



# **Operating and Service Manual for Oxygen Concentrator**

# Forewords



Respected user:

Thank you very much for using our medical molecular sieve oxygen concentrator.

Sincerely hope that it will bring you health and happiness!

Our company's oxygen concentrator uses physical pressure swing adsorption (PSA) control technology, combined with intelligent alarm control system, the oxygen purity is as high as 95% or more, the operation is easy to use, and it is safe and effective to use. The current products are widely used in medical, home, laboratory, pet, industrial and other oxygen fields.

Before using or service this product, please read this article carefully and operate this product according to the instructions.

# Capability

August 2017

1- Our company is one of the few manufacturers in the world that can stabilize the fluctuation range (0.1% for a long time) of oxygen purity when above 90%. The discovery of this research and the invention of control technology will help confirm that the life of each of our products can be as long as 15,000 hours or more.



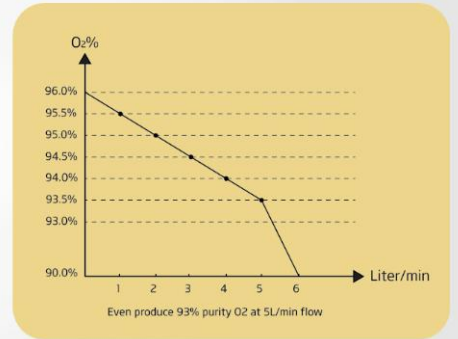
# Capability

November 2018

2- Our company is the first and currently the only manufacturer in the world that can break through the 5L oxygen concentrator (guarantee more than 90% oxygen purity) to achieve lithium battery power supply. This invention marks our company's leading position in research and development in this field.



Accessories



# Capability

September 2019

3- Our company is the only manufacturer in the world that tests 5L oxygen concentrators at an altitude of 4,417m (about 15,000 feet), and the purity still reaches more than 90%. Marking that the company's PSA molecular sieve packaging technology capabilities far exceed any well-known international brands.





Test in Tibet  
4415m



Mark in Tibet  
4415m







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01



# Models and Application



# Models and Application--- All Models



Dual Flow  
15L or 20L



Single Flow  
10L or 15L



Single Flow  
5L  
Rechargeable



High Pressure 100psi  
30L or 60L or 100L



Hospital Oxygen Supply  
Over 200m<sup>3</sup>/h

AngelBiss Oxygen Families



Research 5L, 10L, done

Super light portable pulse 5L

High efficiency oxygen supply system

**AngelBiss Technology Research Orient**





Single Flow  
5L  
Rechargeable

- 1- Basically meet the oxygen demand of patients with mild to moderate chronic obstructive pulmonary disease (COPD)
- 2- Oxygen demand of patients with symptoms of “three highs”, coronary heart disease, stroke, etc.
- 3- Daily oxygen in general for elderly and pregnant women (recommended 2 hours / day)
- 4- Outdoor, indoor, mountain climbing, extreme sports, sports activities, fitness, etc.
- 5- Oxygen use for high-brain workers such as white-collar workers and students
- 6- Aerobic health, beauty skin care, etc.

**Important:** 1- This product is only used as a nursing aid, it cannot save lives and cannot be used for first aid.  
2- Use under the guidance of a doctor



Single Flow  
10L or 15L

- 1- Basically meet the oxygen demand of patients with middle and high chronic obstructive pulmonary disease (COPD) (equivalent to the oxygen supply of the hospital central system)
- 2- Oxygen demand of patients with symptoms of “three highs” , coronary heart disease, stroke, etc.
- 3- Daily oxygen in general for elderly and pregnant women (recommended 2 hours / day)
- 4- Outdoor, indoor, mountain climbing, extreme sports, sports activities, fitness, etc.
- 5- Oxygen use for high-brain workers such as white-collar workers and students
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Dual Flow 15L or  
20L

1- It can be used by 2 adults at the same time, and the flow rate of each oxygen outlet is half of the rated flow rate when used simultaneously (eg  $15L / 2 = 7.5L$ )

Basically meet the oxygen demand of patients with middle and high chronic obstructive pulmonary disease (COPD) (equivalent to the oxygen supply of the hospital central system)

2- Oxygen demand of patients with symptoms of "three highs" , coronary heart disease, stroke, etc.

3- Daily oxygen in general for elderly and pregnant women (recommended 2 hours / day)

4- Outdoor, indoor, mountain climbing, extreme sports, sports activities, fitness, etc.

5- Oxygen use for high-brain workers such as white-collar workers and students

6- Aerobic health, beauty skin care, etc.

**Important:** 1- This product is only used as a nursing aid, it cannot save lives and cannot be used for first aid.

2- Use under the guidance of a doctor





High Pressure 100psi  
30L or 60L or 100L

- 1- The standard oxygen output and oxygen purity can still be maintained between 20psi and 100psi. Equivalent to micro-center oxygen.  
Fully meet the oxygen demand of patients with middle and high chronic obstructive pulmonary disease (COPD) (equivalent to the oxygen supply of the hospital central system)
- 2- Can be used with intensive care artificial respiration simulator
- 3- Oxygen Demand of Patients with "Three Highs", Coronary Heart Disease, Stroke and Other Symptoms
- 4- Daily oxygen in general for elderly and pregnant women (recommended 2 hours / day)
- 5- Outdoor, indoor, mountain climbing, extreme sports, sports activities, fitness, etc.
- 6- Oxygen use for high-brain workers such as white-collar workers and students
- 7- Aerobic health, beauty skin care, etc.

