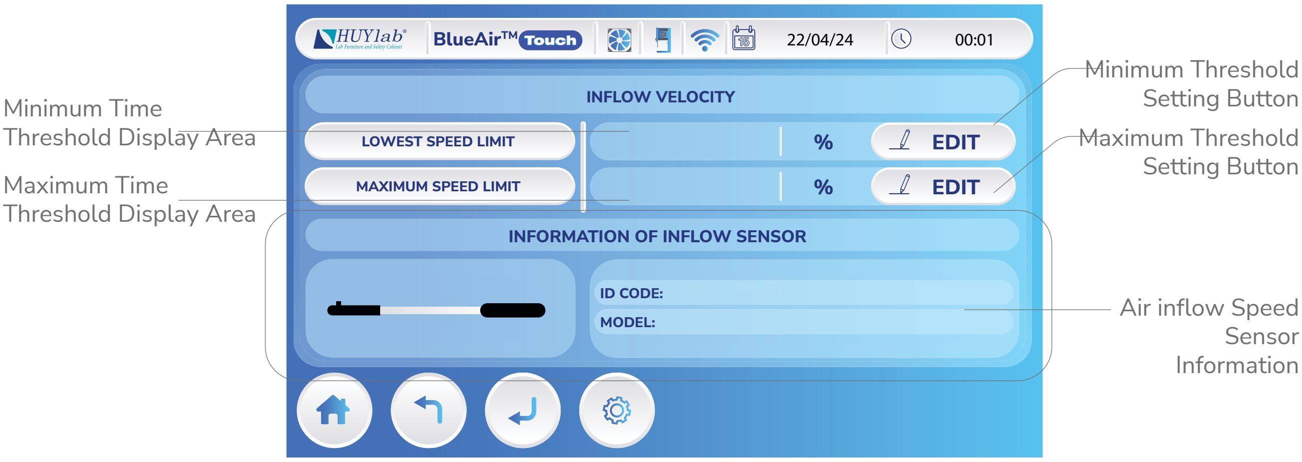
Step 1: In the system settings interface, press **"VELOCITY"** to enter the wind speed sensor settings page.

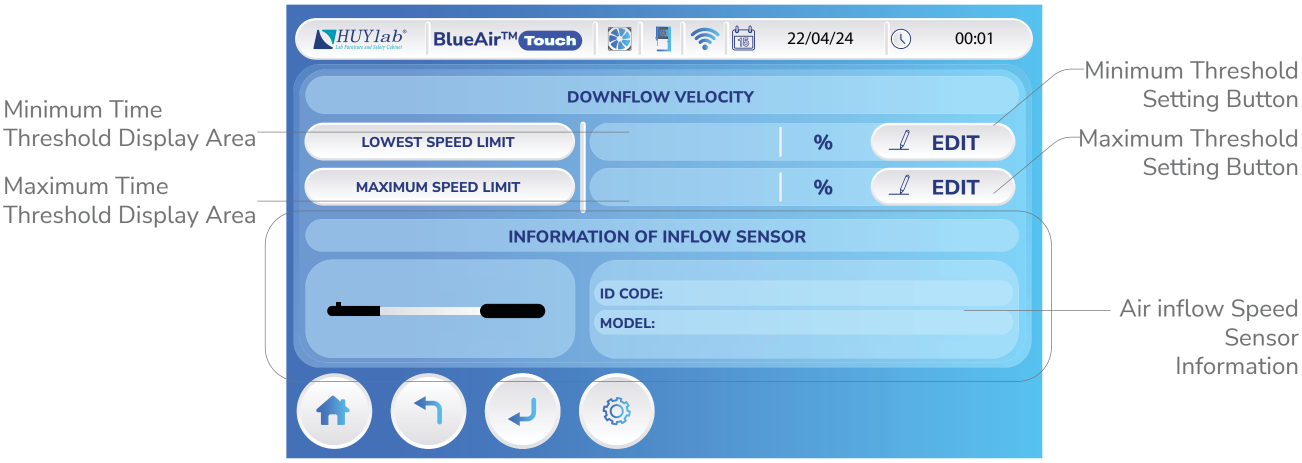
Step 2: On the sensor setting page, press the **"SET"** buttons to select the settings for the inlet/outlet wind speed sensor.



