

FreedomTM

CPAP BATTERY

USER MANUAL



**Battery Power
Solutions**

Batteries to Power Your World!

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Please read this manual carefully before using the Freedom™ CPAP Battery for the first time and observe all safety warnings.

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If you have any questions or concerns regarding the use of the Freedom™ CPAP Battery or any Battery Power Solutions product please contact us at 1-877-445-5228 or info@batterypowersolutions.net.

Package Contents

The Freedom™ CPAP Battery Kit includes the following components:



Freedom™ CPAP Battery



AC Power Supply



DC Power Pigtail Cord



Connector Tips (3)
Letters: N, W, J



DC Input Cord

NOTE: The included connector tips are compatible with Resironics System One series, Resironics M series and DeVilbiss IntelliPAP 1 series devices. All other makes and models will require an additional connection component (see below).

Connection Components Sold Separately

The following components are required to connect certain models of 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 series devices.



**DreamStation
12V Power Adapter**

Item #: BPS C-12V-DS

Required for Resironics
DreamStation series 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 cells (LG® brand)

Capacity: 97.68 Wh

Output Voltage Range: 9V-12.6V DC

USB Output Voltage: 5V DC | 2A

Output Current: 8A maximum

DC Input Voltage Range: 12.6V-17V

AC Power Supply Input Range: 100-240VAC | 50-60Hz | 1.5A

AC Power Supply Output Current: 13.5V | 6.75A

Charging Conditions: 32°F to 104°F

Discharging Conditions: 23°F to 104°F

(battery capacity can be reduced by as much as 30% when discharging between 23°F to 32°F)

Storage Conditions: -4°F to 104°F (optimal range: 60°F to 80°F)

Power Gauge: Digital display charge level indicator

Charge Time: 4 hours (per battery)

Life Span: 400-500 charge/discharge cycles (see page 30 for more information)

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

Weight: 1.7 lbs.

Safety Features

- Battery Management Unit (BMU) provides internal protection against thermal runaway (overheating), over voltage, over charging, over discharging, over current, and short circuiting.
- Aluminum alloy shell for maximum cell protection and durability.
- Meets FAA requirements (< 100 Wh) for lithium-ion batteries taken in carry-on baggage during air travel.
- The Freedom™ CPAP Battery has been UN 38.3 tested and meets all current safety regulations and shipping requirements.

Safety Warnings

The following safety warnings are to be followed at all times!

- Do not drop, hit, crush, or otherwise cause any impact damage to the battery as this may result in exposure of the cell contents.
- Do not expose the battery to open flames, heaters, incineration or other extreme heat, including long term exposure to direct sunlight, as exposure to extreme heat may result in a hazardous reaction.
- Do not expose the battery to moisture of any type.
- Do not disassemble or attempt to repair the battery, AC power supply or any other charging or connection components supplied by Battery Power Solutions as there are no user-serviceable parts inside.
- Do not use any AC power supply or other charging cable not supplied by Battery Power Solutions for use with the Freedom™ battery as doing so may result in a hazardous reaction.
- Do not charge the battery on any flammable surface.
- Regularly inspect connection cords and tips, the AC power supply, and any charging cables for damage or signs of wear and discontinue use if damaged.

Warranty & Usage Disclaimer

- All Battery Power Solutions products are under warranty for manufacturing and quality defects for 1 (one) year.
- This warranty does not cover damage resulting from modification of or improper use or operation of the product that is not consistent with the instructions in this manual.
- By purchasing, using or possessing any Battery Power Solutions product, 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).

Intended Use

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

The Freedom™ battery may also be used to charge many 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 (overheating).

Compatibility

All makes and models of PAP devices have different voltage and electrical current requirements which determine the type of external battery that can be used. The universal design of the Freedom™ battery allows it to power the most common PAP devices; however, some models require a connection component that is sold separately from the standard battery kit (see page 1 for additional information).

Some older model PAP devices and targeted ventilation PAP devices may not be compatible with the battery or may require more power than the battery can provide.

The use of the heated humidification and/or heated tubing features of your PAP device will significantly reduce expected run times by up to two thirds in most cases and in some cases could actually prevent the battery from being able to power the device. For optimal performance turn off heated humidification and heated tubing.

Do not attempt to connect your PAP device to the Freedom™ battery before reading the connection instructions for your specific device. If your device is not listed in this manual or if you have any questions, please contact us at 1-877-445-5228 or info@batterypowersolutions.net.

Average Run Times

Multiple factors will affect how long the Freedom™ battery will power a PAP device, including, but not limited to the PAP device type, pressure setting, heated humidification or heated tubing usage, and the required connection component type (see page 31 for additional information).

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 run times two Freedom™ batteries can be pigtailed together.

