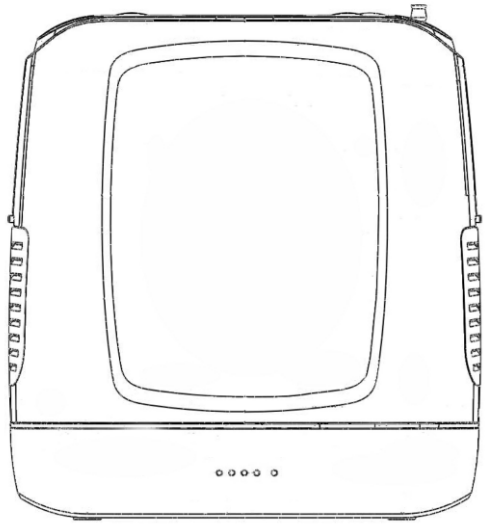
RESPIRCARE



RESPIRCARE Portable Medical

Oxygen Concentrators

PO3 | PO4 | PO5 | PO3SE | PO4SE | PO5SE

User Manual

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Introduction

Thank you for purchasing PO Series Portable Medical Oxygen Concentrator from Shenyang RespirCare Medical Tech Co., Ltd. RespirCare Portable Medical Oxygen Concentrator is developed based on the principle of Pressure Swing Adsorption, adsorbing nitrogen, etc. through zeolite molecular sieve from air (without additives) to obtain the oxygen-enriched gas (93 ± 3%). The service life of this product is 5 years. See the product label for the manufacturing date.

Before using this product, please read and understand all the contents of this manual carefully to understand the correct method of use, so as to use this product safely and effectively. For easy access to this manual at any time, please keep it after reading.

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1. Symbols

Symbols	Description	Symbols	Description
	No smoking		No open flames
	Do Not disassemble		Protection against oil and grease
	Temperature limits		Humidity limits
	Class II, protection against electric shock		Non-ionizing electromagnetic radiation
	Consult instructions for use		Deliver to an appropriate facility when discarding
	Consult accompanying documents before use		Protect from rain and keep the device and accessories dry
CE 0197	Made in compliance with 93/42/EEC Directive	EC REP	European authorized representative
	Manufacturer (name and address)	SN	Serial number
	Type BF		Date of manufacture
IP 21	Degree of ingress protection Protected against a solid ⩾12.5 mm in diameter. Protected against vertically falling drops of water.		Attention! Consult accompanying documents
	This side up		Fragile, handle with care
	Recyclable	EN 60601-1	Made in compliance with IEC60601-1
	Alarm		Audio pause

	Start/Stop button		Settings button
	Gear+/Move/Page turn button		Gear-/Move/Page turn/ Backup continuous oxygen supply function switch button
	Battery level icon		External power status icon
	Pulse trigger icon		The running time of this boot-up
	Back-up continuous oxygen supply function icon		

2. Warnings and Precautions

Before using this device, please read all the contents of the manual carefully to avoid personal injury and property loss caused by improper operation.

SERIOUS WARNING

1.There is a risk of fire associated with oxygen enrichment during oxygen therapy. Do not use the oxygen concentrator or accessories near sparks or open flames;

Smoking during oxygen therapy is dangerous and is likely to result in facial burns or death. Do not allow smoking or open flames within the same room as the oxygen concentrator or any oxygen-carrying accessories. If you smoke, you must always turn the oxygen concentrator off, remove the cannula and leave the room where either the cannula or mask or the oxygen concentrator is located. If unable to leave the room, you must wait 10 minutes after you have turned the oxygen concentrator off;

Open flames during oxygen therapy are dangerous and are likely to result in fire or death. Do not allow open flames within 2 m of the oxygen concentrator or any oxygen-carrying accessories.

Oxygen makes it easier for a fire to start and spread. Do not leave the nasal cannula or mask on bed coverings or chair cushions, if the oxygen concentrator is turned on, but not in use; the oxygen will make the materials more flammable. Turn the oxygen concentrator off when not in use to prevent oxygen enrichment.

It is strictly prohibited to use the device in spaces with flammable gases and dusts.

It is strictly prohibited to place the medical nasal cannula near the combustibles such as bedding and curtains.

Use only water-based lotions or salves that are oxygen-compatible before and during oxygen therapy. Never use petroleum-based or oil-based lotions or salves to avoid the risk of fire and burns;

Do not lubricate fittings, connections, tubing, or other accessories of the oxygen concentrator to avoid the risk of fire and burns.;

Use only spare parts recommended by the manufacturer to ensure proper function and to avoid the risk of fire and burns.

2.This device is not intended for use as a life-supporting or life-sustaining device and is not intended for use on newborns and infants.

Please use this product according to the intended use specified in Instructions for Use.

The intended service life of this product is 5 years. The service life depends on the service environment and later maintenance; The harsh service environment will shorten the service life of the device.

When the device is used on the elderly, children or other patients who are unable to express their physical discomfort on their own, designated person must be assigned for monitoring the device.

Patients with hearing or visual impairments need caregivers to help monitor alarms.

The pulse gears must be set according to the needs of each patient, for example, different settings may be required during rest, exercise and travel.

For the effectiveness of treatment, the oxygenator's functions and binning adaptations are periodically reevaluated.

If you feel unwell during treatment or experience a medical emergency, seek medical care or medical attention immediately.

3.Electric shock hazard.

Before cleaning, be sure that the device is turned off and disconnected from the power socket.

Only the equipment vendor or qualified maintenance engineers can disassemble or maintain the machine.

Protect the device from water ingress, which would result in failure or shutdown of the device and an increased risk of electric shock.

4.Do NOT wipe the device using corrosive liquids.

The use of chemical detergents on the plastic housing of device may cause damage to the plastic housing, and these detergents include but are not limited to the following: highly concentrated chlorinated solutions (chloroethane), solutions of oil products, etc. Clean the device body, control panel and power cord only with a wet cotton cloth or a sponge soaked with a neutral household cleaner, and then wipe dry the sites cleaned. Be careful to avoid fluids entering into the device. Take special care to ensure that the oxygen outlet is free of dust, water, or other granular matters.

