

FreedomTM

CPAP BATTERY

USER'S MANUAL



**Battery Power
Solutions**

Batteries to Power Your World!

Table of Contents

Package Contents	1
Connection Components Sold Separately	1
Product Specifications	2
Safety Features.....	2
Charge Time.....	2
Life Span.....	2
Warranty.....	2
Intended Use	3
Compatibility	3
Average Run Times	4
Getting Started	
Initial Battery Usage.....	5
Turning the Battery On/Off.....	5
The Control Board.....	5
Charging the Battery	6
Charging in a Foreign Country.....	6
Single Battery Charging.....	6
Dual Battery Charging.....	7
Other Charging Options	8
Auto Charge Cable.....	8
150W Sine Wave Power Inverter.....	8
SunPower 40W Solar Panel.....	8

Table of Contents

Powering Your PAP Device

Respironics DreamStation Series.....	9-10
Respironics System One & M Series.....	11-12
ResMed Air 10 & S9 Series.....	13-15
ResMed S8 Series.....	16-17
DeVilbiss IntelliPAP Series.....	18-19
Somnetics Transcend Series.....	20-21
HDM Z1 Series.....	22-23
Other PAP Devices.....	24-25

Air Travel Usage.....	26
------------------------------	-----------

Power Backup Usage.....	26
--------------------------------	-----------

Single Battery Connection.....	27-28
Dual Battery Connection.....	29-30

Powering Other Devices.....	31
------------------------------------	-----------

USB Port Connection.....	31
DC Input Cord Connection.....	32
150W Sine Wave Inverter Connection.....	32

Battery Care Instructions.....	33
---------------------------------------	-----------

Battery Storage.....	33
-----------------------------	-----------

FAQ/Troubleshooting.....	34-35
---------------------------------	--------------

Safety Warnings.....	36
-----------------------------	-----------

Usage Disclaimer.....	36
------------------------------	-----------

Battery Disposal.....	36
------------------------------	-----------



Package Contents

The Freedom™ CPAP Battery Kit comes with the items listed below.



FREEDOM™ CPAP BATTERY



AC POWER SUPPLY



DC POWER PIGTAIL CORD



CONNECTOR TIPS (3)
{Letters: N, W, J}



DC INPUT CORD

NOTE: The included DC power pigtail cord and connector tips included in the battery kit are compatible with Respirationics System One, Respirationics M series and DeVilbiss IntelliPAP 1 series devices. All other PAP device makes and models will require an additional connection component (see below).

Connection Components Sold Separately

The following items are required to connect certain PAP devices to the Freedom™ battery. These items are typically packaged separately and are not included in the Freedom™ CPAP Battery Kit box.



RESMED
24V POWER CONVERTER
{ITEM #: BPS C-24V-RES}

Required for ResMed Air 10 and S9 devices.



DREAMSTATION
12V POWER ADAPTER
{ITEM #: BPS C-12V-DS}

Required for Respirationics DreamStation devices.



150W SINE WAVE
POWER INVERTER
{ITEM #: BPS INVERTER}

Required for most all other PAP device models.

Product Specifications

Cell Type: Industrial grade rechargeable lithium-ion

Capacity: 97.68 Wh

Output Voltage Range: 9V-12.6V DC

USB Output Voltage: 5V DC, 2A

Output Current: 8A maximum

Power Gauge: Digital display charge level indicator

Size: 7.5" x 4.8" x 0.8" (L x W x H)

Weight: 1.7 lbs

SAFETY FEATURES

- Protective Circuit Board (PCB) provides internal protection against thermal runaway (overheating), over charging, over discharging, over voltage, over current, and short circuiting.
- Aluminum alloy shell provides maximum cell protection and durability.
- The Freedom™ CPAP Battery has been UN 38.3 tested™ and meets all current safety regulations and shipping requirements.

CHARGE TIME

The Freedom™ CPAP Battery can be charged in approximately 4 hours (per battery) when fully discharged. The battery does not need to be fully discharged before charging. **Do not charge on any flammable surface.**

LIFE SPAN

Under normal conditions the average life span of the Freedom™ CPAP Battery is generally around 400-500 charge/discharge cycles. The amount of charge the battery will hold will gradually decrease due to usage and aging. This decrease in charge capacity is true for all rechargeable lithium-ion batteries. See page 33 for more information.

WARRANTY

The Freedom™ CPAP Battery, all components and accessories are under warranty for manufacturing and quality defects for one (1) year.

Intended Use

The Freedom™ CPAP Battery is intended to provide external battery power to PAP (positive airway pressure) devices when AC power is unavailable during travel or power outages.

The Freedom™ CPAP Battery can also be used to power or charge most common portable electronic devices such as cell phones and tablets.

Use of the battery with a device that has higher amperage requirements than the output of the battery (over 8A) may cause the internal circuitry of the battery to shut off to protect from thermal runaway.

Compatibility

All PAP device makes and models have different voltage and direct current capability requirements which determine the type of external battery that can be used.

The unique universal design of the Freedom™ CPAP Battery allows it to power most common PAP devices; however, some devices will require a device-specific connection component that is sold separately from the standard Freedom™ CPAP Battery Kit. See page 1 for more information.

Some older obsolete PAP devices and targeted ventilation PAP devices may not be compatible with or may require more power than the Freedom™ CPAP Battery can provide.

Reference the instructions in this manual for your specific PAP device to determine which connection components are required. **Do not attempt to connect your PAP device to the Freedom™ CPAP Battery before reading these connection instructions.**

If connection instructions for your PAP device are not in this manual or you have any questions about connecting your device, please contact us at 1-877-445-5228 or via email at info@batterypowersolutions.net.

Average Run Times

Multiple factors will affect how long the Freedom™ CPAP Battery will power a PAP device, including, but not limited to device type, pressure setting, altitude, humidifier usage, and the required connection component type.

BiLevel devices will have lower run times as the pressure setting is not constant and changes throughout the night requiring more power to operate the device.

The use of heated humidification and heated tubing will significantly reduce expected run times by up to two thirds in most cases and in some cases could prevent the battery from being able to power the PAP device. To obtain optimal battery performance we recommend you forgo the use of heated humidification and heated tubing.

Average run times are based on standard CPAP devices without the use of heated humidification or heated tubing on a pressure setting of 10 cm/H₂O. To increase average run times the battery can be used in a dual battery configuration by pigtailing two batteries together.