Single Battery: 1-3 nights*

Dual Batteries: 3-5 nights*

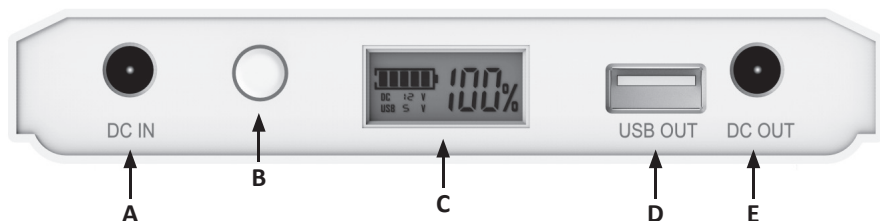
*A night is generally considered 7.5 hours.

For a list of specific PAP device model average run times please visit our website at www.batterypowersolutions.net.

Getting Started

THE CONTROL BOARD

The control board of the Freedom™ battery includes the following:



(A) DC IN JACK

(B) CHARGE LEVEL INDICATOR BUTTON*

(C) DIGITAL DISPLAY SCREEN

(D) USB OUT PORT

(E) DC OUT JACK

*Press the charge level indicator button to illuminate the digital display screen. The screen will stay illuminated for a few seconds at a time. This button can also be used to reset the internal circuitry of the battery (see page 31 for additional information).

Getting Started

INITIAL BATTERY USAGE

Before using the Freedom™ battery for the first time be sure to fully charge it using AC power. It may only take a short time for the charge level to reach 100% as it is already partially charged before it leaves the factory. **Only use the AC power supply manufactured by Battery Power Solutions for use with the Freedom™ CPAP Battery.**

TURNING THE BATTERY ON/OFF

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

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.

Charging The Battery

The Freedom™ battery can be charged via AC power (a wall outlet) in approximately 4 hours (per battery) when the battery is fully discharged. The battery does not need to be fully discharged before charging.

Only use the AC power supply manufactured by Battery Power Solutions for use with the Freedom™ CPAP Battery. Using any other power supply may result in a hazardous reaction. Do not charge the battery on any flammable surface.

CHARGING INTERNATIONALLY

The AC power supply of the battery will operate on any AC current from 100-240VAC and 50/60 Hz without any adjustment. The AC power supply utilizes a type A plug. An international electrical adapter plug is the only additional component that would be required for charging in any country.

Charging the Battery

GENERAL CHARGING NOTES

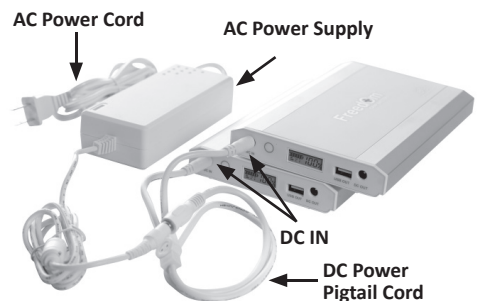
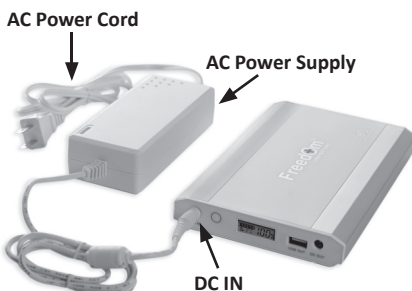
- It is normal for the AC power supply and the battery to be slightly warm to the touch during the charging process.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.
- When the battery is fully discharged (0%) it may take some time before the display screen begins to display a charge level. During this time the display screen may flash until it shows the charge level.
- If the display screen begins to flash and doesn't show a charge level, disconnect the AC power supply, press the charge level indicator button to illuminate the display screen, then reconnect the AC power supply to resume the charging process.
- When charging is complete disconnect the AC power supply from the wall outlet and the battery.

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.

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 the batteries.



Other Charging Options

When AC power is not available you can still keep your Freedom™ 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. Detailed information on these charging accessories is available on our website at www.batterypowersolutions.net.

AUTO CHARGE DC CABLE

The Auto Charge DC Cable connects the battery directly to the cigarette lighter/power socket of a vehicle. The vehicle must be running during charging in order to obtain the proper voltage to successfully charge the battery to 100%. **Do not use any charging cable not supplied by Battery Power Solutions for use with the Freedom™ battery as doing so may result in a hazardous reaction.**

150W SINE WAVE POWER INVERTER

The 150W Sine Wave Power inverter allows you to 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 necessarily need to be running during charging to obtain the proper voltage to successfully charge the battery to 100%.

FREEDOM 40W SOLAR PANEL

The Freedom 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 19.2V or less such as cell phones by using the DC power cord of the device.



**Auto Charge
DC Cable**

Item #: BPS DC.CABLE



**150W Sine Wave
Power Inverter**

Item #: BPS INVERTER



**Freedom 40W
Solar Panel**

Item #: SP40

Respironics DreamStation Series

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 with the Freedom™ battery.

