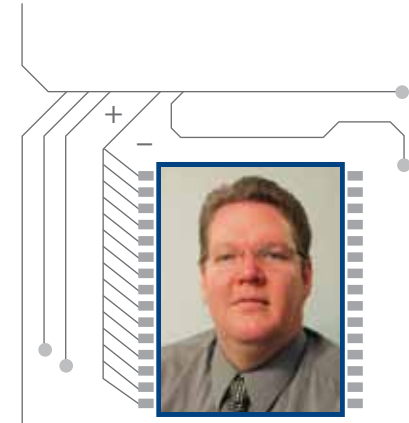
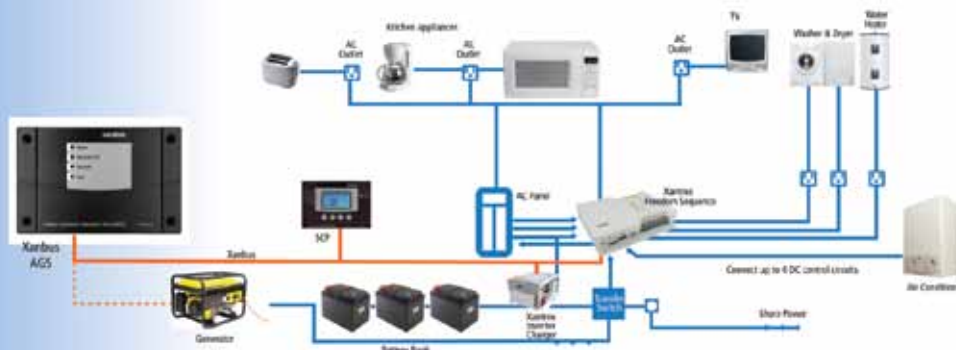


# TECH DOCTOR

## The Mystique of Automatic Generator Start!

Tech Doctor Don Wilson solves the puzzle surrounding the use and effectiveness of Automatic Generator Start (AGS), an integral part of sophisticated electrical systems onboard vehicles and boats.



### TECH DOCTOR DON WILSON

has worked in technical capacities in the automotive, RV and marine fields and for the military since 1989 and has extensive experience in designing and troubleshooting onboard electrical systems. A former customer service manager dealing with electronic issues, Wilson currently serves as a technical instructor for the RV industry's RVIA Trouble Shooter Clinics and is a full-time sales application specialist for Xantrex Technology.

Imagine a world where you program your electrical system to automatically use the sources necessary to maintain it, while staying as energy efficient as possible. Sound like something out of science fiction? GREAT NEWS: The future is NOW! With the right components -- including an AGS -- this automated world and all of its exciting benefits -- is here and available now!

### So, what is an "AGS" and why do I want one?

If you're a power junkie or a generator enthusiast, you may be familiar with AGS. If not, there's no time like the present to learn and put this highly efficient technology to work, to your full advantage.

AGS is the acronym for Automatic Generator Start. It is one of the least understood, but one of the most versatile and powerful, accessories available on the market today!

At its basic function, AGS automatically starts and stops the generator using pre-defined parameters, thus relieving the user from having to actively manage his electrical system.

Most AGS modules start the generator when

the batteries are low, and automatically shut it off when the batteries are recharged. Some models can even start and stop the generator based on the climate control system, or even the inverter load.

In the beginning, AGS was primarily developed for usage in the RV and marine markets, allowing enthusiasts to leave their cabin or boat for a day on the town, without having to burn excessive fuel via their generators to keep things comfortable. As the concept developed, early adopters responded favorably. One of the first consumer demands was for air conditioner triggers, so beloved pets could be kept safe and cool while their owners were out and about. Inverter load triggering was an obvious addition when networked power systems were developed, thus allowing the AGS to launch the generator when a long-term heavy load was in place, thereby preventing an overload.

### While the concept itself sounds simple enough, is AGS difficult to program and use?

The only challenge with AGS may be experienced at the very outset.

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Some select models may have more sophisticated parameters to initiate, but with some help from a knowledgeable sales person or installer, that is easily overcome. Other models are more simple and easy to activate. The good news: once AGS is set up and operational, it's an easy "set it and forget it" device. Truly, once the parameters are set, the only choice left is whether you want to engage the AUTO mode, or OFF mode (some AGSs have a Manual ON mode as well, replacing the stand-alone generator control panel).

### ***Here's a simple explanation of the typical modes:***

'Off' simply means that the AGS module is not active in monitoring triggers and the generator may still be started manually. However, if the generator is running when Off is set, the AGS will shut the generator down if it was set for Manual On or Auto.

'Auto' means that the AGS will begin monitoring the triggers that would cause an automatic start of the generator. It will start or stop the generator, based on those triggers.

'Manual On' will cause the AGS to start the generator without a required "trigger" and wait for the user to set the AGS to "Off" before shutting the generator down.

### ***Wiring is fairly simple as the connections are usually:***

- DC voltage (some systems get power and DC voltage measurements from the inverter)
- Air Conditioner (these are 12-volt or ground sense wires to determine the thermostat state)
- Manual inputs (to add your own buttons somewhere to manually start the generator)
- Generator interface (2-6 wires for preheating, starting, and stopping the generator)

Once these connections are made and the parameters are set, the AGS simply works to simulate the regular manual switches by closing/opening relays in the proper timing, based on the generator model. In other words, when the system receives a trigger (low DC voltage, thermostat input, or inverter load), the AGS simply closes a relay, or series of relays, thus simulating the user pushing the start button. If preheat is required, it will push the proper sequence to preheat, then start the generator. When the trigger is no longer active, or has been satisfied, the AGS closes another relay that simulates the user pushing the stop button. Some AGSs have a minimum runtime to prevent premature wear on the generator's engine.

That, friends, is AGS in a nutshell.

If you might benefit from AGS in your personal application, make sure that the model of choice offers only those features you really want and need; take care not to get overwhelmed by a model with more features than are necessary for your usage. There are models that have over 20 wire connections, but for a minimal installation, you may only need three! The rest of the wires are for different generator models, or optional features that you may not want to incorporate right away.

Also consider the difference between stand-alone AGS systems, which simply work with the hard-wired inputs they have, vs. networked AGS systems which can take data and generator start triggers from other devices like Inverters and Energy Management Systems. Some of the networked systems can also help the other devices make decisions like shedding loads, or supporting heavy generator loads, based on data shared between all devices.

When you're ready to move up to today's latest technology and enjoy the benefits of an easier and more efficient system, AGS delivers!

## **WE WELCOME YOUR QUESTIONS FOR TECH DOCTOR!**

If you have a topic you'd like to see our Tech Doctor handle, please send us an email with your ideas and suggestions! Send your comments and feedback to [mitul.chandrani@xantrex.com](mailto:mitul.chandrani@xantrex.com).

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