

# Generator auto start/stop on CCGX and Venus GX

## Introduction

The internal relay can be used to automatically start and stop a generator. With this functionality you can set conditions to make the relay open or close.

Wire the relay to a genset in such matter that the genset will start as soon as the relay is closed. Then it needs to keep running until the relay is opened again.

## Enable the start/stop function

Go to: Settings → Relay and set function to “Generator start/stop”

Once enabled, all settings will become available in Settings → Generator start and stop.



- **Generator state:** Condition that is currently keeping the generator running.
- **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 condition is enabled this item shows the time remaining to the next test run.
- **Daily runtime:** Page with the running times of last 30 days.
- **Settings:** Generator start and stop settings menu.

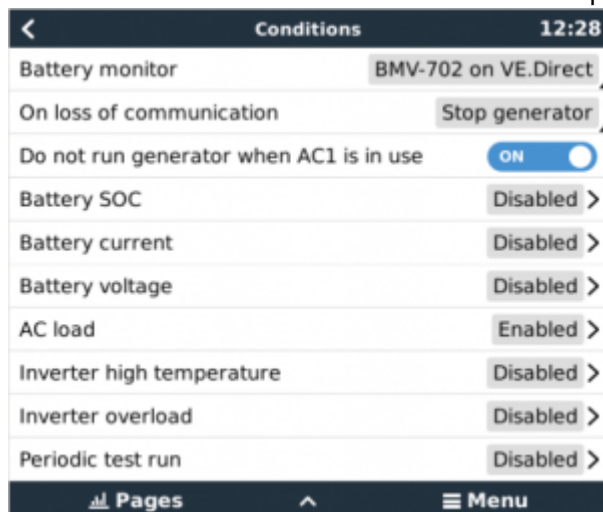
## Settings



- **Conditions:** See [Conditions](#)
- **Minimum runtime:** Once started the generator should run for a minimum amount of time, for manual start this setting is ignored.
- **Quiet hours:** See [Quiet hours](#)
- **Reset daily run time counters:** Reset the last 30 days run time counters.
- **Generator total run time:** Sets the total run time counter.

## Conditions

Conditions location: Generator start and stop → Settings → Conditions



- \* **Battery monitor:** Select which battery monitor will be used for DC related conditions.
- \* **On loss of communication:** Defines the behavior when the datalink between the CCGX/Venus GX and the selected battery monitor and/or vebus inverter/charger is lost. Options are:
  - **Stop the generator:** If the generator is running and the datalink is lost, the generator will be stopped. (default)
  - **Start the generator:** If the datalink is lost and one or more conditions depends on it the generator will be started.
  - **Keep running:** If the generator was already running before the datalink loss this setting will

keep it running, but will not start it if was not running previously.

\* **Do not run genset when AC 1 is in use:** It is intended for backup systems, with a Quattro, having mains on AC in 1, and Genset on AC in 2. When this option is enabled, the Genset will only be started after a mains failure. And in case of a mains failure, the Genset will automatically be stopped again as soon as the mains is restored. This functionality is not available for VE.Can connected Quattros.

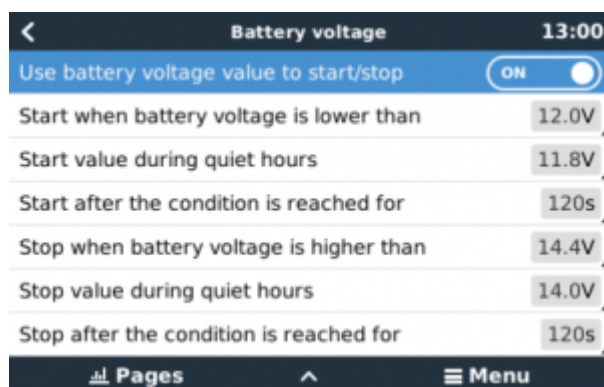
The following conditions are available to auto start/stop a generator:

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

\* The measured value is the system total AC consumption.

Conditions are evaluated in the order shown above and when multiple conditions are reached only the top one will be shown as active condition. All enabled conditions are evaluated even if the generator is already started so when the active conditions ends, the next reached condition will keep the generator running.

## Condition settings



- **Use “condition” value to start/stop:** Enables or disables the condition
- **Start when “condition” is higher/lower\* than:** When the value set here is reached, the relay is closed to start the generator.
- **Start value during quiet hours:** The same that above but when the “Quiet hours” mode is active.
- **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.

