

Generator auto start/stop on CCGX and Venus GX

Introduction

An internal relay on the CCGX/Venus GX can be used to automatically start and stop a generator. This relay - or switch - can be 'tripped' by a number of user-defined conditions. This manual will explain what conditions are available to you; and it will guide you through the steps required to set-up this useful functionality.

Firstly, wire the relay to a genset. The relay is located on the back of the CCGX - marked *Relay*. If using a Venus GX, two relays will be seen at the bottom of the unit - only *Relay 1* can be used for the generator automatic start/stop functionality.

Wiring between the CCGX/Venus GX needs to be 'permanent' in order for the generator to keep running; and also to allow automatic 'Stop' when the parameters for auto-stop have been met.

Besides driving the internal relay, the auto start/stop functionality can be also enabled to directly control supported Fischer Panda generators. For more information on how to connect Fischer Panda generators, see [GX - Fischer Panda generators](#).

Enabling the start/stop function

Go to: Settings → Relay and set the *Function* options to “Generator start/stop”

Relay



Now that has been enabled, all the settings pertaining to the *Automatic Generator Start/Stop* function will be found in the main Menu under: Settings → Generator start and stop.

Fischer Panda

1. Enable the “AutoStart” function in the Fischer Panda generator control panel.

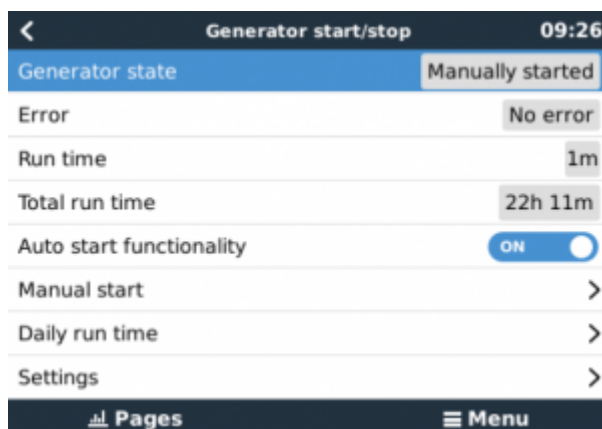
2. Go to the Fischer Panda genset page and set the *Mode* setting to “Auto start/stop”

Once the Mode is set, all settings will become available under the Auto start/stop menu entry at the bottom of the page.



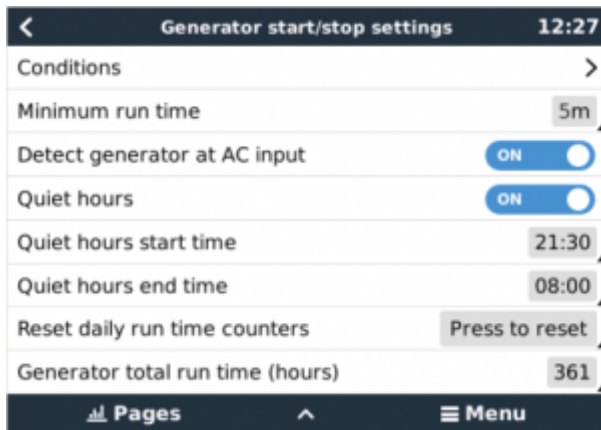
Main page

From the main menu select Settings > Generator start/stop:



- **Generator state:** Current status of the generator.
- **Error:** Error description.
- **Runtime:** Generator runtime since last start.
- **Total run time:** Accumulated running time since the first start.
- **Time to next test run:** When the test run option is enabled this item shows the time remaining until the next test run.
- **Daily runtime:** Running time history for the last 30 days.
- **Settings:** This is the gateway to all other features.

