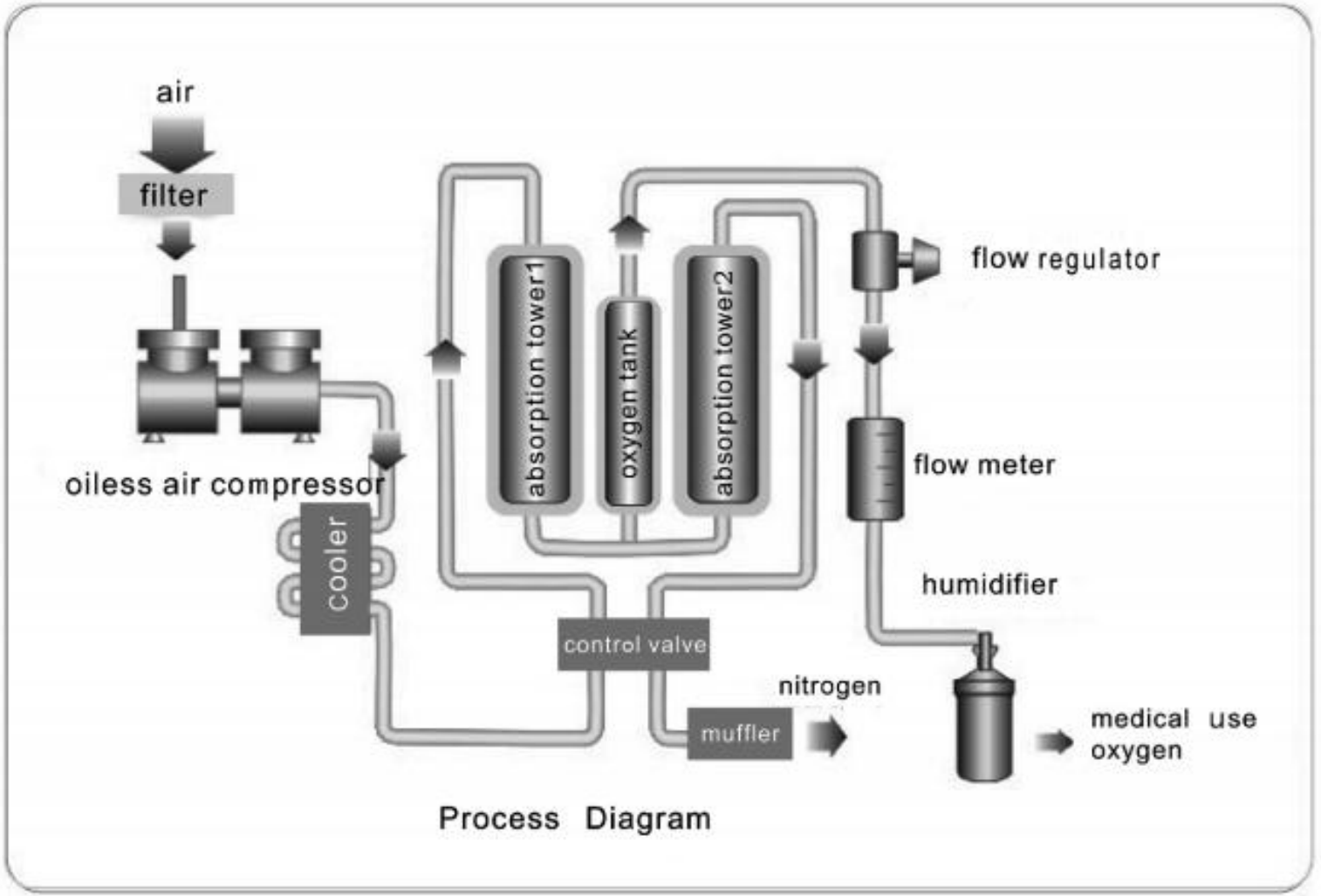
User's Manual for Oxygen Concentrator

Model: JAY-2

Important: Make sure you read all of the information in this manual before operating the oxygen concentrator



Process Diagram

Contents

Foreword

Thank you for purchasing our products, hoping you will be satisfied with our products. This operation manual contains function, operation steps, basic trouble solution and so on. To ensure your efficient use of the oxygen concentrator, please have a close read of this operation manual before operating it.

*Warning

Consult a doctor before using this machine.

