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Xantrex Freedom SW3000 Inverter

[Accessories](#), [Headlines](#) — By [Kevin McKenzie](#) on March 10, 2011 at 10:14 am

The Freedom SW3000 from Xantrex is the latest in their premium line of pure sine-wave inverter/chargers. The SW3000 supplies a maximum of 3000 watts with 90% efficiency and is surge rated up to 6000 watts. It includes a temperature compensated 150 amp charger so there is no need to keep your old converter/charger. Options that work with the SW3000 include the System Control Panel (SCP) and the Automatic Generator Start module (AGS).

 [Xantrex System Control Panel](#)

The SCP is necessary to configure and monitor the inverter so it really shouldn't be considered an option. It is also needed to program the AGS. It provides real time data on your batteries charging status like what stage it's in, number of amps being delivered to the batteries, and the temperature of the batteries. While inverting it will show how many amps are being delivered to the loads and the current voltage of the batteries.

 [Xantrex Automatic Generator Starter](#)

The AGS can be configured to automatically start and stop your generator when your batteries reach a set level. It can be programmed to not start at certain hours such as during the night. It can also be connected to your thermostat to monitor indoor temperature in case the air conditioner needs to be turned on. Lastly, it can be configured to run the generator at a pre-programmed exercise period while in storage for instance.

Installation

Unless you are pretty handy electronically I would advise you to seek professional help to install this inverter. With that said, I knew very little about circuit breakers, sub panels, electrical wiring and such but I like to learn new skills and I hate to spend money even more, so I did it anyway. When you do it yourself you are also much

[Xantrex Freedom SW3000](#)

better prepared to diagnose a problem should one arise. I also had an electrician buddy that I called on for advice and I had to seek support from Xantrex more than once.

If you still insist on installing yourself I suggest you read as much as you can find on what others have done. I would also suggest diagramming your entire system before and then how it will look after. You can use paper and pencil or try an online tool like the one I used by [Gliffy.com](#)

[Voltage Electrical Before](#)

Voltage Electrical Before

[Voltage Electrical After](#)

Voltage Electrical After

Following are some highlights of my install. Consult the installation manual provided and refer to the diagrams as well.

DC Cabling

- Decide where you are going to place the inverter. It should be as close as possible to your battery bank but no further than 10 feet away. Do not install in the same compartment as your batteries or near a fuel source. Also plan where you will route the 4/0 DC cables.

[Xantrex Freedom SW3000 Inverter](#)

- Decide whether you will order custom length DC cables or crimp the lugs yourself. Keep in mind that crimping yourself will require a heavy duty crimper and cutters capable to cut 4/0 welding wire.
- Make one long run with the black 4/0 cable from the inverter to the negative post of your battery bank.
- Mount the class T fuse holder near the battery against the firewall, remove the fuse until later.
- Route the long red 4/0 cable from the inverter to the class T fuse holder.

[Xantrex Freedom SW3000 Inverter](#)

- Route a short run red 4/0 cable from the fuse holder to the positive post of your battery.
- Install the class T fuse After all the AC cabling is complete.

AC Cabling

- Find a suitable location to mount the sub panel that will house the circuit breakers that will power the inverted loads.
- [Xantrex Freedom SW3000](#) Decide which circuits you will power with the inverter. I decided to power the 20amp microwave circuit, the 15amp GFI plugs circuit, and the 15amp non-GFI plugs circuit.
- After disconnecting your trailer from shore power, remove these circuit breakers from your main distribution panel and install them in the new sub panel.
- Reroute the romex wire connected to those circuits to the new sub panel using 14 ga romex and wire nuts.
- Using 12 ga romex, connect the AC inverter outputs to the new sub panel. L1 will power the 20 amp microwave and L2 will power the dual 15 amp circuit breaker. [Xantrex Freedom SW3000](#)
 - Install 2 new 30 amp breakers in the main distribution panel. You can remove the circuit breaker that fed your old converter/charger if you need to make room. Make sure your distribution panel is load balanced with an equal

amount of amp breakers on either side.

- Run your 8 ga 4 wire cable from the new 30 amp breakers to the inverter AC inputs. Attach the red wire to the first breaker and designate this for the microwave and L1. Attach the black wire to the second for L2 and the other 15 amp circuits. Attach white to the common bus bar and the bare copper wire to the ground bus bar.

Converter Disconnect

You can now disconnect and remove your old converter. But depending on how your system is wired you may need to reroute the positive cable to your 12 volt distribution panel. My system was wired with a 4 ga hot wire from the batteries to the converter and another from the converter to the distribution panel. You can jumper these two together with a heavy duty lug that can handle 4 ga wire or, if it will reach, take the hot wire from the battery and reroute it direct to the distribution panel.