**Important:** 1- This product is only used as a nursing aid, it cannot save lives and cannot be used for first aid.  
2- Use under the guidance of a doctor



Hospital Oxygen Supply  
Over 200m<sup>3</sup>/h

Research data show:

--oxygen supply of 3m<sup>3</sup> / h is equivalent to meeting the oxygen demand of 15 beds at the same time

-My company can develop a hospital central oxygen supply system with an oxygen supply of up to 200m<sup>3</sup> / h, which is equivalent to a large medical institution that can serve 1,000 beds.

This system uses high-pressure molecular sieve VPSA technology and high-pressure oxygen storage control system, which can realize intermittent operation but still provide continuous oxygen supply.

It has the advantages of high efficiency, energy saving, long life, low operating cost, and convenient maintenance.

**Important: 1- This product is only used as a nursing aid, it cannot save lives and cannot be used for first aid.**

**2- Use under the guidance of a doctor**



02



# Operation Steps

-- 5L





# Operation Steps ( 1 ) ---- Whole Package



----- Whole package -----

- 1、 Main Machine
- 5、 Cannula

- 2、 Coarse filter
- 6、 Nebulizer kit

- 3、 Air inlet filter
- 7、 User manual

- 4、 Humidifier bottle

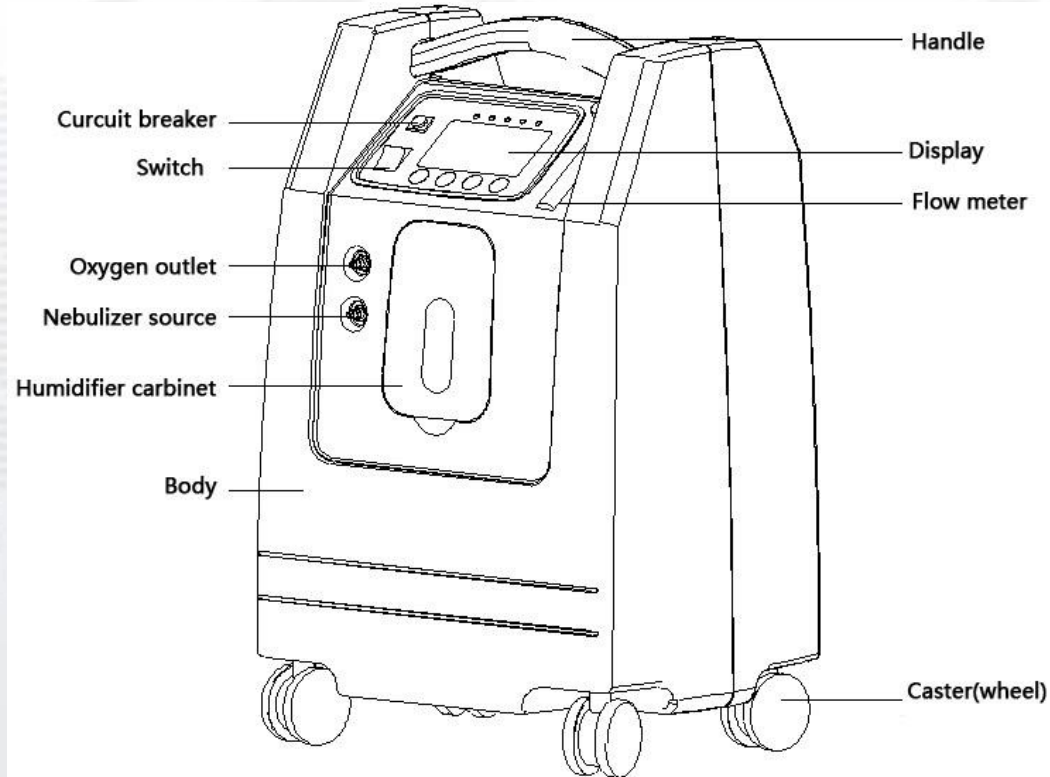


# Operation Steps ( 2 ) ---- Basic Specifications

System Map	Functions	Angel-5S
Oxygen Driving System	Oxygen Flow	0.5~5L/min
	Oxygen Concentration	93% +3%
	Oxygen Output Pressure	0.04-0.07Mpa
	Oxygen Number Display	YES, 00.0%~96.0%
Nebulizer System	Nebulizer influence O2 purity?	Never
	Individual Nebulizer Outlet	YES
	Display Method	On LED screen
	Operating Way	By touch panel button
	Nebulizing Particle Size	3.6µm±25% at 0.14Mpa
Screen Display System	Display Material	All by LED lights
	What Can Be Displayed ?	"Oxygen" light on
		"Nebulize" light on
		"Purity Percentage" light on
		"Each Running Time" light on
		"Accumulated Time" light on
		"Timer Setting Minutes"
"Child Lock"		