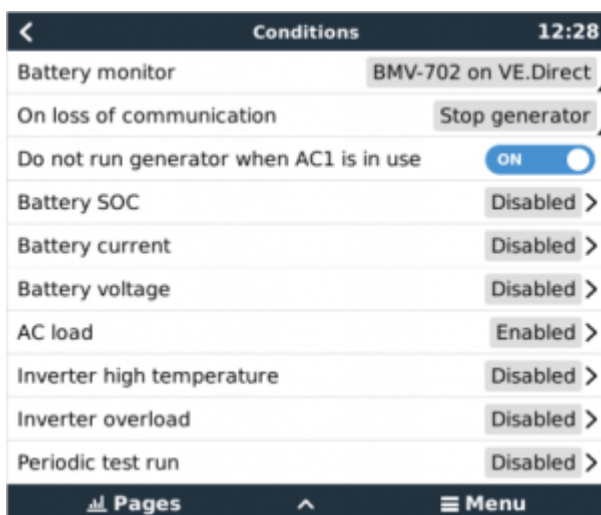
Settings



- **Conditions:** See [Conditions](#)
- **Minimum runtime:** It's good practice for a generator, once started, to reach its operating temperature. When started manually this setting is ignored.
- **Detect generator at AC input:** Enabling this feature will sound an alarm whenever power is *not* detected at the AC input terminal of the Inverter/Charger. This function will bring attention to a wide variety of problems; such as lack of fuel, or a mechanical or electrical fault at the generator. This functionality is not available for VE.Can connected Multi/Quattro.
- **Quiet hours:** See [Quiet hours](#)
- **Reset daily run time counters:** Resets the 30 day run-time history.
- **Generator total run time:** Reset, or modify, the total run-time hours.

Conditions

To get to *Conditions* from the main menu: Setting → Generator start and stop → Settings → Conditions



* **Battery monitor:** Select how the battery will be monitored - if at all. The battery monitor data will be used for DC-related conditions.

* **On loss of communication:** If ever there is a communication breakdown between the CCGX/Venus GX and the selected battery monitor, and/or VE. Bus inverter/charger; and parameters have been set which depend on this information - choose between the following actions:

- **Stop the generator:** If the generator is running, it will be stopped. (default)
- **Start the generator:** If the generator is not running, it will be started.
- **Keep running:** If the generator is running at the time of data loss this setting will keep it running.

* **Do not run genset when AC 1 is in use:** This option is ideal for back-up systems where a Quattro has mains/grid electricity connected to its *AC-in 1* terminal, and a Genset connected to its *AC-in 2* terminal. With this option enabled, the Genset will only start after a mains failure. And where a mains failure has occurred, the Genset will automatically be stopped again as soon as mains power is restored. This functionality is not available for VE.Can connected Quattros.

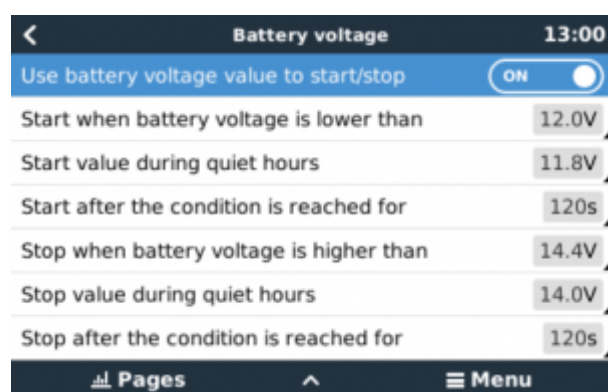
The following parameters may be user-defined to trigger an automatic Generator start/stop:

- Manual
- State of charge (SOC)
- AC load *
- Battery current
- Battery voltage
- Inverter high temperature
- Inverter overload
- Periodic test run

(* The value measured here will be the total AC consumption of the system.)

Condition-parameters are prioritized in the order shown above. When a number of conditions are reached at the same time, only the highest-priority condition will be shown as active. All enabled conditions will be evaluated - even if the generator is already running. When the active condition has been satisfied, an un-met parameter in a lower-priority condition will keep the generator running.

Relays triggered by Battery Voltage



- **Use battery voltage value to start/stop:** Enables/disables the battery voltage settings.
- **Start when battery voltage is lower than:** When battery voltage falls below the value entered the relay will start the generator.
- **Start value during quiet hours:** If the [Quiet hours](#) mode is active - a lower (more critical) value can be entered here.
- **Start after the condition is reached for:** Some values like AC load can vary suddenly due to

a consumption peak and go back to a normal value in a few seconds. In this kind of situations the start of the generator is usually not desired. This option will delay the generator start until the start value is reached for a minimum amount time.