Operation

First thing I tested was the charger. Once you connect to shore power you will hear a slight hum coming from the unit and the SCP will show that the charger is in Bulk mode and delivering 150 amps to the batteries. The bulk stage will restore about 75% of your batteries charge. At the batteries you can really



hear those gasses bubbling from the 150 amps being pushed into them.

After the batteries are about 75% charged the charger enters the 2nd stage; the absorption mode. Absorption mode delivers about 12 amps and gradually tapers off until the batteries are fully charged.

In the 3rd phase, the float mode, the charger switches into a routine whereby the voltage is reduced so that the batteries are maintained without losing electrolyte through gassing.

The SW3000 can also be programmed through the SCP to give a super high equalization charge of 15.5 volts. Equalization returns each cell to an optimum condition by reducing sulfation and stratification in the battery

While in invert mode, and while AC power is disconnected, clean power is delivered to the loads as needed. In my case all of the 110 plugs are wired to the inverter, this includes the microwave. My first test was to boil a cup of water and it performed like a champ.

The SW3000 also has a built in transfer switch. When AC supply is removed, the inverter automatically turns on and no interruption is noticed. Likewise, when AC power is restored the inverter seamlessly shuts off.

Overall I am very impressed with the quality of the SW3000 and how well it works in conjunction with the SCP and AGS. I feel it is charging the batteries much quicker and more safely than the stock 100 amp charger. I am also impressed with the quality of power it delivers to the loads. Operation of my 40" Samsung LCD was perfect and the microwave, a 1000 watt appliance, showed no signs of wavering while boiling the water. The operation of the AGS was also impressive and takes the worry out of draining my batteries too low.

The total cost of this upgrade approached \$2,000 but I justify it by the added peace of mind of getting the quality pure sine wave power needed to run my sensitive electronics instead of from a cheaper modified sine wave inverter. I estimate the fuel savings of running the generator at least 50% less will amount to about \$50 for a typical weekend trip and I expect this amount to increase when I add a solar charging system. I also expect about 1/2 of the total investment will be returned upon a possible future resale of the trailer. For those with smaller power requirements Xantrex also offers the SW2000 for about \$400 less

If you are looking for a high end pure sine-wave inverter and high capacity charger, I highly recommend you give the Xantrex Freedom SW3000 a serious look. <http://www.xantrex.com/power-products/inverter-chargers/freedom-sw-3000.aspx>

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29 Comments

- [Jonathan Ogunsanya \(Vanity\)](#) says:
[May 28, 2011 at 3:33 am](#)

I took my time to read fully about these new pure sine wave inverter, this is fantastic innovation in power supply. i was born in electrical and electronic field, and always want to learn more. i am fortunate to be an hotel owner, and i will like to purchase one of this new pure sine wave inverter in the capacity of 150kva.

Please furnish me with the lowest price you can come down to, also if you deal in high power batteries, such as the one used by fork lift eg from 800amps upward. because i want to use these inverter to power up to 30 pieces of aircondition 1.5 hp 30 fans , 30 fridges, for 30 rooms hotel. notice that only about 15 to 20 rooms may be in operation at a time for one or two hours of power failure. Please i have to know if you have up to 150kva pure sine wave inverter in stock. please furnish me with the price to deliever to essex in UK. thanx.

Jonathan
for jv hotel

[Reply](#)

- [Kevin McKenzie](#) says:
[May 31, 2011 at 9:03 pm](#)

Jonathan,

We are not a supplier. Your best bet is to do a google search of vendors in your area. Good luck.

[Reply](#)

- [Doug Perry](#) says:
[July 3, 2011 at 11:26 pm](#)

I have the same trailer and inverter. I think I can fit 6 Trojan T145 batteries next to the gen. What are you going to do for solar? Can't you get rid of the transfer switch too? (Built in to the SW?)

[Reply](#)

- [Kevin McKenzie](#) says:
[July 4, 2011 at 12:06 am](#)

6 T105's or Costco 6 volt batts fit with about 5" inches to spare. Not sure about T145's. I havent started looking into solar yet but its only a matter of time.

The way I understand the stock Iota transfer switch is that it transfers AC between shore power and the generator on the other side of the distribution panel. The built in transfer switch in the inverter transfers between AC(fed by shore or gen) & DC.

[Reply](#)

- [Doug Perry](#) says:
[July 17, 2011 at 9:57 pm](#)

What sub panel did you use and where did you find it. It's great that you already did this mod, although I don't usually need a reason to be lazy.

Thanks for your help, Kevin.