Step 3: Set up the wind speed sensor:

- In the inlet/outlet wind speed sensor setting page, press **"EDIT"** and enter the min, max values to set the threshold for the sensor.
- Press **"ENTER"** to confirm or **"BACK"** to cancel and exit.

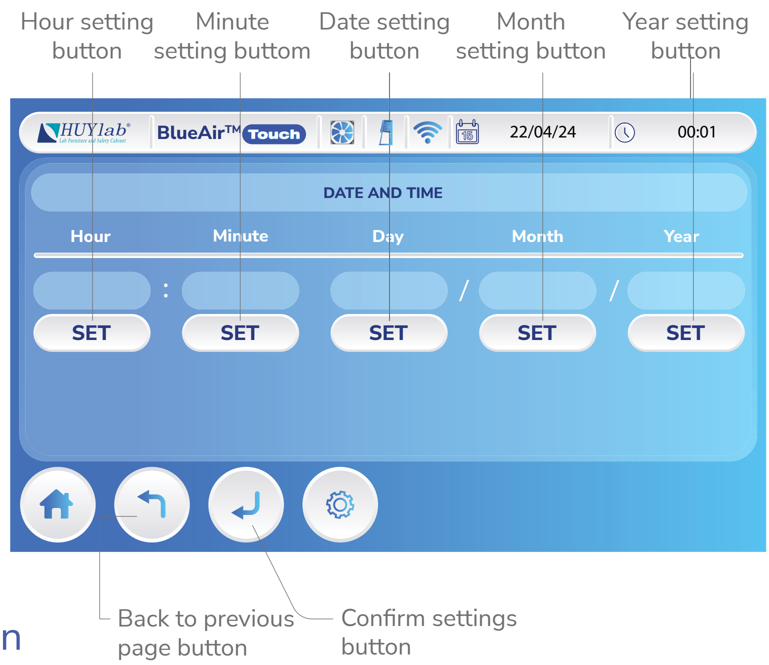




2.3.4. SET DATE AND TIME FOR THE DEVICE

Step 1: In the system settings interface, press “ TIME ” to enter the date and time settings page (according to actual time) for the device.

Step 2: On the date and time setting page, press “SET” in turn for each Hour, Minute, Day, Month, Year item to display the keyboard page to set the time for the cabinet.

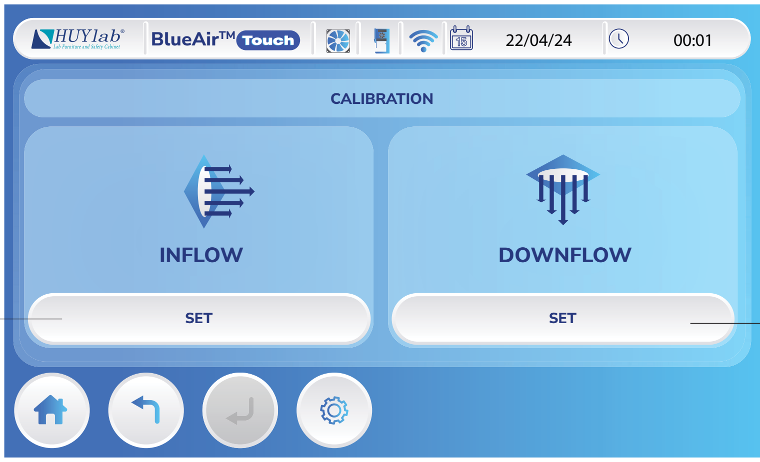


2.3.5. WIND SPEED SENSOR CALIBRATION

Step 1: In the system settings interface, click **"CALIBRATION"** to enter the inlet/outlet wind speed sensor calibration page.