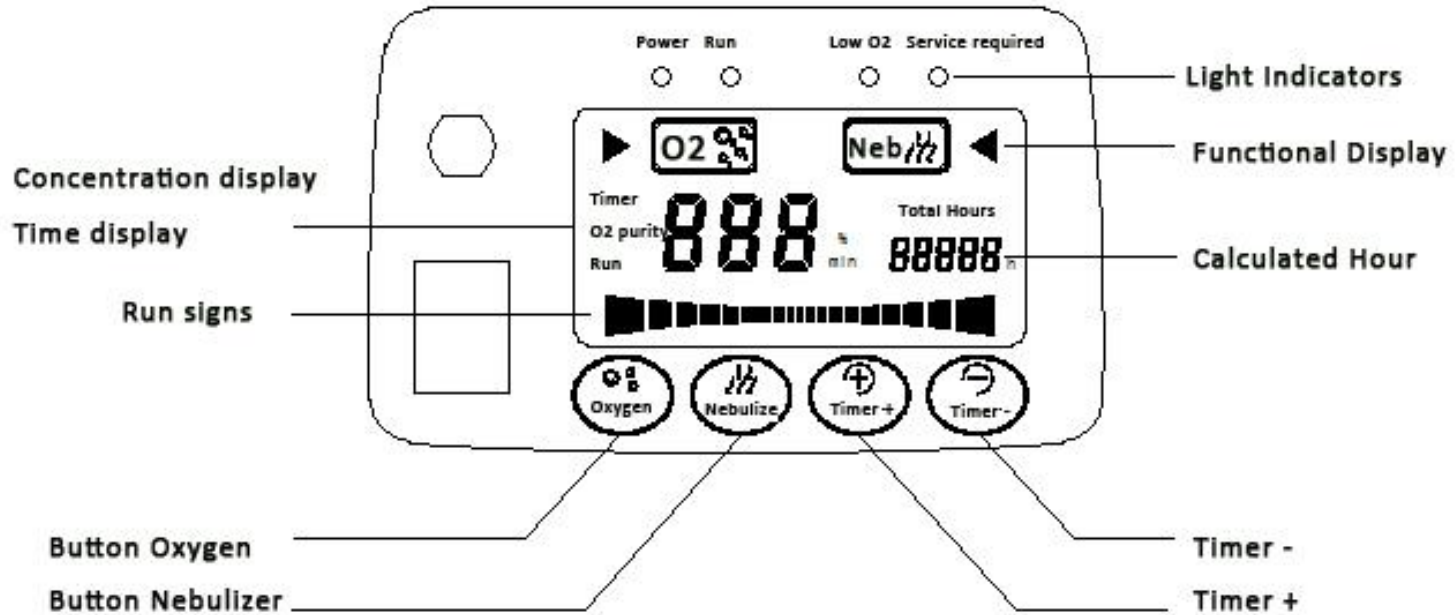
# Operation Steps ( 3 ) ---- Body Structure Graphic







# Operation Steps ( 4 ) ---- Operation Panel





# Operation Steps ( 5 ) ---- Install Humidifier Bottle



take off the grey cover



lay the holder



holder in horizontal position



open the humidifer bottle



add purified water



close the bottle



connect 20cm pipe to oxygen outlet



connect another pipe end to humidifer inlet



# Operation Steps ( 6 ) ---- Caution for humidifier

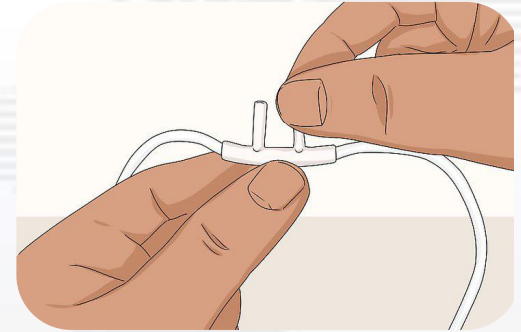
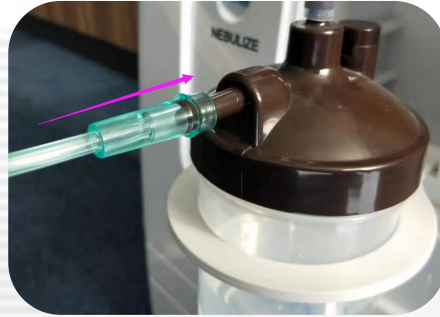
1. Fill the humidified bottle with water, pay attention that the water level must not be lower than 1/3 of the minimum water level line, and must not exceed the maximum water level line (2/3). It is recommended to add warm water not exceeding 32 ° C in winter.
2. Be sure to add distilled water or purified water, because bacteria or mold propagation in ordinary tap water may cause respiratory infections in users.
3. Please insist to change the water in the bottle at least once a day.
4. Make sure that the bottle cap is tightened tightly after each water change, to avoid the leakage of oxygen which will reduce the amount of oxygen at the oxygen-absorbing end.
5. After the humidification bottle is installed, the bottle should not be tilted more than 15 degrees. Do not move the bottle holder up and down at will to prevent water from entering the nasal oxygen tube.
6. Long-term use without a humidifier bottle may cause the user's respiratory tract to become dry and uncomfortable.
7. When there is no water in the humidification bottle, be sure to replenish it immediately. It is forbidden to fill the humidification bottle with water within 1 meter near the oxygen concentrator, so as to avoid water damage to the machine due to circuit damage.
8. Different humidifiers may affect the performance of the oxygen concentrator. Please use a humidifier approved by our company.

[Video: How to install humidifier bottle \(click here\)](#)





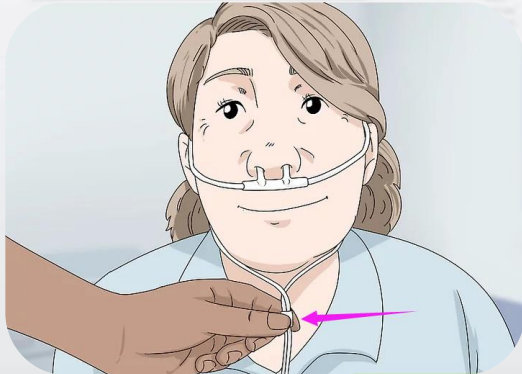
# Operation Steps ( 7 ) ---- Wear Cannula



