

RESMED

VPAP Auto™

Battery Guide

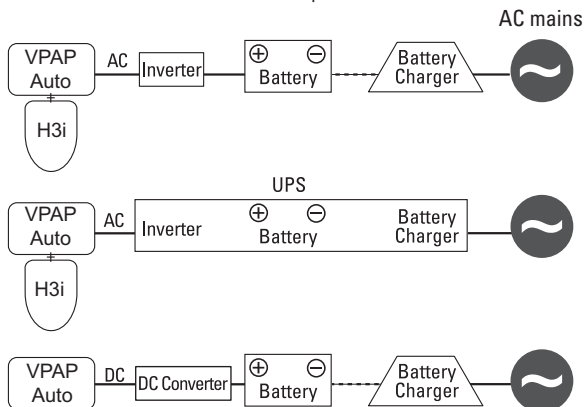


Indoors, outdoors or in transit—your VPAP Auto can give you effective therapy wherever you are.

Some simple accessories, used with a battery or an uninterruptible power supply (UPS), can help you use your VPAP Auto even where mains electricity is unavailable or unreliable.

What do I need?

Precisely what setup you require depends on where you intend using your VPAP Auto and whether you use a heated humidifier. The diagram below shows the various options.



Using a battery with VPAP Auto

Inverter

An inverter adapts the 12/24V direct current (DC) supplied by the battery into 110/240V alternating current (AC) that powers your VPAP Auto.

Uninterruptible Power Supply (UPS)

A UPS consists of an inverter, a battery and a battery charger. It is designed to supply power automatically in the event of power loss.

Consider a UPS in situations where the AC power supply (standard mains electricity) is intermittent or unreliable.

Table A: Types of Inverters

Setup	Output wave	Output Power Rating: Continuous/Peak
VPAP Auto (without humidifier)	Modified or pure sine wave	60W/225W
VPAP Auto with HumidAire 3i™	Pure sine wave: 110V	150W/500W
	Pure sine wave: 240V	150W/500W

Converter

The VPAP Auto has a 24V DC power socket which allows the connection of a 12V or 24V DC power supply (ie, battery) using the ResMed DC-12 Converter.

Converters are more efficient than inverters and ResMed recommends that you use the DC-12 Converter if you are using a VPAP Auto without a humidifier. The HumidAire 3i will not be heated unless you use an inverter or UPS.

Battery

ResMed recommends using either a 12V or 24V deep-cycle battery. The battery capacity that you will require depends on your system's power consumption (see Table B). You will need a charger for your battery.

Can I use my humidifier with battery power?

Yes (**Note:** Only the HumidAire 3i integrated heated humidifier is compatible with the VPAP Auto). You will require a larger capacity battery

and a more highly rated inverter.

No power will be supplied to your humidifier if your VPAP Auto is connected to a converter.

How do I connect my VPAP Auto to the battery?

Connect the inverter or converter to a battery using the Battery Adapter Cable, then connect your VPAP Auto to the inverter/converter. Be careful to match the polarity (+ and -) symbols correctly between the adapter cable and the battery.

Which inverter (or UPS) should I use?

The type of inverter that you need depends on your VPAP Auto setup. Table A lists the minimum specifications for an inverter/UPS.

When purchasing an inverter please ensure that:

- the inverter is certified by an accredited certification body (eg, CE, UL)
- the inverter's case temperature is specified as less than 50°C at an ambient temperature of 35°C.

Can I connect my VPAP Auto to a vehicle or boat battery?

Yes, but standard automotive batteries are generally unsuitable for therapy requirements; continual use of an automotive battery can shorten its lifespan and the therapy delivered may not be adequate.

If you are using your VPAP Auto in, or close to, a vehicle, you should consider a dual-battery set up. Consult an automotive or marine electrician for details about installing a dual-battery system.

Most converters and inverters are supplied with a plug for an automobile cigarette lighter socket.

Ordering details

The Battery Adapter Cable (product code: 22006) and the ResMed DC-12 Converter (product code: 33942) can be purchased through your ResMed distributor.

Battery capacity

Use Table B (VAuto mode) to estimate the battery capacity (amp-hours) required to power your VPAP Auto.

VAuto mode: Select the pressure value that is closest to your 95th percentile AutoSet Pressure, then read the required battery capacity for your Pressure Support setting. (Your managing physician can help you find your 95th percentile AutoSet Pressure.)

The '**8 hr**' column shows the requirement for 8 hours of operation, including a 50% safety margin. If you will be using your VPAP Auto for a longer or shorter period, calculate the battery capacity that you will require by using the steps in 'Calculate your battery requirements'.

The '**current draw**' column shows the electrical current consumption at 12V DC.

- This is a per/hr value. Always add a 50% safety margin when calculating battery size.
- If you are using a 24V battery, the current draw value is halved.

The values in the tables are calculated for a respiratory rate of 15 breaths per minute.

Example:

You use your VPAP Auto in VAuto mode, for 6 hours without a humidifier, using an inverter. 95th centile AutoSet Pressure is 9 cm H₂O, and Pressure Support is 3.

Note: Use values for AutoSetP=10, and PS=4.

1.07 amps x 6 hours = 6.42 amp-hours

Add the 50% safety margin:

6.92 x 1.5 = 9.63 amp-hours

You require a battery with a capacity of at least 10 amp-hours.

Table B: Minimum Recommended Battery Capacity (VAuto mode)

PS (cm H ₂ O)	AUTOSET PRESSURE≤10		AUTOSET PRESSURE>10	
	current draw at 12V DC (amps)	8 hr (amp-hours)	current draw at 12V DC (amps)	8 hr (amp-hours)

1. Using an inverter

2	0.89	11	1.40	17
4	0.87	10	1.32	16
6	0.86	10	1.23	15
8	0.89	11	1.17	14
10	0.85	10	1.07	13

2. Using an inverter with a HumidAire 3i

2	8.59	103	8.85	106
4	8.59	103	8.85	106
6	8.59	103	8.85	106
8	8.59	103	8.85	106
10	8.59	103	8.85	106

3. Using the ResMed DC-12 Converter

2	0.67	8	1.15	14
4	0.69	8	1.10	13
6	0.69	8	1.03	12
8	0.67	8	0.95	11
10	0.63	8	0.90	11

Calculate your battery requirements

1. Inverter or converter?

Using a HumidAire 3i with VPAP Auto:

Yes

Inverter only

No

Converter or inverter

2. What is my VPAP Auto's current draw?

Table B shows the current draw with a 12V battery.

The current draw is halved with a 24V battery.

(VAuto) AutoSet Pressure: cm H₂O

(VAuto) Pressure Support: cm H₂O

Current draw: amps

3. VPAP Auto used for hours

4. Battery capacity

Use your values from (2) and (3) to calculate:

..... amps x hours x 1.5 = amp-hours

(Current x usage hours x safety margin)

This 'amp-hours' value is the battery capacity we recommend to run your VPAP Auto.

Need further information?

If you would like more information about powering your VPAP Auto with a battery, please contact your ResMed representative.

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