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1 Introduction

The ExtPowerPack gives you the freedom to use your host when AC power is not available, or any time portability is desired.

The ExtPowerPack is an optional accessory.

Intended Use

The ExtPowerPack is an external lithium-ion battery that provides backup power when mains power is not available. After charging, your ExtPowerPack is ready to use. It can either be disconnected from the AC outlet and used as an external ExtPowerPack (standalone mode), or remain plugged into the AC outlet for a continuous, fully charged ExtPowerPack (uninterruptible power supply (UPS) mode).

Please read the entire manual before using ExtPowerPack. Refer to the host user manuals for intended patients, uses and contraindications associated with iDisc CPAP therapy.

2 Safety Information

⚠ WARNING

- Do not drop, hit, crush or otherwise abuse ExtPowerPack, as this may result in the exposure of the corrosive cell contents.
- Do not place ExtPowerPack on or near fires, stoves or other high-temperature locations.
- Do not expose ExtPowerPack to direct sunlight.
- Do not expose ExtPowerPack to water, rain or moisture of any type.
- Do not use in the vicinity of flammable anesthetics.
- Do not short-circuit the ExtPowerPack.
- Do not use a damaged ExtPowerPack.

- Do not open ExtPowerPack or AC charger.
- Do not disassemble or attempt to repair ExtPowerPack. There are no user-serviceable parts inside.
- Before attempting any cleaning procedures, unplug ExtPowerPack from the host and wall outlet.
- Make sure to revert to AC power when the remaining capacity of ExtPowerPack is low.
- Make sure to periodically recharge the battery due to effects of self-discharging.
- As the battery ages, the available capacity decreases. When the remaining battery capacity is getting low, do not rely on ExtPowerPack as the primary supply.
- Only use a supplied Resvent AC power supply unit for charging ExtPowerPack.
- Keep ExtPowerPack out of the reach of children.
- Keep ExtPowerPack clean and dry.
- The ExtPowerPack is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of ExtPowerPack by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with ExtPowerPack.
- Care should be taken to keep the power supply unit adapter dry. The ExtPowerPack, while connected to a host and discharging, is rated to IP22 according to IEC60529. When charging, the ExtPowerPack is rated to IP22 due to the power supply unit adapter which is rated to IP22.
- In the event of a battery leaking, do not allow the liquid to come in contact with the skin or eyes. If contact has been made, wash the affected area with copious amounts of water and seek medical advice.

⚠ CAUTION

- Avoid hard, physical impact on the battery.
- Before using for the first time, ensure that ExtPowerPack is in good condition and operational. If there are any defects, the ExtPowerPack should not be used.

- The ExtPowerPack is to be used only in accordance with the intended use stated in this manual. Damage to equipment or injury can result from modifications to the equipment or operation.
- Always fully charge ExtPowerPack before use, or before relying as a backup power.
- Monitor the charge level of ExtPowerPack. When the charge level is low, ensure that continuity of power can be maintained.
- When transporting, turn off the host, unplug ExtPowerPack from the host and pack in the carry bag.
- Medical electrical equipment requires special precautions regarding EMC and needs to be installed and operated according to the information provided in this user manual. Portable and mobile communications equipment can affect medical electrical equipment. If EMC interference is observed, for example static on radios, move ExtPowerPack away from other equipment.
- Do not store ExtPowerPack longer than 1 year without recharging.
- The ExtPowerPack must be recycled or disposed of properly. Follow local governing ordinances and recycling plans regarding disposal of host components.

3 Symbol

The following symbols may appear on ExtPowerPack and power supply.

	Manufacturer
	Date of Manufacture
SN	Serial number
⎓	DC Power
	Temperature limitation
	Humidity limitation
	Atmospheric pressure limitation
	Follow instruction for use. This label on the host points the user to the operator's manual for complete information. In the operator's manual, this symbol cross-references the label.
EC REP	European Authorized Representative
RoHS	European RoHS
Li-ion	Recyclable Symbol
	Dispose according to Council Directive 2012/19/EU or WEEE (Waste Electrical and Electronic Equipment).
⏻	Power On/Off Button (Starts and stops the airflow for therapy)
IP22	Indicates the degree of protection provided by enclosure according to IEC 60601-1.
CE 0123	The product bears CE mark indicating its conformity with the provisions of the Council Directive 93/42/EEC concerning medical hosts and fulfils the essential requirements of Annex I of this directive.