5.The device should not be used in close proximity to or stacked on other equipment. If this is unavoidable, it is necessary to observe whether the device can operate properly before use.

This device may not be modified or disassembled at will, and any alteration to the device may impair performance or damage the device and void your warranty.

The use of power cords and power adapters other than the ones from the original packing may cause a safety hazard(s) or damage the performance (s) of the device.

Use only the voltage specified on the device label.

Do not use an extension cord or put too many plugs into the same socket. Extending the power cord may affect the operation performance of the device. Too many plugs in the same socket may cause overload and blow the fuse. If the fuse does not work, it may even cause a fire.

6.Operating in an environment other than the operating specification of the device may cause the oxygen concentration out of the device fail to meet the standard.

An elevation of more than 1848 Å or a temperature of more than 40 ° C or relative humidity of more than 93% will affect the flow rate and oxygen content, and further affect the quality of treatment.

7.Improper use of batteries may cause the batteries hot and burn, which may lead to serious injury.

Be sure not to puncture, hit, tread or bump the battery, and avoid any other collision that could have a significant impact on the battery. Use of damaged batteries may result in injury.

Do not expose the battery to a source of ignition or throw it into a fire, as this may cause the battery to explode, resulting in a potential risk of personal injury.

Do not short-circuit a battery with metal object such as a key, a coin, which may give off sparks or a lot of heat.

8.Contraindications for use:

Under certain circumstances where the use of over-the-counter oxygen can be hazardous, the device should be used with the guidance of a physician.

Do not use the device in the environment of flammable anesthetic gas.

As an electrical device, when the power supply is temporarily interrupted or exhausted, the device may stop working. The device is not intended for use on patients who have adverse health consequences as a result of temporary shutdown of the device.

9.When used on a vehicle, the device should be properly secured to prevent damage to the device or injury to personnel.

In case of falling, damage or water ingress, etc., contact the supplier for inspection or repair.

Do NOT use damaged power cords or plugs.

10.Do NOT expose the device to rain or snow. Do NOT operate the device in rain, as this may cause electric shock and damage to the device.

Please do not use this product in an environment with high temperature and high humidity (such as an unmanned car with high temperature or a bathroom with high humidity), so as to avoid damage to the device.

When the unit is not in use, the power plug must be unplugged.

11.The maximum flow rate of the backup continuous oxygen supply function is 0.66, 0.88 and 1 L/min, respectively. The user should make selection according to the doctor's advice. Users with severe hypoxia or need high flow oxygen inhalation should use it with caution.

12.During the continuous oxygen supply, if there is user's spontaneous breathing, the device provides in pulse mode.

WARNING

1.Place the device correctly.

a)Avoid fumes and contaminants as far as possible when using the device.

b)Please ensure that the power cord and oxygen circuit of the device are not kinked.

c)Do not use the device in small spaces or in restricted spaces with poor ventilation (e.g. Small cartons, handbags) as this may cause overheating of the device and hinder the oxygen supply.

d)Pay attention to checking whether the air inlet and exhaust gas outlet of the device are blocked. Do not plug anything into the hole of the device.

e)When using the device on an automobile, ship or other vehicle with DC power supply, ensure that the power supply system of the vehicle is activated before connecting the device. Make sure the DC power indicator light is on; if not, first disconnect the DC power supply, restart the power supply system of the vehicle, and then re-connect, or you will not succeed in powering the device.

2.We recommend that the user prepare an alternative oxygen storage device in case the device shuts down due to power failure or mechanical failure.

a)Consult your physician to select your alternate oxygen source.

b)It is very important to select the prescribed oxygen flow rate, which should not be changed, unless recommended by a qualified physician.

c)If you need to use the device during sleep, consult a qualified physician first for any consideration.

3.If the device is long stored at non-standard operating temperature, it is necessary to allow the device temperature to return to normal operating temperature before using. (Refer to Specifications section of the manual)

a)Running or storing at non-standard operating temperature may affect the performance of the device, impacting the endurance of the battery and increasing the charging time. (Refer to Specifications section of the manual)

b)Please store the device and the backup battery (optional) at a dry and cool place to maximize the life span of the battery. Long exposure to high temperature/overcharging/over discharging will shorten the battery life. Do not disassemble the battery; there are no inner parts that can be repaired anyway. Keep battery out of the reach of children.

c)Only batteries supplied by the manufacturer can be used. The discarded batteries should be disposed following local regulations.

4.Please refer to the Troubleshooting section of the manual when the device alarms or is observed to be running poorly. If you are unable to resolve the problem, please contact the device supplier.

For failure that has no solution in the Troubleshooting, do not attempt to repair. Do not disassemble the housing, and contact the equipment supplier or qualified service personnel to disassemble the unit for repair.

CAUTION

1.Be sure that the nasal cannula is properly installed so that the device can detect breath and deliver pulse oxygen correctly.

a)With a correct insertion, the oxygen can be heard or felt flowing into the nasal cannula when breathing in.

b)Please use the nasal cannula as per the manufacturer's instructions for use. When needing to replace the nasal cannula, please refer to the advice of the manufacturer or the equipment supplier, and you may buy other accessories from the equipment supplier.

c)Please use the nasal cannula as per the manufacturer's instructions for use. When needing to replace the nasal cannula, please refer to the advice of the manufacturer or the equipment supplier, and you may buy other accessories from the equipment supplier.

2.Accessories of the device purchased by yourselves that are not within the specification may affect the performance of the device. It is recommended to refer to the manual to purchase accessories. Incompatible parts or accessories can lead to performance degradation.

3.Do not run the device without an inlet filter.

a)If any suitable filter is available, install the filter before running the device.

b)Device sterilization is not recommended by the manufacturer.

4.Please pay attention to the warranty and follow the manufacturer's instructions.

5.In light of the fact that most electrical appliances are susceptible to radio frequency interference, the device may also be influenced by portable and mobile RF devices in the vicinity.

6.To ensure the efficacy of oxygen therapy, the device must be used at a specific activity level of the patient; otherwise, the pulse may not be triggered.

7.Below or beyond the recommended respiratory rate, temperature, and humidity range may affect the user's effective inspired oxygen concentration.

