User's Manual for Medical Molecular Sieve Oxygen Concentrator

Dear Users:

Congratulations on becoming the user of SD medical molecular sieve oxygen concentrator!
In order to provide satisfactory service for the oxygen concentrator you purchased, please be sure to read the operation manual carefully before using the product, to fully understand and master the performance and the correct operation method and maintenance of the machine. After reading, please keep it for reference at any time.

Wish you good health!

Contents:

Key points

I. Special Warning:

1. Consult your doctor before using this machine!
2. Severe carbon monoxide poisoning is forbidden!
3. In order to prevent power failure or possible breakdown of oxygen concentrator, people in urgent need of oxygen and critical patients must be equipped with other standby oxygen supply devices (such as oxygen cylinders, oxygen bags, etc.)!

II. Safety Instructions:

▲The equipment is not considered for life support or life extension. It is suggested that when the people in need of oxygen therapy using this machine the oxygen flow rate and time of oxygen inhalation should follow the medical guidance.

▲Long time and large flow inhalation may cause physical uncomfortable reactions. If the oxygen user has or shows adverse reactions, please stop using the machine immediately and contact the doctor and equipment supplier.

▲This machine should not be used as a rescue tool for respiratory arrest.

▲As oxygen supports combustion, do not put the nasal oxygen tube under the bed cover or seat cushion, if no one inhales oxygen, turn off the power of the machine.

▲Oxygen concentrator is forbidden to lie upside down!

▲ If the power supply voltage is unstable and exceeds the range of ~ 220 V ± 22 V, please install a voltage regulator before use!

▲Please select safe and qualified socket and wiring board with safety electrician certification!

▲Non-professionals do not open the chassis!

▲Do not use any lubricants unless recommended in writing by the company!

▲Oxygen concentrator should be placed in the indoor ventilated place, and avoid direct sunlight, and should be located more than 10 cm from the walls and other objects on all sides, while ensuring that the air entrance of the oxygen concentrator should be located in a well-ventilated place.

▲Oxygen concentrator should not be placed in the following environment: near heat source and light and dark fire source, humid, no shelter, too high and low temperature environment; avoid places such as pollution and smog.

▲It is forbidden to put any sundries at the bottom of the oxygen concentrator, so as to prevent the blockage of the intake and exhaust ports from causing the temperature to be too high and causing the shutdown or the decrease of the oxygen concentration
。

III. Matters Needing Attention:

▲Oxygen is a combustion supporting gas. It is forbidden to smoke and keep away from light and dark fire sources to avoid fire hazard.

▲Do not open and close the oxygen concentrator frequently, shut down 3~5 minutes before restarting, so as not to affect the life of the compressor;

▲About 10 minutes after the oxygen generator is turned on, its oxygen production and oxygen concentration reach the specified performance

▲Distilled water or cold boiled water should be added into the humidifier, and the added amount should be below the maximum scale and above the minimum scale
。
▲No oil or grease should be used in any part of the oxygen concentrator to avoid pollution of oxygen and cause fire。

▲ Prevent radio frequency interference: Most electronic equipment is influenced by Radio Frequency Interference (RFI). Using portable communication equipment near the oxygen concentrator will cause interference to the machine.

▲The humidifier provided with the machine should be used and should not be replaced at will, otherwise it may cause the performance of the oxygen generator to decrease or oxygen inhalation discomfort. The interface of the humidifier should be tightened to prevent oxygen leakage。

IV. Transportation and storage conditions:

Ambient temperature： -40℃～70℃ Relative humidity：15%～95%
Air pressure： 86 kPa ～ 106 kPa

The packaged oxygen generator is stored in a room with a relative humidity of no more than 80%, no corrosive gas and well ventilated, and avoids severe shock and inverted recumbency during transportation.

V. Product recycling:

If the products mentioned in this manual are discarded in inappropriate places, their components may cause harm to the environment. Please send products that have reached the end of their service life to a suitable place to protect the environment.

Product features:

I. Overview:

The function of oxygen:

▲ Through oxygen supply to patients, it can cooperate with the treatment of cardiovascular and cerebrovascular diseases, respiratory, chronic obstructive pneumonia and other diseases, as well as the rehabilitation of hypoxia.