Step 2: At the sensor calibration page, press the **"SET"** buttons to select the output wind speed or inlet wind speed sensor calibration.

Inflow Speed Sensor Calibration Button



Downflow Speed Sensor Calibration Button

Step 3: Calibrate the wind speed sensor:

- In the wind speed sensor calibration page, press "EDIT" and enter the calibration value (measured from the standard measuring device). Press "ENTER" to confirm the entered value.
- After entering the value, press "CALIB" to let the cabinet calculate and give the appropriate calibration coefficient to bring the actual sensor value back to the standard value. (Note: Do not press the "CALIB" button continuously during the calibration process to avoid errors, the calibration process may take 3-5 seconds.)
- The calibration process is complete when the actual value display area of the sensor displays the value that the user has calibrated.

Actual Sensor Value Display Area

Calibration Value Display Area

Calibration Button

2.3.6. VIEW OTHER INFORMATION

Users can view other information about the filter, white light and device information by pressing the **“HEPA”, “LIGHT”** and **“INFORMATION”** buttons respectively in the system setting interface.

INSTRUCTIONS FOR TURNING OFF THE CABINET

In the system settings interface, press “ SHUT DOWN ” to turn off the cabinet. Then, unplug the cabinet from the power outlet to ensure safety.

3. CLEANING AND MAINTENANCE OF EQUIPMENT

3.1. CLEANING

Step 1: Remove samples, equipment, and supplies from the cabinet.
Step 2: Clean the cabinet surface with a soft cloth and cleaning solution (usually 70° alcohol)
Step 3: Turn off the fan, close the cabinet door and turn on the UV light to disinfect after using the cabinet.
Step 4: After the UV light turns off, turn off the cabinet and unplug the power supply to the cabinet.
Step 5: Clean and wipe the cabinet shell with a soft cloth soaked in cleaning solution (on a regular schedule).
Note:
- The following cleaning and disinfecting chemicals should be used:
- Acid and halogen free detergent.
- 70% alcohol solution.
- Do not use cleaning agents that are not suitable or contain acids, chlorine, or substances that corrode steel.
- Use a soft cloth and cleaning solution, avoid spraying or pouring cleaning agents directly onto the surface of the device.

3.2. PERIODIC EQUIPMENT MAINTENANCE AND INSPECTION

- Maintain the device at least every 6 months or more often if the device is used with high frequency.
- Maintenance steps should be performed by a person with specialized knowledge of electrical and cabinet engineering.

4. SOME COMMON ERRORS WHEN USING AND SOLUTIONS

Error / warning	Possible causes	Fix
Main screen display UV	The UV lamp is not turned on properly.	Close the door to completely turn off the alarm. If you need cầu sử dụng đèn UV cần thực hiện bật lại đèn thông qua nút UV
The main screen displays	The door is not opened or closed properly.	Method 1: Press and hold the icon to temporarily turn off the alarm if the door position used does not match the marked position. (Note: the alarm will automatically re-alert every 5 minutes) Method 2: Close or open the door at the marked position.
The inflow speed or downflow speed sensor value turns red. 1.0	The airflow speed inside the cabinet is outside the set range.	Method 1: Tap the icon 1.0 to temporarily disable the warning. (This method only silences the alert; the speed values remain outside the set threshold.) Method 2: Reconfigure the threshold values for the sensor triggering the warning. Method 3: Adjust the fan level settings to align the airflow speed with the preset threshold values.
Warning "THE FAN HAS EXCEEDED ITS USAGE TIME"	The fan's shelf life has expired according to the manufacturer's recommendations.	Press the confirm button to turn off the warning temporarily and contact the company's customer service department for support.
Warning "THE FILTER HAS EXCEEDED ITS USAGE TIME"	Filter life has expired according to manufacturer's recommendation	
Warning "THE LIGHT HAS EXCEEDED ITS USAGE TIME"	The white light has expired according to the manufacturer's recommendation.	
Warning "THE UV LIGHT HAS EXCEEDED ITS USAGE TIME"	The UV lamp usage time has expired according to the manufacturer's recommendation.	
Warning "THE LIGHT HAVE NOT BEEN TURNED OFF"	The white light was not turned off before pressing the button SHUT DOWN	Press the confirm button to turn off the warning temporarily and contact the company's customer service department for support.
Warning "THE FAN HAVE NOT BEEN TURNED OFF"	The fan was not turned off before pressing the button SHUT DOWN	
Warning "THE UV LIGHT HAVE NOT BEEN TURNED OFF"	The UV light was not turned off before pressing the button SHUT DOWN	
Warning "LIGHT AND FAN ARE NOT TURNED OFF"	The white light and fan were not turned off before pressing the SHUT DOWN	