8.To ensure receiving the therapeutic amount of oxygen delivery according to your medical condition PO3/PO4/PO5/PO3SE/PO4SE/PO5SE must:

a)be used with settings that have been individually determined or prescribed for you at your activity levels with your accessories.

b)be used with the specific combination of parts and accessories that are in line with the specification of the concentrator or accessory manufacturer.

9.Please note that electric wires or disposable nasal oxygen tubes may cause tripping or strangulation, and it is prohibited to wrap electric wires or disposable nasal oxygen tubes around the neck.

10.Please place the equipment away from heat sources and pollutants, such as fireplaces, electric kettles, etc. The equipment shall be at least 10cm away from walls, tapestries, furniture, and the like.

11. Do not use this device while taking a shower. If the patient needs continuous use, the oxygen generator must be placed at least 2.0M away from the bathroom.

12. Do not touch the oxygen generator when your body is wet. Do not use or store the oxygen generator near water or other easily conductive liquids.

13. It is strictly prohibited to block the inlet/outlet ports of the oxygen generator or place the machine on a soft surface, such as a sofa or bed, which can cause blockage of the inlet/outlet ports. The inlet/outlet ports should be kept away from plush, hair, or other similar objects.

14. This equipment and optional accessories do not contain natural rubber latex components.

PRECAUTIONS ABOUT BATTERY

1.For all batteries supplied with the device:

a)Please use the battery provided by the equipment manufacturer; and contact the equipment manufacturer for any replacement.

b)Improper use may result in battery overheating, burning and even injury to the user.

c)Be sure not to puncture, hit, tread or bump the battery, and avoid any other collision that could have a significant impact on the battery.

d)It is unnecessary to fully discharge the battery before recharging. It is recommended to charge the battery every time after use.

e)Fully charged/discharged at a high temperature is likely to permanently undermine the peak capacity of lithium batteries.

f)For proper battery maintenance, it is recommended to keep the battery at 20% - 50% and place it in an environment at 23℃ ± 2℃.

g)When the device remains inactivated for a long period, please take out the battery. The removed battery should be handled carefully to protect the electrode against contact with metal conductors to avoid dangers like fire.

h)Keep the battery out of the reach of children.

2.For the device supplied with batteries:

I)Whenever the device (on/off) is connected with the adapter power supply, charging begins until the battery is fully charged.

j)However, power adapter plug-in when the device is running will trigger trickle charging mode automatically, charging the battery at a slow rate.

3. Medical Information

►Intended use: This product is used to produce oxygen-enriched gas (93% oxygen) and is suitable for patients who need high-concentration oxygen. This device is suitable for use at home, institution, and during trip/transfer. This product is not intended for life support. The backup continuous oxygen supply function of this product is not suitable for severely hypoxic users.

►Contraindications:

·Contraindicated in patients with severe carbon monoxide poisoning.

·This device is contraindicated in patients with oxygen intoxication or oxygen allergy.

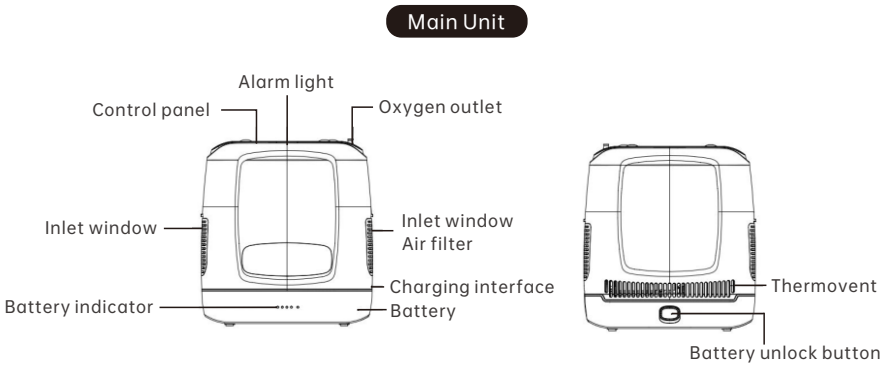
·This device is not intended for life-supporting or life-sustaining treatment.

·This device is not intended for use in newborns or infants.

►This product is designed to be used at home, institution and during trip/transfer by properly trained qualified personnel under the direction of a physician and within the technical specifications.

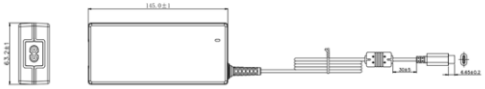
4. Introduction of Device

4.1 Device Composition



Power adapter (with power cord)

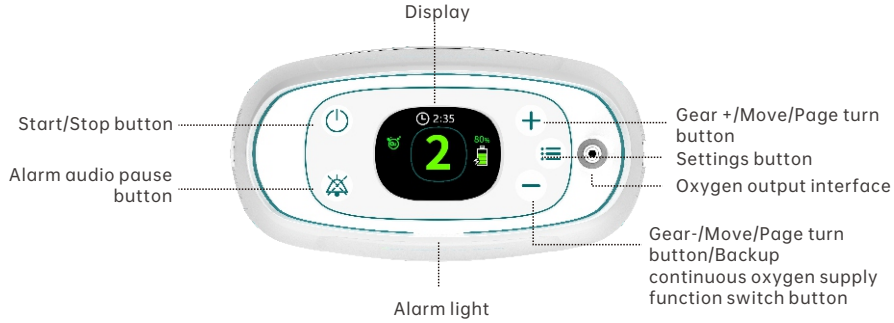
Model: DA-100B19-AAAC
Input: 100~240V~,
50-60Hz, 1.5-0.75A
Output: 19V = 5.26A



● Please use the power adapter provided by the equipment manufacturer; and contact the equipment manufacturer for any replacement.

