ResWell CPAP
User Manual

$C\epsilon$ 0123

Contents

IMPORTANT SAFEGUARDS

i *CAUTIONS:*

> *Read and understand the entire user manual before operating this device. If you have any questions concerning the usage of this device, contact your home care provider or health care professional.*

WARNING：

- *This equipment is not used for life support.*
- *This equipment is a CPAP (Continuous Positive Airway Pressure) device designed for the treatment of adult Obstructive Sleep Apnea (OSA) only.*
- *The instructions in this manual are not intended to supersede established medical protocols.*
- *CPAP devices have the potential to allow re-breathing of exhaled air.*

> *CAUTIONS:*
> - *Use designated circuit accessories.*
> - *Do not wear the mask and headgear over minutes while the device is not operating.*
> - *Do not block or try to seal the vent holes in the exhalation port. As with most CPAP devices: At low CPAP pressure, some exhaled gas (CO_2) may remain in the mask and be re-breathed.*

- *Do not use this device if the room temperature is higher than 95℉ (35℃). If this device is used at such environment, the temperature of the airflow may exceed 106℉ (41℃). This could cause irritation to your airway.*
- *This equipment is not suitable for use in the presence of a flammable anesthetic mixture in combination with oxygen or air, or in the presence of nitrous oxide. This equipment must be kept distance from oxygen source more than one meter.*
- *Do not use this equipment at MRI or CT checking.*
- *To avoid electrical shock, disconnect the power cord before cleaning it. DO NOT immerse the device in any fluid.*
- *Contact your health care professional when sleep apnea symptoms recur.*

CAUTIONS：

- *Should any problem be noticed as unexplained changes in the performance of the equipment, e.g. it is making unusual or harsh sounds; it has been dropped or mishandled; the enclosure is broken; water has entered the enclosure or power failure, contact your home care provider.*
- *Tobacco smoke may cause tar build-up within the equipment that may result in the equipment malfunctioning.*

- *All the supplied accessories (e.g. mask, terminal, pipeline and so on) are identified as Personal usage; please do not blend them with someone else's.*
- *In case the equipment has been exposed to either heat or cold temperatures, allow it to adjust to normal room temperature (approximately 2 hours) before beginning setup.*
- *DO NOT connect any other equipment to the equipment unless recommended by or by your health care professional.*

1. User's Guide

Intended Use：

RVC800 series are CPAP (Continuous Positive Airway Pressure) devices designed for the treatment of adult Obstructive Sleep Apnea (OSA) in patients weighing more than 30kg.The equipment is to be used only on the instruction of a licensed health care professional. Your home care provider will make the correct pressure settings according to your health care professional's prescription. This equipment is used in the family and the healthcare facilities. The series include two models:

- ResWell RVC820 CPAP Device（Mono LCD）
- ResWell RVC830 CPAP Device（TFT 2.8''）

Contraindications:

Pneumothorax, Mediastinal emphysema, Leakage of cerebrospinal, Injury of brainpan or injury of intracranial or intracranial pneumatocele, Unrecovered shock caused by any reason, Nasal bleeding, Upper digestive tract bleeding, Patients of stupor or disturbance of consciousness who cannot accept face mask treatment, Large polyp of vocal cord and so on.

Serious coronary heart disease merge left heart failure; Otitis media at acute stage; Too much respiratory droplets with weak cough; Feeblish Autonomous respiration; Tracheal intubation (by nose or mouth) and tracheotomy; Serious nasal obstruction; Bullae of lung; Mask allergies and so on.

ℹ️ *CAUTIONS:*
   If you have above symptoms, please stop using this equipment and contact your health care professional.

2. Symbols

The terms/acronym are defined as below:

| Terms/Acronym	Definition
Activity state	Power on, airflow is open; the equipment is used for treatment.
Apnea	A condition marked by the cessation of spontaneous breathing.
Automatic stop	In case the mask is removed, this equipment will automatically discontinue the therapy.
Automatic start	When you wear the mask and take a deep breath, the airflow is automatic started.
BPM	Breaths per minute.
LPM	Liters of airflow per minute.
OSA	Obstructive sleep apnea.
Ramp	A feature that may increase patient comfort when therapy get started. The ramp feature reduces the pressure and then gradually increases (ramp) the pressure to the prescription setting, so you can fall asleep more comfortably
Standby state	The state is powered on while airflow is turn off

Device Symbols:

Symbol	Explain	Symbol	Explain
	Type BF applied part	**IP22**	Protect finger, Drip-proof, vertical 15°
	Attention, consult accompanying documents		Start/Stop
	Class II (double insulated)		Humidifier on/off
EC REP	Authorized representative in the European community	**SN**	Serial number of the product
$C \epsilon_{0123}$	European CE declaration of conformity		Manufacturer
	Date of manufacture		

Screen Symbols:

Symbol	Explain	Symbol	Explain
cmH₂O/hPa	Pressure unit	≡.≡.	Heating and humidification indication
min	Time unit（minute）	⌇⌇⌇	Heating and humidification indication
⏲	Ramp time	P	Ramp initial pressure
℃	Heating level	☼	Backlight control
	Leaking alert	⏲	Time
	Alarm clock		Alarm clock ring
cmH2O/hPa	Unit selection		Auto start
	Auto stop	MASK	Mask fit
AHI	Apnea-hypopnea index	EPS	Expiratory pressure smart
⊙	Service reminding	TP	Treatment pressure time
SpO₂	Pulse oximeter saturation	**PR**	Pulse rate

3. Technical Specifications

Environment：

	Operation	**Transport and Storage**
Temperature：	+5℃～ +35℃	-20℃～ +60℃
Humidity：	10% ～ 95%（ Non-condensing）	10%～ 95%（ Non-condensing）
Atmospheric pressure ：	700hPa～1060 hPa.	700 hPa～1060 hPa.

⚠ CAUTIONS：

The equipment should be stored in draughty room free from corrosive gas or high magnetic fields. If transport and storage environmental conditions go beyond the required standard, the equipment must be placed in the operation environment for at least 24 hours before starting operation.

Electric Specifications:

Supply Voltage：AC100-240V,50/60Hz,≤90VA

Type of Protection

Against Electric Shock：Class II Equipment

Degree of Protection

Against Electric Shock：Type BF Applied Part

Degrees of Protection

Provided by Enclosures：IP22

Mode of Operation： Continuous

Physics Specification：

Air Outlet：The 22 mm conical air outlet complies with ISO 5356-1

Dimensions（L× W × H）： 205×154×197mm

Weight： About 1.7kg

Humidifier：

Water Capacity：350ml, at the scale mark of maximum

Heater Setting：1 to 6 (heating plate 30-75℃)

Pressure Drop：<0.5 hPa at 60 LPM flow

Maximum Air Temperature：<41℃

Humidity Output：10～40 mgH$_2$O /L

Standard Compliance：

IEC60601-1; IEC60601-1-2; ISO17510-1; ISO8185

Pressure, Flow：

Pressure Range：4～20 cmH$_2$O（in 0.5cmH$_2$O increments）

Maximum Single Fault

Steady State Pressure：30 cmH$_2$O

Pressure Tolerance：   ±0.5 cmH$_2$O

Sound Pressure Level： <30dB (A) when the device is working at the pressure of 10cmH$_2$O

	Test pressures				
	4	8	12	16	20
Measured pressure at the patient connection port（hPa）	3	7	11	15	19
Average flow at the patient connection port（l/min）	36.8	41.3	49	45.5	55.2

4. Device Features

RVC830
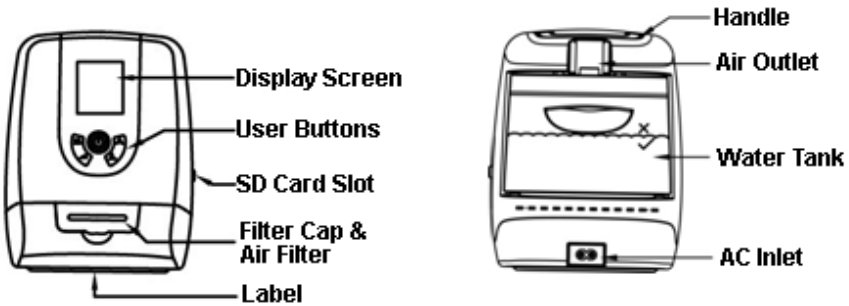
RVC820
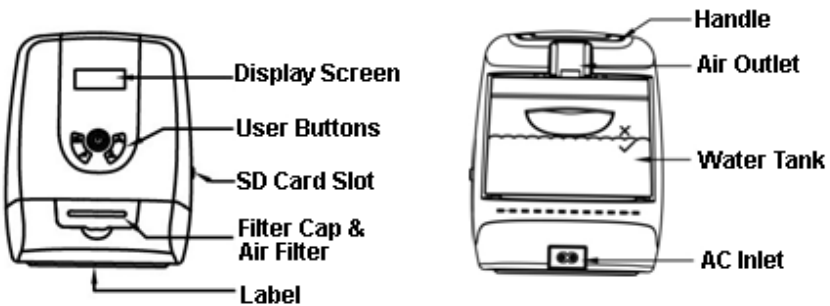
Equipment Features	Explains
AC Inlet	Connect/disconnect the AC power
Air Outlet	Connect the flexible tubing(coaxial 22 mm)
SD Card Slot	Insert the micro SD Card
Display Screen	Display device setting parameter and work process information
Filter Cap & Air Filter	The air filter screens out normal household dust and pollens. The filter cap is designed to reduce the noise from the equipment
User Buttons	Turn on/off the device and change device settings
Medical Product Note	This note indicates itself is a medical equipment. It may help if you also take this manual with you when you travel
Water Tank	Storing water of humidifier
Handle	Take the device