- **Stop when “condition” is higher than:** The same than above but for stop value.
- **Stop value during quiet hours:** The same than above but for stop value.
- **Stop after the condition is reached for:** The same than above but for stop value.

* Higher/lower value depends on the type of condition.

AC load condition

AC load condition works like the rest of conditions but has the “Measurement” extra setting.

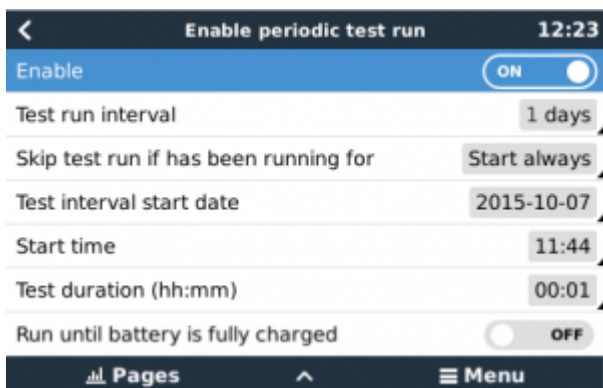


The “Measurement” setting is available on firmware v2.0 and onwards and has three possible values:

- **Total consumption** (Default option)
- **Inverter total AC out**
- **Inverter AC out highest phase**

Test run condition

Allows you to program a periodical test run.



- **Test run interval:** Test run will be performed periodically based on this setting
- **Skip test run if has been running for:** The test will be skipped if during the test run interval the generator was running at least the number of hours set on this setting.

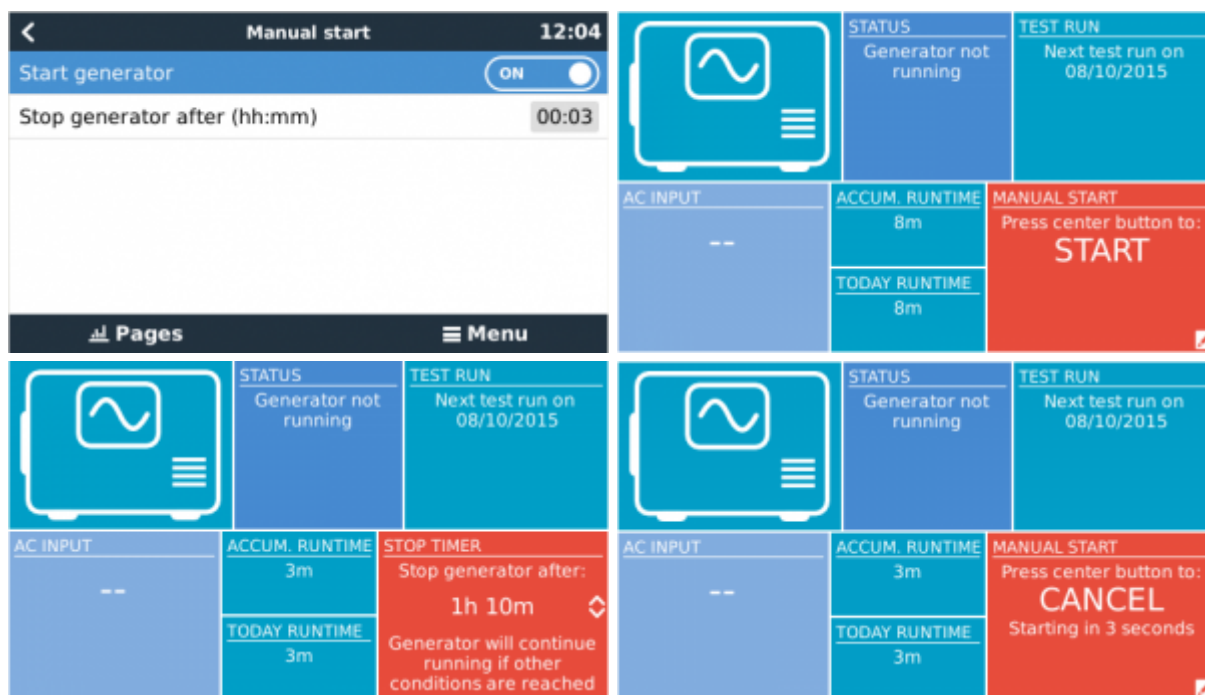
- **Test interval start date:** The interval count will start based on this date, this setting can be set in the future and the interval will be ignored till the set date is reached.
- **Start time:** Time of day in which the generator will start
- **Test duration:** Duration of the test
- **Run until battery is fully charged:** Stops the generator after the battery is fully charged instead of a fixed amount of time