▲Oxygen inhalation can improve the oxygen supply of the body and achieve the purpose of oxygen supplement and health care. Suitable for middle-aged and elderly people, people with poor physical fitness, pregnant women, college entrance examination students and other people with varying degrees of physiological hypoxia. It can also be used to eliminate fatigue and restore physical functions after heavy physical or mental exhaustion.

II. Intended use of the product:

▲It is suitable for the preparation of medical oxygen at atmospheric pressure.

III. Structural features and working principle:

▲ The product structure is mainly composed of oxygen concentrator, flow meter and humidifier.

▲ Full plastic shell, safe and reliable.

▲ Set timer shutdown function, easy to use.

▲ Equipped with air pressure overpressure safety valve, more security.

▲ Equipped with power-off alarm function and high and low voltage alarm function.

▲ The compressor is equipped with a thermal protector to better ensure the safety of the compressor and the whole machine.

▲ There is a storage box on the top, which can be used to place oxygen pipe and other accessories.

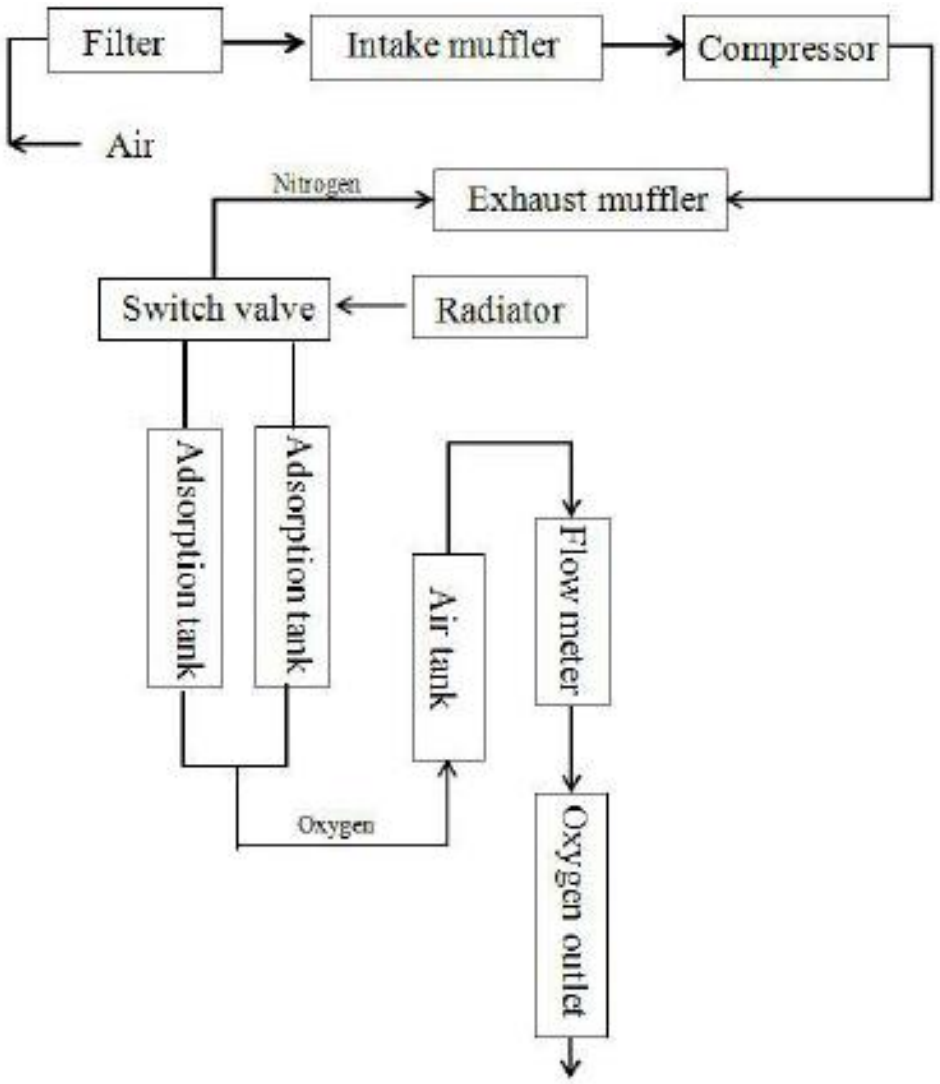
Principle of oxygen supply:

This machine uses AC220V power supply as power source, air as raw material, and adopts imported high-quality molecular sieve. It produces high-purity oxygen that meets medical oxygen standards through pressure swing adsorption separation method (PSA method) at room temperature.