*Safety Notice

1. This unit is not a life-support device , and in certain circumstances oxygen therapy can be hazardous, it is suggested that if any patient who needs oxygen treatment, please follow doctor's advice to choose the right flow and period for oxygen before using the oxygen concentrator.
2. If an oxygen inhaler develops or exhibits adverse reactions, stop using this machine immediately and contact the doctor and equipment supplier.
3. Because oxygen will help combustion, do not put the nasal oxygen tube under the bed cover or chair cushion. If no one is taking oxygen, turn off the power of the machine.
4. The oxygen concentrator should be kept away from open flames and sources of ignition. Smoking and open flames are strictly prohibited near oxygen inhalers.
5. Before wiping the casing of the oxygen generator, the power plug must be unplugged to prevent electric shock.
6. When the machine is turned on, do not open the front and rear chassis of the machine at will. If there is a quality problem, the customer is not allowed to disassemble and repair it without permission, and should contact the dealer or the manufacturer if any abnormal phenomenon such as alarm is found.

*Attention

1. When unpacking, please be sure to remove the bottom foam together to ensure smooth exhaust of the machine. The oxygen concentrator should be placed in a well-ventilated space to avoid contamination of the oxygen concentrator intake air.
2. When the oxygen concentrator is in use, it is necessary to ensure that the bottom exhaust is unobstructed, otherwise it will cause the machine to overheat.
3. The oxygen concentrator has intermittent exhaust sounds (about 13 seconds apart) when it is in use.
4. The time from start-up to the oxygen concentrator reaching the specified performance is less than 5 minutes.
5. Distilled water or cold boiled water should be added to the humidification bottle, and the amount should be between the minimum scale and the maximum scale line.
6. The supplied humidification bottle (REF-7600) should be used, and should not be replaced

arbitrarily, otherwise it may cause harm such as discomfort of oxygen absorption. The interface of the humidification bottle should be tightened to prevent oxygen leaks.

7. When the oxygen concentration indicator (OCSI) shows abnormal oxygen concentration, the user should declare to the dealer for maintenance.
8. The cleaning items of the oxygen concentrator are humidification bottle (REF-7600) and filter screen (GL-04);
The disinfection items are: humidification bottle.
See the table below for cleaning and disinfection requirements:

Part Name	Cleaning Cycle	Cleaning methods	Disinfection cycle	Disinfection method
Humidifier bottle	1 time every 3 days	Soak in vinegar 40ml. Brush, rinse with water	7 Days	Soak in 75% medical alcohol or 500mg/L chlorine-containing disinfectant (disinfectant tablet) for half an hour, rinse with clean water and dry
Filter cotton	Work 200 hours	rinse with water	---	---

9. When the flow adjustment knob is fully opened, but the flowmeter indicates zero, it must be turned off immediately and then check the fault.
10. The machine should not be turned on and off frequently: turn it off and turn it on again, and the interval should not be less than 5 minutes (that is, the gas in the machine must be completely discharged to prevent the air compressor from starting under pressure and affecting its life).
Before turning on the power, the flow regulating valve must be opened first.
11. If the oxygen generator will not be used for a few days, please pour out all the water in the humidification bottle and wipe the humidification bottle dry.
12. The oxygen suction tube and humidification bottle of the manufacturer's random type should be selected. If another type of oxygen suction tube or humidification bottle is used, ensure that it is tightly and reliably connected to the oxygen generator. The oxygen inhalation tube is only for personal use. After the oxygen inhalation tube is used up, it should not be discarded at will. The PVC material cannot degrade by itself in the natural environment, and must be classified and disposed of as medical waste to prevent environmental pollution.
13. This machine is strictly prohibited from contacting oil, grease and lubricant.
14. Graphics. Abbreviation Description: AC：Alternating current； VA：Power；

 ：Please refer to the instruction manual；  ：Electrical safety class Ⅱ；

 ：Electrical safety protection against electric shock type B；  ：Production Date；

 ：Manufacturing address；

IPX0：Enclosure protection class 0 without protection.

*The following precautions apply when atomizing

1. The manufacturer's recommended nebulizer model should be used: 6ml type nebulizer (nebulizer liquid does not exceed 6ml scale line). Otherwise, it may cause problems such as the inability to use the atomization function properly.
2. The atomizer can only be connected to the outlet of the atomizing gas source. When the atomization is not performed, the atomization switch knob must be turned off to ensure no air leakage.

