CCGX & Fronius PV Inverters

By connecting a Fronius PV Inverter and Color Control GX (CCGX) together you will be able to:

1. See Fronius information on the CCGX.
2. Monitor the Fronius on the VRM Portal.
3. Allow the Victron system to control the Fronius output power, Zero feed-in. See the ESS manual, chapter 2.1.3 Fronius Zero feed-in for details.

This document describes how to setup the monitoring functions. For more information on using Fronius PV Inverters in a Victron system, see: AC-coupled PV with Fronius PV Inverters.

1. Requirements

Model	Required accessory
Fronius Symo Light	Purchase and install the datamanager 2.0
Fronius Symo	No accessory needed, datamanager card installed from factory
Fronius Galvo	No accessory needed, datamanager card installed from factory
Fronius Primo	No accessory needed, datamanager card installed from factory
Fronius IG Plus (*)	Purchase and install the datamanager 2.0
Fronius Agilo	Purchase and install the datamanager box

(*) The Fronius Zero feed-in feature - which is part of an Energy Storage System ESS - will work on all the above models except the *IG Plus*.

All recent Fronius inverters - for example the Fronius Primo - will arrive fitted with a *datamanager 2.0*, as standard.

Both the Fronius and the CCGX need to be connected on the same LAN - either via Wi-Fi or Ethernet.

Note that the Datalogger Web is not supported. Contact your Fronius dealer to find out about the upgrading options.

2. Configuring

2.1 Setup Local Area Network (LAN) Configuration

In order to establish a data communication between the Fronius and the CCGX, you will have to setup a valid LAN IP address on the Fronius, using one of the following methods. If you are in doubt, which method is the best for your network, please ask your system administrator or IT support.

2.1.1 DHCP addressing method

If you have a DHCP server running on the LAN the Fronius and CCGX are connected to, you don't need

to manually configure your LAN IP addresses as the DHCP server does this for you. Make sure, that the “IP Switch” is in “B” (default) position on the datamanager, to allow the Fronius to obtain it's IP address. It can be reviewed in the Address Lease Table of the DHCP server.

2.1.2 Link-local addressing method

When no DHCP server is present on the LAN and you only have one Fronius unit to connect, Link-local addressing can be used to establish data communication between the CCGX and the Fronius. This could be the case, if you use a WiFi Network for the CCGX to gain access to the Internet and have a Fronius connected to the wired LAN Interface of that CCGX.

Note, that no direct access to the internet will be possible for the Fronius in that configuration and therefore only communication to the CCGX is possible.

This method can only be used to configure a single Fronius unit within a LAN. Multiple Fronius devices in the same LAN must be configured with DHCP, or manual addressing method.

1. Make sure the “IP Switch” on the Fronius Datamanager is on position “A”



2. Connect both, the Fronius and the CCGX, on the same LAN network, either directly with a LAN cable or using a network switch.
3. The Fronius is now accessible and having a “Link-local” capable IP address configured: 169.254.0.180

2.1.3 manual addressing method

You will have to configure the IP address of the Fronius to be in the same subnet as the IP address of the CCGX. To do this, first have a look at the IP configuration your CCGX is using on that network.

The IP configuration can be reviewed in Settings –> Ethernet. The important settings are the IP address and Subnet Mask.

If the LAN IP address and Subnet Mask of the CCGX is not configured yet, you will have to set it first.

As an example, the IP address on the CCGX could be: 192.168.10.1 and the Subnet Mask: 255.255.255.0.

Configuring the Fronius to the same subnet means setting a manual IP address to: 192.168.10.2 and the same Subnet Mask of 255.255.255.0 on the Fronius.

Every device on your LAN has to have a unique (different) IP address and so the last segment (.1/.2) in this example has to differ on every device on the same LAN. The highest value, that can be set for this segment is 254.

The subnet is described by the first 3 segments in this case and so they have to be the same. Configuring multiple devices with exactly the same IP addresses will lead to network errors. Use different IP subnets for the WiFi and wired LAN interface. The IP address ranges used on each interface should differ in the third segment.