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

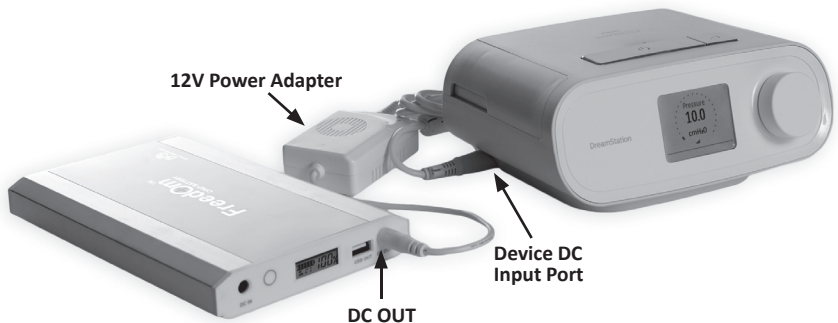
***Using heated humidification and/or heated tubing will significantly reduce run times! For optimal run times turn these features off.**

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. Press the charge level indicator button to illuminate the screen.

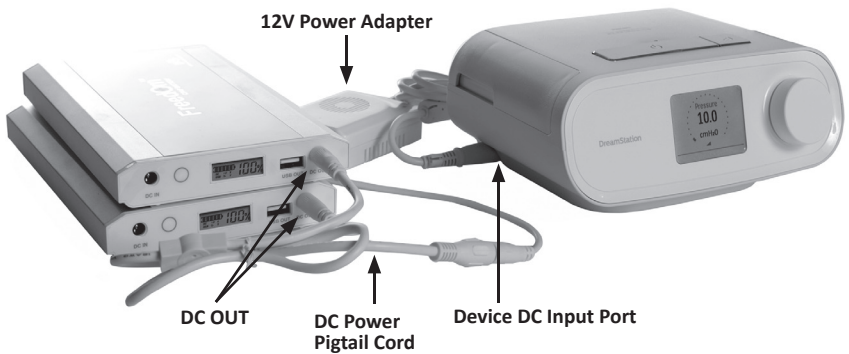


Respironics DreamStation Series

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery.

- Plug the 12V power adapter into the DC power pigtail cord.
- Plug the DC power pigtail cord into the DC OUT jacks of the 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. Press the charge level indicator button to illuminate the screen.



Respironics System One & M Series

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

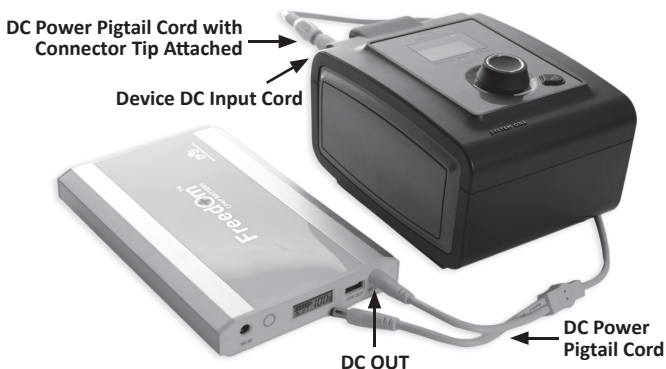
***Using heated humidification and/or heated tubing will significantly reduce run times! For optimal run times turn these features off.**

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. Press the charge level indicator button to illuminate the screen.

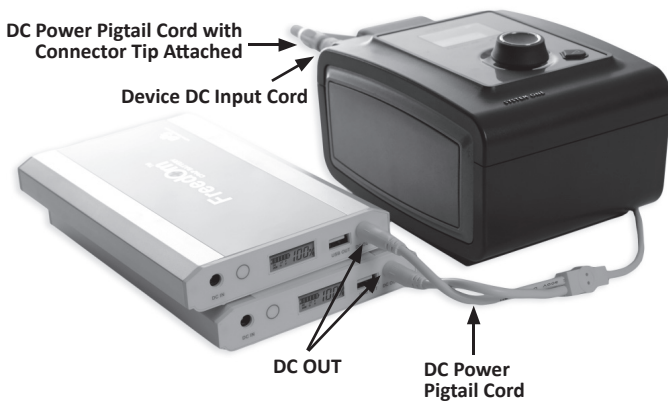


Respironics System One & M Series

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery.

- Plug the DC power pigtail cord into the DC OUT jacks of the 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. Press the charge level indicator button to illuminate the screen.

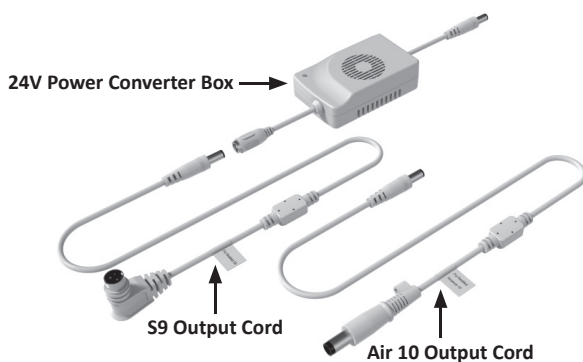


ResMed Air 10 & S9 Series

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

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

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.**

The connection instructions on the following pages must be followed in exact sequence in order to initiate the voltage conversion process and thus allow the Freedom™ battery to power the device.