*Contraindications

Without

*Product introduction

Medical molecular sieve oxygen concentrator series products adopt the principle of pressure swing adsorption (Pressure Swing Adsorption) to separate oxygen in the air from nitrogen and other gases. At room temperature, it can be continuously separated from the air when energized, which meets the medical oxygen standard. Its structure consists of an oxygen generator, a nasal oxygen tube and a humidification bottle. The oxygen production method is purely physical, with stable oxygen output, safety and reliability, low use cost and adjustable flow. The key parts of this machine are designed with anti-fatigue and anti-aging.

If the ambient air circulation of the medical molecular sieve oxygen generator is guaranteed to be normal, the use of this equipment will not affect the oxygen content in the indoor air.

*Product usage environment

（Includes Oxygen Concentration Status Indicator OCSI）

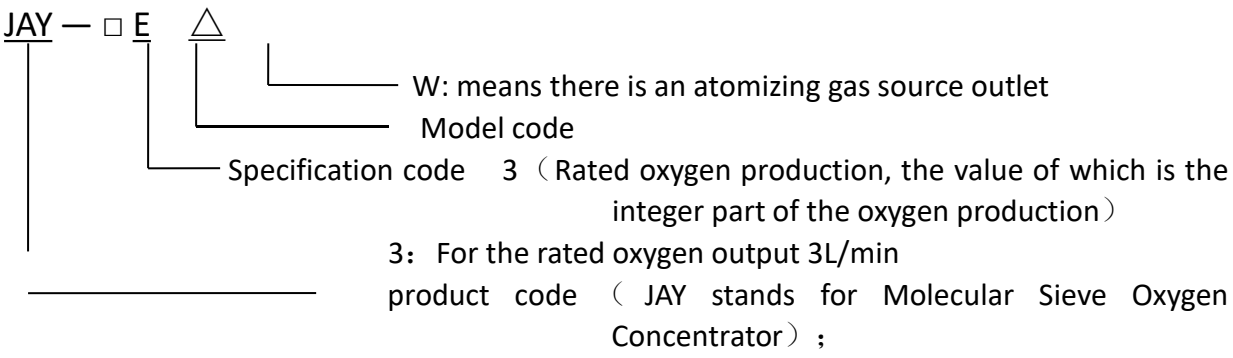
1. Environment temperature: 5℃-40℃
2. Relative Humidity: ≤80%
3. Atmospheric pressure: 700hPa-1060hPa
4. There is no corrosive gas and strong magnetic field in the surrounding environment.

*Purpose and scope of applicatio

Using air as raw material, the molecular sieve pressure swing adsorption process is used to produce oxygen with an oxygen concentration ranging from 90% to 96% (V/V) (93% oxygen for short).

*Technical parameters

Model Description



Such as: JAY-3EW: Indicates an oxygen concentrator with a rated oxygen output of 3L/min, with an outlet for atomizing gas source

Model	JAY-2
Rated power（VA）	280
Working voltage（V/Hz）	AC110V 60Hz
flow（L/min）	0.125-2
Oxygen Concentration（V/V）	93%±3%
Outlet pressure（MPa）	0.04-0.07
Alarm	Power failure alarm; high and low pressure alarm; low oxygen concentration alarm
Noise (dB)	≤40
LCD display	Operating pressure; temperature inside the machine; current working time; cumulative working time; timing
Electrical classification	Class II type B
Product classification	Class II
Net weight (Kg)	10
Size (mm)	215*335*450
Atomization outlet	Outlet pressure≥0.08Mpa Compressed gas flow＞10L
Oxygen concentration alarm	When the oxygen concentration is greater than or equal to 82%, the blue indicator light is on; When the oxygen concentration is lower than 82%, the red

	indicator light is on (error ±3%)
Overload protector（A）	5
Compressor safety valve relieves pressure（Kpa）	250
Humidifier bottle pressure valve relieves pressure（Kpa）	41