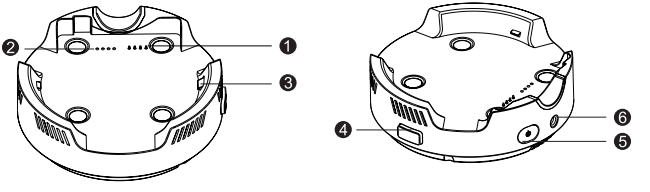
4 Setup and Operation

Before the first use

The ExtPowerPack leaves the factory in ship mode, which keeps the internal battery from discharging itself and also increases the shelf life of battery.

The ExtPowerPack cannot function in ship mode and must be activated by connecting it to the mains power supply before it is put into operation.

Control Panel



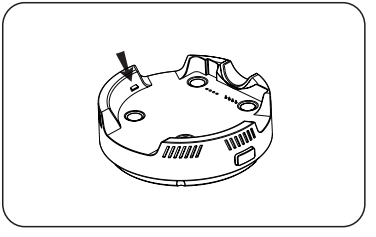
The control panel of ExtPowerPack includes the following:

#	Description
1	Battery connection terminals
2	**LED indicator** Display the current battery capacity state.
3	**Locker** Lock the host and the ExtPowerPack.
4	**Unlock button** Release the host and the ExtPowerPack.

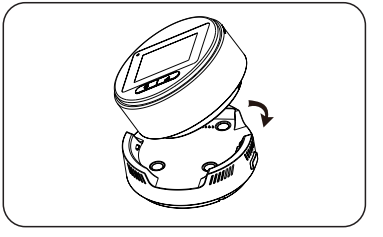
5	**On/Off button** Blinking when charging.
6	Power inlet

Installing the ExtPowerPack

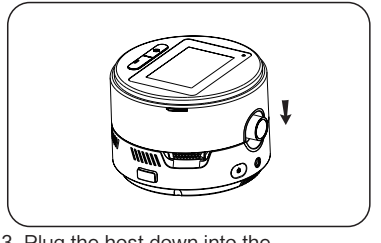
Follow the below steps to attach the ExtPowerPack with the host:



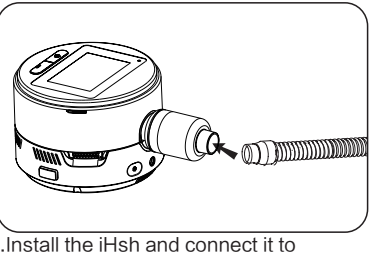
1.Find the locker on the ExtPowerPack.



2.Tilt the host to point at the locker.



3. Plug the host down into the ExtPowerPack while pushing the button.



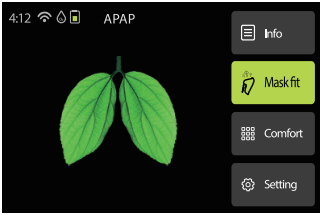
4.Install the iHsh and connect it to the breathing circuit.

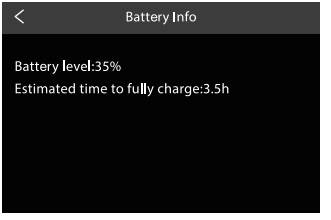
Providing power to the host

Press On/Off button on ExtPowerPack to turn on the host.

Checking the battery level on the host

After the host is power on, click the battery icon on the top left corner of the host screen, the Battery Info window will be pop up.