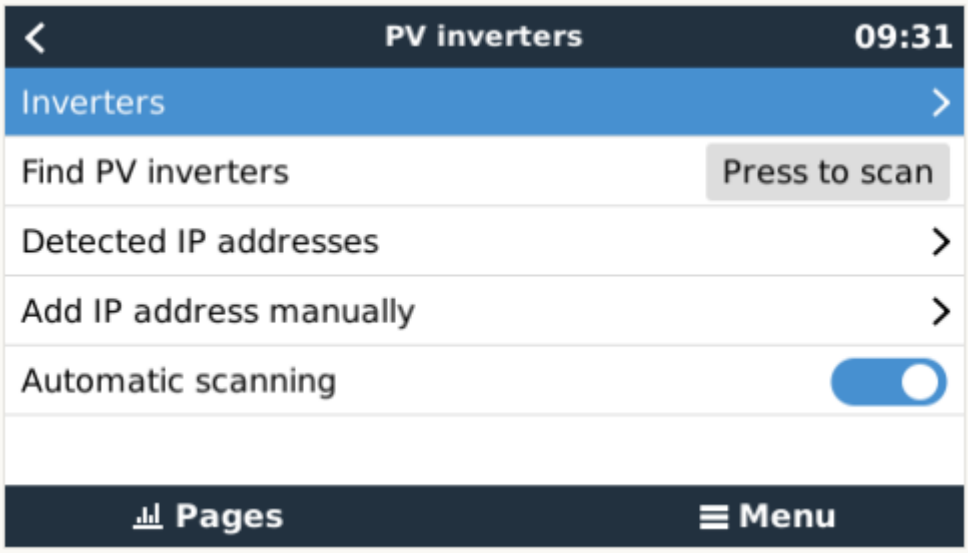
As an example: 192.168.10.1-254 for LAN IP's and 192.168.11.1-254 for WiFi IP's.

Configure the Fronius Datamanager to use an IP address on the same subnet, as described above. You may need to refer to the Fronius operating manual for how this is done for your Fronius Inverter model,

If you would like to connect the Fronius to be able to use the internet connection of your Local network, you have to set Gateway and DNS IP addresses on the Fronius as well. They should be exactly the same as in the Settings –> Ethernet of the CCGX.

2.2 Adding Fronius to the CCGX

1. In the CCGX, navigate to *Settings* and then the *PV Inverters* section. You will see this menu:



2. Select *Scan* in the CCGX menu, and after completion go into the Inverters submenu to see the results. If scanning does not find the inverter, manually add the IP address of the Fronius Datamanager ~~from its card, or box.~~

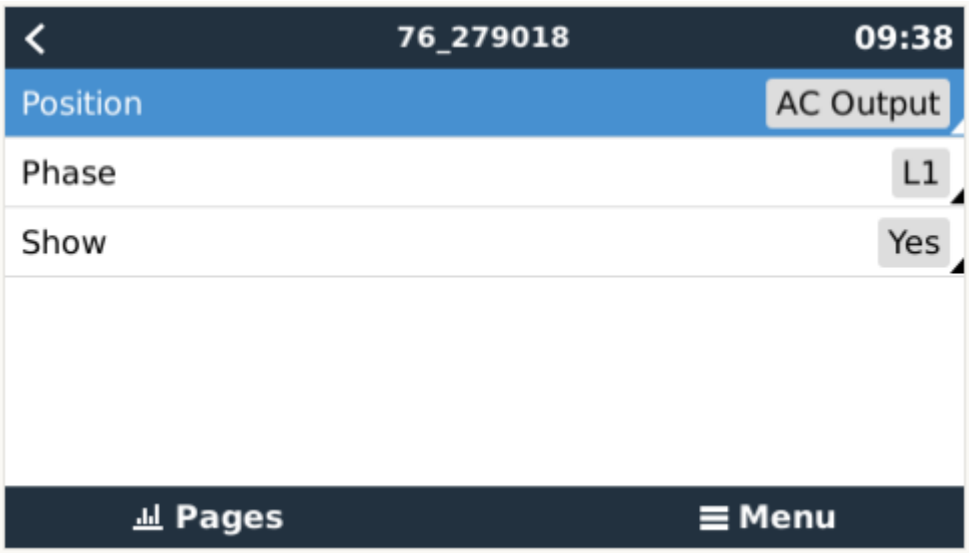
3. The CCGX will automatically scan for PV-inverters on the local network if no PV-inverters were