***Structures and Functions**

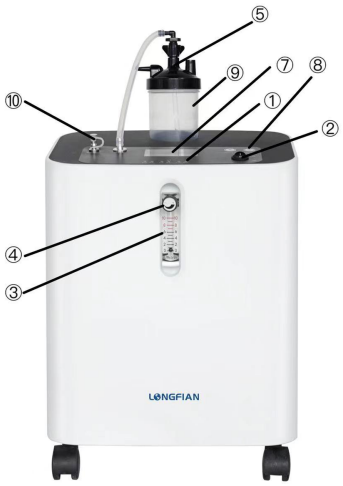


Figure 1

Figure 2

1.Indicating Lamp

Total 6 indicating lamps and their indication for each model are as follows:
a. P.O.: power switch (green lamp)
b. P.F.: power failure(red lamp)
c. L.P.: low pressure(yellow lamp)
d. H.P.: high pressure / high temperature
When the operating temperature inside the machine reaches 50℃, the red indicator light is always on and there is a continuous alarm sound, and the current temperature in the machine is displayed on the LCD screen at the same time.
e. H.O2 : oxygen purity is≥85%, (blue lamp)(Accuracy:±3%)
f. L.O2 .:oxygen purity is < 85%,(red lamp)(Accuracy:±3%)

2.Power switch

3.Oxygen flow meter

The location of float in the oxygen flow meter shows the outlet oxygen flow (L/min.).

4.Knob of oxygen flow meter switch

It adjusts and controls the outlet oxygen flow.
Do not Switch it over-forced, or else it is easy to damage the valve core. Switch it counterclockwise to turn on, clockwise to turn off.

5.Outlet for Humidifier

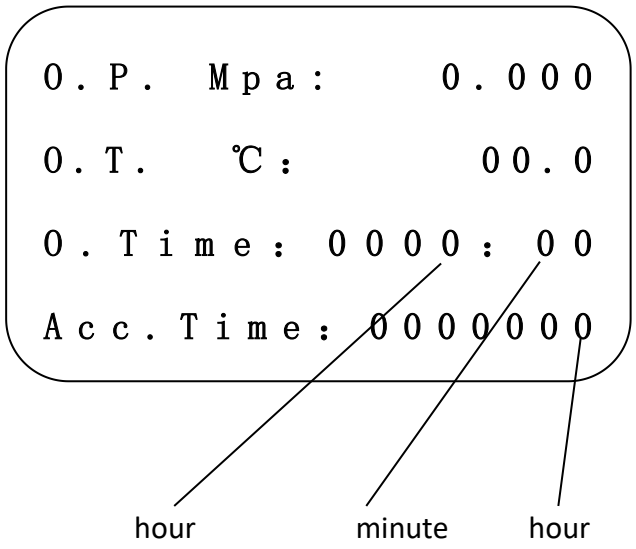
6.Intake air filter

For replacement, you need to use the special accessories for this machine

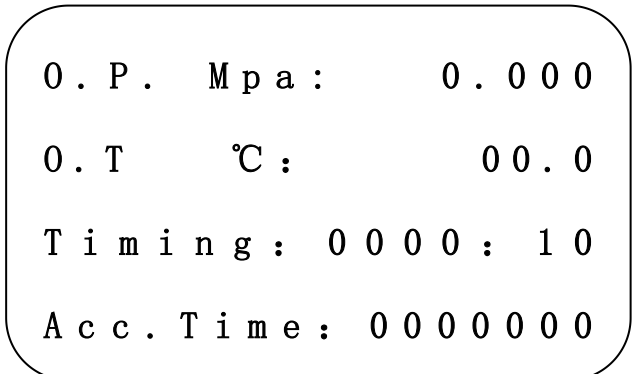
7.LCD display(Liquid crystal display)

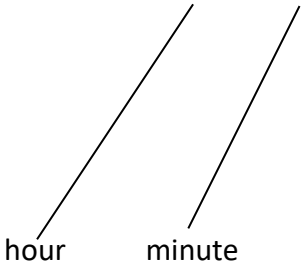
After powering on, the LCD screen will be on for 1 minute and then enter the screen saver mode. If you press the "▽" key while the machine is running, the LCD screen will light up again for 1 minute.

Interface 1:



Interface 2:





8.Timing buttons

As shown in Figure 1: "△"."▽" These two keys are used for timing.
The two buttons are used for timing adjustment, and each press of the left button(△) will increase timing by 10min, the max timing is 40 hours. And each press of the right button(▽) will decrease timing by 10min. When the right button(▽) is pressed to reduce timing till “0”, the oxygen concentrator will turn off automatically.

9.Humidifier

Humidifier which is used for humidifying oxygen and preventing throat and nasal mucosa stimulated by dry oxygen and dry hard sputum difficult to spit out.