Take out the cannula from package

Connect to the humidifier outlet

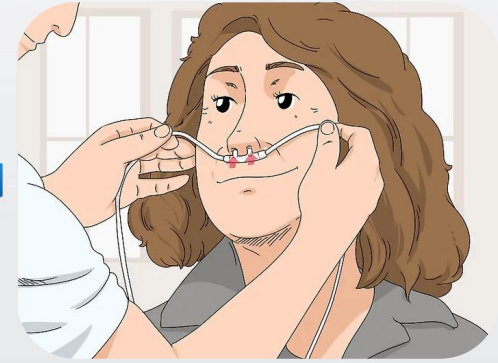
Check the nose outlet end



Tighten the lock ring



Wear the rest upon our ears



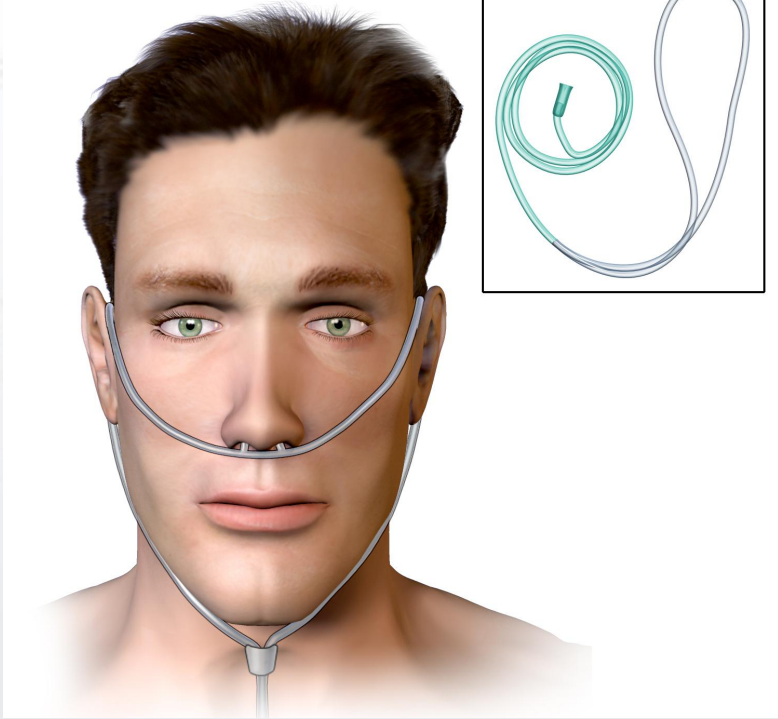
Plug nose outlet into the nose





# Operation Steps ( 8 ) ---- Cannula usage status

## Nasal Cannula



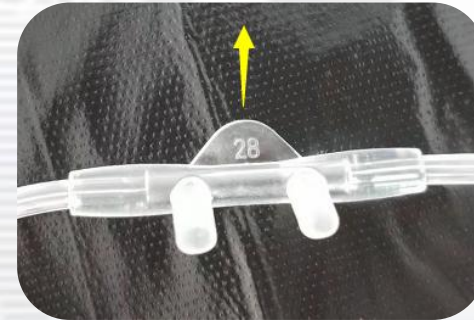
Standing or lying down



Side Sleeping

# Operation Steps ( 9 ) ---- Caution for Cannula

1. When connecting the nasal cannula to the o<sub>2</sub> outlet of the humidification bottle, make sure that the connection is secure, and it is not easy to fall off even if pulled.
2. Nasal cannula is disposable and should be replaced every day. Repeated long-term use of the same nasal cannula may breed bacteria or mold and cause respiratory infections in users.
3. If the user cannot feel the oxygen in the nasal cannula, plunge the end of the nasal cannula into a cup of pure water and observe whether there are bubbles. If not, please confirm whether the nasal cannula has been folded, squeezed or blocked Or fall off from the humidification bottle.
4. When inserting the end of the nasal cannula into the nostril, the abrupt direction should be upward (as shown on the right) to fix the two nostrils and improve the comfort.
5. If the nasal cannula needs to be worn for a long time, it may cause skin friction and irritation. Use a medical tape to hold the nasal cannula near the ear. (As shown below)
6. If you use an oxygen cannula not specified by our company, it may affect the oxygen output and product performance.





# Operation Steps ( 10 ) ----- Adjust Flow Rate

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Note: Take 5L oxygen concentrator as an example

- 1- This product uses a mechanical glass rotor flowmeter with high accuracy, simple operation and easy to read.
- 2- Turn the flow adjustment knob to the desired flow (the reading is based on the center of the black float)
- 3- Turn the knob counterclockwise to increase the flow
- 4- Turn clockwise for flow reduction

## Caution:

1. Adjust oxygen inhalation time, oxygen inhalation volume and oxygen flow rate according to the guidance of medical professionals.
2. The oxygen purity between 0 and 5 LPM can reach  $93\% \pm 3\%$  of medical oxygen.
3. If the oxygen flow rate is adjusted too large, the black float will exceed the red warning line on the top of the flowmeter, which will cause the oxygen purity to be too low and alarm.
4. If the oxygen flow rate is too small, the black float will be at the bottom of the flowmeter, which will result in the inability to produce oxygen.
5. If the flow range on the flowmeter is lower than 0.5L / min, please check whether the pipeline or accessories are blocked, or the kink or the humidification cup is defective.