5. SOME ACCESSORIES INCLUDED / COMPATIBLE WITH THE DEVICE

Products	Description
Support stand	Mobile Frame Stand with Wheels, Designed for Model
	Mobile Frame Stand with Wheels, Designed for Model
Power Accessories	Power Outlet
Power Accessories	Gas valve | N2 | Vacuum
	Water valve
Filter Accessories	Filter ULPA (H15)

6. CONTACT TECHNICAL SUPPORT

If you need technical support or have any questions regarding the product, please contact us using the information below:

LABone Scientific Equipment Co., Ltd.
Address: No. 228/13/3 Nguyen Thi Lang Street, Phu Loi Hamlet, Cu Chi Commune, Ho Chi Minh City, Vietnam
Hotline: 0978 782 147
Email: info@labone.vn
Website: www.labone.vn

We are committed to providing the best customer support, including instruction on how to use, maintain equipment, and handle technical issues that arise. Our team of technicians are highly trained and ready to help you in any situation.

Equipment warranty policy:

- All our products are warranted for 3 years from the date of purchase.
- During the warranty period, you will enjoy free repair and replacement services if the product has technical errors due to the manufacturer.
- For more details on warranty policy and applicable conditions, you can visit the website or contact us directly via hotline or email.

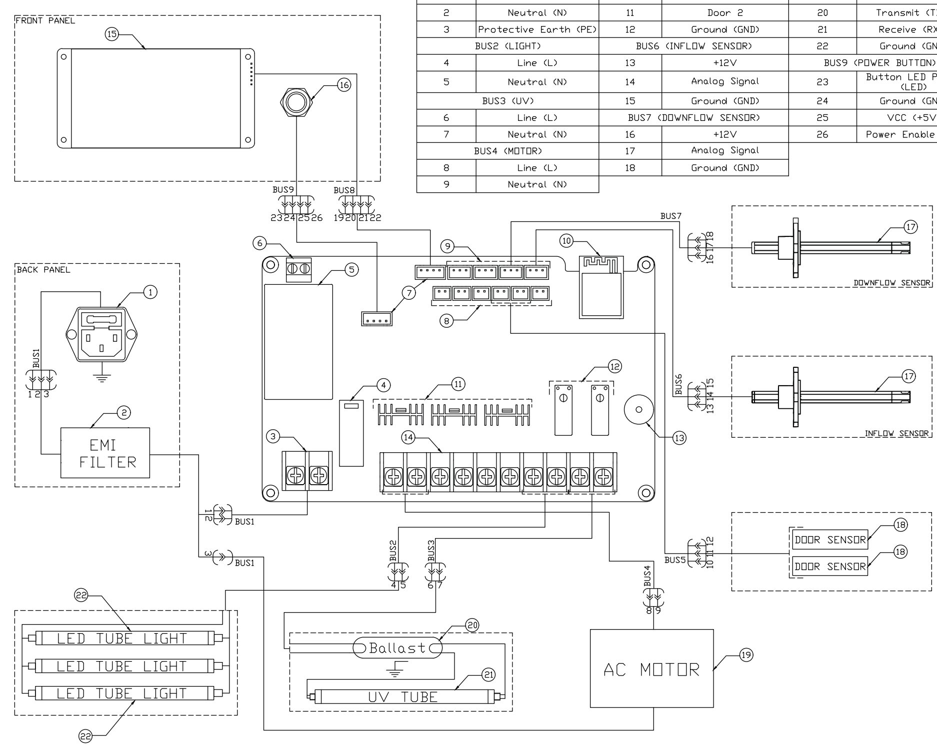
We hope that LABone's dedication and professionalism in technical support services will bring absolute satisfaction to our customers. We sincerely thank you for trusting and using our products.