10.Knob of Atomizer switch (optional)

11.Rating label

12. power cable

13. Overload protector

Figure 3

*Operation instructions

1. Unscrew the flask from the humidifier in clockwise direction, pour in proper distilled water or cold boiled water within the scale between the max line and the min line, then re-connect the top cover to the humidifier bottle.

2. Turn on the power supply, insert the power cord plug into the indoor power outlet, and turn on the power switch.

As shown in Figure 4.

Figure 4

3. To set the flow of supplemental oxygen,
turn the knob of oxygen flow meter switch left
or right until the ball inside the flowmeter centers
on the flow line number recommended
oxygen absorbing flow.(counterclockwise—on, clockwise—off).
As shown in Figure 5.

Figure 5

4. Connect the nasal oxygen canula to
the humidifier outlet nozzle.
Then set the nasal oxygen cannula over
patient's ears, insert the nasal oxygen cannula into
patient's nostrils to absorb oxygen;
The nasal oxygen canula should be
limited to 20 meters long, in order to
ensure that the oxygen flow rate remains
within specification values.
The best absorbing time for health care
keeps 40-50 minutes per time,
absorbing time for medical treatment shall
be followed doctor's advice.
As shown in Figure 6.

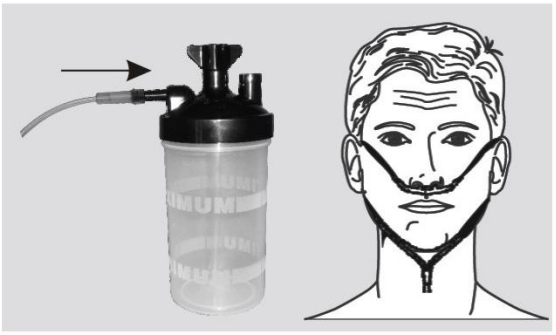


Figure 6

5. When the oxygen inhalation is completed,
turn off the power and unplug the nasal oxygen tube
from the humidification bottle.
Prevent humidification caused by the
nasal oxygen tube not being pulled out after the shutdown
and the bending of the nasal oxygen tube
The water in the bottle flows back into the machine,
causing the machine to malfunction.
When not in continuous use, please unplug the power plug.
As shown in Figure 7.

Figure 7

6. If you need to inhale oxygen regularly, please refer to the instructions for use of the timing key at point 8 on page 7.

7. Oxygen concentration alarm function:
The oxygen concentration will rise to the normal level in five minutes of operation.
When oxygen purity is ≥85%, the blue lamp is on;
When oxygen purity is <85%, red lamp is on for audible alarm, indicating low purity.

8. Power failure alarm: In case of a loss of mains power or when the power cord is not plugged into the wall outlet, an audible alarm is activated with red indicator on.
Please check whether the power connection part is in good contact or whether the external power supply has a power supply.

9. Atomization gas source outlet description:
1) The atomization function of the company's products only provides the outlet of the atomization gas source.
2) The nebulizer is recommended to use a 6ml type nebulizer.
3) Please refer to the user manual of the atomizer for the usage of the atomizer.

*Maintenance Instructions

1.In the condition of power off, make a clean for the outside body by soft towel with little mild household cleaner , and then wipe it up with dry towel, once or twice per month.
As shown in Figure 8.

unplug

Figure 8

2. Clean the air intake filter every 200 hours according to the accumulated time displayed on the LCD screen.
It is a critical step for daily maintenance to clean intake air filter.
Detail steps: Remove the filter on the rear side of the case, clean them with mild household cleaner and clean it with clean water completely, get ride of extra water and dry up naturally,

finally set back after dry up, as shown in Figure 9.

Figure 9

3. Replace the GVS air intake filter every 2000 hours according to the accumulated time displayed on the LCD screen.
Specific method: Remove the air intake filter, pull out the GVS air intake filter, and re-install a new one. As shown in Figure 9

4.The upper cap of the humidifier bottle must be tightened, otherwise the air leakage will reduce the oxygen concentration.

5.The control panel and compressor require maintenance every 3 years.

6.The on-board battery of the medical molecular sieve oxygen ceoncentrator adopts a 3.6V/40mAh Ni-MH rechargeable battery, which is welded on the control board. The control board is designed with a current-limiting charging circuit, which can be used for a long time. If the oxygen ceoncentrator is not used for a long time, the rechargeable battery will automatically enter a "sleep state" after being stored for several months, and the battery life will be greatly reduced. Therefore, if the oxygen ceoncentrator is not used for a long time, please turn it on once a month to charge the battery.