Respironics DreamStation Series

Single Battery: 1-2 nights

Dual Batteries: 2-4 nights

Respironics System One & M Series

Single Battery: 1-3 nights

Dual Batteries: 3-5 nights

DeVilbiss IntelliPAP 1 Series

Single Battery: 1-3 nights

Dual Batteries: 3-5 nights

*IntelliPAP 2: 1 night | 2 nights

Somnedics Transcend Series

Single Battery: 1-2 nights

Dual Batteries: 2-4 nights

ResMed Air 10 & S9 Series

Single Battery: 1-2 nights

Dual Batteries: 2-4 nights

ResMed S8 Series

Single Battery: 1 night

Dual Batteries: 2 nights

HDM Z1 Series

Single Battery: 1-2 nights

Dual Batteries: 2-4 nights

Most Other PAP Device Models

Single Battery: 1 night

Dual Batteries: 2 nights

Getting Started

INITIAL BATTERY USAGE

Before using the Freedom™ CPAP Battery for the first time be sure to charge it fully. It may only take a short time for the battery charge level to reach 100% as it is already partially charged before it leaves the factory.

TURNING THE BATTERY ON/OFF

The Freedom™ CPAP Battery turns on and off automatically when a device is connected or disconnected from the DC OUT jack.

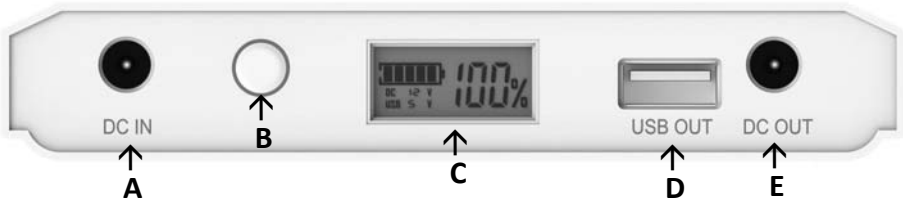
When connecting a device via the USB port, the charge level indicator button must be pressed once the device is connected in order to activate power output from the USB port. The battery will automatically shut off when the device is disconnected from the USB OUT port.

If the battery stops functioning press the charge level indicator button to reset the internal circuitry. See page 35 for additional information.

When not in use disconnect devices from the DC OUT jack or USB OUT port of the battery to allow the battery to completely shut down.

THE CONTROL BOARD

The Freedom™ CPAP Battery control board includes the DC IN and DC OUT jacks, USB OUT port, charge level indicator button, and digital display screen which displays the current charge level of the battery.



(A) DC IN JACK

(B) CHARGE LEVEL INDICATOR BUTTON

(C) DIGITAL DISPLAY SCREEN

(D) USB OUT PORT

(E) DC OUT JACK

Charging the Battery

The Freedom™ CPAP Battery can be charged via a wall outlet using the included AC power supply in approximately 4 hours (per battery) when the battery is fully discharged.

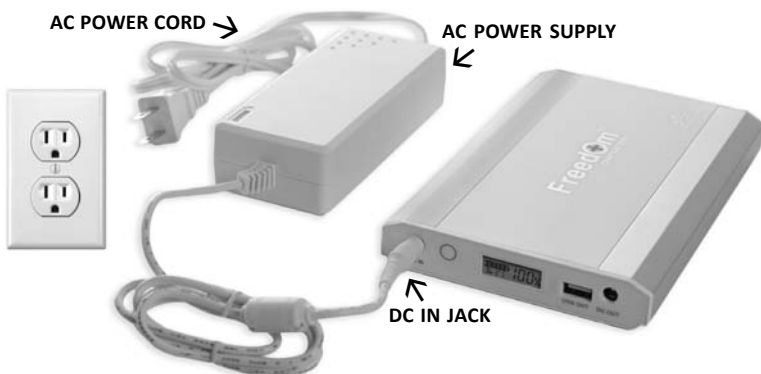
CHARGING IN A FOREIGN COUNTRY

The AC power supply of the Freedom™ CPAP Battery will operate on any AC current from 100-240VAC and 50/60 Hz without any adjustment. An international electrical adapter plug is the only additional component that is required to charge the battery in a foreign country.

SINGLE BATTERY CHARGING

- Connect the AC power cord to the AC power supply.
- Plug the AC power supply into the DC IN jack of the battery.
- Plug the AC power supply into a wall outlet.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen for a few seconds at a time.
- When charging is complete disconnect the AC power supply from the wall outlet and the battery.

Note: It is normal for the AC power supply and the battery to be slightly warm to the touch during the charging process. **Do not charge the Freedom™ CPAP Battery on any flammable surface.**

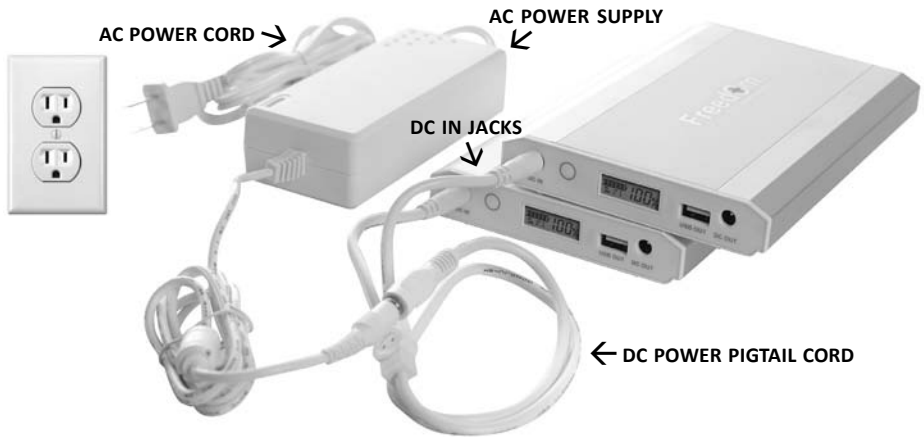


Charging the Battery

DUAL BATTERY CHARGING

- Connect the AC power cord to the AC power supply.
- Plug the AC power supply into the DC power pigtail cord.
- Plug the DC power pigtail cord into the DC IN jacks of both batteries.
- Plug the AC power supply into a wall outlet.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen for a few seconds at a time.
- When charging is complete disconnect the AC power supply from the wall outlet and the battery.