Schematic diagram of gas circuit operation:

This machine uses AC220V power supply as power source, air as raw material, and adopts imported high-quality molecular sieve. It produces high-purity oxygen that meets medical oxygen standards through pressure swing adsorption separation method (PSA method) at room temperature.

Schematic diagram of gas circuit operation:



IV.Product specifications

Power:	AC220V ± 22V, 50Hz ± 1Hz
Electrical classification:	Class II equipment Type B applied part
Rated power（W）:	SD-05B/SD-05W:350W SD-03B/SD-03W:320W SD-01B:150W
Noise dB(A):	SD-05B/SD-05W＜58dB(A) SD-03B/SD-03W＜54dB(A) SD-01B＜46dB(A)
Flow range(L/min):	SD-05B/SD-05W:1-5L/min SD-03B/SD-03W:1-3L/min SD-01B:1L/min
Oxygen concentration(V/V): The concentration level of all models can only be	SD-05B/SD-05W:1-5L/min≥90% SD-03B/SD-03W:1-3L/min≥90%
obtained 10 minutes after turning on.	SD-01B:1L/min≥90%
Maximum output pressure（KPa):	SD-05B/SD-05W:45KPa±4.5KPa SD-03B/SD-03W:60KPa±6KPa SD-01B: 45KPa±4.5KPa
Relief pressure of compressor safety valve (pressure protection):	SD-03B/SD-03W/SD-05B/SD-05W:250KPa±25KPa
Flow fluctuation (at 7kpa back pressure):	0.7L/min
Atomization quantity (ml/min) :	SD-03W/SD-05W:≥0. 2mL/min
Continuous operation time:	24hours/day
Current overload protection switch:	5A ， 220V
Weight(Kg):	SD-05B/SD-05W:25Kg SD-03B/SD-03W:22Kg SD-01B:16. 5Kg
Operating ambient temperature(℃):	5℃~40℃
Relative humidity range:≤80%	≤80%
Atmospheric pressure range:	86kPa~106kPa
Oxygen concentration status indicator (OCSI) operating temperature and atmospheric pressure range:	Operating temperature:0~50℃ ; Maximum pressure:150KPa
When the oxygen concentration state indicator indicates that the oxygen concentration is abnormal, the oxygen concentration value is as follows:	oxygen concentration＜82%±1.8%(80.5%~83.5%)
Operating altitude:	Above sea level, below the altitude of 1828 meters can be used normally. It is not recommended to use above the altitude of 1828 meters. From 1828 m to 4000 m, the efficiency of the machine is less than 90%, and the oxygen concentration decreases with the increase of flow rate.

Attention:

SD medical molecular sieve oxygen concentrator model specification description: SD-1B/SD-30B/SD-05B model oxygen concentrator is a basic model, and its function is to prepare atmospheric pressure medical oxygen; SD\03W/SD-05W model oxygen concentrator is an atomization type, which has the atomization function in addition to the function of preparing medical oxygen.

Installation and use:

I. Unpacking inspection:

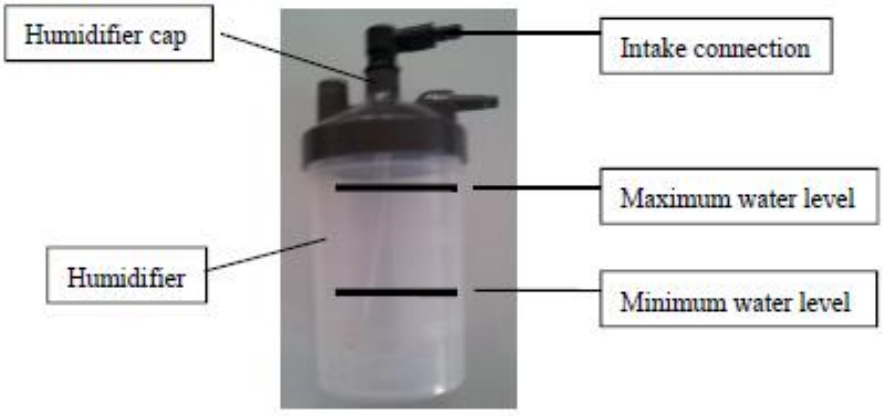
Before installing and operating the product, the user should first check whether the appearance of the product is good, and whether the type and quantity of accessories are consistent with the packing list. If there is any defect, please contact the supplier or manufacturer in time.