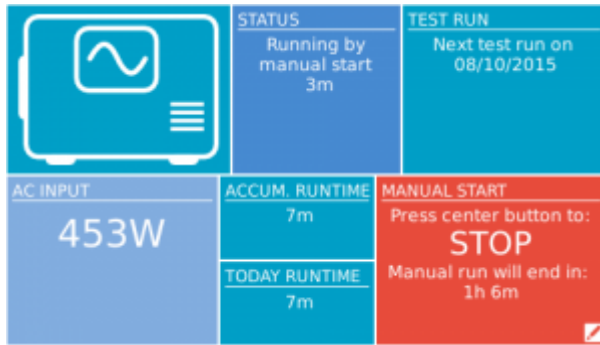
Manual start

Use the manual start to directly start the generator. If the generator is already running you can use this option to make sure that the generator won't stop automatically when the active condition becomes inactive.

There are two ways to start the generator manually:

- **Using menu:** Go to Generator start and stop → Manual start and use the switch to start the generator.
- **Using generator page:** Press the top-left button to show the generator page. Once in the generator page press the center button, when pressed you will be asked how to stop the generator, manually or using a timer. Once selected the stop mode a countdown of five seconds will start, you can abort the manual start by pressing the center button.



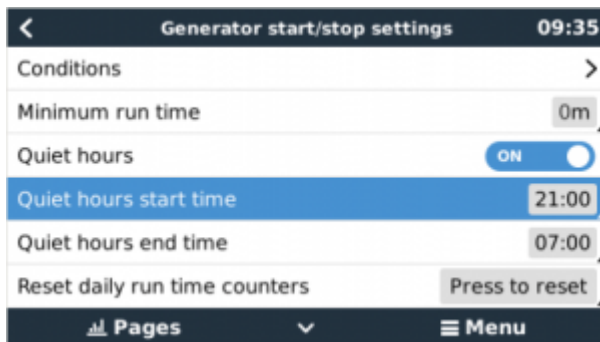


WARNING: If the generator is manually started without a stop timer, won't stop until the user set to off the manual start option.

In both options the use of a stop timer is available, use the timer to program the generator stop.

Manually stop the generator is only possible if no other condition is active. In the case that you want to force the stop you should disable the active condition or disable the generator start and stop function.

Quiet hours



Quiet hours allows you to set a time zone for nighttime with values that make the generator start only when is really necessary.

When the "Quiet hours" mode is active, the conditions will use the related start/stop values.

To enable it go to the settings menu and set the "Enable quiet hours" switch on. Once enabled start and end time settings will become visible.

You can make the "Quiet hours" mode to be permanently active(when enabled) setting both start and stop time to the same value.

Using "Quiet hours" to define two time zones

Besides the main purpose of the "Quiet hours" mode you can also use it to define two time zones over the day.

Examples of the use of different time zones:

- **Solar system:** A cloudy morning may cause the generator to start by a low SOC condition, then

two hours after the clouds go away. In this case your batteries are charged and your solar system wasting free energy. To avoid this situation you can set a time zone for daytime with a lower start value for the SOC condition.

- **Away mode:** Some holiday houses are only inhabited on weekends during which power consumption is larger and the generator has to take care of keep batteries in good condition. The rest of the week the battery SOC level can be lower waiting to be charged by solar energy. With time zones you can set a secondary time zone for the whole day and only enable/disable it when the house is uninhabited.

Troubleshooting

Fischer Panda: Generator does not start and "Remote switch control disabled" error is shown

Enable the "AutoStart" function in the Fischer Panda control panel.

Fischer Panda: Auto start/stop function stopped working after an error

Make sure that the issue is solved and clear the error to make the auto start/stop function work again.

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