4.2 Operation Panel Introduction

► Control Panel



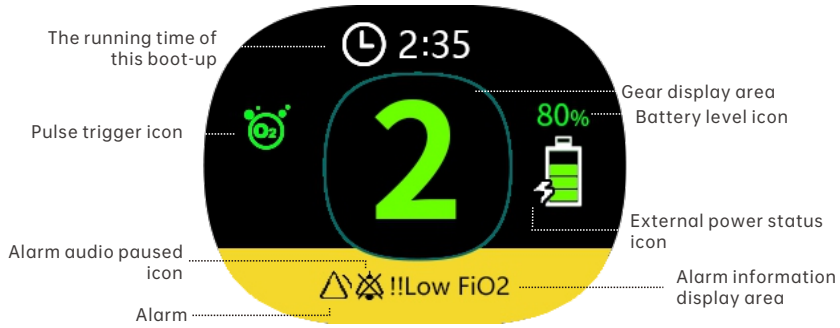
Introduction to Control Panel Functions

S. N.	Name	Functional Specification
1	Start/Stop button	When the device is off, it will be turned on after press and hold; When the device is running, the device will be shut down after press and hold;
2	Display	Display running status of the device and set page and alarm and other information;
3	Gear +/Move/Select/Page turn button	In the main interface, press + to add running gears; In the main interface, simultaneously press + and − to enter the alarm log viewing interface; In the setting page, the + has the function of moving/selecting/page turning; In the alarm log viewing interface, press + for page turning;
4	Gear-/Move/Select/Page turn button/Backup continuous oxygen supply function switch button	In the main interface, press − to remove running gears; In the main interface, press − and hold for 3 s to switch between "Back-up pulse oxygen supply function" and "Back-up continuous oxygen supply function"; In the setting interface, the − has the function of moving/selecting/turning page; In the alarm log viewing interface, press − for page turning;
5	Settings button	In the main interface, press to enter the setting interface; In the setting interface, press to select/exit the setting menu; press and hold to return to the main interface;
6	Oxygen output interface	Oxygen output interface of the device;
7	Alarm indicator	When the device alarms, the alarm indicator light is on;
8	Alarm audio pause button	When an alarm occurs, press , and the alarm audio will pause for 2 minutes, and the alarm and alarm audio pause icon will be displayed on the display at the same time.

(Note: Use the Alarm Audio Pause button with caution, as it mutes the basic audio signal associated with the device status)

(Note: For reference only, as the arrangement of the control panel may vary with situations related to alarm, alarm audio pause status, fault and gear levels, and the actual display content shall be subject to the running status of the device.)

▶ Main Interface of Display



S. N.	Name	Functional Specification
1	The running time of this boot-up	Display the accumulated operation time of the device this time;
2	Pulse trigger Icon	Gives off a flicker when the breath triggers the pulse. For the user's automatic triggering, the icon will turn green; for the backup automatic pulse triggering of the device, the icon will turn yellow;
3	Gear display area	Display the gear of the device running;
4	Battery level icon	Display the battery level;
5	External power status icon	When the device is connected to an external adapter and the power is switched on, the icon will appear;
6	Alarm icon	When the device alarm occurs, the icon will appear;
7	Alarm audio paused icon	Turn on the alarm audio pause button to enter the alarm audio pause status, disable the audible alarm signal during this period, and resume the alarm audio status two minutes later;
8	Alarm information display area	Display the alarm status and prompt information of the device;

(Note: The above descriptions are for reference only, as the arrangement of the display screen may vary with situations related to alarm, mute, fault and gear levels, and the actual layout shall be subject to the operating status of the device.)

▶Display Setting Interface

Interface operation logic	1 Press the gears + and - to move up and down;
	2 Press the setting button to enter the selected state;
	3 Press the gears + and - to select the setting content;
	4 Press the setting button again to exit the selected state;
	5 Press the setting button and hold to automatically save the setting information for returning, returning to the main interface;

Option	Language settings	Language can be set
	Screen brightness	6 brightness are available: dimming 1, dimming 2, dimming 3, constant lighting 1, constant lighting 2, constant lighting 3; (brightness from largest to smallest for "1-3")
	Volume	5 gears are available: 1-5; (volume from largest to smallest for "1-5")
	Back-up O2 supply function	PO3、PO4、PO5 have two modes: pulse mode and continuous mode; the other modes only operate in back-up continuous mode in default;
	Time	The display time of device can be set;
	Cumulative running time	Display the accumulated operating time of this device;
	Software version number	Display the current software version number of this device;

(Note: The above descriptions are for reference only, as the arrangement of the display screen may vary with situations related to alarm, mute, fault and gear levels, and the actual layout shall be subject to the operating status of the device.)

▶Display Alarm Log Viewing Screen

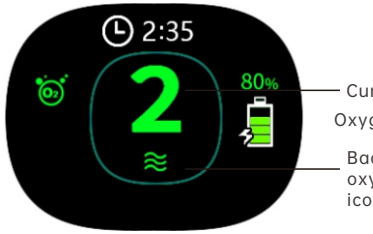
Interface operation logic	1 On the main interface, press the "+" and "-" buttons at the same time to enter the alarm log viewing interface;
	2 5alarm messages will be displayed on a single page. Press the "+" and "-" buttons to turn the page;
	3 Turn to the last page and press "-", or press "+" on the first page to return to the main interface;

►When an alarm is triggered during normal use, the device will automatically save the alarm item and the alarm start time (format: YY-MM-DD-HH: MM), and record them in the internal memory (except for power failure alarm). The user can view the alarm history record in the alarm log viewing interface.

► After the alarm record has been normally saved, the alarm log will still be stored in the device when the device is powered off (supply mains and (or) internal power supply).

(Note: The above descriptions are for reference only, as the arrangement of the display screen may vary with situations related to alarm, mute, fault and gear levels, and the actual layout shall be subject to the operating status of the device.)