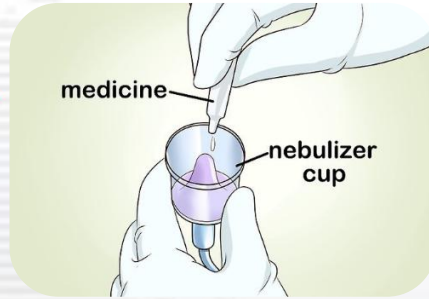




# Operation Steps ( 11 ) ----- Connecting Nebulizer kit



Nebulizer kit



Place medicine



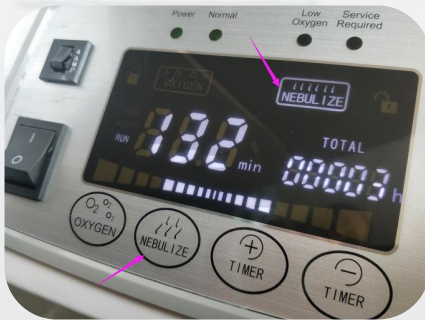
Connect to the nebulize outlet



Connect nebulizer cup



Feed to mouth or face



Click NEBULIZE to open nebulize air source



# Operation Steps ( 12 ) ---- Nebulizer Caution

1. This product does not provide aerosolized drugs, and please purchase and use aerosolized drugs under the guidance of a doctor.
2. Dosage and spray time should be used according to the guidance of doctors or professionals.
3. Oxygen production and atomization can be turned on at the same time, but it is not recommended to use oxygen absorption and atomization at the same time.
4. When connecting the nebulizing tube to the nebulizing air outlet, make sure that the connection is secure, and it is not easy to fall off even if it is pulled.
5. The nebulizer components are disposable and should be replaced frequently. Repeated long-term use of the same package of nebulizer components may breed bacteria or mold and cause respiratory infections in users.
6. If the user cannot see the medicine being atomized, please confirm whether the NEBULIZE button is turned on and check whether the nebulizer tube has been folded, squeezed, blocked or detached from the nebulizer outlet.
7. When putting the nebulizer mask on the face, please make sure that the nose is completely surrounded by the mask and in the center position.
8. Select a suitable nebulizer mask and adjust the tightness of the headband to ensure the comfort of the mask and its tightness with the skin.
9. If you use nebulizer components not specified by our company, the atomization effect may be affected.







# Operation Steps ( 13 ) ---- Correct Connections



Oxygen ready connection



Nebulizer ready connection



## First Time User Caution

Please turn the unit side lay if it is used at the first time. You can see TWO cables (as the picture on right). Cut them off and remove them so that the oxygen concentrator can operate in Normal condition.

Note: \* The purpose of those cables is to lock the position of the compressor, avoid any possible jolt and damage of the unit during courier' s transportation.

\* The function of the compressor will be affected as well if the cables are not been removed.

\* If without removing the cables will raise up noise level of the unit.



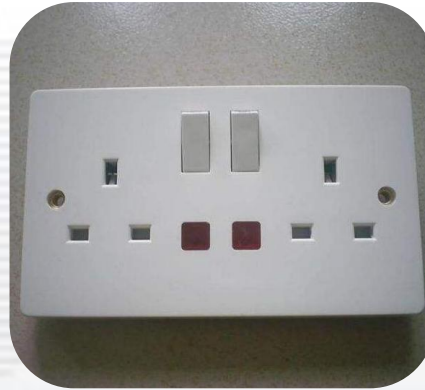


# Operation Steps ( 15 ) ---- Connecting Main Power

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Take power cord from body back



Plug power cord to the wall socket



Turn on the Switch at "I" position to run the machine







1. Do not use oxygen concentrator near heat sources and open flames, and smoking is prohibited when inhaling oxygen!
2. Pay attention to the use environment. The normal working temperature of the oxygen concentrator is 5-40 °C, and the relative humidity is ≤80%.
3. Place the machine at a distance of at least 1.6 meters from walls, fabrics or other objects to ensure that a proper flow of air enters and exits the machine.
4. The machine should be avoided in the place with pollutants and smoke.
5. Do not use near flammable materials such as oil, grease and detergent. Do not use oil, grease or the like on the product
6. When the product needs to be connected to different power sockets, the oxygen concentrator should be turned off first. It is best to connect the plug directly to the wall socket and connect it firmly. Do not use a power strip, and it is forbidden to connect the product plug to a loose and unqualified socket.
7. Please pay attention to the safety of electricity. If the plug or power cord is damaged, do not turn on the oxygen concentrator. If you need to wipe the oxygen concentrator, clean and replace the filter, etc., you should cut off the power first
8. When the power supply voltage exceeds or falls below the normal range of use, or when the voltage fluctuates greatly, please install a voltage stabilizer before use.
9. The elderly, children, mentally handicapped and mentally ill patients must be specially monitored to prevent them from operating the medical molecular sieve oxygen concentrator and causing injuries.



03



## Display Instructions





# Display Instructions ( 1 ) ---- Overview

## 5 Liter Oxygen Concentrator

The image shows a white 5-liter oxygen concentrator with a control panel and a nebulizer attachment. The control panel features a digital display and several buttons. The nebulizer is shown in a separate inset image.

**Control Panel Display:**

- OXYGEN:** Indicated by three small circles.
- NEBULIZER:** Indicated by five vertical bars.
- TIMER PURITY RUNNING:** Displayed as **888**.
- % min:** Displayed as **88888**.
- TOTAL:** Displayed as **88888 h**.

**Buttons:**

- OXYGEN:** Button with three circles icon.
- NEBULIZER:** Button with three wavy lines icon.
- TIMER:** Button with a plus sign icon.
- TIMER:** Button with a minus sign icon.

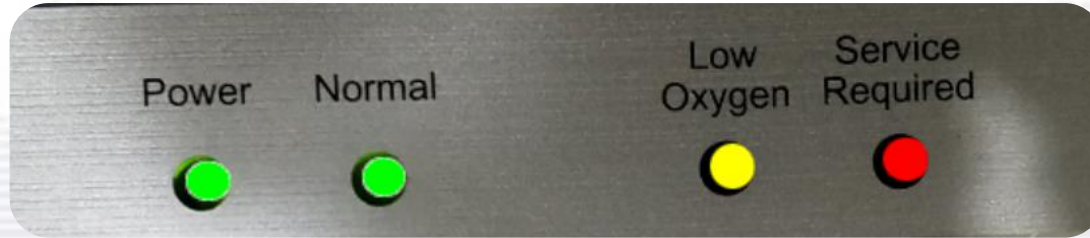
**Ports:**

- OXYGEN:** Top port.
- NEBULIZE:** Bottom port.