Note: It is normal for the AC power supply and the battery to be slightly warm to the touch during the charging process. **Do not charge the Freedom™ CPAP Battery on any flammable surface.**



Other Charging Options

When AC power is not available you can still keep the Freedom™ CPAP Battery charged up and ready to go. Optional accessories are available for charging the battery in a vehicle or by using the power of the sun. For more detailed information on these charging accessories visit our website at www.batterypowersolutions.net or call us at 1-877-445-5228.

AUTO CHARGE DC CABLE

The auto charge DC cable lets you connect the battery directly to the cigarette lighter/power socket of a vehicle. The vehicle must be running during the charging process in order to obtain the proper voltage to successfully charge the battery. **We do not recommend using any other brand of “universal” auto charge cable as it may damage the internal circuitry of the Freedom™ CPAP Battery.**

150W SINE WAVE POWER INVERTER

The 150W sine wave power inverter lets you charge the battery via the cigarette lighter/power socket of a vehicle by plugging the battery AC power supply into the inverter and then plugging the inverter into the vehicle. The vehicle does not need to be running during the charging process to obtain the proper voltage to successfully charge the battery.

SUNPOWER 40W SOLAR PANEL

The SunPower 40W solar panel lets you use the power of the sun to charge the battery. The solar panel also comes with a DC input cord so you can charge other small electronic devices that operate from 18V or less by using the device’s DC power cord.



AUTO CHARGE DC CABLE
{ITEM #: BPS DC.CABLE}



**150W SINE WAVE
POWER INVERTER**
{ITEM #: BPS INVERTER}



**SUNPOWER 40W
SOLAR PANEL**
{ITEM #: BPS SP40}

Respironics DreamStation Series Devices

The DC input port on Respironics DreamStation series devices require a proprietary signal in order to recognize a valid power source; therefore, the use of a 12V power adapter is required in conjunction with the Freedom™ CPAP Battery.

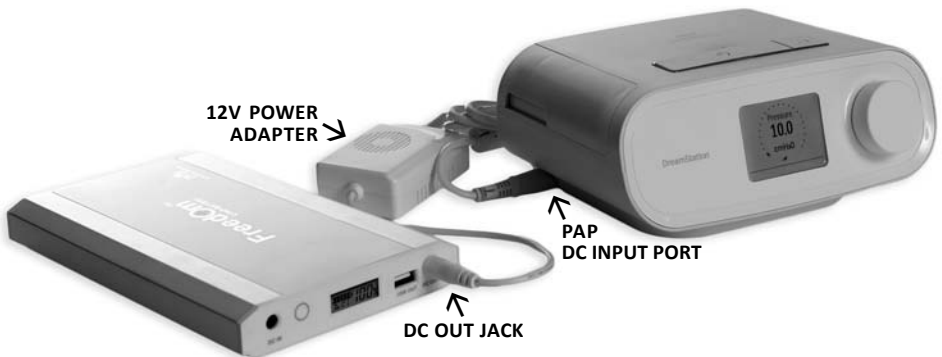
Our 12V power adapter was designed specifically for use with Respironics DreamStation series devices and the Freedom™ CPAP Battery.

REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit
- DreamStation 12V Power Adapter

SINGLE BATTERY CONNECTION

- Plug the 12V power adapter into the DC OUT jack of the battery.
- Plug the 12V power adapter into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.

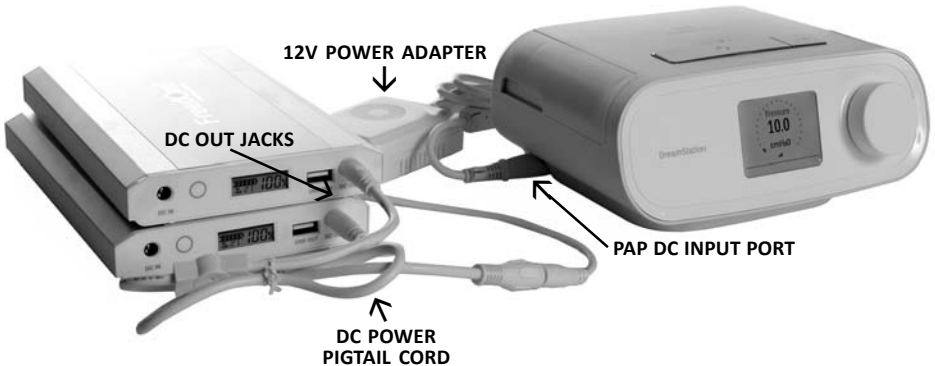


Respironics DreamStation Series Devices

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the 12V power adapter into the DC power pigtail cord.
- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Plug the 12V power adapter into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



Respironics System One & M Series Devices

Respironics System One and M series devices can be connected directly to the Freedom™ CPAP Battery using the DC power pigtail cord and the appropriate connector tip included in the Freedom™ CPAP Battery Kit.

REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit

SINGLE BATTERY CONNECTION

- Plug the DC power pigtail cord into the DC OUT jack of the battery.
- Insert the appropriate connector tip into the DC power pigtail cord.
 - System One 60 Series: Tip with black top labeled “W”
 - System One 50 & M Series: Tip with yellow top labeled “N”
- Plug the DC power pigtail cord with appropriate connector tip attached into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



Image shows connection to Respironics System One 60 series PAP device.

Respironics System One & M Series Devices

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Insert the appropriate connector tip into the DC power pigtail cord.
 - System One 60 Series: Tip with black top labeled “W”
 - System One 50 & M Series: Tip with yellow top labeled “N”
- Plug the DC power pigtail cord with appropriate connector tip attached into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.

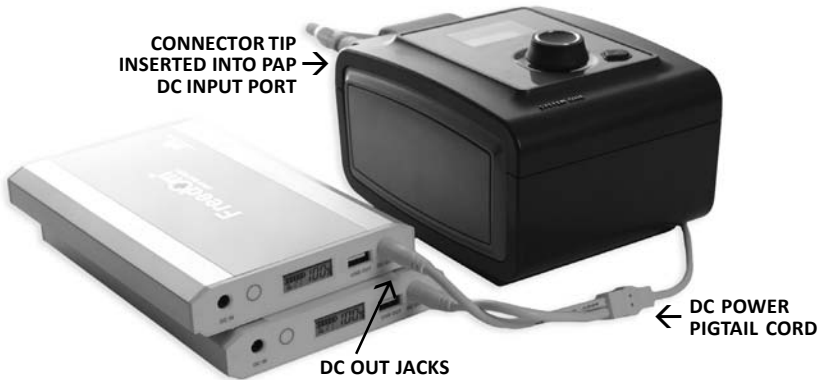


Image shows connection to Respironics System One 60 series PAP device.