► Back-up Continuous Oxygen Supply Function Interface (only for PO3、PO4、PO5)



Switch to the backup continuous oxygen supply function. If the user automatically triggers, the interface will be displayed

Switch to the backup continuous oxygen supply function. If the user does not automatically trigger, the device could start continuous flow of oxygen supply and the interface will be displayed

S.N.	Name	Functional Specification
1	Backup continuous oxygen supply function icon	In the main interface, press — or 3s or switch to "backup continuous oxygen supply function" in the setting interface, and the icon will appear;
2	Current running gear	After starting the backup continuous oxygen supply function, if the user automatically triggers, the device will perform pulse oxygen supply according to the user's trigger, and the current pulse oxygen supply gear will be displayed;
3	Oxygen supply flow	After the backup continuous oxygen supply function is enabled, if the user does not trigger, the device could start continuous flow of oxygen supply and oxygen supply flow value will be displayed;

4.3 Packing List

S.N.	Name	Quantity	Notes
1	Main unit of the portable medical oxygen concentrator	1	Standard
2	Power adapter	1	Standard
3	Power cord	1	Standard
4	User manual	1	Standard
5	Certificate of quality	1	Standard
6	Backpack	1	Optional
7	Filter cotton	3	Standard
8	Packing slip	1	Optional
9	Battery (BAT-01)	1	Optional
10	Battery (BAT-02)	1	Optional
11	Disposable nasal cannula	1	Optional

5. Instructions for Use

1.Before starting the device, please check the air inlet and thermovent of the device to ensure that they are not covered.

2.The device can be operated with battery power supply or connected to a power adapter.

3.Connect the disposable nasal cannula to the oxygen output interface of the device.

Note: This device is with pulsed oxygen supply, and it must be connected to a nasal cannula to use this device.

Note: Be sure that the nasal cannula is properly installed and free of kinks and obstructions, so that the device can detect breath and deliver pulse oxygen correctly.

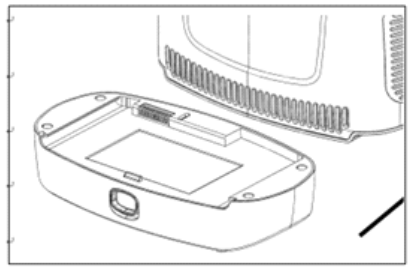
4.Press and hold for 3 s to start the device.

5.Set up and use the device as described in 4.2;

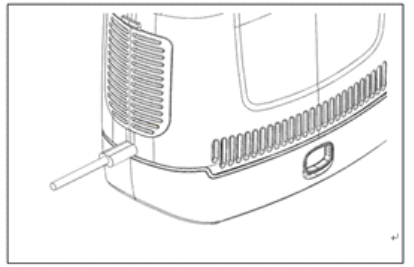
6.The time to reach the maximum required oxygen flow after turning on the device is approximately 2 minutes.

7.Press on the device and hold to shut it down.

(Failure to use the device in accordance with the prescribed methods may cause damages to the device and void the warranty.)



Battery powered



Adapter powered

6. Alarms

The device is equipped with both visual and audible alarms. The visual alarm includes an alarm indicator and alarm viewing area on a LCD screen. When an alarm is triggered, it could be read by the operator right in front of the device, 1 meter away from the device. It is necessary to properly deal with any alarm raised as soon as possible to prevent risk.

In the visual alarm signal display area, indicates an alarm, indicates that the alarm sound is paused. The alarm type is described in text in the alarm display area, and the alarm display light is on at the same time.

When an alarm is triggered, press the alarm pause button to pause the audible alarm for 2 minutes, and the symbol will appear on the visual alarm interface; press the alarm pause button again to start the audible alarm, and the symbol will disappear.

The following alarm items are available on this device, which are sorted by priority. If multiple alarms are triggered at the same time, alarm message with higher priority will be displayed cyclically in the alarm message display area with an interval of 1 s.

Verification of alarm system: 2 min after starting up, if no breath trigger is provided within 15 s, "breath alarm is not detected" shall be triggered on the device, and a yellow "!! breath is not detected" alarm interface will be displayed, and the alarm indicator is on in yellow, and the audio alarm signal is sent out. If there is no such alarm, the alarm system is abnormal. Please contact the supplier or RespirCare Medical.

The following table lists all alarms from highest priority to lowest priority:

Alert	Hint	Action	Priority
High internal pressure alarm (The pressure of oxygen reservoir is greater than 0.25 Mpa ± 0.02 Mpa)	●Red "!!! HIGH INTERNAL PRESSURE" alarm interface is displayed ●Alarm indicator red illuminated ●Audio alarm signal sounded	●Device stops oxygen generation within 10 s ●Contact the supplier or RespirCare Medical	High priority
High internal temperature alarm (When the internal temperature reaches XX degrees Celsius)	●Red "!!! High internal temperature" alarm interface is displayed ●Alarm indicator red illuminated ●Audio alarm signal sounded	●Device stops oxygen generation within 10 s ●Check whether the requirements for operating temperature are exceeded. ●Put the device under suitable temperature condition, let the device cool down, and start the test. ●Check whether the air inlet and outlet of the device are blocked. Try to clean if yes. ●Contact the supplier or RespirCare Medical	High priority
Internal fault alarm	●Red "!!! INTERNAL FAILURE" alarm interface is displayed ●Alarm indicator red illuminated ●Audio alarm signal sounded	●Device stops oxygen generation within 10 s ●Contact the supplier or RespirCare Medical	High priority
Low oxygen concentration alarm (Output gas oxygen concentration is less than 82%)	●Yellow "!! LOW OXYGEN CONCENTRATION" alarm interface is displayed ●The alarm indicator turns yellow ●Audio alarm signal sounded	●Contact the supplier or RespirCare Medical ●Suggest check and change the molecular sieve.	Medium
No breath alarm detected (Breath pulse trigger not detected within 15 s)	● Yellow "!! No Breath Detected" alarm screen is displayed ●The alarm indicator turns yellow ●Audio alarm signal sounded	●Check and make sure the nasal cannula is worn correctly. ●Check and make the nasal cannula is kinked, which may affect the ventilation ●Contact the supplier or RespirCare Medical	Medium
Alarm system failure alarm (Alarm system communication abnormal)	●Yellow "!! Alarm system failure" alarm interface is displayed ●The alarm indicator turns yellow ●Audio alarm signal sounded	●Contact the supplier or RespirCare Medical	Medium
Low battery alarm (When the battery level is displayed as one cell left)	●Yellow "!! Low Battery" alarm interface is displayed ●The alarm indicator turns yellow ●Audio alarm signal sounded	●Charging by DC or AC ●Contact the supplier or RespirCare Medical	Medium
Empty battery alarm (When the battery level is displayed as empty cells)	●Yellow "!! Battery empty" alarm interface is displayed ●The alarm indicator turns yellow ●Audio alarm signal sounded	●Charging by DC or AC ●Contact the supplier or RespirCare Medical	Medium