7. TECHNICAL DRAWINGS OF THE EQUIPMENT

7.1. CIRCUIT DIAGRAM

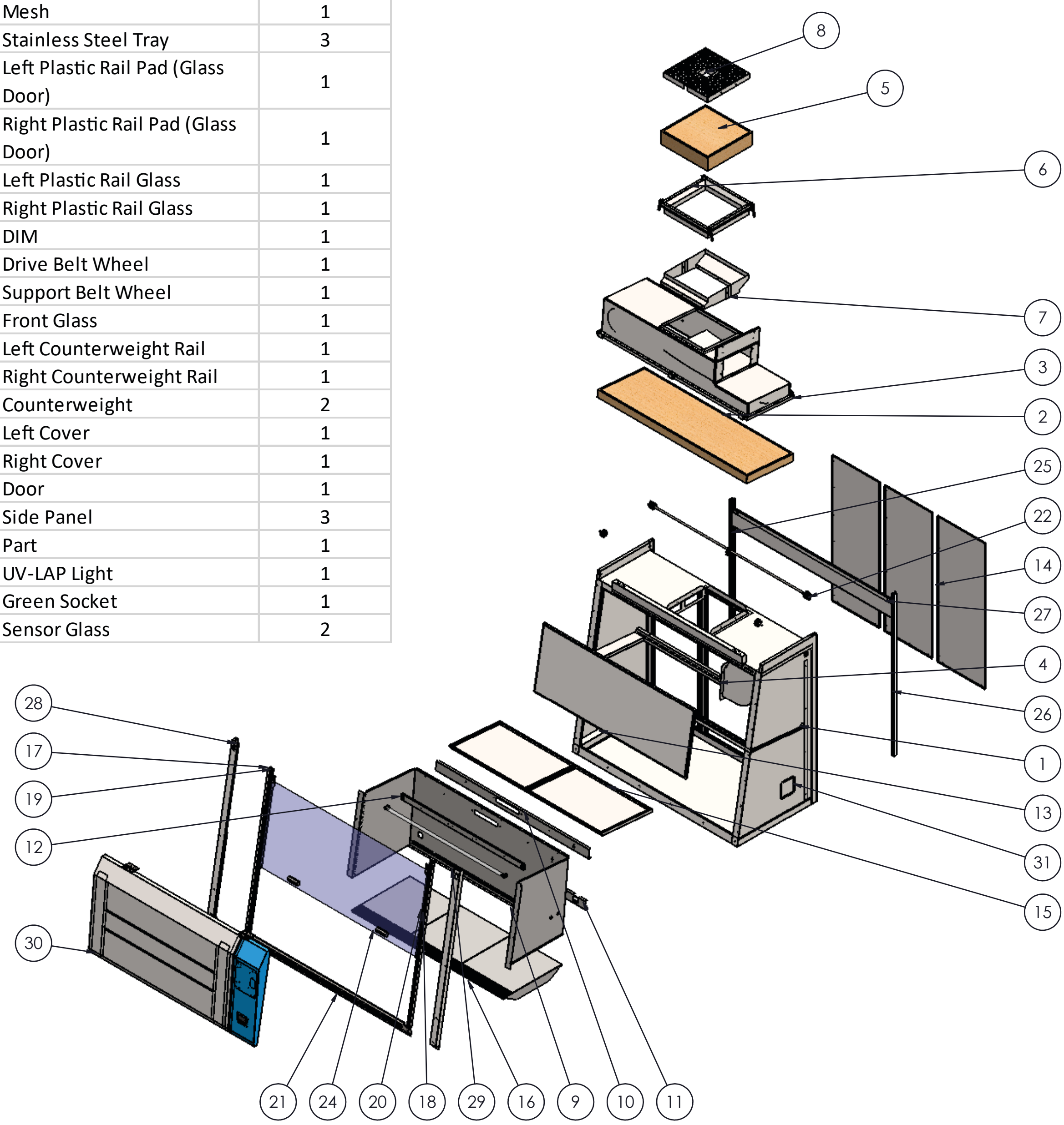
STT	Name	Part Number
1	IEC Power jack with Fuse Holder	AC-02
2	EMI Filter	CW1B-10A-L
3	Terminal Block 2 Pins	HB9500-2
4	Fuse Holders	BLX-A
5	AC-DC Coverter	HLK-10PM12
6	Terminal Block Plug-in 2 Pins	KF-5.08-2-V
7	XH 2.54mm 4-Pin	
8	XH 2.54mm 2-Pin	
9	XH 2.54mm 3-Pin	
10	ESP32 Microcotroller	ESP32-S3-WROOM-1-N4
11	Triac 600V 16A	ACST1035-7FP
12	Relay 5V 5A	G5NB-1A-E-5VDC
13	Buzzer	1209
14	Terminal Block 10 Pins	HB9500-10
15	4,3 inches HMI LCD Display	DMG80480C043_02WTC
16	Power Button 12V	
17	Air Flow Sensor	HM-AM1000
18	Door Sensor	SM-205
19	AC Motor with Capacitor	R3G225-RE0718
20	Ballast	PHILIPS EB-Ci TL-D 18-36W
21	UV Tube	TUV T8
22	Led Tube	T5 BN068C