II. Outline diagram:

▲Overall view Figure 1）

Figure 1

▲Component view of humidifier(Figure 2)



III. Preparation:

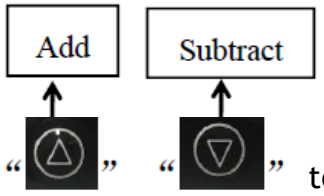
▲ Open the transparent cover, screw off the cap of the humidifier, add purified water (or distilled water) to the space between "maximum" and "minimum", and gently tighten the humidifier.

▲ Close the transparent cover.

▲ Press the “power switch”  to the “|” position and then press the “operation / atomization button”  for Humidifier Top cover, Humidifier Atomizing nozzle, Power switch, about 2 seconds, the display screen will display the "oxygen concentration value", indicating that the oxygen concentrator is in normal operation.

When the oxygen concentrator is working, it makes a "da-pu-" sound every few seconds, which is a normal reversing and exhaust sound. (Note: About 10 minutes after the initial startup of the oxygen generator, it is the best oxygen concentration.)

IV. Oxygen inhalation operation:



▲ Press the flowmeter adjustment key “ ” “ ” to the required flow (the reading is subject to the display). At the same time, there should be bubbles around the filter core in the humidifying bottle, and there should be oxygen output at the panel outlet.

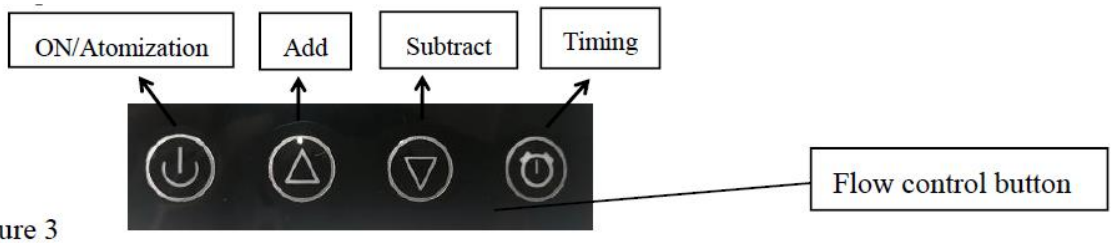


Figure 3

▲ Connect one end of the oxygen tube to the oxygen delivery port on the panel, and wear the other end with
the patient to start oxygen inhalation.

Note: Please follow the doctor's advice for the oxygen inhalation time and flow rate adjustment.

Ⅴ. Timing setting:

This machine has timing function. If the user needs, you can press the timing key on the display panel to set it within 00~99 hours.

▲ When the initial power on, the display panel displays "this time", which mean that the timer shutdown function is not set, and it is in continuous operation. Press the "timing key"  , The display screen shows "timing --:--", the oxygen concentrator enters "timing mode".

▲ Each time you press the"  "key, the display number increases by 10, which means the running time is increased by 10 minutes. Press and hold, the display number will continue to increase until you release it.

▲ Each time you press the"  "key, the display number decreases by 10, which means the running time is decreased by 10 minutes. Press and hold, the display number will continue to decrease until you release it.

▲To cancel the timing mode, press the "timing key"  again to return to continuous operation.

▲ When the timing time is set, the machine starts to count down. After the countdown is over, the machine enters the standby state and the display shows "OFF". At this time, only the fan continues to work in order to better improve the heat dissipation performance of the machine. The fan stops running after about 3 minutes.

Ⅵ. Turn off:

After use, first pull out the oxygen pipe from the oxygen outlet, turn off the power switch, and then pull out the power plug to cut off the power supply of the network.