ResMed Air 10 & S9 Series Devices

ResMed Air 10 and S9 series devices operate from 24V direct current and the Freedom™ CPAP Battery provides 12V direct current; therefore, the use of a 24V power converter is required in conjunction with the battery.

Our 24V power adapter was designed specifically for use with ResMed Air 10 and S9 series devices and the Freedom™ CPAP Battery.

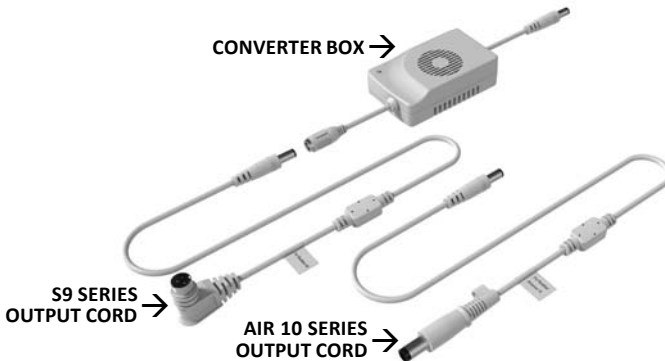
REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit
- ResMed 24V Power Converter

24V RESMED POWER CONVERTER

The 24V power converter includes the converter box and two output cords. Each output cord has a tag attached to it noting which device it fits - either ResMed Air 10 or ResMed S9 series devices.

Set the converter box and the appropriate output cord for your device aside. Do not connect the output cord to the converter box yet as the converter box must be connected to the Freedom™ battery first. See the connection instructions on the following pages.



ResMed Air 10 & S9 Series Devices

The steps below must be followed in exact sequence in order to initiate the voltage conversion process and thus allow the Freedom™ CPAP Battery to power the ResMed Air 10 or S9 series device. After connection if you are not receiving power to the PAP device unplug all components and follow the instructions again.

SINGLE BATTERY CONNECTION

The steps below must be followed in exact sequence!

- Plug the 24V power converter box into the DC OUT jack of the battery.
- Insert the appropriate output cord for your device (Air 10 or S9) into the power converter box.
- Plug the 24V power converter with appropriate output cord attached into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



Image shows connection to a ResMed Air 10 series PAP device.

ResMed Air 10 & S9 Series Devices

The steps below must be followed in exact sequence in order to initiate the voltage conversion process and thus allow the Freedom™ CPAP Battery to power the ResMed Air 10 or S9 series device. After connection if you are not receiving power to the PAP device unplug all components and follow the instructions again.

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

The steps below must be followed in exact sequence!

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Plug the 24V power converter box into the DC power pigtail cord.
- Insert the appropriate output cord for your device (Air 10 or S9) into the power converter box.
- Plug the 24V power converter with appropriate output cord attached into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



Image shows connection to a ResMed Air 10 series PAP device.

ResMed S8 Series Devices

Although ResMed S8 series devices operate from 12V DC the DC input ports run opposite polarity from the Freedom™ CPAP Battery; therefore, the use of the 150W sine wave power inverter is required in conjunction with battery. **DO NOT connect a ResMed S8 device to the battery without using the sine wave power inverter as doing so will cause irreversible damage to the PAP device.**

REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit
- 150W Sine Wave Power Inverter (power inverter)

SINGLE BATTERY CONNECTION

- Plug the DC input cord into the DC OUT jack of the battery.
- Plug the power inverter into the DC input cord.
- Plug the AC power cord of the PAP device into the power inverter.
- Plug the AC power cord into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



ResMed S8 Series Devices

Although ResMed S8 series devices operate from 12V DC the DC input ports run opposite polarity from the Freedom™ CPAP Battery; therefore, the use of the 150W sine wave power inverter is required in conjunction with battery. **DO NOT connect a ResMed S8 device to the battery without using the sine wave power inverter as doing so will cause irreversible damage to the PAP device.**

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Plug the DC input cord into the DC power pigtail cord.
- Plug the power inverter into the DC input cord.
- Plug the AC power cord of the PAP device into the power inverter.
- Plug the AC power cord into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



DeVilbiss IntelliPAP Series Devices

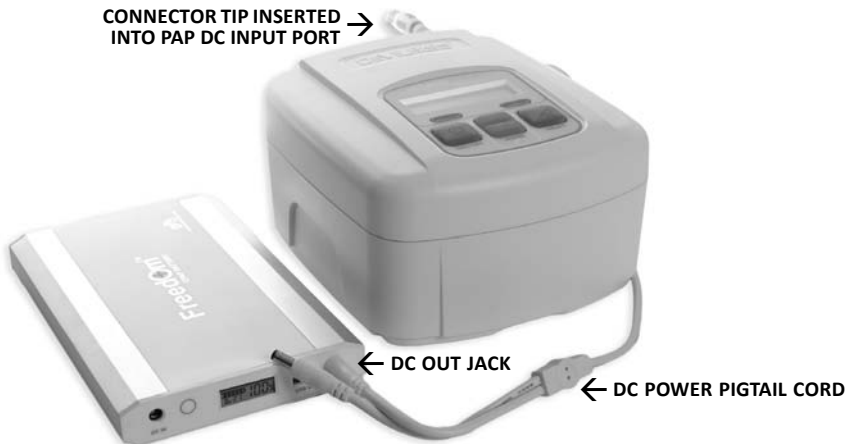
DeVilbiss IntelliPAP series devices can be connected directly to the Freedom™ CPAP Battery using the DC power pigtail cord and connector tip “J” included in the Freedom™ CPAP Battery Kit. **Note: IntelliPAP 2 series devices must be connected to the Freedom™ CPAP Battery via the 150W sine wave power inverter.**

REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit

SINGLE BATTERY CONNECTION

- Plug the DC power pigtail cord into the DC OUT jack of the battery.
- Insert the connector tip with blue top labeled “J” into the DC power pigtail cord.
- Plug the DC power pigtail cord with “J” connector tip attached into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



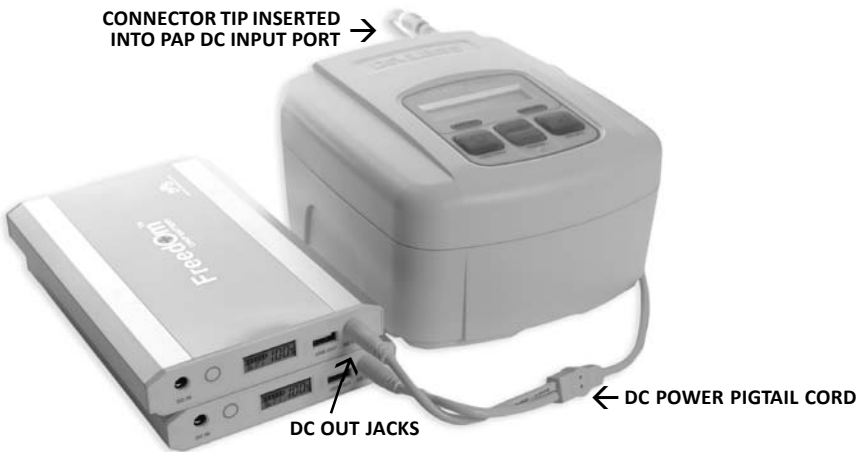
DeVilbiss IntelliPAP Series Devices

Note: IntelliPAP 2 series devices must be connected to the Freedom™ CPAP Battery via the 150W sine wave power inverter.

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Insert the connector tip with blue top labeled “J” into the DC power pigtail cord.
- Plug the DC power pigtail cord with “J” connector tip attached into the DC input port of the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



Somnetics Transcend Series Devices

Somnetics Transcend series devices can be connected to the Freedom™ CPAP Battery via the 150W sine wave power inverter.

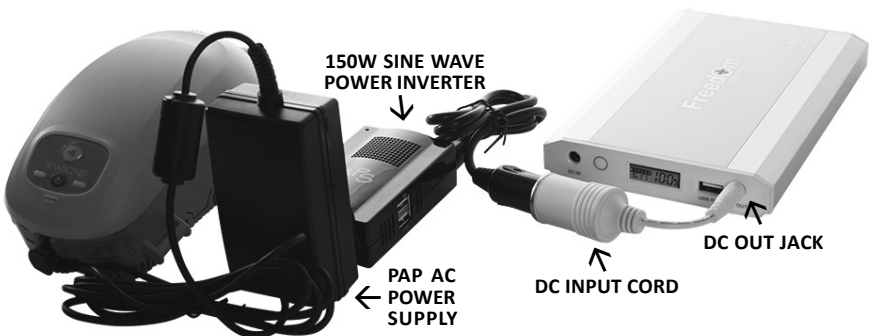
REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit
- 150W Sine Wave Power Inverter (power inverter)

Due to the initial power draw required to start the device **the connection instructions below must be followed in exact sequence** in order to prevent “tripping” the internal circuitry of the battery. If the battery does shut down disconnect all components, press the charge level indicator button to reset the battery and follow the instructions in exact sequence.

SINGLE BATTERY CONNECTION

- Plug the DC input cord into the DC OUT jack of the battery.
- Plug the power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the power inverter.
- Plug the AC power supply into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



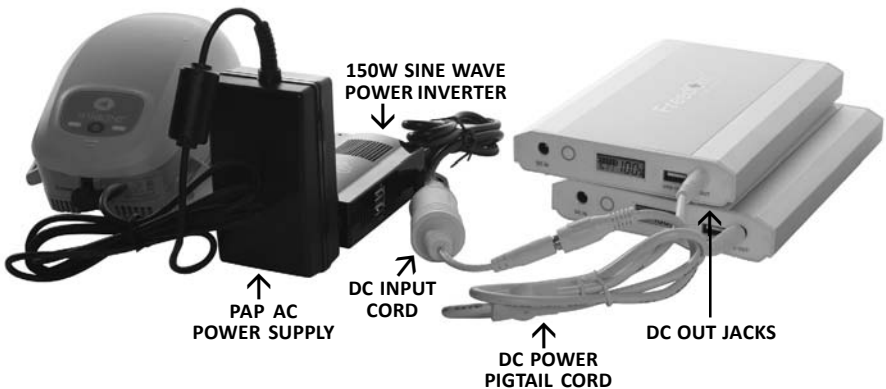
Somnetics Transcend Series Devices

Due to the initial power draw required to start the device **the connection instructions below must be followed in exact sequence** in order to prevent “tripping” the internal circuitry of the battery. If the battery does shut down disconnect all components, press the charge level indicator button to reset the battery and follow the instructions in exact sequence.

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Plug the DC input cord into the DC power pigtail cord.
- Plug the power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the power inverter.
- Plug the AC power supply into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



HDM Z1 Series Devices

HDM Z1 series devices can be connected to the Freedom™ CPAP Battery via the 150W sine wave power inverter.

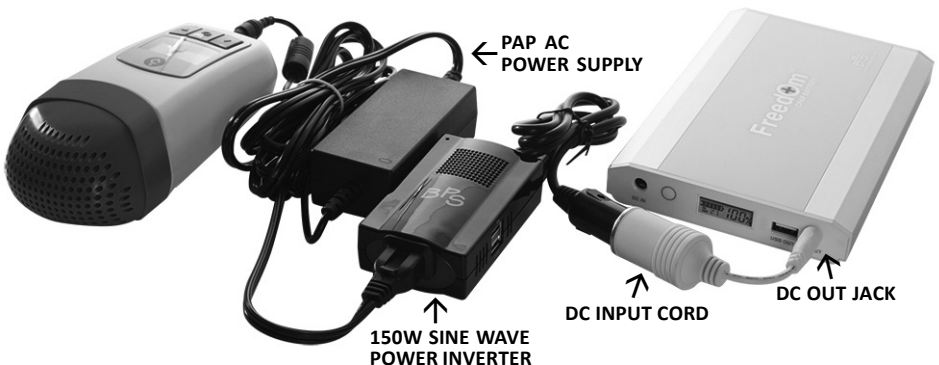
REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit
- 150W Sine Wave Power Inverter (power inverter)

Due to the initial power draw required to start the device **the connection instructions below must be followed in exact sequence** in order to prevent “tripping” the internal circuitry of the battery. If the battery does shut down disconnect all components, press the charge level indicator button to reset the battery and follow the instructions in exact sequence.