**Inset Image:** Shows the nebulizer attachment connected to the **NEBULIZE** port.



## Display Instructions ( 2 ) ---- LED Lights



### **Power**

Power indicator: its green indicator is on when the power is turned on.

### **Normal**

Running indicator: When the oxygen generation and nebulizer are started, the running green indicator shows.

### **Low Oxygen**

Low oxygen purity indicator: When the oxygen purity is below 82%, the yellow alarm indicator is displayed and flashes

### **Service Required**

Alarm indicator: When the system cycle pressure high pressure alarm, system cycle pressure low pressure alarm, oxygen purity is less than 50%, compressor failure, loss of network power voltage, the red indicator light is on and flashing, accompanied by a high priority alarm sound. The user's attention should be drawn.



## Machine Power Switch “I” “O”

Main power of this machine. Press the main switch "I" to turn on the machine, press "O" to turn it off. When the machine is turned on, the power indicator lights up, the display lights up, and oxygen production starts. When the machine is shut down, all components inside the machine stop supplying power, all power indicators are off, and oxygen generation is stopped.



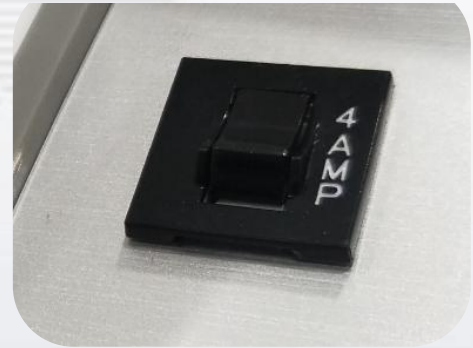


# Display Instructions ( 4 ) ---- Buttons

## Overload protector “4AMP”

This machine contains 3 levels of anti-overcurrent and leakage protection. The first level (the highest priority) is the overload protector, the second level is the motherboard transformer, and the third level is the motherboard fuse.

Overload protector “4AMP” prevents possible fire caused by excessive current caused by short circuit of power supply, unstable external network voltage, aging of internal components of the product, and short circuit. In these cases, the overload protector will automatically start to immediately cut off the connection between the product and the external power grid and trigger a power failure alarm. At this time, the main power should be turned off immediately, and the overload protector should be pushed up (reset) after troubleshooting. This button cannot be activated manually.



The secondary and tertiary protection devices are set inside the machine, and will not be introduced for the time being.



# Display Instructions ( 5 ) ---- Buttons

This product adopts resistive capacitive intelligent touch buttons, and has a button response sound.

No need to press hard, it can be operated with one touch lightly.

**Key to making oxygen**



Start / Stop the oxygen function

**Key to making nebulizer**



Start / Stop the nebulizer function

**Timer function + key**

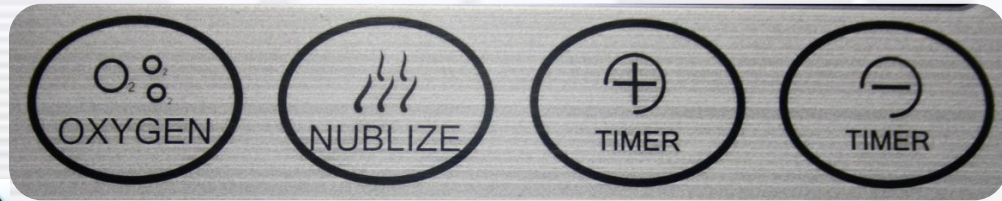


Each time you click, the timing time increases in sequence from 15-30-45-60-90-120-180 minutes, up to 180 minutes. One more you click, it is 0, and the timing is cancelled.

**Timer function - key**



Each time you click, the timing time decreases in turn from 180-120-90-60-45-30-30 minutes, and you press it again to 0 to cancel the timing.

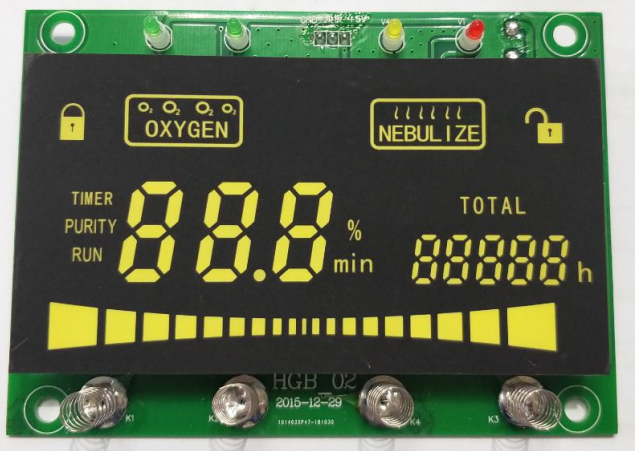






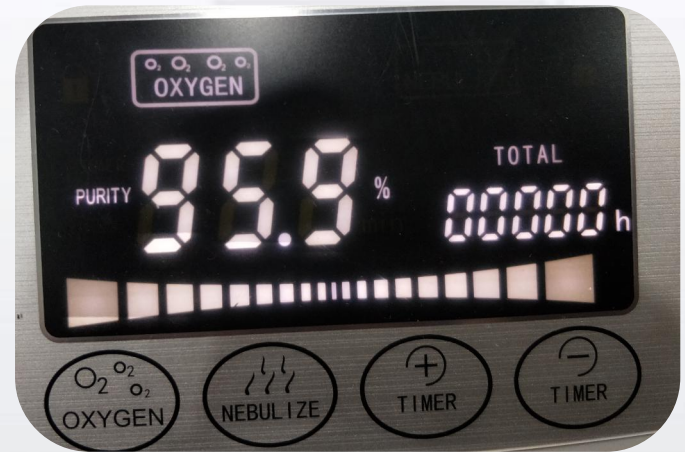
# Display Instructions ( 6 ) ---- Display Panel