5. First Time Setup

5.1 Open the pack

After unpacking the device, please conform the following items：

No.	Item	Num.
1	CPAP	1
2	Power Cord	1
3	Tubing	1
4	User Manual	1

ℹ️ *CAUTION:*

> *If any of the above parts are missing or damaged, please contact your home care provider.*

5.2 Install the Air Filter and Filter Cap

⚠️ *CAUTIONS:*

> *The air filter must be in place at all times when the equipment is running. It is recommended to use TWO filters alternatively.*

• Place the air filter into the filter area in the front of the equipment.

• Attach the filter cap.

5.3 Install the Power Cord

Connect the power cord. Plug the socket end of the power cord into the AC inlet on the back of the equipment. Plug the pronged end of the power cord into an electrical outlet.

CAUTIONS:

- *To remove AC power, disconnect the power cord from the electrical outlet.*
- *Inspect the power cord frequently. In case of damage, replace damaged cord immediately.*
- *The equipment starts/stops the air flow when pressing【Start/Stop】.*
- *Place the equipment on a firm and flat surface.*
- *Conform the equipment away from any heating or cooling equipment (e.g. forced air vents, radiators and air conditioners, etc).*
- *Make sure that bedding, curtains or other items are not blocking the filter or vents. Air should flow freely into the device.*

5.4 Assembling the Tubing

The following accessories are needed to assemble the recommended circuit：

--The Mask with integrated exhalation port supplied by Rongrui.（or independent exhalation port）
--Flexible Tubing of 22mm in diameter and 1.8 m in length supplied by Rongrui.
-- Headgear (for the mask) Supplied by Rongrui.

a） Connect the flexible tubing to the air outlet on the top of the equipment.
b） If you are using a mask with a built-in exhalation port, connect the mask's connector to the flexible tubing.
c） If you are using a mask with a separated exhalation port, just connect the flexible tubing to the exhalation port. Place the exhalation port and prevent vented air from blowing your face.

WARNING:

- *Air leakage connector is designed for exhausting CO2 from expired air. Do not block or try to seal the vent holes in the exhalation port.*
- *The equipment is intended to be used with masks and circuits that have an exhalation port designed to exhaust CO_2 from the circuit. When the equipment is turned on and functioning properly, fresh airs from the equipment flushes the exhaled air out through the exhalation port. When the equipment is turned off, insufficient fresh air will be provided through the mask, and exhaled air may be re-breathed. Re-breathing exhaled air for several minutes, in some circumstances, lead to suffocation. This warning applies to most of the CPAP devices.*
- *If using a full face mask (i.e., a mask covering both your mouth and your nose), make sure the mask be equipped with a safety (entrainment) valve. Contact your home care provider for additional information.*

6. Operating the Equipment
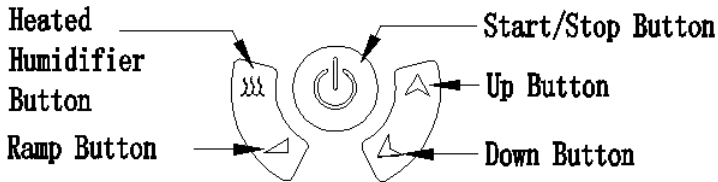
6.1 Device Settings

Name	Explain
Display screen	All device settings will be displayed on the screen
Start/Stop button	To start/stop the airflow
Heated Humidifier button	To start/stop humidifier
Ramp button	When the airflow is turned on, use this button to restart the ramp cycle (which the low airflow pressure will gradually increase). When the airflow is turned off, use this button to confirm the setting changes.
Up button	To increase the setting parameter
Down button	To decrease the setting parameter

🔋*CAUTION:*

Press 【Up】/【Down】 to the previous/next user operate interface, press 【Ramp】, the setting value begins to flicker, press【Up】/【Down】to change the setting value, press 【Ramp】to confirm the revise, and press the 【Start/Stop】to return to the standby interface.

6.2 Function Description

6.2.1 Patient Operation Description（Applied to RVC830）

Insert the plug making this equipment is powered on and in standby state. During this time the equipment interior parameter is default value, if the parameter does not meet the requirements, please adjust it yourself according to the doctor's instructions.

" 🔲 " indicates that a SD card has been inserted into the card slot.

🔲 *CAUTION*：

The data shown at the picture is not the default.
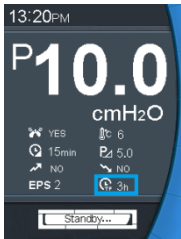
Treatment Pressure Time：

To record the air flow output time. It is showed at three status: Standby, Running and Configuration. See the marked blue square in the left picture.