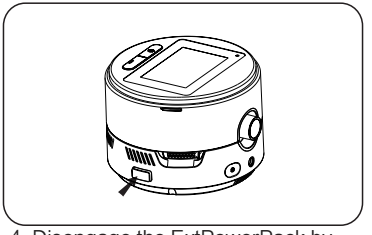




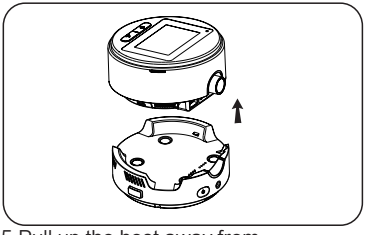
Removing the ExtPowerPack

When the host is not in use, remove ExtPowerPack from the host. Follow the below steps:

1. Disconnect the power cord.
2. Hold the ExtPowerPack On/Off button for 3 seconds.
3. The therapy device will power down.



4. Disengage the ExtPowerPack by pressing the Unlock button.



5.Pull up the host away from ExtPowerPack.

Charging the ExtPowerPack

The ExtPowerPack provides LEDs to indicate its current capacity state.

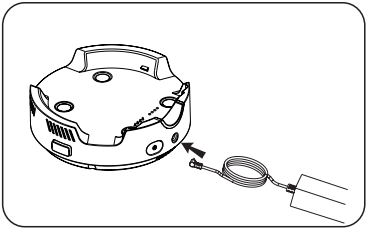
#	Host Feature	Description
1	● ● ● ● Four green continuous	The battery capacity is 75%–100%.
2	● ● ● ○ Three green continuous	The battery capacity is 50%–75%.
3	● ● ○ ○ Two green continuous	The battery capacity is 25%–50%.
4	● ○ ○ ○ One green continuous	The battery capacity is 0%–25%.
5	✹ Flashing green	Charging.

Simply plug the provided power supply into ExtPowerPack, ensure the charging status and the LED indicator illuminate. The LED indicator blinks while charging and stays ON when batteries are fully charged.

When ExtPowerPack is disconnected to the power supply, press On/Off button to lighten the LED indicator.

Note

- Charging time may increase if using the host while charging ExtPowerPack.



Traveling with the ExtPowerPack

Consult with your carrier if you intend to take ExtPowerPack on board with your host.

5 Cleaning and Maintenance

1.Disconnect ExtPowerPack from the power supply unit and the host. Remove all cables.

2.Wipe the exterior of ExtPowerPack with a clean cloth.

⚠ WARNING

- Do not immerse ExtPowerPack in water, and do not use liquids to clean any part of the product.

6 Storage

Store ExtPowerPack in a cool and dry place. Prior to storage we recommend that you charge the battery. A half fully charged battery can be stored for up to two months without requiring a recharge.

⚠ CAUTION

- ExtPowerPack must be charged to 100% before storing. You must recharge the ExtPowerPack to 100% again after a few months of storage. When not in use, ExtPowerPack self−discharges over time. If not periodically recharged (ie, the ExtPowerPack with a capacity of 3200 mAh should be recharged every four months and the ExtPowerPack with a capacity of 6700 mAh should be recharged every eight months), the ExtPowerPack will eventually self−discharge to the point that it can no longer be recharged. If this occurs the ExtPowerPack is no longer usable and is unrecoverable.

Note

- When not in use, the fully charged ExtPowerPack with a capacity of 3200 mAh will self−discharge to 0% of full capacity within 20 weeks of storage.
- When not in use, the fully charged ExtPowerPack with a capacity of 6700 mAh will self−discharge to 0% of full capacity within 40 weeks of storage.

7 Servicing

ExtPowerPack is intended to provide safe and reliable operation when used and maintained in accordance with the provided instructions. There is no servicing necessary during the lifetime of the battery.

The service life of the battery exceeds 500 recharge cycles. After 500 recharge cycles, the battery will last about 70% of the time from its original condition. A full charge in an older battery will not last as long as in a new battery. We recommends that ExtPowerPack be tested for battery duration regularly. As with all electrical equipment, if any irregularity becomes apparent, you should exercise caution and contact an authorized service providers.

8 Disposal

Disposal of the battery and the power supply unit should be carried out in accordance with applicable national laws and regulations. If you need information on these disposal systems, please contact your local waste administration. If you require information on collection and disposal of your host please contact your local distributor.