The display of this product adopts a full-screen design of LED lights, and the display is clear and bright. The keys are synchronized with the display to achieve: **WHAT YOU SEE IS WHAT YOU TOUCH.**



Display motherboard

Here you can intuitively see all the functions that the machine can display



Boot display effect



## Display Instructions ( 7 ) ---- Display board

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**Note: The entire display board has a protective film, which may not be torn off at the factory but will not affect its use. If the consumer finds that the screen is scratched when receiving the goods, the protective film can be removed without affecting the use, but it will increase the appearance.**



Please peel off from the bottom right corner



# Display Instructions ( 8 ) ---- Operate OXYGEN

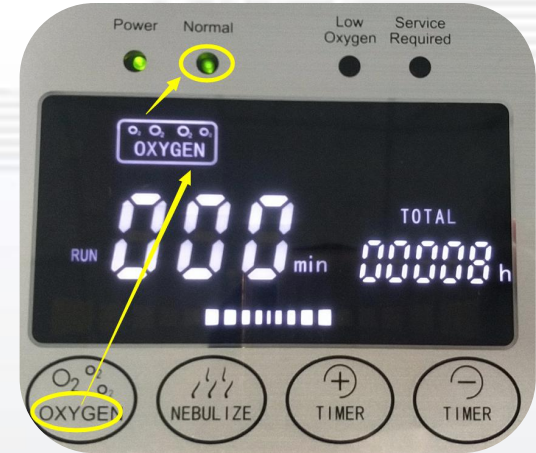
## Key to making oxygen



Gently press the OXYGEN key for 1 second to immediately start or stop making oxygen. The OXYGEN key here refers to the running or stopping of the motor. When the motor starts, the "OXYGEN" on the display lights up and the green running indicator lights up.

Press the OXYGEN key again for 1 second to stop the motor. The "OXYGEN" and the running indicator light on the display are off at the same time, but because the power is not cut off, the power indicator and the display will continue to light, while the fan continues to run and stop after 30 seconds.

The power indicator and display only go out when the power is unplugged or the power switch is pressed.





# Display Instructions ( 9 ) ---- How to show O2 %

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## Key to making oxygen



This machine can display the oxygen purity in real time. The operation method is as follows:

1. Power on the product
2. Turn on the OXYGEN key and start oxygen production
3. Press and hold the OXYGEN button with your finger for 6 to 8 seconds and hear a “beep” sound, then release your finger
4. Meanwhile the center of the display will see the oxygen purity value and the running time will switch between each other.

Note:

- \* Make this option just after booting, you will see the oxygen purity value climbing process within 3 minutes
- \* The oxygen purity of the new product after 3 minutes should show above 90%
- \* Each time you open the oxygen purity value display time lasts only 1 minute, and then only displays the running time minutes. If you need to see the oxygen purity again, you can repeat the above operation method.
- \* This function is only recommended for product and service providers to know, for after-sale, it is not recommended to let consumers know.





# Display Instructions ( 10 ) ---- Operate NEBULIZE

## Key to making nebulizer

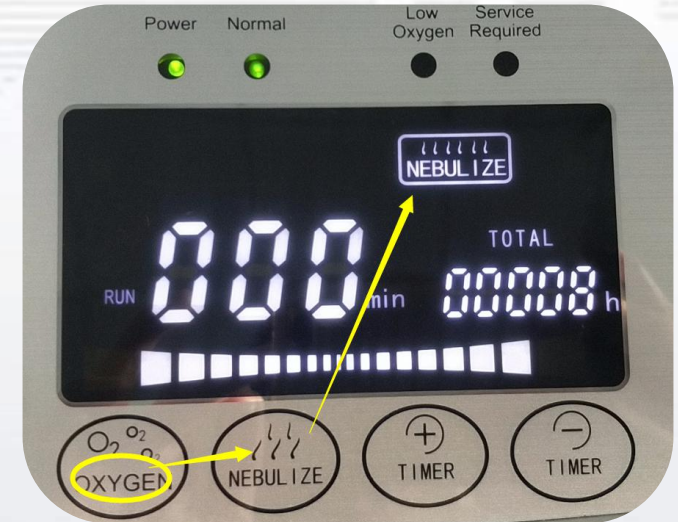


This function can be activated only in the oxygen generation state.

Gently press the NEBULIZE button for 1 second to immediately start or stop the atomization.

When starting, the NEBULIZE port emits high-pressure airflow, and "NEBULIZER" on the display lights up.

When the NEBULIZE is closed, the air jet will be stopped. The "NEBULIZER" in the display will go out and automatically switch to "OXYGEN". The product will still make oxygen.