Treatment Pressure：

The treatment pressure indicates the pressure of airflow while the equipment is running. It is also shown on the Standby-Status. The range of treatment pressure is 4~20 cmH_2O. The default value is 8.0 cmH_2O.

🔲 *CAUTION*：

Only the pressure prescribed by the doctor is to be set as Treatment Pressure, and only the doctor have the right to modify it.

SpO$_2$ and PR:

Connect the Pulse Oximeter Equipment to the device, the screen briefly displays the oximeter enabled. Put the Pulse Oximeter Equipment on the finger, the data (pulse oximeter saturation and pulse rate) is displayed on the screen and recorded on the SD card. It is showed at two status: Standby and Running.

⚠️*CAUTION*：

Use designated Pulse Oximeter Equipment.
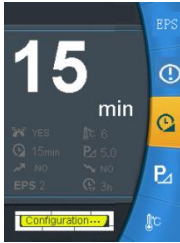
(1)Ramp Time：

Press 【**Up**】/【**Down**】 to ramp time interface. The ramp time is the time taken from the ramp initial pressure increasing to the treatment pressure. Ramp time range is 0~60 minutes; the default setting is 5 minutes. The increment is 5 minutes. Press 【**Ramp**】, the value flickers, press 【**Up**】/【**Down**】 to increase/decrease the time value, then press 【**Ramp**】 to confirm the revise.
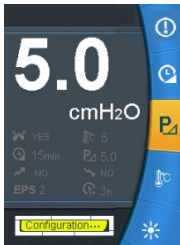
(2)Ramp Initial Pressure：

Press【**Up**】/【**Down**】to ramp initial pressure interface. The range is 3.0 cmH$_2$O ~Treatment Pressure, default setting is 4.0 cmH$_2$O. The increment is 0.5 cmH$_2$O. Press【**Ramp**】, the value flickers, press【**Up**】/【**Down**】to select value, then press 【**Ramp**】 to confirm the revise.

(3)Heating Level：

Press【**Up** 】/【**Down**】to heating level interface. The range is 1~6, default setting is 3. Press【**Ramp**】,the value flickers, press【**Up**】/【**Down**】to increase/decrease heating level, then press 【**Ramp**】 to confirm the revise.

ℹ️*NOTE*：

· *Press*【*Heated Humidifier*】*to start/stop heating function, if you start heating function, heating and humidification indication would be displayed on the screen.*
· *The device remembers the heating level setting for the future use.*
· *If heating function is used during treatment, the tube drying function is automatically activated after stop the device. A notice appears on the screen.*
· *The drying function lasts for 10 minutes after the device stops working. Also, you could press* 【*Heated Humidifier*】 *to stop the tube drying function.*

(4)Backlight Setting：

Press【Up】/【Down】to backlight setting interface. Screen and button backlight has two modes:"Yes"means the backlight is always turned on. "Auto"means the backlight is at auto state, the backlight will be turned on when any button is pressed and will be OFF 1 minute later. Default setting is auto. Press【Ramp】, the value flickers, press 【Up】/【Down】 to select backlight mode, then press 【Ramp】 to confirm the revise.
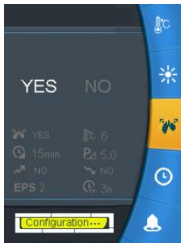
(5)Air Leaking Alert：

Press【Up】/【Down】 to air leaking alert interface, When air leaking continues over 1 minute, the buzzer alarms and the screen displays air leaking information. Default air leaking alert is "NO". To turn on this function, press 【Ramp】, the value flickers, press 【Up】/【Down】to select "YES", then press 【Ramp】 to confirm the revise
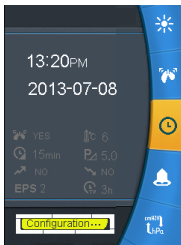
(6)Time：

Press 【Up】/【Down】to time interface. Press【Ramp】, the value flickers, press 【Up】/【Down】 to increase/decrease the time, then press 【Ramp】to confirm the revise.
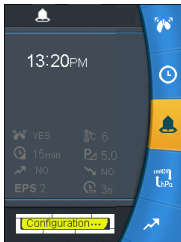
(7)Alarm Clock：

Press【Up】/【Down】to alarm clock interface. Press【Ramp】, the value flickers, press 【Up】/【Down】 to increase/decrease the alarm clock value, then press 【Ramp】 to confirm the revise.