9 Troubleshooting

If there is a problem, try the following suggestions. If the problem cannot be solved, contact your service providers. Do not attempt to open the battery.

Problem	Possible cause	Solution
Host is not running.	Power connections are disrupted.	Check all cables and connect them as described in Charging the ExtPowerPack.
The host sounds an audible alert continuously and the alarm LED is flashing.	The battery capacity is less than 10%.	Turn off the host and recharge the battery as soon as possible.
The host can not start ventilation.	The battery charge level is below 4%.	Recharge the battery as soon as possible.
Charging stops before completion.	The battery temperature is warmer than 50℃ .	Move ExtPowerPack to the place where the ambient temperature is cool.
ExtPowerPack turns off and stops powering host.	The battery temperature is warmer than 60℃ .	Move ExtPowerPack to the place where the ambient temperature is cool.

The ExtPowerPack LEDs will not light up while charging.	Your ExtPowerPack may have been damaged.	If the ExtPowerPack is completely depleted of charge, wait a few minutes for the LEDs to light up. If the LEDs still do not light up, replace your ExtPowerPack. If the ExtPowerPack has been exposed to extreme temperatures, allow the ExtPowerPack to cool or warm to room temperature.
The ExtPowerPack LED is rapidly flashing.	Your ExtPowerPack may have been damaged.	If the ExtPowerPack has been exposed to extreme temperatures, allow the ExtPowerPack to cool or warm to room temperature. Unplug the ExtPowerPack from the power cord, then plug the power cord back into the ExtPowerPack. If the LEDs continues to rapidly flash, replace your ExtPowerPack.

10 Specifications

Physical

Dimension (L*W*H): 146*146*49mm

Weight: Approximately 0.44 kg[1] / 0.65 kg[2]

Electrical[1]

Type: Lithium-ion

Model: EP-01

Voltage: 15.0 V

Capacity: 3200 mAh

Everage Run Time: 7 hours*[1]

Recharge Time: <3 hours*[2]

Electrical[2]

Type: Lithium-ion

Model: EP-02

Voltage: 14.4 V

Capacity: 6700 mAh

Everage Run Time: 13 hours*[1]

Recharge Time: <5 hours*[2]

*[1]TEST CONDITION: iDisc CPAP MODE, PRESSURE 10 cmH_2O, 15 mm TUBING, 37 LPM OF LEAK, 25 ℃ ROOM TEMPERATURE AND ATMOSHERIC PRESSURE (101.3 kpa).

*[2]TEST CONDITION:TEST IN STANDBY MODE.

Note

Battery life may vary based on host settings, leak, patient breath pattern, environmental conditions, or battery age.

Safety Specifications

Ingress Protection: IP22

Operating Environment

Temperature: 5 ~35 ℃

Relative Humidity: 10%~95% (non-condensing)

Atmospheric Pressure: 70 ~106 kPa

Storage conditions

Temperature: −25 ~60 ℃

Relative Humidity: 10%~95% (non−condensing)

Atmospheric Pressure: 70 ~106 kPa

Note

Recommended storage conditions for ExtPowerPack.

< 3 months: Temperature: −20 ~ 45 ℃ ; Humidity: 40% ~ 80%

< 6 months: Temperature: 21 ~ 25 ℃ ; Humidity: 40% ~ 80%

> 6 months: Temperature: 21 ~ 25 ℃ ; Humidity: 60% ~ 70%

Minimum life cycle

⩾ 500 cycles at 23℃ to 70% capacity

11 EMC Declaration

Note

- The EMC tables and other guidelines provide information to the customer or user that is essential in determining the suitability of the Equipment or System for the Electromagnetic Environment of use, and in managing the Electromagnetic Environment of use to permit the Equipment or System to perform its intended use without disturbing other Equipment and Systems or non−medical electrical equipment.