\* Try not to use oxygen and atomizing functions at the same time, to avoid cross infection caused by different conditions

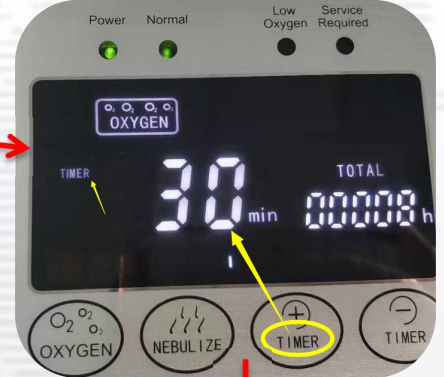
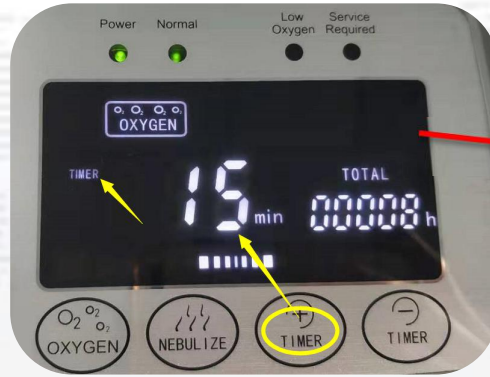




### Timer function + key



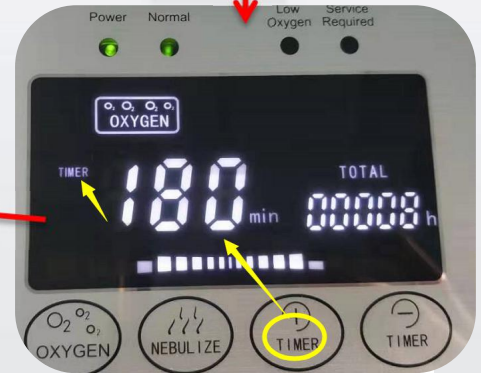
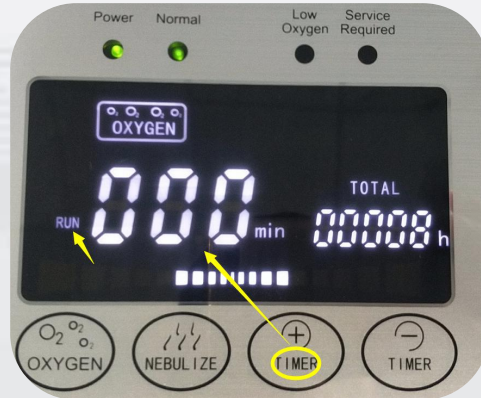
Each time you press, the timing time increases in sequence from 15-30 to 45-60 to 90-120 to 180 minutes, with a maximum of 180 minutes. After the timing, the product will count down. If you press it again to 0, the timer will be cancelled and the product will continue to run.



### Timer function - key

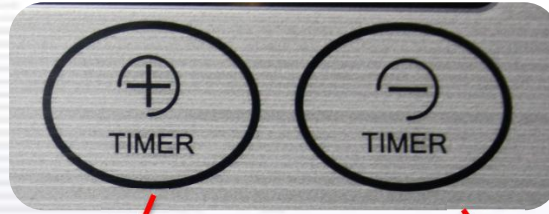


In contrast to Timing +, each time you press, the timing time decreases by 180-120-90-60-60-45-30 minutes, and the product will count down after timing. If you press it again to 0, the timer will be cancelled and the product will continue to run.





# Display Instructions ( 12 ) ---- Operate CHILD LOCK



Press and hold the timer + key for 6 ~ 8 seconds. After hearing the "DEEP" sound, the lock lamp on the upper left corner of the display lights up. At this time, all resistance-capacitance key operations are invalid. Prevent children from unintentionally manipulating this product



Press and hold the timer-key for 6 ~ 8 seconds. After hearing the "DEEP" sound, the lock lamp on the upper right corner of the display lights up. At this time, all resistance-capacitance key operations resume touch.





# Display Instructions ( 13 ) ---- 6 Alarm System Instructions

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**This product is one of the most complete alarm systems, the most accurate fault indication, and the most stable safety performance oxygen concentrator on the global market.**

**If the consumer finds any abnormal alarm status of this product during use, please contact the product supplier**



## 1- Most complete alarm systems

The 6 internal safety alarm systems, which monitor the product oxygen purity, oxygen pressure, internal pressure cycle, power connection, compressor failure, and overheating protection.



## 2- Most accurate fault indication

The display shows "E1" E2 "E3" E4 "E5" E6 ". When the fault occurs, the display will automatically jump out the corresponding code. Different codes can indicate the failure of the fixed parts, which is convenient for the technician to do symptomatic repair.



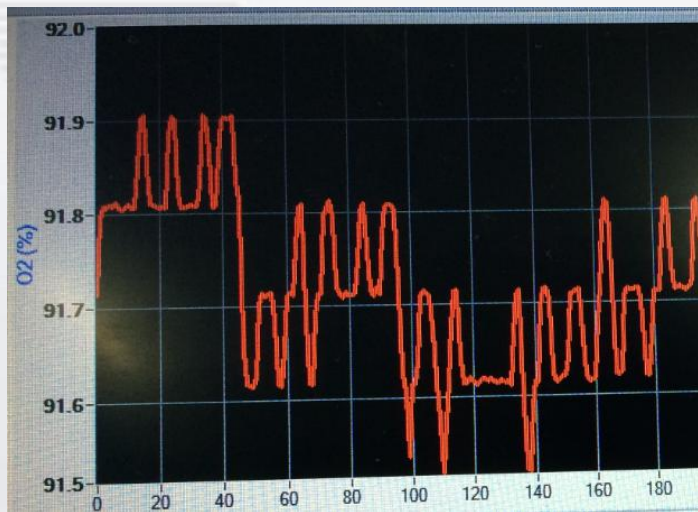




# Display Instructions ( 16 ) ---- 6 Alarm System Instructions

### 3- Most stable safety performance

When the oxygen purity reaches more than 90% and the flow rate is adjusted to a maximum of 5L, the oxygen purity fluctuation of each product is within the range of  $\pm 1\%$ , which effectively guarantees the total operating lifetime of the product.





In the following environment range, it can run continuously for 24 hours

Use environment

Temperature: 5 °C ~ 40 °C

Relative humidity: ≤80%

Atmospheric pressure range: 86Kpa ~ 106Kpa

**Note:** Do not use flammable anesthetic gas mixed with air or nitrous oxide