SINGLE BATTERY CONNECTION

- Plug the DC input cord into the DC OUT jack of the battery.
- Plug the power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the power inverter.
- Plug the AC power supply into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



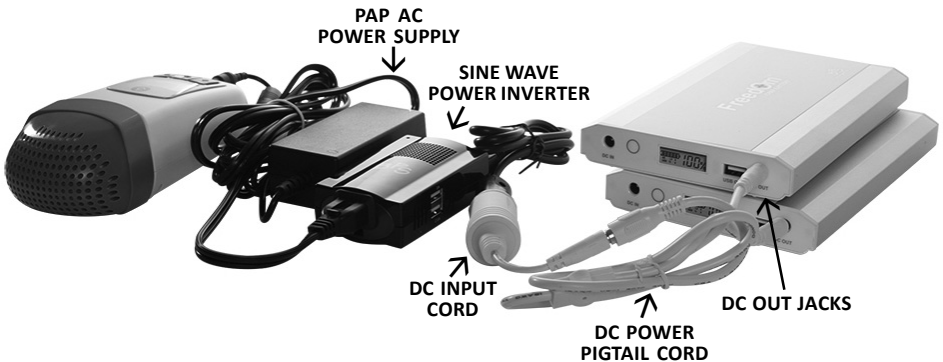
HDM Z1 Series Devices

Due to the initial power draw required to start the device **the connection instructions below must be followed in exact sequence** in order to prevent “tripping” the internal circuitry of the battery. If the battery does shut down disconnect all components, press the charge level indicator button to reset the battery and follow the instructions in exact sequence.

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Plug the DC input cord into the DC power pigtail cord.
- Plug the power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the power inverter.
- Plug the AC power supply into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.



Other PAP Device Models

Most other PAP device models including Fisher & Paykel ICON series, DeVilbiss IntelliPAP 2 series, 3B Medical RESmart and Luna series, and Apex Medical XT series devices can be connected to the Freedom™ CPAP Battery via the 150W sine wave power inverter.

REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit
- 150W Sine Wave Power Inverter (power inverter)

SINGLE BATTERY CONNECTION

- Plug the DC input cord into the DC OUT jack of the battery.
- Plug the power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the power inverter.
- Plug the AC power supply into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.

Image shows connection to Fisher & Paykel ICON series PAP device.



Other PAP Device Models

DUAL BATTERY CONNECTION

Dual battery connection will require an additional Freedom™ CPAP Battery.

- Plug the DC power pigtail cord into the DC OUT jacks of both batteries.
- Plug the DC input cord into the DC power pigtail cord.
- Plug the power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the power inverter.
- Plug the AC power supply into the PAP device.
- Turn the PAP device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.

Image shows connection to Fisher & Paykel ICON series PAP device.



Air Travel Usage

The Freedom™ CPAP Battery meets current FAA requirements for spare lithium-ion batteries (batteries not installed in a device) taken in carry-on baggage as each battery is less than 100 Wh (97.68 Wh) and is protected from damage and short circuit.

Spare lithium-ion batteries are not allowed in checked baggage and must only be taken in carry-on baggage. TSA security, individual airline, and international rules may, at times, be more restrictive. If you are planning to use the battery during flight it is recommended that you contact your airline as they may have specific requirements regarding the use of PAP devices and/or lithium-ion batteries during flight.

Power Backup Usage

The Freedom™ CPAP Battery can be used as a true battery backup system for your PAP device during power outages. When you sleep you may leave your PAP device connected to the Freedom™ battery and then plug the battery into a wall outlet and in the event AC power is lost the battery will automatically begin powering your PAP device uninterrupted.

When AC power (power from a wall outlet) is available it will bypass the lithium-ion cells within the Freedom™ battery and power your PAP device normally without degrading the overall lifespan of the battery (the cells of the battery will not continuously charge and then discharge).

You may use the Freedom battery in this power backup scenario using a single battery or in the dual battery configuration; however, **in the dual battery configuration you will need to purchase an additional DC power pigtail cord** in order to connect both batteries to the AC power supply and then both batteries to your PAP device.

When you are not using your PAP device, disconnect it from the DC OUT jack of the battery and unplug the AC Power supply from the DC IN jack of the battery so the battery can completely shut down.

Power Backup Usage - Single Battery

When using a single Freedom™ battery in the power backup scenario you simply plug the battery into a wall outlet as if you were charging it and then connect your PAP device to the battery.

The AC power supply of the Freedom™ battery will be plugged into the DC IN jack of the battery and then into a wall outlet. Your PAP device will then be connected to the battery via the DC OUT jack of the battery using the appropriate method for your specific model device as noted in this manual.

RESPIRONICS DREAMSTATION SERIES

- Plug the AC power supply of the battery into the DC IN jack of the battery and then plug the AC power supply of the battery into a wall outlet (see page 6).
- Plug the 12V power adapter into the DC OUT jack of the battery and then plug the 12V power adapter into the DC input port of the DreamStation series PAP device (see page 9).

RESPIRONICS SYSTEM ONE/M & DEVILBISS INTELLIPAP SERIES

- Plug the AC power supply of the battery into the DC IN jack of the battery and then plug the AC power supply of the battery into a wall outlet (see page 6).
- Plug the DC power pigtail cord into the DC OUT jack of the battery.
- Insert the appropriate connector tip into the DC power pigtail cord.
 - System One 60 Series: Tip with black top labeled “W”
 - System One 50 & M Series: Tip with yellow top labeled “N”
- Plug the DC power pigtail cord with appropriate connector tip attached into the DC input port of the PAP device (see page 11).

***NOTE:** DeVilbiss IntelliPAP 2 series devices will connect to the Freedom™ CPAP Battery via the 150W Sine Wave Power Inverter (see page 28).