If after connection you are not receiving power to the PAP device, please unplug all components and follow the instructions again to ensure they have been completed in exact sequence.

ResMed Air 10 & S9 Series

REQUIRED COMPONENTS

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

***Using heated humidification and/or heated tubing will significantly reduce run times! For optimal run times turn these features off.**

SINGLE BATTERY CONNECTION

Remember to follow all connection steps 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. Press the charge level indicator button to illuminate the screen.

*Image shows connection to a ResMed AirSense 10 PAP device.



ResMed Air 10 & S9 Series

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery.

Remember to follow all connection instructions in exact sequence.

- Plug the DC power pigtail cord into the DC OUT jacks of the 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 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. Press the charge level indicator button to illuminate the screen.

*Image shows connection to a ResMed AirSense 10 PAP device.



ResMed S8 Series

ResMed S8 series devices operate from 12V direct current but the DC input port runs opposite polarity from the Freedom™ battery; therefore, the use of the 150W sine wave power inverter is required.

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.

The connection instructions will be the same as those in the Other PAP Devices & Travel CPAP Models section on pages 17-19. Instruction sheets with images are available at www.batterypowersolutions.net under the "specifications tab" for the Freedom™ battery.

DeVilbiss IntelliPAP & IntelliPAP 2 Series

DeVilbiss IntelliPAP series devices can be connected directly to the Freedom™ battery using the DC power pigtail cord and the connector tip with the blue top labeled "J" included in the battery kit.

The connection instructions will be the same as those in the Respirationics System One & M Series section on pages 11-12 except you will plug the "J" connector tip in the DC power pigtail cord. The ends of the "J" tip are the same size and it does not matter which end is plugged into the battery versus the IntelliPAP device.

DeVilbiss IntelliPAP 2 series devices require the use of the 150W sine wave power inverter in conjunction with the Freedom™ battery. The connection instructions will be the same as those in the Other PAP Devices & Travel CPAP Models section on pages 17-19.

Instruction sheets with images for both the IntelliPAP and IntelliPAP 2 series devices are available at www.batterypowersolutions.net under the "specifications tab" for the Freedom™ battery.

Other PAP Devices & Travel CPAP Models

The Freedom™ battery can power most all other common PAP devices and travel CPAP models including, but not limited to the following:

- Fisher & Paykel ICON
- DeVilbiss IntelliPAP 2
- 3B Medical RESmart & Luna
- Apex Medical XT
- ResMed AirMini
- Resironics DreamStation Go
- Somnetics Transcend
- HDM Z1

To power these other common PAP devices and travel CPAP models the 150W sine wave power inverter must be used in conjunction with the Freedom™ battery as noted in the instruction example on the following pages.

Instruction sheets with images for the models listed above are available at www.batterypowersolutions.net under the "specifications tab" for the Freedom™ battery.

Due to the initial power draw required to start some of these PAP device models the connection instructions should be followed in exact sequence in order to prevent "tripping" the circuitry of the battery.

If the battery shuts down immediately or very soon after connecting it to the device, reset the internal circuitry of the battery (see page 32 for instructions) and follow the instructions again to ensure they have been done in sequence.

If the battery continues to shut down the device you are attempting to power may not be compatible (see page 32 for more information).

Other PAP Devices & Travel CPAP Models

***Using heated humidification and/or heated tubing will significantly reduce run times! For optimal run times turn these features off.**

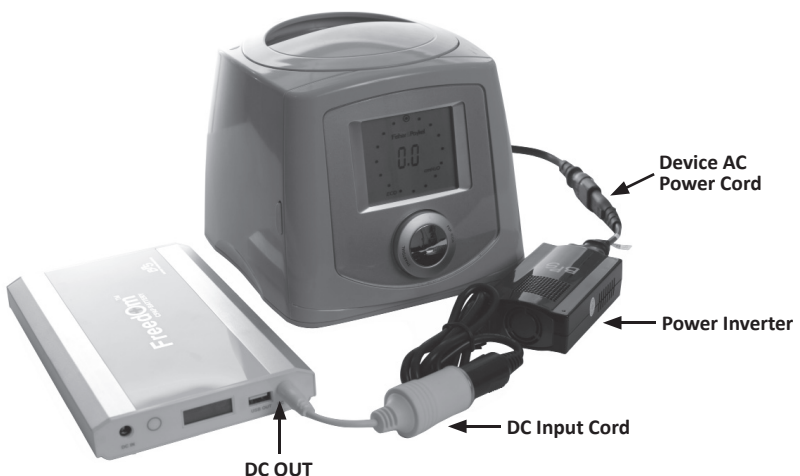
REQUIRED COMPONENTS

- 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. Press the charge level indicator button to illuminate the screen.

*Image shows connection to a Fisher & Paykel ICON device.