found previously or if a previously-found PV-inverter cannot be contacted. This will happen if the IP address of the PV-inverter changes. To prevent automatic scanning, disable *Automatic scanning*.

4. Once located, you will see the Inverters listed in the menu. The name used will be the serial number of the inverter - which you will also find on the inverter itself:



5. Configure the *position* relative to the Multi or Quattro (is it: AC Input / AC Output); and the *show* setting for each inverter in the list:



- Position: Select the position relative to the Multi or Quattro [AC Input 1 / AC Input 2 / AC Output]
- Show: Select whether to how this inverter in the system or not. Use this feature when there are multiple, separate, energy systems on the same LAN.

6. Configure the *phase* for each inverter in the list:



- Phase: Select the phase on which the PV Inverter installed. This setting is automatically set to Multi-phase for split- and three-phase PV Inverters.
- In some cases a single-phase PV inverter may deliver power at 240V or 208V across two downstream phases, such as in a residential split-phase configuration in North America. In this case the setting will not be set to Multi-phase automatically and you need to select *Split-phase (L1+L2)*. This instructs the CCGX to divide the measured incoming power evenly across the two phases for display and accounting purposes.

7. Done!

2.3 Device scan details

As mentioned above the CCGX should find all Fronius inverters automatically. It will scan all IP-addresses in the local network (that is, all IP-addresses within the netmask assigned to the CCGX) to check whether or not they are *Fronius datamanager* cards. This scan will be performed during CCGX startup; whenever the CCGX loses connection to a data card; and a scan can also be initiated manually by selecting 'Press to scan'.

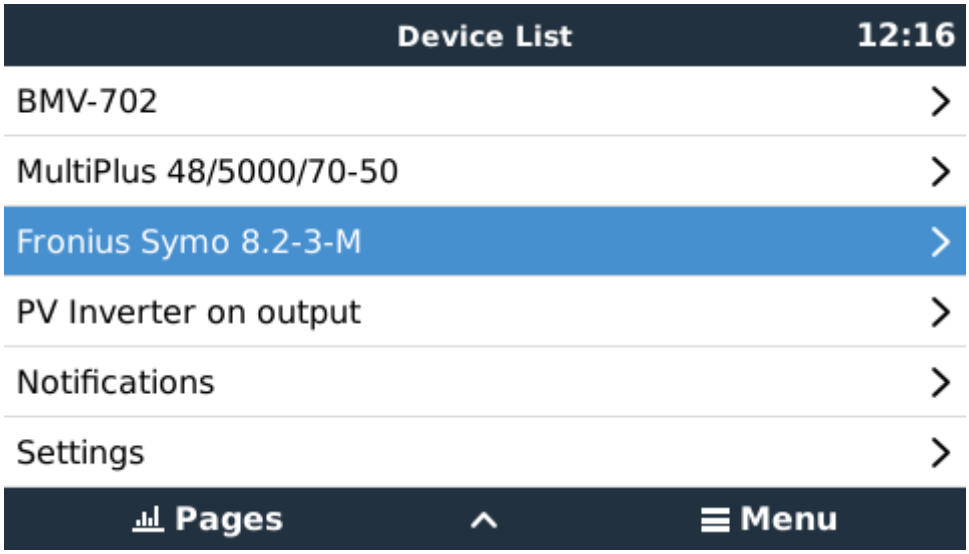
Usually a scan is completed within a minute - though if you have a large subnet it may take much more time. If you don't want to wait for completion, enter an IP-address manually.