Power Backup Usage - Single Battery

RESMED AIR 10 & S9 SERIES

- Plug the AC power supply of the battery into the DC IN jack of the battery and then plug the AC power supply of the battery into a wall outlet (see page 6).
- Plug the 24V power converter box into the DC OUT jack of the battery.
- Insert the appropriate output cord for your device (Air 10 or S9) into the power converter box.
- Plug the 24V power converter with appropriate output cord attached into the DC input port of the PAP device (see page 14).

***NOTE:** The instructions for connecting the 24V power converter box to the Freedom™ CPAP Battery must be followed in exact sequence.

PAP DEVICES CONNECTED VIA 150W SINE WAVE POWER INVERTER

PAP device models including Fisher & Paykel ICON, DeVilbiss IntelliPAP 2 series, 3B Medical RESmart and Luna, Apex Medical XT, Somnetics Transcend, and HDM Z1 series devices connect to the Freedom™ battery via the 150W sine wave power inverter.

- Plug the AC power supply of the battery into the DC IN jack of the battery and then plug the AC power supply of the battery into a wall outlet (see page 6).
- Plug the DC input cord included with the Freedom™ battery kit into the DC OUT jack of the battery.
- Plug the 150W sine wave power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the 150W sine wave power inverter and then into the PAP device (see page 16 for example).

Power Backup Usage - Dual Batteries

When using two Freedom™ batteries in the power backup scenario you will need to purchase an additional DC power pigtail cord.

The AC power supply of the battery will be plugged into one of the DC power pigtail cords and then into the DC IN jacks of both batteries. The other DC power pigtail cord will be plugged into the DC OUT jacks of both batteries and then into your PAP device via the appropriate method for your specific model device as noted in this manual.

RESPIRONICS DREAMSTATION SERIES

- Plug the AC power supply of the battery into one of the DC power pigtail cords and then into the DC IN jacks of both batteries and then plug the AC power supply into a wall outlet (see page 7).
- Plug the 12V power adapter into the other DC power pigtail cord and then into the DC OUT jacks of both batteries.
- Plug the 12V power adapter into the DC input port of the Respironics DreamStation series PAP device (see page 10).

RESPIRONICS SYSTEM ONE/M & DEVILBISS INTELLIPAP SERIES

- Plug the AC power supply of the battery into one of the DC power pigtail cords and then into the DC IN jacks of both batteries and then plug the AC power supply into a wall outlet (see page 7).
- Plug the other DC power pigtail cord into the DC OUT jacks of both batteries and insert the appropriate connector tip into that DC power pigtail cord.
 - System One 60 Series: Tip with black top labeled “W”
 - System One 50 & M Series: Tip with yellow top labeled “N”
- Plug the DC power pigtail cord with appropriate connector tip attached into the DC input port of the PAP device (page 12).

***NOTE:** DeVilbiss IntelliPAP 2 series devices will connect to the Freedom™ CPAP Battery via the 150W Sine Wave Power Inverter (see page 30).

Power Backup Usage - Dual Batteries

When using two Freedom™ batteries in the power backup scenario you will need to purchase an additional DC power pigtail cord.

RESMED AIR 10 & S9 SERIES

- Plug the AC power supply of the battery into one of the DC power pigtail cords and then into the DC IN jacks of both batteries and then plug the AC power supply into a wall outlet (see page 7).
- Plug the other DC power pigtail cord into the DC OUT jacks of both batteries and then plug the 24V power converter box into that DC power pigtail cord.
- Insert the appropriate output cord for your device (Air 10 or S9) into the power converter box.
- Plug the 24V power converter with appropriate output cord attached into the DC input port of the PAP device (see page 15).

***NOTE:** The instructions for connecting the 24V power converter box to the Freedom™ CPAP Battery must be followed in sequence.

PAP DEVICES CONNECTED VIA 150W SINE WAVE POWER INVERTER

PAP device models including Fisher & Paykel ICON, DeVilbiss IntelliPAP 2 series, 3B Medical RESmart and Luna, Apex Medical XT, Somnetics Transcend, and HDM Z1 series devices connect to the Freedom™ battery via the 150W sine wave power inverter.

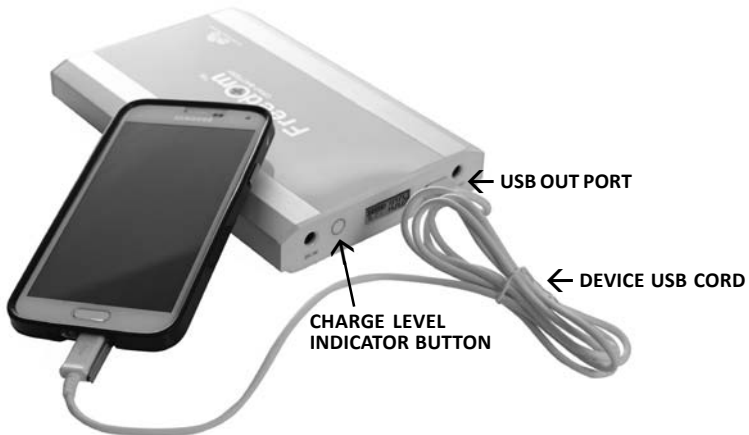
- Plug the AC power supply of the battery into one of the DC power pigtail cords and then into the DC IN jacks of both batteries and then plug the AC power supply into a wall outlet (see page 7).
- Plug the other DC power pigtail cord into the DC OUT jacks of both batteries and then plug the DC input cord included with the Freedom battery kit into that DC power pigtail cord. Now plug the 150W sine wave power inverter into the DC input cord.
- Plug the AC power supply of the PAP device into the 150W sine wave power inverter and then into the PAP device (see page 17 for example).

Powering Other Devices

The Freedom™ CPAP Battery can be used to power many common handheld electronic devices such as cell phones, iPods, MP3 players, and tablets via the 5V USB port or DC input cord.

USB PORT CONNECTION

- Plug the device's USB cord into the USB OUT port of the battery.
- Press the charge level indicator button once to initiate power output from the USB OUT port.
- Turn the device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time. Pressing this button again will not turn the battery off it will simply illuminate the display screen.
- When not in use disconnect all devices from the battery thus allowing the battery to completely shut down.



It is possible to have a portable electronic device and a PAP device connected to the Freedom™ battery simultaneously; however, this could impact PAP device run times.