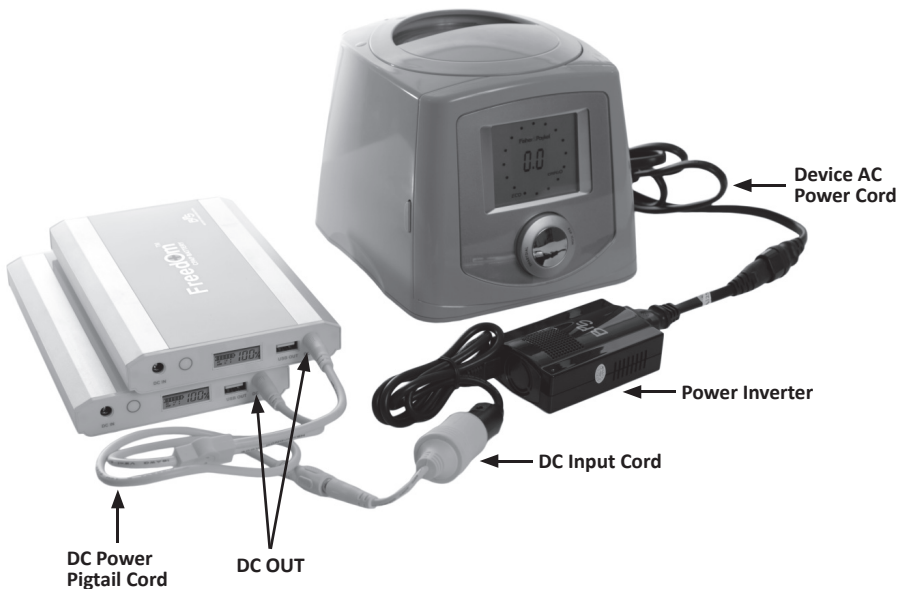
Other PAP Devices & Travel CPAP Models

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery.

- Plug the DC power pigtail cord into the DC OUT jacks of the 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. Press the charge level indicator button to illuminate the screen.

*Image shows connection to a Fisher & Paykel ICON device.



Air Travel Usage

The Freedom™ CPAP Battery meets current FAA requirements for spare lithium-ion batteries (not installed in a device) taken in carry-on baggage as each battery is less than 100Wh (97.68Wh) 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 Freedom™ 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. For more information view the FAQ section on our website at www.batterypowersolutions.net.

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 battery and then plug the battery into a wall outlet. In the event AC power (power from a wall outlet) is lost the battery will automatically begin powering your PAP device uninterrupted.

When AC power is available it will bypass the lithium-ion cells within the Freedom™ battery and power your device normally without degrading the overall lifespan of the battery as the cells of the battery will not continuously be charging and then discharging.

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 of the battery and then both batteries to your PAP device.

When not in use we recommend disconnecting the AC power supply and the PAP device from the Freedom™ battery to allow the battery to completely shut down.

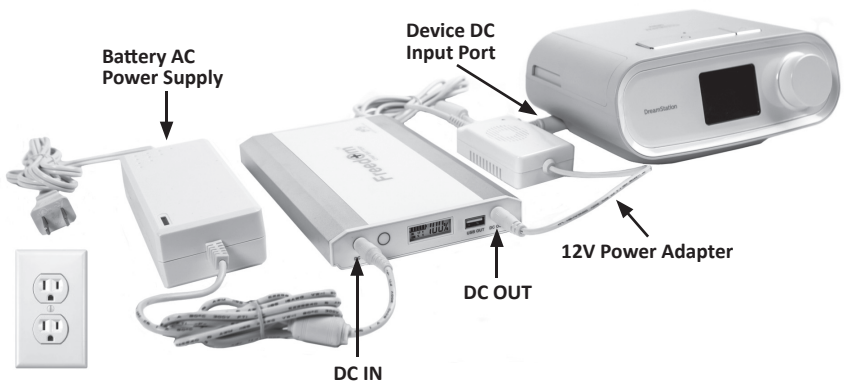
Power Backup: Respironics DreamStation Series

REQUIRED COMPONENTS

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

SINGLE BATTERY CONNECTION

- Plug the battery AC power supply into the DC IN jack of the battery.
- Plug the AC power supply into a wall outlet.
- 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.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.

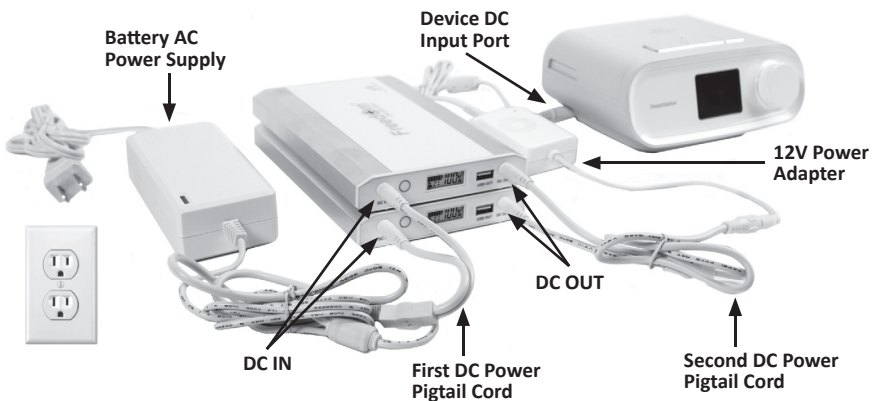


Power Backup: Respiroics DreamStation Series

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery and an additional DC power pigtail cord (item # BPS PIGTAIL.FD).