All data cards found will be entered in the 'Detected data cards' list. The CCGX will regularly (once every minute) scan the IP-addresses in this list in order to find new data cards, or reconnect to data cards whenever the connection was lost.

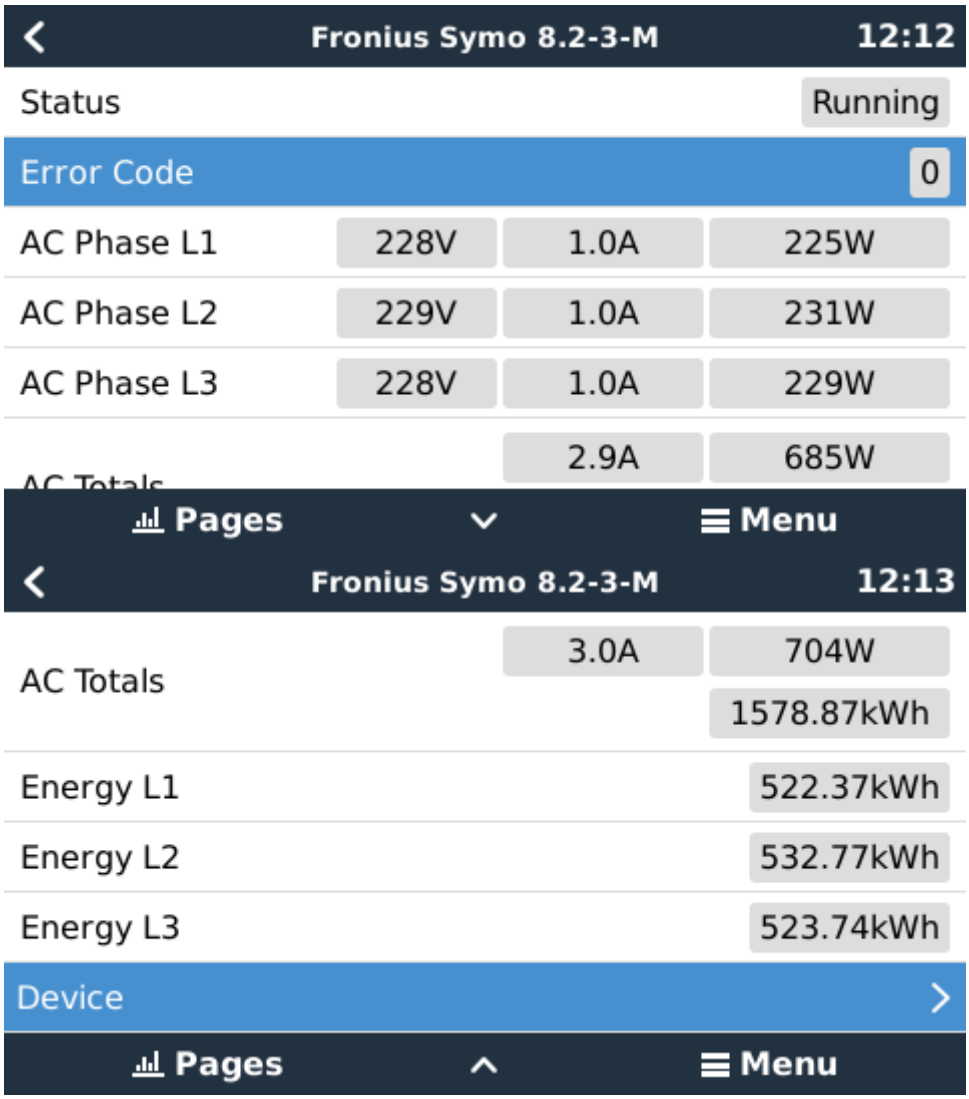
If you don't want an automatic scan to be performed, disable the *Automatic scanning* setting on the PV-inverters menu.