Powering Other Devices

DC INPUT CORD CONNECTION

- Plug the DC input cord into the DC OUT jack of the battery.
- Plug the device's DC power cord into the DC input cord.
- Turn the device on and it should begin functioning.
- The digital display screen will show the charge level of the battery. You may press the charge level indicator button to illuminate this screen. It will stay illuminated for a few seconds at a time.
- When not in use disconnect all devices from the battery thus allowing the battery to completely shut down.



150W SINE WAVE POWER INVERTER CONNECTION

You can also connect other small electronic devices that do not have a USB cord or DC power cord by using the 150W sine wave power inverter in conjunction with the battery.

In this setup you connect the device's AC power cord to the inverter and then connect the inverter to the battery via the DC input cord.

Battery Care Instructions

Understanding common phenomenon with rechargeable lithium-ion batteries can help you better care for your Freedom™ CPAP Battery and answer many common questions regarding usage.

- Lithium-ion batteries do not suffer from the memory effects that are associated with other types of battery chemistries. This means that the battery does not need to be completely discharged before charging.
- Upon initial use or after a prolonged storage period lithium-ion batteries may require 3-4 charge/discharge cycles before achieving their maximum capacity.
- Lithium-ion batteries will self-discharge when unused; therefore, the battery will need to be charged after a storage period. On average the battery will self-discharge by 20% every 30 days.
- The amount of charge lithium-ion batteries will hold will gradually decrease due to usage and aging. Over time, the actual battery capacity decreases as less and less active material within each lithium-ion cell is available to electrochemically store a charge. This loss in capacity (aging) is true for all rechargeable lithium-ion batteries.
- It is normal for a lithium-ion battery and its AC power supply to become slightly warm to the touch during charging and discharging. **Do not charge the battery on any flammable surface.**

Battery Storage

- Fully charge the battery before storage.
- Store the battery in a dry, cool place away from extreme heat, direct sunlight and metal objects.
- If the battery is being stored for long periods of time we recommend charging the battery to 50% of capacity at least once every 90 days.

FAQ | Troubleshooting

Below are the most common questions/issues regarding use of the Freedom™ CPAP Battery. If you have additional questions please contact us at 877-445-5228 or email us at info@batterypowersolutions.net.

LOWER THAN EXPECTED RUN TIMES

Several factors can impact how long the battery will power a PAP device. Below are the most common of these factors:

- The use of heated humidification or heated tubing will reduce run times by two thirds in most cases and in some cases could prevent the battery from being able to power the PAP device. You should disconnect the humidifier or completely turn it off and use non-heated tubing to obtain optimal battery performance.

If humidification is required, try lowering the humidification setting as many people can lower their heat setting and still achieve the desired result. If lowering the setting does not produce enough of an increase in run time you can use the battery in the dual battery configuration to increase the run time.

- Very high pressure settings (above 18 cm/H₂O) can impact run times especially when other factors are present. All average run time testing is done on a pressure setting of 10 cm/H₂O.
- Leaking masks can impact run times as the PAP device will be working harder to maintain the prescribed pressure setting and thus be drawing more power from the battery.
- BiLevel devices will have lower run times as the pressure setting is not constant and changes throughout the night requiring more power to operate the device.
- Some older obsolete PAP device models and newer targeted ventilation PAP devices require a much higher power draw than today's standard CPAP devices and therefore can result in lower run times or could prevent the battery from being able to power the device.
- The device-specific connection components required for some PAP device models do draw power from the battery but this has been factored into the listed average run times.

FAQ | Troubleshooting

BATTERY STARTS THEN STOPS WORKS

If the battery stops functioning press the charge level indicator button to reset the batteries' internal circuitry. If the battery continues to shut down, the device you are attempting to power may not be compatible.

- The device may have higher amperage requirements (over 8A) than the battery can provide.
- The device may require a constant voltage output to operate properly. The Freedom™ CPAP battery has a voltage range of 9V-12.6V DC and does not maintain a constant voltage level.
- The internal circuitry of the device may be set to automatically adjust to accommodate for multi-voltage capabilities which could make it compatible with the battery at times and incompatible at other times.

DUAL BATTERY CONFIGURATION

While both batteries are providing output power simultaneously the battery with the highest charge level will generally be the one to display "DC 12V" under the battery symbol on the digital display screen.

Also note that due to the circuit board differences a Freedom™ CPAP Battery cannot be pigtailed with an older model C-100 CPAP Battery.

USB PORT CONNECTION

When connecting a device to the USB port you must press the charge level indicator button once to initiate output power from the battery. See page 27 for connection instructions.

PAP DEVICE CONNECTION VIA A 12V DC POWER CORD

While you can connect a PAP device to the battery using a manufacturer's 12V DC power cord and the DC input cord included with the battery kit it may only power the PAP device for a short period of time. This occurs because these types of DC power cords typically require a constant 12V power flow in order to work properly and the Freedom™ battery functions on a voltage range. Therefore, 12V DC power cords are not a viable option for connecting a PAP device to the Freedom™ battery.

Safety Warnings

The following safety warnings must be observed at all times:

- Do not drop, hit, crush, or otherwise abuse the battery as this may result in the exposure of the cell contents, which are corrosive.
- Do not expose the battery to rain or moisture of any type.
- Do not expose the battery to fire, incineration or other extreme heat. Exposure to extreme heat may result in a hazardous reaction.
- Do not charge the battery on any flammable surface.
- Do not disassemble the battery (remove the cover) or attempt to repair the battery as there are no user-serviceable parts inside.
- Periodically inspect connection cords, connector tips and the power supply for damage or signs of wear. Discontinue use if damaged.

Usage Disclaimer

By purchasing, using or possessing any of Battery Power Solutions' products, you are agreeing to hold harmless Battery Power Solutions, its subsidiaries, affiliates, owners, officers and employees from any and all claims or liability for any damage to any property or injury, illness or death of any person when such damage, injury, illness or death shall be caused in whole or in part from use of the product(s).

Battery Disposal

Lithium-ion batteries should be recycled. Some states have specific laws regarding the disposal of lithium-ion batteries.

For information on laws in your state and where you can recycle your batteries at no cost, visit www.call2recycle.org or call 1-877-723-1297.





Battery Power Solutions

1-877-445-5228

www.batterypowersolutions.net



FREEDOM™ CPAP BATTERY USER'S MANUAL
FEBRUARY 2017