Ⅶ. Operation of atomizer（Only for SD-03W/SD-05W models）

1.Take out the atomizer from the storage box of the oxygen concentrator, remove the medicine cup counterclockwise, pour a proper amount of medicine into unit (please follow the doctor's advice), install the waterproof ring, and then tighten the upper cover clockwise.

2.In the standby state of the oxygen concentrator, remove the knob on the atomization outlet connector of the front shell of the machine, and connect the atomizer medicine cup to the atomization outlet connector (Figure 4)。

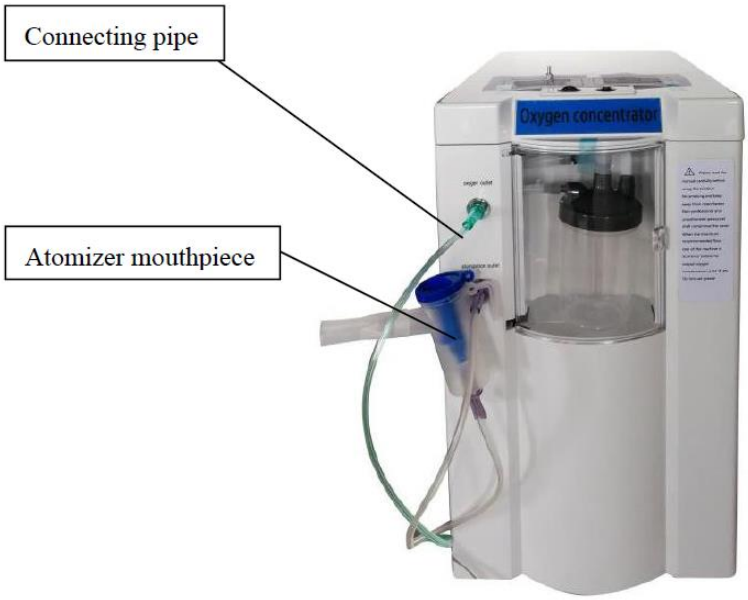
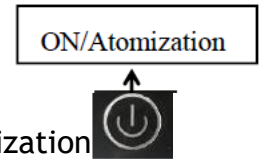
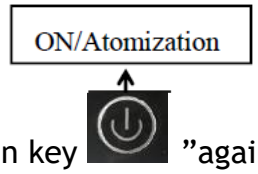


Figure 4

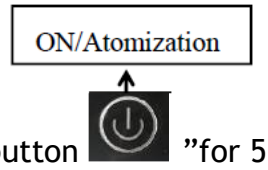


1.Under normal operation state of oxygen generator, press the “ON/atomization key once, and the oxygen concentration value on the screen will be displayed as "f 09". At this time, the atomization mode will be entered.

Note: When performing the atomization operation, remember to press the atomization key to enter the atomization mode, otherwise the oxygen concentrator, alarm function will be activated due to the decrease of oxygen concentration during atomization.



2.When the atomization is over, press the “ON/atomization key ”again to enter the oxygen inhalation mode, and the oxygen generator will return to the oxygen generation function. To enter the standby mode, you need to press



and hold the “ON/Atomization button ”for 5 seconds.

3. Matters needing attention:

①The medicine into the medicine cup (no more than 15ml) must be clarified, free of precipitation and impurities;
②If it cannot be sprayed or the spray is not obvious, please check the atomizing nozzle first, if it is blocked, use a No. 7 needle to treat
③ After each use, pour distilled water to continue atomizing for several seconds (to reduce the crystallization of the reagent), and then clean the atomizing device.

Special statement: SD medical molecular sieve oxygen generator is equipped with an oxygen concentration status indicator (OCSI) device, which has the function of monitoring oxygen concentration all the time. If the oxygen concentration is lower than 82% during use, the yellow indicator light flashes. When the oxygen concentration value is lower than 60%, the red indicator light flashes with a buzzer alarm sound.

At this time, you should switch to spare oxygen immediately. Turn off the power of the oxygen concentrator and contact to the distributor or manufacturer.

Maintenance:

I. Clean the shell:

Wipe and clean the outside of the case at least once a month: first, cut off the power, wipe it with a clean and soft slightly wet cloth soaked in disinfectant, and prevent the liquid from penetrating into the gap of the cabinet.