ℹ️ NOTE：

· **At standby state, press the 【Ramp】 and hold it, then press the 【Heated Humidifier】 and hold the two keys for 5 seconds to activate the alarm clock function. The 🔔 appears on the screen when the alarm clock function is activated.**

· **Press 【Up】/【Down】 to stop the alarm clock when it rings.**

(8)Unit Selection：

Press 【Up】/【Down】 to unit selection interface where you could select unit "cmH₂O" or "hPa". The default value is cmH₂O.
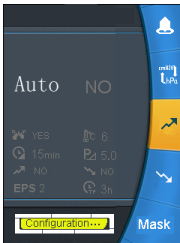
(9)Auto Start：

Press【Up】/【Down】to auto start interface. Select "Auto", when the equipment is at standby status, put on the nasal mask and breathe deeply, the device will start automatically. The default status is "Auto".
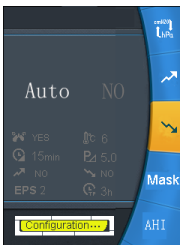
(10)Auto Stop：

Press 【Up】/【Down】to auto stop interface. At the automatic mode (Auto), when the mask and tubing is removed, the equipment will stop airflow automatically. At NO status, you have to press【Start/Stop】to stop the airflow. The default status is "Auto".
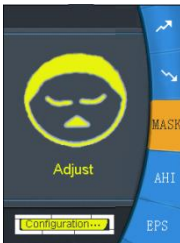
(11)Mask Fit:

Mask fit is required when a new mask is used. Press【Up】/【Down】 to the "MASK" interface, Press【Ramp】to start the blower, a yellow face shape appears on the screen, put on the mask and hold breath for 4 seconds, the face turns to green, then take off the mask, the face turns to yellow again, then press 【Ramp】finish mask fit.

(12)AHI:
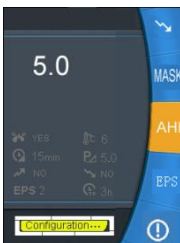
Press【Up】/【Down】to AHI interface, the interface displays the frequency of hypopnea or apnea per hour. The value is automatically recorded, not in manual modification.
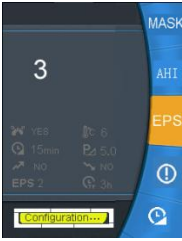
(13)EPS Level:

EPS can effectively lower the pressure to the setting level when the user exhales and return to the therapy pressure when inhales.

Press 【**Up**】**/**【**Down**】 to the EPS level interface. Press【**Ramp**】, the grade value flickers. press 【**Up**】**/**【**Down**】to increase/decrease the grade level. The range is 0~3, press 【**Ramp**】to confirm the revise. When the equipment is in running state, press 【**Up**】**/**【**Down**】to increase/decrease the grade level. The default value is 2.
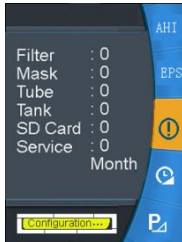
(14) Service reminding:

Press 【**Up**】**/**【**Down**】to service reminding interface. Press【**Ramp**】to select the items, and the month value flickers, press 【**Up**】**/**【**Down**】to increase/decrease the value with the option of 0, 1, 2, 3, 6, 12, 24months, then press【**Ramp**】to confirm the revise. A notice is displayed on the screen when a reminder is due. You have to reset the reminding value after finishing the service. The default value is 0.

ℹ️ *NOTE*：

- *When the reminder is due, press* 【*Up*】*/*【*Down*】*to service reminding interface, the expired item flickers.*

- *If several items expire at the same time, the information will be displayed in sequence.*

🔲 *CAUTIONS*：

- *The buzzer will alarm when the equipment is power off.*
- *This equipment has automatic altitude compensating function.*
- *This equipment with leaking automatic compensating function is able to keep stabilization of treatment pressure in case of air leak caused by mask looseness.*

💣 *WARNING:*

DO NOT use the equipment if the status displays erratic. Contact your home care provider for further instructions.

6.2.2 Patient Operation Description（Applied toRVC820）

Work State Indication
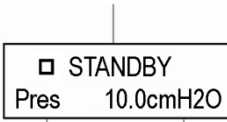
□ STANDBY
Pres   10.0cmH2O

Function   Parameter
Indication   Indication

Insert the plug making this equipment is powered on and in standby state. During this time the equipment interior parameter is default value, if the parameter does not meet the requirements, please adjust it yourself according to the doctor's instructions.

" □ " indicates that a SD card has been inserted into the card slot.

CHECKING
TP time   1h

Treatment Pressure Time：

To record the air flow output time.

CHECKING
Pres   10.0cmH2O

Treatment Pressure：

The treatment pressure indicates the pressure of airflow while the equipment is running. It is also shown on the Standby Status. The range of treatment pressure is $4\sim20$ cmH$_2$O. The default value is 8.0 cmH$_2$O.

! *CAUTION：*

Only the pressure prescribed by the doctor is to be set as Treatment Pressure, and only the doctor have the right to modify it.

CHECKING
Ramp   5min

(1)Ramp Time：

Press 【**Up**】/【**Down**】 to ramp time interface. The ramp time is the time taken from the ramp initial pressure increasing to the treatment pressure. Ramp time range is 0~60 minutes; the default setting is 5 minutes. The increment is 5 minutes. Press 【**Ramp**】, the value flickers, press 【**Up**】/【**Down**】 to increase/decrease the time value, then press 【**Ramp**】 to confirm the revise.