3. Monitoring CCGX

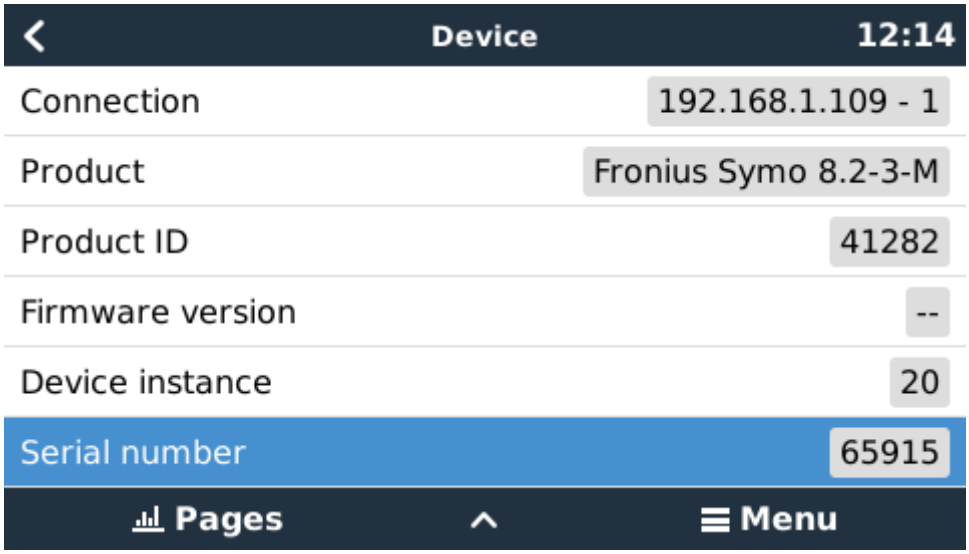
When the Fronius is detected and configured on the CCGX all PV inverters will be visible in the devicelist.



To see the device details, navigate to the menu. Here you can see the current state, current power generated, total power generated.



For more details on each device navigate to the Device menu. Here you will find: IP address, Product name, product ID, and Serial number, etc.



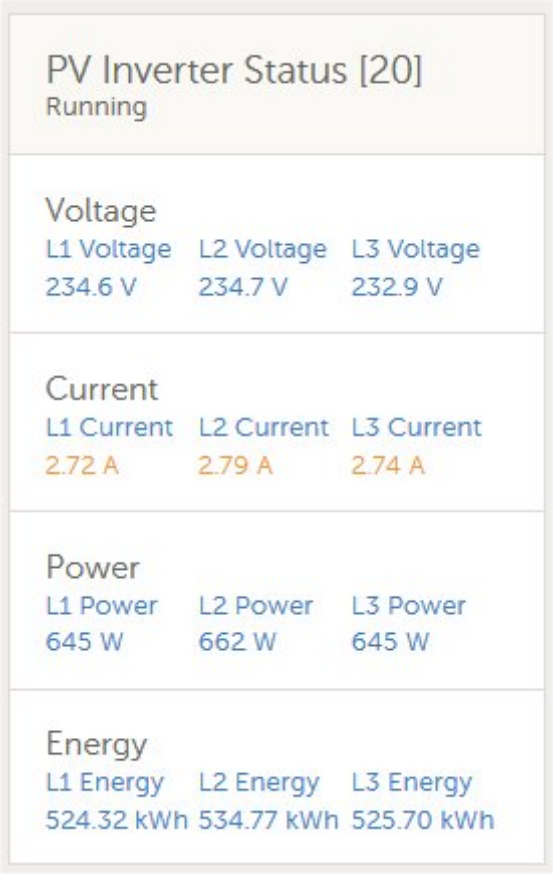
Inverter status

The following status values are supported:

State	Meaning
Standby	The PV-inverter is not generating power.
Startup	The PV-inverter is starting up, but not generating power yet.
Running (MPPT)	The PV-inverter is running at maximum power.
Running (Throttled)	The PV-inverter is running, but power is being throttled.
Error	One or more errors are present. Note that not all errors will cause the PV-inverter to shut down.

4. Monitoring on the VRM Portal

To see the yield on the VRM site (in the *Advanced* tab), don't forget to enable the PV Inverter yield widget(s) in Settings → Advanced tab setup.



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