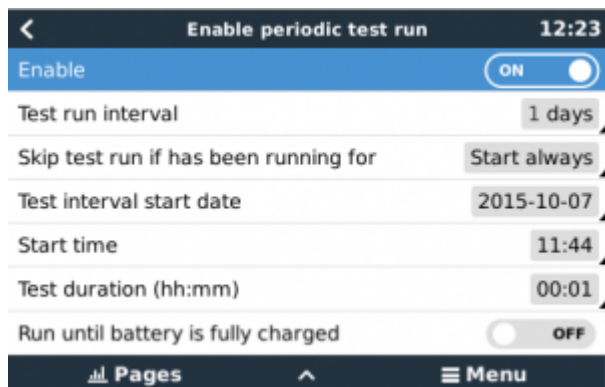


The “Measurement” setting is available on firmware v2.0 and onwards and has three possible values:

- **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

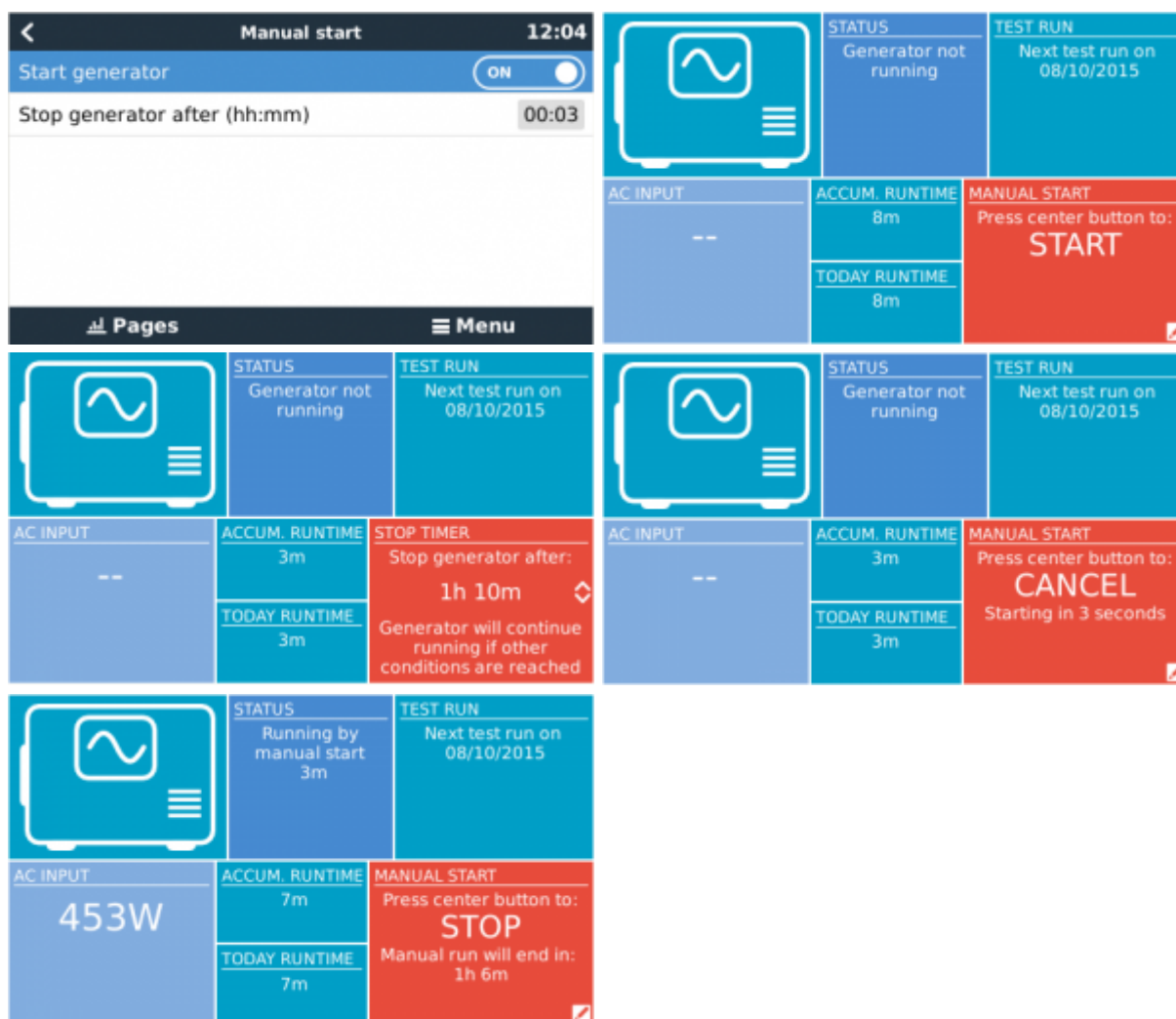
- **Test duration:** Duration of the test
- **Run until battery is fully charged:** Stops the generator after the battery is fully charged instead of a fixed amount of time

## 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.

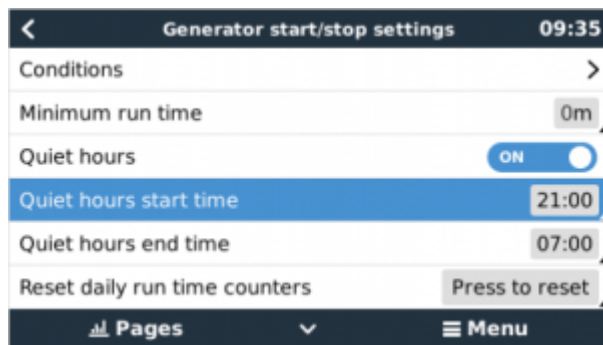


**WARNING:** If the generator is manually started without a stop timer, won't stop until the user set to off the manual start option.

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.

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