CHECKING
Ramp P 10.0cmH2O

(2)Ramp Initial Pressure：

Press【**Up**】/【**Down**】 to ramp initial pressure interface. The range is 3.0 cmH$_2$O ~Treatment Pressure, default setting is 4.0cmH$_2$O. The increment is 0.5 cmH$_2$O. Press【**Ramp**】, the value flickers, press【**Up**】/【**Down**】to select value, then press 【**Ramp**】 to confirm the revise.

CHECKING
Heater   5

(3)Heating Level：

Press【**Up** 】/【**Down**】 to heating level interface. The range is 1~6, Default setting is 3. Press 【**Ramp**】, the value flickers, press 【**Up**】/【**Down**】 to increase/decrease heating level, then press 【**Ramp**】 to confirm the revise.

i *NOTE*：

- *Press 【Heated Humidifier】 to start/stop heating function, if you start heating function, heating and humidification indication would be displayed on the screen.*
- *The device remembers the heating level setting for the future use.*
- *If heating function is used during treatment, the tube drying function is automatically activated after stop the device. A notice appears on the screen.*
- *The drying function lasts for 10 minutes after the device stops working. Also you could press 【Heated Humidifier】 to stop the tube drying function.*

(4)Backlight Setting：

```
CHECKING
Light        Auto
```

Press 【Up】/【Down】 to backlight setting interface. Screen and button backlight has three modes:"Yes"means the backlight is always turned on. "Auto"means the backlight is at auto state, the backlight will be turned on when any button is pressed and will be OFF 1 minute later. "NO" means the backlight will remain OFF. Default setting is auto. Press 【Ramp】, the value flickers, press 【Up】/【Down】 to select backlight mode, then press 【Ramp】 to confirm the revise.

(5)Air Leaking Alert：

```
CHECKING
Leak alert     NO
```

Press 【Up】/【Down】 to air leaking alert interface, When air leaking continues over 1 minute, then the buzzer alarms and the screen displays air leaking information. Default air leaking alert is "NO". To turn on this function, press【Ramp】, the value flickers, press 【Up】/【Down】to select "YES", then press 【Ramp】 to confirm the revise.

(6)Time：

```
CHECKING
2010-03-07   04:05
```

Press 【Up】/【Down】 to time interface. Press 【Ramp】, the value flickers, press 【Up】/【Down】to increase/decrease the time, then press 【Ramp】 to confirm the revise.

(7)Alarm Clock:

```
CHECKING
Clock       05:06
```

Press【Up】/【Down】 to alarm clock interface. Press 【Ramp】, the value flickers, press 【Up】/【Down】 to increase/decrease the alarm clock value, then press 【Ramp】 to confirm the revise.

```
STANDBY ö
Pres   10.0cmH2O
```

ℹ️ *NOTE*：

· **At standby state, press the 【Ramp】 and hold it, then press the 【Heated Humidifier】 and hold the two keys for 5 seconds to activate the alarm clock function. The Ö appears on the screen when the alarm clock function is activated.**

· **Press 【Up】 / 【Down】 to stop the alarm clock when it rings.**

CHECKING
Unit   cmH2O

(8)Unit Selection：
Press【Up】/【Down】to unit selection interface where you could select unit "cmH$_2$O" or "hPa". The default value is cmH$_2$O.

CHECKING
Start Mode   Auto

(9)Auto Start：
Press 【Up】 / 【Down】 to auto start interface. Select "Auto", when the equipment is at standby status, put on the nasal mask and breathe deeply, the device will start automatically. The default status is "Auto".

CHECKING
Off Mode   Auto

(10)Auto Stop：
Press 【Up】/【Down】to auto stop interface. At the automatic mode (Auto), when the mask and tubing is removed, the equipment will stop airflow automatically. At NO status, you have to press 【Start/Stop】 to stop the airflow. The default status is "Auto".

⚠️ *CAUTIONS*：

• **The buzzer will alarm when the equipment is power off.**
• **This equipment has automatic altitude compensating function.**
• **This equipment with leaking automatic compensating function is able to keep stabilization of treatment pressure in case of air leak caused by mask looseness.**

💣 *WARNING:*

DO NOT use the equipment if the status displays erratic. Contact your home care provider for further instructions.

7. Using Humidifier Function

7.1 Fill Water

Using the water tank can add humidity of the airflow, allowing the patient to breathe more comfortably, default setting is 3.

Open the water tank, and then put purified water into water tank to the maximum scale marks.