[Reply](#)

- [Patrick Mutakha](#) says:
[August 12, 2011 at 12:31 am](#)

I am an installer and am interested in supplying and installing 100pcs of the sine inverters for my client. The said client here is a leading bank in Kenya with off site ATMs spread all over the country. The client has requested us to quote for 3500VA sine wave inverters. I have installed Xantrex inverters some time back for other of my clients which i found to be very effective and none has broken down. I also need to know how you will support me since the local service contract is no longer your agency. Please get in touch as soon as possible. We have only a week to report back to the client. The client is serious because at the moment in we inadequate power due to dry being experienced in region. I need to know your terms and time of delivery. If we get an LPO for the works i would also like to visit your stores.

Patrick Mutakha
Nairobi Kenya
Tel 0720497810

[Reply](#)

- *Rick says:*
[August 28, 2011 at 7:51 am](#)

Hello, I have a couple questions:

1. How can I wire the Sw 3000 to the existing control panel on my RV rather than adding a new panel?
2. If you wire the AC in from the shore/generator transfer switch, do all plugs connected from the inverter always run off inverter power? Or does the inverter recognize incoming AC and automatically switch off? I was looking at having it installed by camping world, and they were going to connect the whole power panel to the inverter.

Thank you for your help.

[Reply](#)

- *Kevin McKenzie says:*
[August 28, 2011 at 11:56 am](#)

#1. I doubt you can use the SW3000 with another panel but Xantrex support would be your best bet to be sure.

#2. I'm sure there are other ways to wire it but if you study my "after" diagram above you will see how I picked and choose which loads would go through the inverter and which ones wouldn't. For instance, I originally had the microwave circuit attached to the inverter but later removed it as the microwave requires too much power for a smaller battery bank. So you can choose to leave some circuits in the main distribution box that would bypass the inverter.

[Reply](#)

- *Rick Weiss says:*
[September 1, 2011 at 10:13 pm](#)

When storing the bus I accidentally left the shore power breaker off, so no power to the inverter, and ran the house batteries (AGM) completely down. Because the bus is in storage and I could get back to it, this condition has existed for 5 months. When we plug back into 50 amp shore power (with all breakers correct) will the charger bring the batteries back to life or is there some procedure I should follow? Your comment on equalization charge makes me wonder..

Regards,

Rick.

[Reply](#)

- *Kevin McKenzie says:*
[September 1, 2011 at 10:49 pm](#)

I have read somewhere that recovering a deeply discharged battery (< 10 volts) is rare but it can be done depending on the life of the battery and how many times its been deeply discharged. The only thing to do is make sure it has plenty of water and charge it using a modern 3 stage charger. Here is a good site to reference:
http://www.windsun.com/Batteries/Battery_FAQ.htm

[Reply](#)

- *Rick says:*

[October 27, 2011 at 9:09 pm](#)

Hello Kevin,

Two questions

1. Where did you mount the new sub panel? Where did you purchase it?
2. Where did you place the control panels and how did you route them?

I believe you did this on the voltage 3900, which is the same unit I have.

Any info is appreciated.

[Reply](#)

- *Kevin McKenzie* says:
[October 27, 2011 at 9:56 pm](#)

The subpanel is installed on the left wall just inside the main storage compartment and was purchased from Lowes. Its a standard residential box.

The control panel was installed in the cabinet below the Voltage Control Panel. Check this article for a pic <http://www.toyhauleradventures.com/2011/01/voltage-cabinet-mod/>

Behind that cabinet is a space in the wall where wires run up to the TV and down to behind the main distribution panel. Just drill a 1 inch hole in the cabinet to pull the wire through from below after first removing the screws on the panel and pulling it out.

Here is a link to more install pictures if that will help. http://www.dunechasers.com/show_gallery.asp?gid=70
Good luck

[Reply](#)

- *Glaucio* says:
[December 5, 2011 at 5:29 pm](#)

Olá pessoal,

Onde posso estar adquirindo um manual de instalação do Freedom Sw 3000?

Obrigado.

[Reply](#)

- *Ben* says:
[March 1, 2012 at 6:49 am](#)

Install manual here:

http://www.xantrex.com/documents/Inverter-Chargers/Freedom-SW-3000/Freedom%20SW%203000%20InvChg%20Install%20Guide%20%28975-0546-01-01_Rev-A%29.pdf

[Reply](#)

- *IBRAHIM* says:
[December 28, 2011 at 9:42 am](#)

IT'S NICE PRODUCT

ask if it can output 220V 50H or not ?

thanks

ibrahim

[Reply](#)

- *murray* says:
[February 13, 2013 at 7:40 am](#)

If I attach solar panels to the batteries to charge them up continuously would then that make the difference or should we just attach the microwave circuit to the main panel anyway? I'm actually having the RV service man do it for me . I'm just researching so that I can give my opinions to him. Thanks for your help this is awesome.