7. If the user needs maintenance information such as circuit diagram, component list, legend, calibration details, etc., the manufacturer will provide the required data that can be provided. The software version used in the control system of this product is 2.0.

*Electromagnetic Compatibility Information

1、This chapter contains special notes on electromagnetic compatibility. The medical molecular sieve oxygen concentrator should be installed and used according to the electromagnetic compatibility information in this chapter.

2、Portable and mobile radio frequency communication equipment may affect the use of JAY

medical molecular sieve oxygen concentrator. When using the medical molecular sieve oxygen concentrator normally, it is recommended to keep away from portable and mobile radio frequency communication equipment or keep it in a closed state.

3、The connection cable provided by our company must be used. Cable specification: length 1.8 meters, wire diameter 2*0.75mm2, unshielded wire.

4、Warning: In addition to the accessories provided by our company, the use of other accessories from the manufacturer may lead to an increase in the emission of the medical molecular sieve oxygen concentrator or a decrease in the immunity.

Product composition：

Serial Number	Part Name	Model
1	Oxygen concentrator host	Refer to the technical data sheet
2	Humidifier	REF7600

5、See sheet 1.

6、The medical molecular sieve oxygen ceoncentrator should not be used close to or stacked with other equipment with the same or similar working frequency. If it must be used close to or stacked, it should be observed and verified that it can operate normally in the configuration it is used in.

7、See sheet 2.

8、The basic performance is: the product can generate oxygen and supply oxygen continuously.

9、See sheet 3 and sheet 4.

10、In order to ensure that the medical molecular sieve oxygen concentrator can be used normally and ensure that its emission is not increased and its immunity is not reduced, please use the connecting cables and related accessories provided by our company.

11、The use of unspecified accessories, transducers or cables with the medical molecular sieve oxygen concentrator may result in increased emissions or decreased immunity of the device or system.

Sheet 1

Guidelines and Manufacturer's Statement - Electromagnetic Emissions		
The medical molecular sieve oxygen generator is expected to be used in the following electromagnetic environment, and the purchaser or user should ensure that it is used in this electromagnetic environment:		
Launch test	Conform Properties	Electromagnetic Environment - Guidelines
RF emission GB 4824	Team 1	Medical molecular sieve oxygen concentrator use RF energy only for their internal functions. As a result, its RF emissions are low and the potential for interference to nearby electronic equipment is low.
RF emission GB 4824	Class B	The Medical Molecular Sieve Oxygen Concentrator is suitable for use in all facilities, both domestic and directly connected to the residential public low voltage supply network for domestic use.
Harmonic emission GB 17625.1	Class A	
Voltage fluctuation/ Flicker emission GB 17625.2	Accord	

Sheet 2

Guidance and manufacturer's declaration – electromagnetic immunity			
The JAY-3EW is intended for use in the electromagnetic environment specified below. The customer or the user of the JAY-3EW should assure that it is used in such an environment.			
IMMUNITY test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment –guidance**
Electrostatic discharge GB/T 17626.2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst GB/T 17626.4	±2 KV for power supply lines ±1 KV for input/output Lines	±2 KV for power supply lines ——	Mains power quality should be that of a typical commercial or hospital environment.

Surge GB/T 17626.5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ——	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines GB/T 17626.11	<5 % UT (>95 % dip in UT) for 0,5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 s	<5 % UT (>95 % dip in UT) for 0,5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles <5 % UT (>95 % dip in UT) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the JAY-3EW requires continued operation during power mains interruptions, it is recommended that theJAY-3EW be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field GB/T 17626.8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: UT refers to the AC mains voltage before applying the test voltage.			

Sheet 3

Guidance and manufacturer's declaration – electromagnetic immunity			
The JAY-3EW is intended for use in the electromagnetic environment specified below. The customer or the user of the JAY-3EW should assure that it is used in such an electromagnetic environment.			
IMMUNITY test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment –guidance**
Conducted RF GB/T 17626.6 Radiated RF GB/T 17626.3	3 V 0.15MHz - 80 MHz 3 V/m 80 MHz to 2.7 GHz	3 V 0.15MHz - 80 MHz 3 V/m 80 MHz to 2.7 GHz	Portable and mobile RF communications equipment should be used no closer to any part of the JAY- 3EW, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** d = 1.2 $\sqrt{P}$ d = 1.2 $\sqrt{P}$ 80 MHz～800 MHz d = 2.3 $\sqrt{P}$ 800 MHz～2.5GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,a should be less than the compliance level in each frequency range.b Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is			

affected by absorption and reflection from structures, objects and people.
Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the JAY-3EW is used exceeds the applicable RF compliance level above, the JAY-3EW should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the JAY-3EW. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Sheet 4