- Plug the battery AC power supply into the first DC power pigtail cord.
- Plug the first DC power pigtail cord into the DC IN jacks of the batteries.
- Plug the AC power supply into a wall outlet.
- Plug the second DC power pigtail cord into the DC OUT jacks of the batteries.
- Plug the 12V power adapter into the second DC power pigtail cord.
- Plug the 12V power adapter into the DC input port of the PAP device.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.



Power Backup: Respironics System One & M Series and DeVilbiss IntelliPAP Series

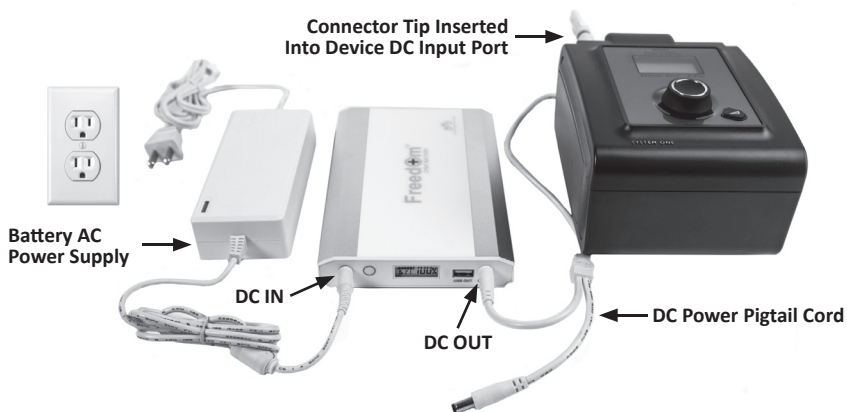
REQUIRED COMPONENTS

- Freedom™ CPAP Battery Kit

SINGLE BATTERY CONNECTION

- Plug the battery AC power supply into the DC IN jack of the battery.
- Plug the AC power supply into a wall outlet.
- 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”
 - IntelliPAP Series: Tip with blue top labeled “J”
- Plug the DC power pigtail cord with appropriate connector tip attached into the DC input port of the PAP device.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.

***Note:** DeVilbiss IntelliPAP 2 series devices will connect to the Freedom™ battery via the 150W sine wave power inverter (see pages 27-28 for connection instructions).



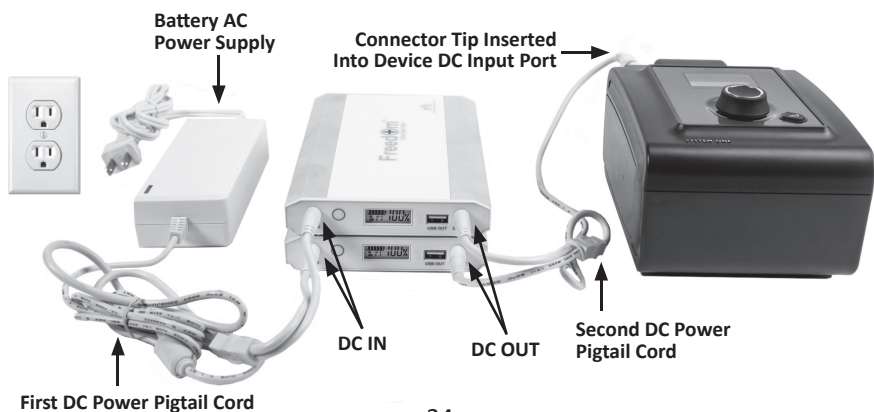
Power Backup: Respiration System One & M Series and DeVilbiss IntelliPAP Series

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery and an additional DC power pigtail cord (item # BPS PIGTAIL.FD).

- Plug the battery AC power supply into the first DC power pigtail cord.
- Plug the first DC power pigtail cord into the DC IN jacks of the batteries.
- Plug the AC power supply into a wall outlet.
- Plug the second DC power pigtail cord into the DC OUT jacks of the batteries.
- Insert the correct connector tip into the second 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”
 - IntelliPAP Series: Tip with blue top labeled “J”
- Plug the second DC power pigtail cord with correct connector tip attached into the DC input port of the PAP device.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.

***Note:** DeVilbiss IntelliPAP 2 series devices will connect to the Freedom™ battery via the 150W sine wave power inverter (see pages 27-28 for connection instructions).



