

# Automatic Generator start/ stop

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## 1. Which relay and control to use?

Various Victron products have functions to automatically signal when to start and stop a generator. Here is advice on when to use which product and method.

### 1.1. Option 1: GX device like CCGX or Venus GX

When there is a [GX device](#) (CCGX, Venus GX, or other) in the system, the best option is to use its [Generator Start/Stop mechanism](#). It's the most feature-rich generator start/stop system that we have to offer. It provides for basic functions as starting and stopping on Battery State of Charge, Battery voltage as well as High load situations. And also has many advanced features, including automatic test runs and silent times.

### 1.2. Option 2: BMV Battery Monitor

The next most used option is a BMV-700 Battery Monitor or similar model. It can start the generator on low battery voltage and/or low battery state of charge. The BMV uses a dry contact, voltage free relay. See the [BMV-700 manual](#) for configuration, and the [product data sheets](#) for voltage and current throughput limitations.

### 1.3. Option 3: Using the relay in the Multis or Quattros

The Multis, MultiPlus-IIs, Quattros, EasySolars and the rest of the VE.Bus family also have Generator start/stop feature with a relay. There are two different ways to configure them:

1. [Generator Start/stop function of the Virtual Switch](#) (recommended)
2. [Generator start/stop Assistant](#) (more advanced / complex)

### 1.4. Combining the options

Lastly, it's of course also possible to combine above mentioned methods, by wiring the open contacts in parallel to each other, or in series, to the Generator.

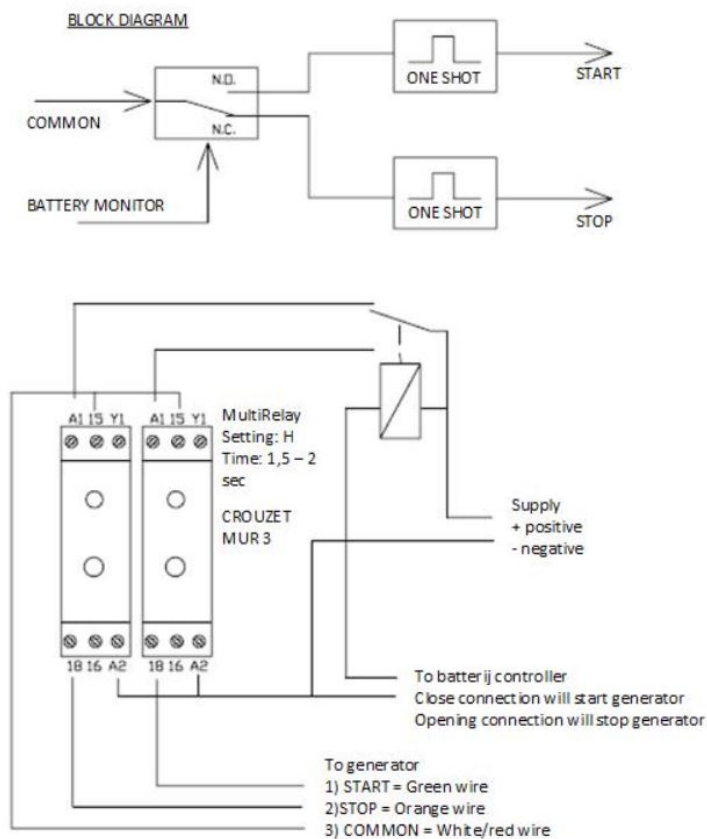
## 2. How to wire generators with a three-wire interface

All above Victron products and devices have a single relay; which will close when the generator needs to start; and then expect the generator to then keep running until the relay is opened again. Or the other way around.

When having a generator that requires a start pulse and a stop pulse, such as for example Cummins/Onan generators; additional wiring is required.

To start such a genset, the open/close contact needs to be converted into a start and stop pulse. Below solution, using standard available timing relays, does exactly that: when the open/close contact closes it generates the start pulse, and when the open/close contact opens again it generates the stop pulse.

Note that this solution should only be used on gensets that have their OWN control panel monitoring and automatically stopping on loss of oil pressure and other sensors. In other words: do not wire this directly to the starter motor and fuel solenoid.



### 2.1. Alternative using Assistants

One solution using MultiPlus relay for start stop a three-wire generator. Use k1 and k2 relays and programmable relay assistant.

- First to close k1 if voltage under 24v (for example)
- Second to open k1 if AC1 is available
- Third to close k2 if voltage over 27v (for example)
- Last to open k2 if AC1 not available