Alert	Hint	Action	Priority
External power supply failure alarm (The power supply/power supply mains falls below the rated value until the medium alarm audible alarm as the power failure alarm condition is triggered, or the device is switched to the internal power supply to maintain normal operation)	●Yellow "!! Loss of external power supply" alarm interface is displayed ●The icon "External power status icon" on the main interface disappears ●The alarm indicator turns yellow ●Audio alarm signal sounded	●If the device can switch to battery power normally, no action is required. ●If the device cannot be switched to battery power, contact the supplier or RespirCare Medical	Medium
Low system temperature alarm (Internal temperature is below 0 degrees)	●Blue green "! System Temperature Low" alarm interface is displayed ●Alarm indicator light is on in blue-green ●Audio alarm signal sounded	●Check whether the requirements for operating temperature are exceeded. ●Put the device under suitable temperature condition, and start the test. ●Contact the supplier or RespirCare Medical	Low priority
Periodic maintenance alarm (If the device reaches the time limit for maintenance)	●Blue green "! Periodic Maintenance" alarm interface is displayed ●Alarm indicator light is on in blue-green ●Audio alarm signal sounded	●Press any key to end alarm ●Contact the supplier or RespirCare Medical ●Suggest change the filter cotton	Low priority
Device warming up (Oxygen concentration does not reach 93 ± 3% when the device is on for 120 s)	●Aquamarine blue "! Warming up of the device" alarm interface is displayed ●Alarm indicator light is on in blue-green ●Audio alarm signal sounded	●Alarm disappears after 2 s without any operation	Low priority

7. Device Maintenance

7.1 Cleaning and Maintenance

! WARNING: Disconnect the device from power supply before cleaning to prevent electric shock.

• Device Body

Housing of the device (once a month): Wring out the wet cloth until there is no drip. Wipe the outer surface of the housing with a cleaning agent-damped cloth, then wipe dry with a dry cloth.

! WARNING: Do NOT place the device in any liquid environment.

• Filtration Unit

Please check the filtration unit once a month. If there is too much dust on the surface of the filter, please contact the supplier to purchase a new one.

• Backpack

Apply scrubs to the backpack and belt with mild soapy water instead of completely soaking in. Simply allow to air dry. Do not apply machine cleaning or dry cleaning.

7.2 Service and Maintenance

The maintenance cycle of the device is approximately once a year. Repairs or commissioning should only be performed by professionals, authorized personnel from the maintenance center or personnel trained by the manufacturer of RespirCare.

- If any failure occurs on the device, contact RespirCare or the vendor.
- In order to sustain the service life of the device, the user is advised to follow the instructions for safety in use, cleaning and maintenance of the device.
- For replacement of accessories, please use the dedicated accessories provided by RespirCare.
- The service life of the device is five years (under standard working environment and with proper maintenance).
- Molecular sieve is a consumable to be replaced every year or whenever the produced oxygen concentration decreases; otherwise the oxygen concentration may be affected. Long-term suspension or operation in a humid environment may shorten the service life of molecular sieves.
- The disposable nasal cannula should be used and renewed following the instructions.
- Approximately 300 charging cycles would wear the battery down to 80% or below, when it's time to renew the battery.
- DO NOT discard the device or its accessories when they are out of the service life, in which case, please contact relevant departments to properly dispose of the device or accessories according to local relevant regulations, or contact RespirCare Medical Co., Ltd. and the distributor for disposal.
- Upon request for warranty service, if necessary, the product circuit diagram and information of the component to be repaired may be provided to our qualified technician.
- The manufacturing date of the device is printed on the label.
- Warranty notice: See the 7.5 Warranty.

7.3 Service Life

Category	Service Life
Terminal concentrator	5 years
Molecular sieve	Oxygen concentration decreased or use for 1 year or over
Battery	300 full charging cycles
Disposable nasal cannula	See the product's accompanying documents

- When the terminal concentrator approaches the end of service life, the performance may degrade with failures. Please pay attention to the flow rate, oxygen concentration, failure (if any) and other related alarm prompts in a timely manner.
- When the molecular sieve is close to the end of service life, it may cause an increase of the internal pressure or a decrease of the oxygen concentration. Please pay attention to the pressure, oxygen concentration, regular maintenance reminder and other relevant alarm prompts in time.

- When the battery is close to the end of service life, the battery may be faced with a series of issues including charge failure, slow charging, discharge failure, rapid capacity fade, etc. Please pay attention to relevant alarm prompts in a timely manner.
- Note: The service life listed in the above table is only for reference, and deviations may be found as in practical use considering the running environment and conditions. Please pay close attention to the status of the device and alarm prompts.

7.4 Troubleshooting

If your device is unable to deliver pulse oxygen properly, refer to the following for possible causes and solutions, and consult the supplier if necessary.

Malfunction	Probable Cause(s)	Solutions
Device does not function properly when Start/Stop button is pressed	Complete power consumption Equipment failure	Charging by DC or AC Contact the supplier or RespirCare Medical
No oxygen output during use	Nasal cannula knotted or blocked Nasal cannula leaks No specified nasal cannula was used. Equipment failure	Inspect the nasal cannula to ensure that the nasal cannula circuit is unblocked. Inspect whether there is air leakage for the nasal cannula and its connection with the device. Use the specified nasal cannula. Contact the supplier or RespirCare Medical
Unable to power on	If outdoors, such as in a car, the device may be too hot or too cold. Equipment failure	Let the device reach the normal temperature for operation, which will take a few minutes. Connect the device to the power supply using the power adapter to restart the battery of the main unit
Battery charging delay	Internal battery temperature exceeds the charging temperature	Device is operable; however, charging cannot be restarted until the temperature drops to normal range
Other issues		Contact the supplier or RespirCare Medical

7.5 Warranty:

2 years for unit (except molecular sieve) from the date of purchase.

1 year for the battery and AC adapter (with power cord) from the date of purchase.

All maintenance services must be carried out by a designated maintenance service center.

During the warranty period, faults not caused by human factors are warranted free of charge. After the warranty period, maintenance cost is charged.

If damage is caused due to improper use, paid maintenance services would be provided.