Form 1 Guidance and Declaration – Electromagnetic Emissions

Emissions test	Compliance	Electromagnetic environment – guidance
Radiated emissions CISPR11	Group 1	The iDisc CPAP system 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.
Conducted emissions CISPR11	Class B	The iDisc CPAP system is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC61000-3-3	Complies	

Form 2 Recommended Separation Distance between Portable/Mobile RF Communications Equipment and the iDisc CPAP system

Rated maximum output power of transmitter(W)	Separation distance in meters (m) according to frequency of the transmitter		
	150kHz~80MHz $d=1.2\sqrt{p}$	80MHz-800MHz $d=1.2\sqrt{p}$	800MHz-2.5GHz $d=2.3\sqrt{p}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

Form 3 Guidance and Declaration – Electromagnetic Immunity

Immunity test	IEC60601test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge(ESD) IEC61000–4–2	Contact：±8kV Air：±15kV	Contact：±8kV Air：±15V	Floors should be wood、concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC61000–4–4	Power supply lines：±2 kV input/output lines：±1 kV	Power supply lines：±2kV input/output lines：±1kV	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC61000–4–5	line(s) to line(s)：±1kV line(s) to earth：±2kV	line(s) to line(s)：±1kV line(s) to earth：±2kV	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 IEC61000–4–11	0%, 70%, 0% of UT	0% for 0.5 cycle, 0% for 1 cycle , 70% for 25 cycles , 0% for 250 cycles	Mains power quality should be that of a typical commercial or hospital environment.
Power frequency （50/60Hz) magnetic field IEC61000–4–8	50Hz, 60Hz 30A/m	50Hz:30A/m 60HZ:30A/m	Mains power quality should be that of a typical commercial or hospital environment.

Conduced RF IEC61000-4-6	150KHz to 80MHz 3Vrms ISM and amateur radio bands between 150KHz to 80MHz 6Vrms	3Vrms 6Vrms (in ISM and amateur radio bands) 80% Am at 1kHz.	Portable and mobile RF communications equipment should be used no closer to any part of the iDisc CPAP system, including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter. Recommended separation distances:$d=0.35\sqrt{p}$ $d=1.2\sqrt{p}$
Radiated RF IEC61000-4-3	80MHz to 2700MHz 10V/m (rms) 385MHz 27V/m (rms) 450MHz 28V/m (rms) 710MHz, 745MHz, 780MHz 9V/m (rms) 810MHz, 870MHz, 930MHz 28V/m (rms) 1720MHz, 1845MHz, 1970MHz 28V/m (rms) 2450MHz 28V/m (rms) 5240MHz, 5500MHz, 5785MHz 9V/m (rms)	10V/m, 80% Am at 1kHz 27V/m PM at 18Hz 28V/m FM ± 5 kHz deviation at 1kHz sine 9V/m PM at 217 Hz 28V/m PM at 18Hz 28V/m PM at 217 Hz 28V/m PM at 217Hz 9V/m PM at 217Hz	80MHz to 800MHz： $d=1.2\sqrt{p}$ 800MHzto 2.5GHz： $d=2.3\sqrt{p}$ 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. Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: 

Statement

Resvent Medical Technology Co., Ltd. (hereinafter called "Resvent") owns the intellectual property rights to this manual. Resvent intends to maintain the contents of this manual and confidential information.

This manual serves as a reference. The instruction in this manual are not intended to supersede the health care professional's instructions regarding the use of the device.

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SmartMed Pty Ltd is the Australian and Pacific authorized and exclusive dealer for Resvent PAP devices. Distributorship and warranty claims can be made through SmartMed Pty Ltd by local accredited CPAP Dealers with a supply agreement in place.

Limited Warranty

SmartMed Pty Ltd. warrants that the system shall be free from defects of workmanship and materials and will perform in accordance with the product specifications within the warranty period. During the warranty time, if the product fails to perform in accordance with the product specifications, SmartMed Pty Ltd will repair or replace, at its option, the defective material or part. SmartMed Pty Ltd will pay customary freight charges from SmartMed Pty Ltd to the dealer location only. This warranty does not cover damage caused by accident, misuse, abuse, alteration, water ingression, and other defects not related to material or workmanship.

To exercise your rights under this warranty, contact your local authorized dealer or SmartMed Pty Ltd.