Power Backup: ResMed Air 10 & S9 Series

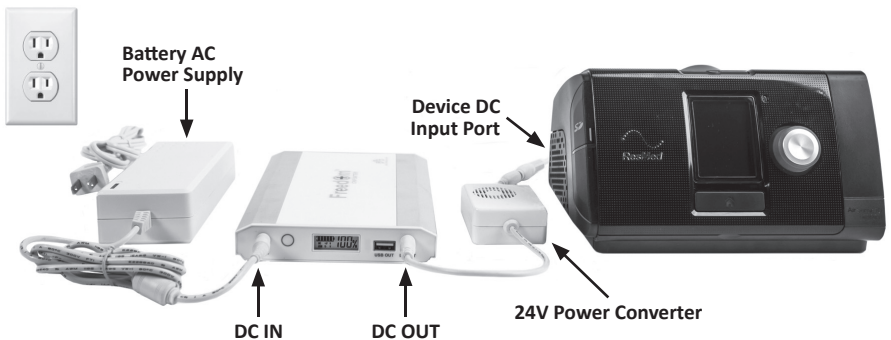
REQUIRED COMPONENTS

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

SINGLE BATTERY CONNECTION

The connection instructions below must be followed in exact sequence. See pages 13-15 for additional information.

- Plug the battery AC power supply into the DC IN jack of the battery.
- Plug the AC power supply into a wall outlet.
- 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. Press the charge level indicator button to illuminate the screen.



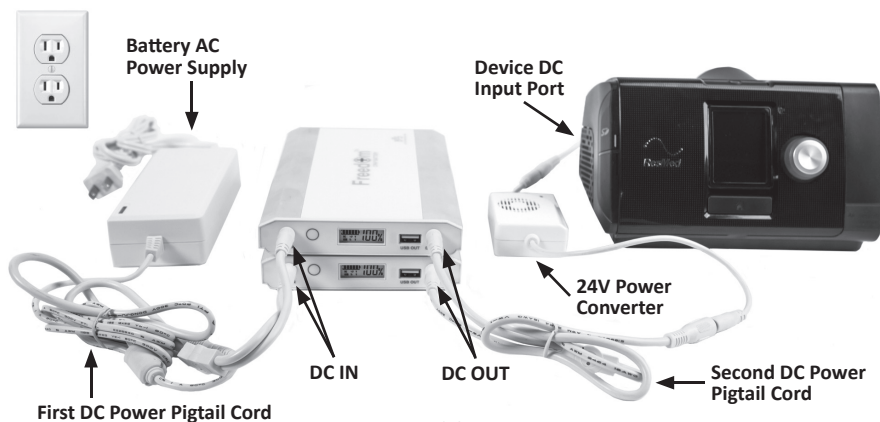
Power Backup: ResMed Air 10 & S9 Series

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery and an additional DC power pigtail cord (item # BPS PIGTAIL.FD).

The connection instructions below must be followed in exact sequence. See pages 13-15 for additional information.

- Plug the battery AC power supply into the first DC power pigtail cord.
- Plug the first DC power pigtail cord into the DC IN jacks of the batteries.
- Plug the AC power supply into a wall outlet.
- Plug the second DC power pigtail cord into the DC OUT jacks of the batteries.
- Plug the 24V power converter box into the second 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 output cord attached into the DC IN 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. Press the charge level indicator button to illuminate the screen.



Power Backup: Other PAP Devices

REQUIRED COMPONENTS

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

SINGLE BATTERY CONNECTION

- Plug the battery AC power supply into the DC IN jack of the battery.
- Plug the AC power supply into a wall outlet.
- 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.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.

*Image example shows a 3B Medical Luna device.



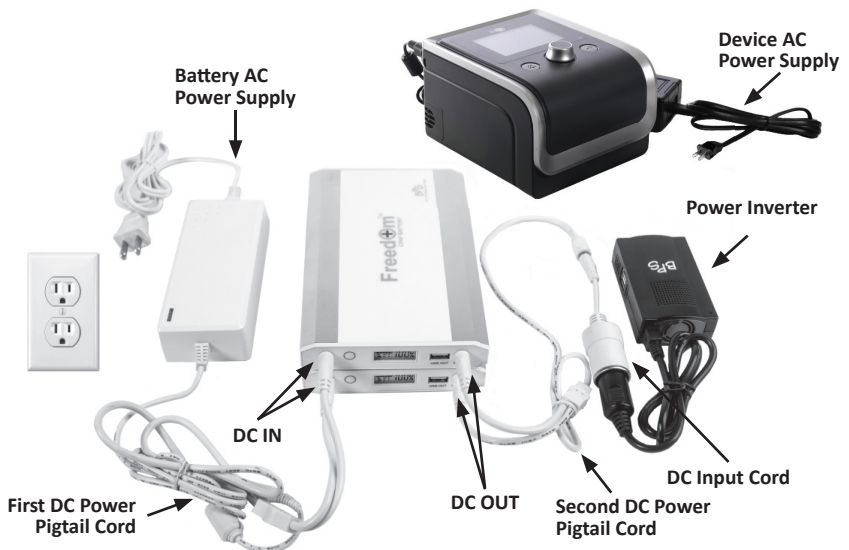
Power Backup: Other PAP Devices

DUAL BATTERY CONNECTION

*Dual battery connection will require an additional Freedom™ battery and an additional DC power pigtail cord (item # BPS PIGTAIL.FD).