Consumable nasal oxygen tubes, molecular sieves and filter cotton are not covered by the warranty.

8. Technical Specifications

Product name	Portable medical oxygen concentrator
Specification/Model	PO3/PO4/PO5/PO3SE/PO4SE/PO5SE
Product category	Class of the medical device: Class II Type BF Degree of water ingress protection: IP21 Circulation mode: Continuous operation
Oxygen concentration	93 ± 3% (V/V)
Gear levels	PO3/PO3SE with gears 1 ~ 3 PO4/PO4SEwith gears 1 ~ 4 PO5/PO5SE with gears 1 ~ 5

Pulse amount of oxygen at each gear

Respiratory Rate	1st Gear	2nd Gear	3rd Gear	4th Gear	5th Gear
15 beats/min	11 ml	22 ml	33 ml	44 ml	55 ml
20 beats/min	11 ml	22 ml	33 ml	44 ml	50 ml
25 beats/min	8.8 ml	17.6 ml	26.4 ml	35.2 ml	40 ml
30 beats/min	7.3 ml	14.7 ml	22 ml	29.3 ml	33.3 ml
35 beats/min	6.3 ml	12.6 ml	18.9 ml	25.1 ml	28.6 ml
40 beats/min	5.5 ml	11 ml	16.5 ml	22 ml	25 ml

Under rated environmental conditions, the tolerance of oxygen pulse amount is ± 15%

Size	Length 188mm × Width 98mm × Height 208mm
Net weight	2.0 Kg

Battery life (rechargeable lithium battery)

gear	BAT-01 (min)	BAT-02 (min)
1	360	720
2	195	390
3	170	340
4	150	300
5	120	240

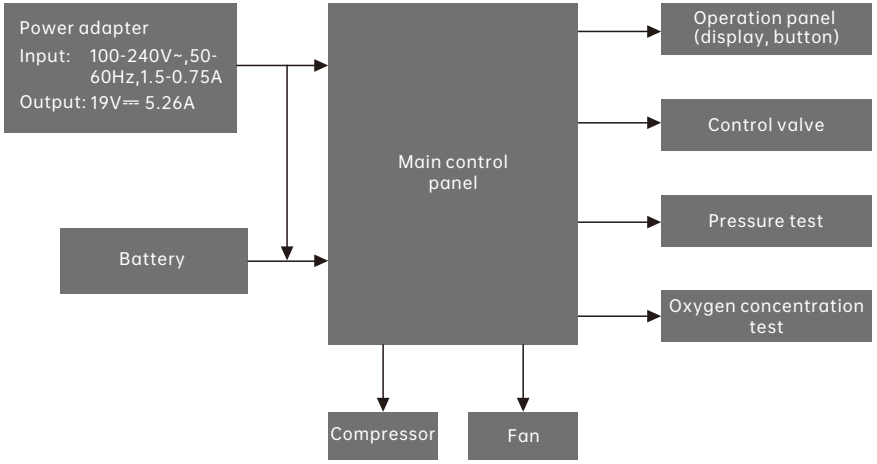
Power supply	Universal power supply AC: Input 100-240V, 50-60HZ, 1.5-0.75 A DC: Output 19V, maximum current 5.26 A
Battery charging time (power off charging)	BAT-01: > 2.5 hours BAT-02: > 5 hours
Warm-up time	2 minutes
Noise	5th gear ⩽60 dBA
Battery life	Battery down to 80% or less after approximately 300 cycles
Alarm	High internal pressure alarm: Audible and visual High internal temperature alarm: Audible and visual Internal fault alarm: Audible and visual Low oxygen concentration alarm: Audible and visual No breath alarm detected: Audible and visual Alarm system failure alarm: Audible and visual Low battery alarm: Audible and visual Empty battery alarm: Audible and visual External power supply failure alarm: Low system temperature alarm: Audible and visual Periodic maintenance alarm: Audible and visual Alarm during device warm-up: Audible and visual
Environmental conditions	Normal operation: Temperature 5℃-40℃ Relative humidity 35%-93% (non-condensing) Storage and transportation conditions: Temperature-20℃-55℃ Relative humidity 10%-93% (non-condensing)

The above data is based on atmospheric pressure 101 KPa and a temperature of 21℃.

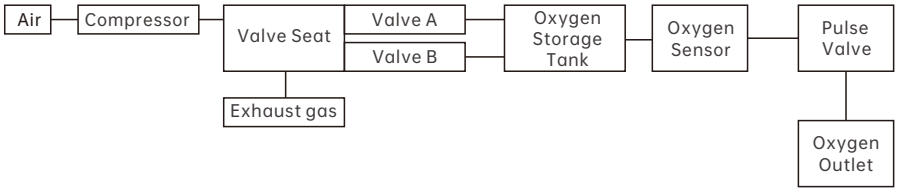
It can be normally used in terrestrial environment below 1828 m above sea level. It is not recommended to use it above 1828 m above sea level. This may result in a decrease in oxygen concentration. See the following table for specific changes.

Altitude (m)	Below 1828 Meters	2000	3000	4000
Measured oxygen concentration (%) at 1L/min	92	91	89	85

9. Circuit Block Diagram



Aerograms:



Annex AElectromagnetic Compatibility

Basic performance: The parameters of the device can be set as need, and the parameters that have been set down will not be changed at will; the device can output gas when running without abnormal condition.

The device includes: PO3/PO4/PO5/PO3SE/PO4SE/PO5SE

WARNING:

★ In order to ensure the electromagnetic compatibility of portable medical oxygen concentrator, the device needs to be installed, conditioned and used as directed in the accompanying documents. In case the electromagnetic compatibility of portable medical oxygen concentrator is affected by any portable and mobile radio frequency communication equipment, please contact Shenyang RespirCare Medical Tech Co., Ltd for support.

★ Electromagnetic compatibility: Electromagnetic compatibility refers to the ability of the equipment to have a certain degree of immunity to electromagnetic interference existing in the environment, while not causing similar electromagnetic radiation interference to other equipment. Portable medical oxygen concentrator will not cause interference to characteristics of other equipment through air or the connecting cables.

★ Portable medical oxygen concentrator should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the device should be observed to verify normal operation after being correctly configured.