II. Clean the filter:

The cleaning and replacement of the filter is very important to protect the compressor and molecular sieve and extend the life of the machine. Please clean or replace it in time.

Note: Do not turn on the oxygen concentrator without installing the filter.

▲ Disassembly: (1) The filter screen in the first level filter is cleaned every half month.

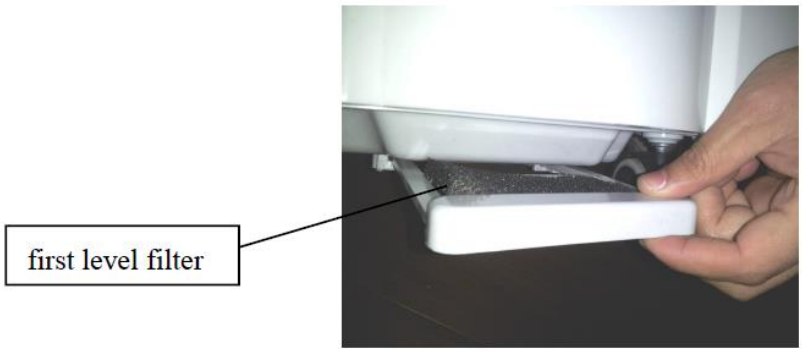


Figure 5

(2) Secondary filter. (Figure 6)
●Open the storage box cover, unscrew the screws, take out the storage box, and remove the filter.

Figure 6

● The secondary filter is disposable material; the normal service life is about 3000~4000 hours. The actual replacement time should be determined according to the actual use time and the environmental impact. If the oxygen concentration decays obviously, please contact the dealer or the manufacturer in time.

▲ Cleaning: clean with light detergent and clean with clean water. The filter must be dry before it is installed on the machine.

III. **Cleaning the humidifier:**

▲ The water in the humidifier should be changed every day.

▲ The humidifier is cleaned once a week, first with a lighter detergent, and then with clean water to ensure oxygen hygiene. When cleaning the humidifier care should be taken to clean the core tube installed in the bottle and the filter element at the bottom to ensure unblocked oxygen flow. (Note: The water droplets in the oxygen connection pipe should be drained)

▲ Disassembly method of humidifier

1）Open the transparent cover and unscrew the humidifier. (Figure 7)

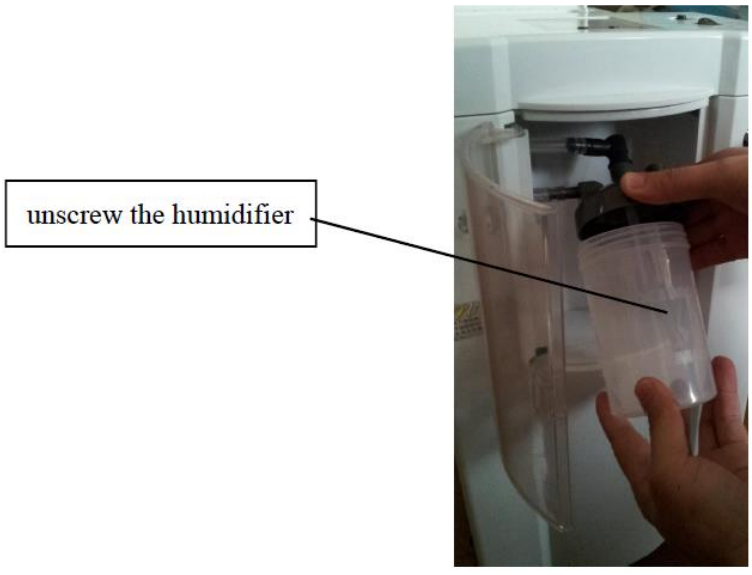


Figure 7

2）Remove the core tube and filter element. (Figure 8)

Figure 8

Note: Because the humidifier the oxygen concentrators designed by the company, there is no suitable product on the market. If you need to replace it, please contact the distributor or our customer service.

IV. Cleaning the oxygen tube:

The oxygen tube should be cleaned before each use. It can be soaked in 5% potassium permanganate solution for 5 minutes and then cleaned with water, or wiped with medical alcohol. It is recommended that the oxygen tube be replaced every 2 months. Note: The oxygen tube for personal use cannot be shared with others to prevent cross infection) Users can choose and match the registered standard oxygen tube by themselves.