- Plug the battery AC power supply into the first DC power pigtail cord.
- Plug the first DC power pigtail cord into the DC IN jacks of the batteries.
- Plug the AC power supply into a wall outlet.
- Plug the DC input cord into the second DC power pigtail cord.
- Plug the second DC power pigtail cord into the DC OUT jacks of the batteries.
- 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.
- The digital display screen will show the charge level of the battery. Press the charge level indicator button to illuminate the screen.

*Image example shows a 3B Medical Luna device.



Powering Other Devices

The Freedom™ battery can be used to power many portable electronic devices such as cell phones and tablets via the 5V USB port, DC input cord or the 150W sine wave power inverter.

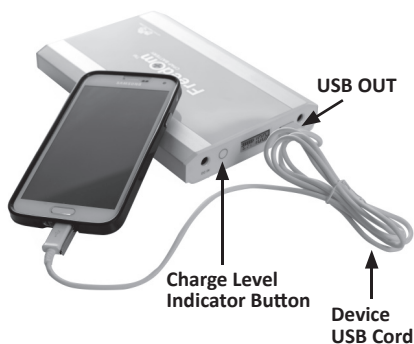
USB PORT CONNECTION

- Plug the device 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.

***NOTE:** 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.

DC INPUT CORD CONNECTION

- Plug the DC input cord into the DC OUT jack of the battery.
- Plug the device DC power cord into the DC input cord.



USB PORT CONNECTION



DC INPUT CORD CONNECTION

150W SINE WAVE POWER INVERTER CONNECTION

You can also connect portable 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 Freedom™ battery. See pages 18-19 for instructions and simply replace the PAP device with the portable electronic device.

Understanding Lithium-Ion Batteries

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 the memory effects that are associated with other types of battery chemistries. This means the battery does not need to be completely discharged before charging.
- Upon initial use or after prolonged storage lithium-ion batteries may require 3-4 charge and 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 is true for all rechargeable lithium-ion batteries.
- Under normal conditions the average life span of the Freedom™ battery is generally around 400-500 charge and discharge cycles.

Battery Storage & Disposal

- Fully charge the battery before storage.
- Store the battery in a dry, cool, and well ventilated place away from extreme heat and direct sunlight. Storage temperature range is -4°F to 104°F; however, the optimal range is 60°F to 80°F.
- For optimal performance charge and discharge the Freedom™ battery once every 90 days.
- Lithium-ion batteries should be recycled and many U.S. states have laws regarding battery disposal. For information on disposal facilities near you call 1-877-723-1297 or visit www.call2recycle.org.

FAQ & General Troubleshooting

LOWER THAN EXPECTED RUN TIMES

Below are the most common factors that impact how long the Freedom™ battery will power a PAP device:

- **Heated Humidification & Heated Tubing:** Using these features will significantly reduce run times by two thirds in most cases and in some cases could prevent the battery from being able to power the device. For optimal battery performance these features should be turned off. If heated humidification is required, lowering the heat settings may help increase run times; otherwise, two batteries can be pigtailed together to increase run times.
- **High Pressure Setting:** Higher pressure settings (above 18 cm/H2O) can impact run times especially when other factors are present. All run time testing is done on a pressure setting of 10 cm/H2O.
- **Mask Fit:** A leaking mask 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.
- **PAP Device 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. Some older, obsolete device models and newer targeted ventilation 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.
- **Connection Method:** Some of the connection components required to connect specific PAP device models do draw power from the battery but this has been factored into the listed average run 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.

FAQ & General Troubleshooting

BATTERY STARTS THEN STOPS WORKING

If the battery stops functioning you can reset its internal circuitry by using the instructions below. 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™ 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.

RESETTING THE INTERNAL CIRCUITRY OF THE BATTERY

If the battery stops functioning you can reset its internal circuitry by holding down the charge level indicator button for a full 10 seconds. The digital display screen will flash and two dash marks will appear. Release the button and wait until the screen goes blank for the circuit board of the battery to reset.

PAP DEVICE CONNECTION VIA A 12V DC POWER CORD

While it is possible to connect a PAP device to the Freedom™ battery using the 12V DC power cord supplied by the device manufacturer and the DC input cord included with the battery kit, the device may only run for a short period of time. This can occur because many DC power cords require a constant 12V power flow in order to work properly and the Freedom™ battery functions on a voltage range of 9V-12.6V DC.

TECHNICAL SUPPORT

If you have any questions regarding the use of the Freedom™ battery please contact us at 1-877-445-5228 or info@batterypowersolutions.net. Do not attempt to service the Freedom™ CPAP battery or any connection or charging components yourself.



Battery Power Solutions

1-877-445-5228

www.batterypowersolutions.net



FREEDOM™ CPAP BATTERY USER MANUAL
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