★ The use of power adapter and power cords other than those supplied for the device by RespirCare is not recommended. They may result in increased emissions or decreased immunity of the device.

S. N.	Name	Length (m)	Shielded or Not
1	Power cord	1.5	No
2	Power adapter cord	1.2	Yes

Guidance and Manufacturer's Declaration-Electromagnetic Emissions: Portable medical oxygen concentrator is intended for use in the electromagnetic environment specified below, and the buyer or user of this device should assure that the device is used in such an environment.

Emission Test	Conformity	Electromagnetic Environment-Guidance
RF emissions CISPR 11	Group 1	The portable medical oxygen concentrator uses RF energy only for its internal function. As a result, its RF emissions are low and there is little potential for interference to nearby electronic equipment.
RF emissions CISPR 11	Class B	The portable medical oxygen concentrator is intended for use in all establishments, including domestic establishments and those directly connected to the public mortgaged power supply network that supplies buildings used for domestic purposes.
Harmonic emission IEC61000-3-2	Class A	
Voltage fluctuation /Flicker emission IEC61000-3-3	Conforms	

Guidance and Manufacturer's Declaration-Electromagnetic Immunity-for all equipment and systems:

Portable medical oxygen concentrator is intended for use in the electromagnetic environment specified below, and the buyer or user of this device should assure that the device is used in such an environment.

Immunity Test	IEC60601 Test Level	Compliance Level	Electromagnetic Environment-Guidance
Electrostatic discharge (ESD) IEC61000-4-2	± 6 kV contact discharge ± 8 kV air discharge	± 6 kV contact discharge ± 8 kV air discharge	The floor shall be made of wood, concrete or ceramic tiles. If the floor is covered with synthetic materials, the relative humidity shall be at least 30%
Electrical fast transient/burst IEC61000-4-4	± 2 kV for power cord ± 1 kV for input/output cords	± 2 kV for power cord NA	The mains supply shall be of a quality typical of that used in a commercial or hospital environment
urge IEC61000-4-5	± 1 kV cord to cord ± 2 kV cord to ground	± 1 kV cord to cord NA	The mains supply shall be of a quality typical of that used in a commercial or hospital environment
Voltage dips, short interruptions and voltage variations on power supply input cords IEC61000-4-11	< 5% UT for 0.5 cycles (> 95% dip in UT) 40% UT for 5 cycles (60% dip in UT) 70% UT for 25 cycles (30% dip in UT) < 5% UT for 5 s (> 95% dip in UT)	< 5% UT for 0.5 cycles (> 95% dip in UT) 40% UT for 5 cycles (60% dip in UT) 70% UT for 25 cycles (30% dip in UT) < 5% UT for 5 s (> 95% dip in UT)	The mains supply shall be of a quality typical of that used in a commercial or hospital environment. If the user of the portable medical oxygen concentrator requires continuous operation during power mains interruptions, it is recommended that the portable medical oxygen concentrator be powered by an uninterruptible power supply or a battery
Power frequency magnetic field (50Hz) IEC61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels typical of a typical location such as commercial or hospital environment
Note: UT refers to the a.c. Mains voltage prior to application of the test voltage.			

Guidance and manufacturer's declaration-electromagnetic immunity-for non life-support equipment and systems:

Portable medical oxygen concentrator is intended for use in the electromagnetic environment specified below, and the buyer or user of this device should assure that the device is used in such an environment.

Immunity Test	IEC60601 Test Level	Compliance Level	Electromagnetic Environment-Guidance
RF conducted IEC61000-4-6 Radiated RF IEC61000-4-3	3 V (rms) 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V (rms) 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the portable medical oxygen concentrator, including cables, than the recommended isolation distance. This distance shall be calculated from the formula for the frequency response of the transmitter. Recommended isolation distance $d=1.2\sqrt{p}$ 80 MHz - 800 MHz $d=2.3\sqrt{p}$ 800 MHz - 2.5 GHz in which: P--The maximum rated output power of the transmitter according to the transmitter manufacturer, in watts (W) d--Recommended isolation distance, in meters (m) The field strength of fixed RF transmitter is determined by an electromagnetic site survey a, and b should be less than the compliance level in each frequency range.
Note 1: At 80 MHz and 800 MHz, the formula for the higher frequency band applies. Note 2: These guidelines may not be appropriate in all situations. Electromagnetic propagation will be absorbed and reflected by buildings, objects, and people.			
a.Fixed transmitters, such as base stations for wireless (cellular/cordless) phones and terrestrial mobile radios, amateur radios, AM and FM radio stations, and television broadcasts, cannot be predicted accurately in theory. Due to the presence of fixed frequency transmitters, consider conducting an electromagnetic site survey before entering the electromagnetic environment. If the magnetic field strength in which the equipment is tested does not exceed the applicable frequency compliance, the device will operate normally. If an anomaly occurs, additional testing may be required, such as relocating or repositioning the device. b.For frequencies beyond the range of 150 kHz to 80 MHz, the magnetic field strength shall be less than 3 V/m.			

Recommended isolation distance between portable and mobile RF communications equipment and portable medical oxygen concentrator:

The portable medical oxygen concentrator is intended for use in an electromagnetic environment with controlled radiation disturbance. According to the maximum rated output power of the communication equipment, the customer or the user of the portable medical oxygen concentrator can prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitter) and the portable medical oxygen concentrator as recommended below.

Maximum Output Power of Transmitter W	Isolation Distance for Different Frequencies of Transmitter/m		
	150 kHz to 80 MHz $D=1.2\sqrt{p}$	80 MHz to 800 MHz $D=1.2\sqrt{p}$	800 MHz to 2.5 GHz $D=2.3\sqrt{p}$
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 telecommunications transmitters not exceeding the maximum output capacity listed above, the isolation distance d (m) can be derived from the formula for the frequency of the telecommunications transmitter. In which P is the maximum output watts of the telecommunication transmitter provided by the manufacturer.

Note 1: High frequency range applied at 80 MHz and 800 MHz

Note 2: This guidance may not be applicable in all situations. Electromagnetic propagation will be influenced by absorption and reflection by buildings, objects, and people.