Number	Description	Number	Description	Number	Description
BUS1 (POWER)		BUS5 (DOOR SENSOR)		BUS8 (HMI)	
1	Line (L)	10	Door 1	19	VCC (+5V)
2	Neutral (N)	11	Door 2	20	Transmit (TX2)
3	Protective Earth (PE)	12	Ground (GND)	21	Receive (RX2)
BUS2 (LIGHT)		BUS6 (INFLOW SENSOR)		22	Ground (GND)
4	Line (L)	13	+12V	BUS9 (POWER BUTTON)	
5	Neutral (N)	14	Analog Signal	23	Button LED Power (LED)
BUS3 (UV)		15	Ground (GND)	24	Ground (GND)
6	Line (L)	BUS7 (DOWNFLOW SENSOR)		25	VCC (+5V)
7	Neutral (N)	16	+12V	26	Power Enable (EN)
BUS4 (MOTOR)		17	Analog Signal		
8	Line (L)	18	Ground (GND)		
9	Neutral (N)				



7.2 MECHANICAL EQUIPMENT DRAWINGS

NO	PART NUMBER	QTY.
1	Frame	1
2	HEPA Supply Filter	1
3	Air Chamber	1
4	Fan	1
5	Exhaust Filter	1
6	Upper Filter Press	1
7	Upper Filter Connection	1
8	Lower Filter Mesh	1
9	Stainless Steel Cage	1
10	Cable Tray 1	1
11	Cable Tray 2	1
12	UV Light	1
13	Front Panel	1
14	Rear Panel	3
15	Mesh	1
16	Stainless Steel Tray	3
17	Left Plastic Rail Pad (Glass Door)	1
18	Right Plastic Rail Pad (Glass Door)	1
19	Left Plastic Rail Glass	1
20	Right Plastic Rail Glass	1
21	DIM	1
22	Drive Belt Wheel	1
23	Support Belt Wheel	1
24	Front Glass	1
25	Left Counterweight Rail	1
26	Right Counterweight Rail	1
27	Counterweight	2
28	Left Cover	1
29	Right Cover	1
30	Door	1
31	Side Panel	3
32	Part	1
33	UV-LAP Light	1
34	Green Socket	1
35	Sensor Glass	2



HUYlab
USER MANUAL

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