🔲 *CAUTION*：

> **You must remove the water tank from the device before put distilled water into water tank.**

🔲 *WARNING:*

> **Avoid moving or tilting the humidifier when there is water in the water tank. Avoid pilling water into inside of equipment. If water is spilled into the device, please refer to the following methods to drain the water away:**
> · **Open the back window cover inside the equipment with a screwdriver.**
> · **Drain away the water inside the device, dry the equipment and clean the water stain.**
> · **Put the cover back to the equipment and tighten the screws.**

7.2 Install the Water Tank

Press the locker button on the top of the tank while press down heater plate by the water tank and push the tank into the device. (See below)
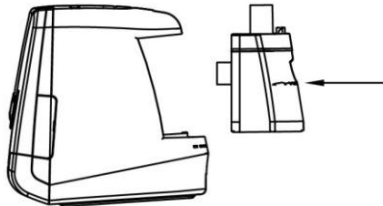
🔲 *CAUTION*：

> **Make sure this equipment is power down, and the heater plate is cool when you install the water tank.**

7.3 Start Heating

Connect the flexible tubing with the outlet port on the water tank.

Press【**Heated Humidifier**】, then the screen displays the heating and humidification symbol. The ideal humidity setting depends on room temperature and humidity. You can adjust this setting at any time. Please check the CPAP User Manual before adjusts the humidifier setting.

CAUTIONS：

- *Before using water tank, you must confirm this equipment air outlet and water tank air inlet joint is good, the cap and water tank assembly are well installed.*
- *If the water tank is leaking or damaged, please replaced it at once.*
- *The water level shouldn't be lower than the minimum mark, or higher than the maximum mark.*
- *Make sure to disconnect the power cord before dismounting the water tank. Leave the water tank approximately 15 minutes for cooling down. Do not dismount it before it cooled down avoiding scalding. To dismount water tank with CPAP, press the locker button on the top of the tank, slide out the water tank.*
- *If water spilled outside the tank when filling in, wipe it before installing to the equipment.*
- *Emptying and cleaning the water tank everyday will help to prevent mold and bacteria growth. Please wipe the water tank before using it.*
- *The water tank should be replaced by a new one every six months.*
- *Dirty heater plate will affect heating effect; it is recommend wiping the heater plate with wet cloth, and then leave it air-dried.*
- *If the humidifier malfunctions, contact your home care provider immediately. Never attempt to open the humidifier's enclosure, avoiding unnecessary economic loss and personal injury.*

8. Routine Use

8.1 Connecting the Circuit

i *CAUTIONS:*

- *Examine the flexible tubing before use the tubing. And replace damaged tubing.*
- *Install the mask and the headgear following the instructions.*
- *Start up running and humidifying, put on the mask and headgear and breathe normally.*

8.2 Adjusting the Circuit

a） Lie down in your bed, and adjust the flexible tubing so it is free to move if you turn over during sleeping.

b） Adjust the mask and headgear until you have a comfortable fit and there is no airflow leaks flow to your eyes.

8.3 Using the Ramp Function

This function will reduce the air pressure when you are falling asleep. The air pressure will gradually increase to your prescription pressure. It allows you falling asleep more comfortably. You could use the heating function to increase temperature and humidity of airflow. At the same time, put the tubing under your bed covers to reduce heat loss.

8.4 Turning off the Device

Remove the mask and headgear. Press【Start/Stop】 to stop the airflow and the humidifier.

9. Cleaning and Maintenance

9.1Cleaning the Equipment

⚠ *WARNING:*

Unplug the equipment before cleaning the equipment.

🔋*CAUTIONS：*

> *Do not let any fluid into the equipment (equipment case, air inlet port, filter or any other port of equipment.)*
> a) *Disconnect the flexible tubing and mask from the equipment, wash the flexible tubing with warm water and a mild detergent gently, rinsing the tubing thoroughly and let it air dried.*
> b) *Clean the equipment slightly with a wet cloth and mild detergent. Dry the equipment before operation*
> c) *Inspect the equipment, and replace any damaged parts.*
> d) *For more details, please refer to the cleaning instructions packaged with the accessories.*

9.2 Change the Air Filter

The air filter should be replaced by a new one every 1 to 3 months.

🔋*CAUTION:*

> *Operating the equipment with a dirty filter could result in malfunction or damage equipment. Checking the filter regularly is needed.*

a） Remove the filter cap gently.
b） Remove the air filter by pulling around the edges of the air filter gently.
c） Place filter cap after inserting the new air filter.

9.3 Cleaning the Water Tank:

a) Turn off the CPAP and let the heater plate and water cooling down for 15 Mins.
b) Disconnect the tubing from the water tank. Press the locker button on the top of the water tank and slide it out of the CPAP.
c) Open the cover of water tank and clean the remaining water. Wash all parts with dish washer or warm water and a mild dishwashing detergent. Rinse with clean water and let it air dried.
d) Fill the water tank and close the cover. Inspect the water tank for any leaks or damage and replace damaged water tank.

10. Service

The equipment does not require routine servicing.