V. Fuse: （5A ,220V ， ∅5X20）

When it is suspected or confirmed that the fuse is blown, the fuse can be removed for inspection and replacement.
Note: Because the humidifier the oxygen concentrators designed by the company, there is no suitable product on the market. If you need to replace it, please contact the distributor or our customer service.

Troubleshooting guide:

Trouble	Causes	Solution
The machine does not run when the switch is turned on, the indicator light does not light, and the display screen does not display.	1. The power plug is not correctly inserted into the power socket. 2. The power socket has no voltage output. 3. The action protection of the oxygen generator overload protector. 4. Machine breakdown.	1. Insert the power plug into the power socket correctly. 2. Check the power line. 3. Press the reset button of the overload protector. 4. Contact the distributor or manufacturer.
After turning on the switch, the display shows, but the compressor and fan have no response.	Compressor and fan leads are loose	Contact the distributor or manufacturer.
Unusual noise when the machine is running	1. The motherboard is damaged. 2. The solenoid valve is faulty. 3. The compressor safety valve is malfunctioning.	Contact the distributor or manufacturer.
The machine is running normally but the flow meter displays 0.	1. The flow meter is turned off. 2. The humidifier leaks. 3. The flow meter tube falls off or is damaged. 4. The pressure regulating valve is damaged.	1. Readjust the flowmeter knob. 2. Check and tighten the humidification bottle. 3.Contact the distributor or manufacturer. 4.Replace the pressure regulating valve （Contact the distributor or manufacturer.）.
The machine is running normally, but the required flow cannot be obtained.	1.The flowmeter knob is out of order. 2.The humidifier is blocked. 3.The nasal oxygen tube is bent or blocked.	1.Contact the distributor or manufacturer. 2. Remove the humidifier, if it reaches the normal flow, clean or replace the humidifier. 3. Remove the nasal oxygen tube, if the normal flow can be obtained, clean, correct the bend or replace the nasal oxygen tube.
The compressor repeatedly runs and stops during the normal operation of the machine	Power supply voltage is too low.	Use a multimeter to measure the power supply voltage, if it is lower than AC198V, please select a power supply regulator。

Symbols and meanings related to safety requirements in this machine:

Symbol	Implication	Symbol	Implication
~	Alternating current		Type B applied part
	Class II equipment	I	“ON” (power)
	“OFF” (power)	F	Fuse tube
	This way up		Fragile, handle with care
	Keep dry		Stacking layer limit
	Caution		

List of accessories:

First level filter	2
Nasal oxygen tube	1
Atomizer mouthpiece (SD-03/05W only)	1
Manual	1
Warranty card	1
Certificate	1

Appendix 1:
The relationship between outlet oxygen concentration and flow rate change (oxygen output 10L/min model)

rate of flow	1L	2L	3L	4L	5L	6L	7L	8L	9L	10L
outlet oxygen concentration (%)	94.0	93.55	93.5	93.45	94.5	93.8	93.6	93.0	91.2	90.2

Appendix 2:
Under different air pressure conditions, the change of oxygen concentration at rated flow

Altitude (m)	0	1000	2000	3000	4000
atmospheric pressure (KPa)	101.3	89.87	79.5	70.11	61.64
Oxygen concentration at rated flow (%)	93.00	80.0	71.25	64.0	55.68

Precautions:

1. Daily maintenance: If the secondary air intake filter inside the machine runs for 2000-3000 hours or the filter element becomes black, it should be replaced in time.

2. The air outlet cap on the transparent tube in the humidifier should be cleaned frequently to prevent clogging of scale from causing low flow or low oxygen concentration.

3. Common faults: After turning on the power, the yellow light flashes and alarms. This is a power failure alarm. You need to check whether the power supply has input or is in good contact.

E2 is displayed and the yellow light flashes after power-on. Check whether the voltage is too low.

4. If the oxygen generator is not used for a long time, it should be turned on and run for one hour a week to prevent the molecular sieve from being damp and causing the oxygen generation performance to drop.

Note: This device is not considered for life support or life extension!