[Reply](#)

◦ *Kevin McKenzie* says:

[February 13, 2013 at 7:42 pm](#)

I guess if your continuously recharging them you should be fine for short runs but for longer runs I would start the genny, say longer than 3 minutes. Just keep your eye on your battery voltage and make sure it doesnt drop below 11.5.

[Reply](#)

• *Bill McClusky* says:

[March 30, 2013 at 8:52 pm](#)

Kevin, Do you have any additional pictures of the inverter istall? Getting ready to install mine.
Thanks

[Reply](#)

• *Craig C* says:

[July 27, 2013 at 9:37 am](#)

Kevin,

I purchased a Voltage 3200 4 months ago (50 AMP) and have added a large battery bank (4-6V AGM Deep Cycle ~ 25 AH for 1000 minutes). Really appreciate you putting this together.

While boondocking this past week, I hated having to start up the generator every time I wanted to make coffee and watch TV so I need to get this done.

Questions:

1. If wired as you did originally, can you simply start the generator when running the microwave for more than a couple of minutes while maintaining the battery option?
2. Is the Xantrex SW3000 still the best current model?
3. Anything you would change after using this for a couple of years (based on the Mar 2011 date of the article) on a new 2013/2014 model Voltage?

[Reply](#)

• *Evan Pearson* says:

[January 20, 2014 at 2:20 pm](#)

Kevin,

I am looking to upgrade my Heart interface (now Xantrex) freedom 2000 inverter / charger in my RV. In your opinion, would the SW3012 be the right upgrade?

I'm looking for a little bit more available power due to the fact that I live in the RV while I work out of town and I believe that I overworked the 2000 watt inverter. (That and the inverter and RV are both 16 years old) any advice would be great on the matter and thanks for your insite!

Evan P.

[Reply](#)

• *Dennis Fife* says:

[April 28, 2014 at 12:49 pm](#)

It appears that the Dunchaser site is gone....Any way you could e-mail me the pictures from the article?

[Reply](#)

• *Rene* says:

[July 29, 2014 at 3:22 pm](#)

I'd love to be able to see the original pictures as well. They are not visible in the article anymore, can you email me the pics or repost them??

[Reply](#)

- *John Michael* says:
[October 12, 2014 at 5:10 pm](#)

Am interested in this product. Is it possible for me to get 230 volt output instead of 110 vac?

[Reply](#)

- *Kenneth* says:
[October 26, 2015 at 9:39 am](#)

please I just want know how much for power inverter especially xantrex freedom sw3000 inverter about 2000,3000,9000watts

[Reply](#)

- *Jagjit Singh* says:
[May 26, 2016 at 10:02 am](#)

We have Xantrex 1000 Watt Heavy Duty Weatherproof Inverter / Charger Model RM 1012 AL For Volvo Truck I have problem inverter not turn on i need your help please Call or Email Me P # 559-708-9214 Or email usking.singh@gmail.com

[Reply](#)

- *svh* says:
[August 1, 2016 at 4:38 pm](#)

pictures are down

[Reply](#)

- *Hsen* says:
[December 17, 2016 at 1:35 am](#)

Hi i need inverter off greid 24vdc i from in israil
Plees send me

[Reply](#)

- *David Bunch* says:
[October 24, 2019 at 4:50 pm](#)

We had the Xantrex 3000 installed a few months ago for use at the Albuquerque balloon fiesta 2019. It worked well but on our trip home the microwave went off with the TV when my wife shut the microwave door. Both came back on in about 10 seconds, she did it again and the sub-panel circuit for the microwave tripped. I went out to reset the breaker and could hear the fan running on the inverter. Keep in mind, we're running on shore power. I reset the breaker the microwave came back on and asked my Wife to close the door and I heard an odd sound come from the inverter and smelled something like hot wires. The breaker did NOT trip, so I manually tripped it and decided we'd leave it off and replace the oven. I got inside and found a fault saying AC overload, cleared the fault and everything seemed OK. We returned to Oregon cloudy wet weather and unexpectedly had to boondock for 2 days. I tried to supplement the lack of sun with my Honda generator to top off batteries like we did in Albuquerque but found as soon as I logged in the generator the inside outlets went off and the A.C. charge light did not come on the screen. We got through the weekend without the generator and arrived at an RV park enroute to the dealer that installed our Xantrex. The solar seemed to work ok and the Xantrex would work as long as I was plugged into 30 or 50 amp power. When I tried 15 amp 110 the RV park gfi circuit would kick.

Got to the Dealer and find Xantrex wants to blame the microwave and not honor their warranty. I thought the \$7,500 I spent bought me the best thing on the market and I wish I'd have stayed with generators. Dave Bunch (not a happy camper!)

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