Recommended separation distances between portable and mobile RF communications equipment and the JAY-3EW			
The JAY-3EW is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the JAY-3EW can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the JAY-3EW as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	**Separation distance according to frequency of transmitterm**		
	150 kHz～80 MHz **d = 1.2** $\sqrt{P}$	**80 MHz～800MHz** **d = 1.2** $\sqrt{P}$	**800 MHz～2.5GHz** **d =2.3** $\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

*Troubleshooting

Number	Fault Phenomenon	Cause	Method of Exclusion
1	Does not work after power on	1. The oxygen generator circuit and the power supply are not connected 2. Fuse open 3.Damaged compressor capacitor 4.Compressor failure	1. Check switches, plugs, sockets, and power cords 2. Replace the fuse and check the cause 3. Replace the starting capacitor 4. Replace the compressor
2	No oxygen or little oxygen output	1. Discounted internal oxygen delivery hose, poor air outlet 2. The filter is clogged and the air intake is not smooth 3. The humidification bottle cap is not closed properly, and the air leaks	1. Reconnect the oxygen hose 2. Clean filter 3. Remove the bottle cap, screw the bottle cap back on, and turn it on,block the air outlet with your thumb and wet the bottle after about 5 seconds. There should be a whistle sound (the safety valve of the humidification bottle is opened)
3	No exhaust sound	1. Solenoid valve not working 2. The circuit board does not work	1. Replace the solenoid valve 2. Replace the circuit board
4	Exhaust sound is too loud	1. Exhaust muffler connector fell off 2. Damaged exhaust muffler	1. Reconnect the connector 2. Replace the exhaust muffler

*Shipping and Storage Conditions

Environment temperature scale: -40~55℃
Comparative humidity scale: ≤95%
Air pressure scale: 700 –1060 hpa

*Random spare parts

1.Intake air filter (part number:GL-01)
2.nasal cannula（XBYG (Double hole) LP）
3.humidification bottle

*Quality Warranty

1.See the label on the rear of the oxygen generator for the production date
2.Warranty for whole unit: 15 months（Follow the instructions for normal maintenance）
3.Main component lifespan：a）compressor：5 years；b)Molecular sieve：5 years

Appendix 1: Inhaled oxygen concentration and flow relationship table

Because nasal oxygen inhalation is an open oxygen inhalation, that is, when a person inhales a breath, some air (21% oxygen concentration) will be inhaled next to it, and the oxygen concentration that actually reaches the lungs is the oxygen concentration after mixing air, that is It is the inhaled oxygen concentration, and the oxygen concentration below 25% is similar to the oxygen content in the air, that is, the inhalation of oxygen below 1L/min has no therapeutic value. In the process of oxygen care, great attention should be paid to oxygen concentration and oxygen flow.

The following table shows the relationship between the inspired oxygen concentration and the flow rate (taking the oxygen output 5 L/min model as an example):

flow rate（L/min）	0L	1L	2L	3L	4L	5L
Inhaled oxygen concentration（%）	21	24.44	27.88	31.32	34.76	38.2

The following table shows the relationship between the outlet oxygen concentration and the flow rate (taking the oxygen output 5 L/min model as an example):

flow rate（L/min）	0L	1L	2L	2.5L	3L	4L	5L
Outlet oxygen concentration（%）	21	92.95	94.00	95.20	94.20	94.16	93.84

Note: When the flow rate is 0L/min, the outlet pressure is 0Kpa.

Appendix 2: Under different air pressure,Oxygen Concentration Variation Table with Flow Rate

At sea level, the pressure formed by air per square centimeter is 101.3KPa, and oxygen accounts for 20.40% in dry air, so the partial pressure of oxygen is 21.15KPa. The proportion of

oxygen in the air is basically not affected by the plateau. When the atmospheric pressure decreases due to the increase of altitude, the partial pressure of oxygen decreases proportionally.

The following table shows the change of oxygen concentration with flow under different air pressure conditions:：

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 (V/V）	90.00	79.85	70.63	62.29	54.76

Appendix 3: Oxygen concentrator wiring diagram