The life expectancy of products and accessories are shown as below:

Name	Life Expectancy
CPAP	5 years
Mask	See the mask instructions
Tubing	See the tubing instructions

WARNING:

- *If the equipment malfunctions, contact your home care provider immediately. Repairing and adjustments must be performed by Rongrui authorized worker only. Unauthorized service could cause injury, invalidate the warranty, or result in damage.*
- *Please deal with this equipment according to location legal rules when its expectancy expired.*
- *The Micro SD card has been supplied to gather therapy data from your device and provide settings firmware updates. For more information on updating firmware refer to the manual provided with your device.*

11. Traveling with This Equipment

Package Do not consign this equipment when you are traveling. The general handbag does not protect equipment

Security Stations For convenience at security stations, there is a note on the bottom of the equipment. It would be helpful taking this user manual.

Checking the Power Cord If you are traveling to a country with a power voltage different than the one you are currently using, a different power cord or an international plug adapter may be required to make your power cord compatible with the power outlets of the country you are traveling to.

12. Troubleshooting

The table below lists common problems you may have with the equipment and possible solutions to those problems. If none of the corrective actions solve the problem, contact your home care provider.

Problems	Reasons	Solutions
When powered on , there is no any reactivity：no sound indication , no backlight of button	There is no power in the socket or the equipment is not inserted	Check socket whether there is electricity, make sure the equipment is inserted correctly, conform AC power cord is connected at power socket properly
Pressing, ⏻ the equipment dose not run or there is no airflow	Turbine may have problems	Restart equipment, If problem is not solved, put the equipment in lower electromagnetic radiation place, （e.g. far from mobile phone, non-line phone, computer, Electronic game machine, hair dryer and so on）If problem is still not solved, Contact your home care provider.
Pressing ◁ , Ramp does not function	Setting pressure already is the minimum value, ramp Initial Pressure equals to the setting pressure	Increase the setting pressure, or decrease ramp Initial Pressure
The airflow from the mask feels warm than usually	The air filter is dirty, the equipment was under sunshine, or situated heater nearby	Clean and change filter, refer to section 9. Room temperature is too high, ensure the equipment ventilate is normal, keep the equipment away from blinds and bed clothe, sunshine direct and heater equipment. If problem is not solved, contact your home care provider.
Feel uncomfortable when wear the mask, air leaking or other problems	Mask is not correctly worn	Adjust the mask according to the instruction. If problem is not solved, contact your home care provider.
Throat and nose feel too dry	Air is too dry	Increase room humidity, turn on the humidifier function.
Nose and ear pain	You maybe have sinusitis or tympanitis	Stop using this equipment. Consult your doctor

13. Electromagnetic Compatibility

Guidance and manufacturer's declaration – electromagnetic emission		
The model RVC800 is intended for use in the electromagnetic environment specified below. The customer or the user of the model RVC800 should assure that it is used under following environment.		
Emission test	**Compliance**	**Electromagnetic environment – guidance**
RF emissions CISPR 11	Group 1	The model RVC800 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The model RVC800 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies used for domestic purposes.
Harmonic emissions IEC 61000-3-2	A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complied	

Guidance and Manufacturer's Declaration – Electromagnetic Immunity			
The model RVC800 is intended for use in the electromagnetic environment specified below. The user of the model RVC800 should assure that it is used under following environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±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%.
Electrostatic transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	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 IEC 61000-4-11	<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 sec	<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 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the model RVC800 product name requires continued operation during power mains interruptions, it is recommended that the model RVC800 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
CAUOTION: UT is the a.c. mains voltage prior to application of the test level.			

Guidance and Manufacture's Declaration – Electromagnetic Immunity			
The Model RVC800 is intended for use in the electromagnetic environment specified below. The user of the Model RVC800 should assure that it is used under electromagnetic environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic Environment - Guidance
Conducted RFIEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the Models RVC800, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$ $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$ 80MHz to 800MHz $d = \left[\frac{7}{E_1}\right]\sqrt{P}$ 800MHz to 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 meters (m).
Radiated RFIEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/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.			
a 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 model RVC800 are used exceeds the applicable RF compliance level above, the model RVC800 should be observed to verify normal operation, If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the model RVC800.			
b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Recommended Separation Distances between

Portable and Mobile RF Communications Equipment and the model RVC800

The Model RVC800 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The user of the Model RVC800 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Model RVC800 as recommended below, according to the maximum output power of the communications equipment.

Rated Maximum Output of Transmitter W	Separation Distance According to Frequency of Transmitter m		
	150kHz to80MHz $d=\left[\frac{3.5}{V_1}\right]\sqrt{P}$	80 MHz to 800 MHz $d=\left[\frac{3.5}{E_1}\right]\sqrt{P}$	800 MHz to 2.5 GHz $d=\left[\frac{7}{E_1}\right]\sqrt{P}$
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.

If you have any question, please contact us：

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