

APPLICATION NOTE

ICC Raspberry Pi Configuration/ Setup in Voltronic-Pylontech Solutions

The ICC (Inverter Control Centre) is the ideal solution for Pylontech when used with Axpert in an on-grid solution. Certain Axpert units do not have the ability to receive BMS commands from the Pylontech battery. The ICC is able to communicate with the batteries and inverter allowing much better control, as well as adding remote monitoring.

This guide demonstrates how to setup and access the ICC as part of your storage installation.

Options, capabilities and limitations:

A ICC kit will be required when using certain Voltronic inverters with Pylontech battery, depending on the battery module, a different cable may also be needed.

- [Inverter control centre module.](#)

The ICC offers the following features:

- Real-time monitoring of all the different power sources in use in a solar system (solar panels, batteries, grid power, etc).
- All data is captured, stored and can be exported for a specific time period.
- Specific monitoring of the batteries in use.
- Can monitor up to 9 Axpert inverters in parallel.
- Support for a host of different Voltronic inverters.
- Can monitor grid tie as well as hybrid inverters.
- Support for Pylontech batteries with true SoC and voltage monitoring.
- Hourly trend analysis of the load, the solar panels, the batteries as well as the utility consumption and/or production.

The ICC Pylontech battery control function can only be used in an on-grid application, while in off-grid the ICC can only be used for monitoring.

The on-grid control only comprises the battery cycling. The ICC will take over the cycling control logic and will not rely on the inverter logic. The parameters "to Battery" and "to Grid" will be controlled by the ICC based on the SOC reported by the battery BMS.

Please note: When using the ICC and Pylontech for Grid connected self-consumption applications, the system will run the risk of the batteries shutting down in the event of a power failure. If the battery shuts down due to the low-voltage cutout protection, the battery will have to be manually reset once a charging source is available.

ICC offers mobile monitoring and can be used on Android platforms as well as via internet browser. The information displayed can be customized to the user's needs.



Figure 1 Android monitoring example

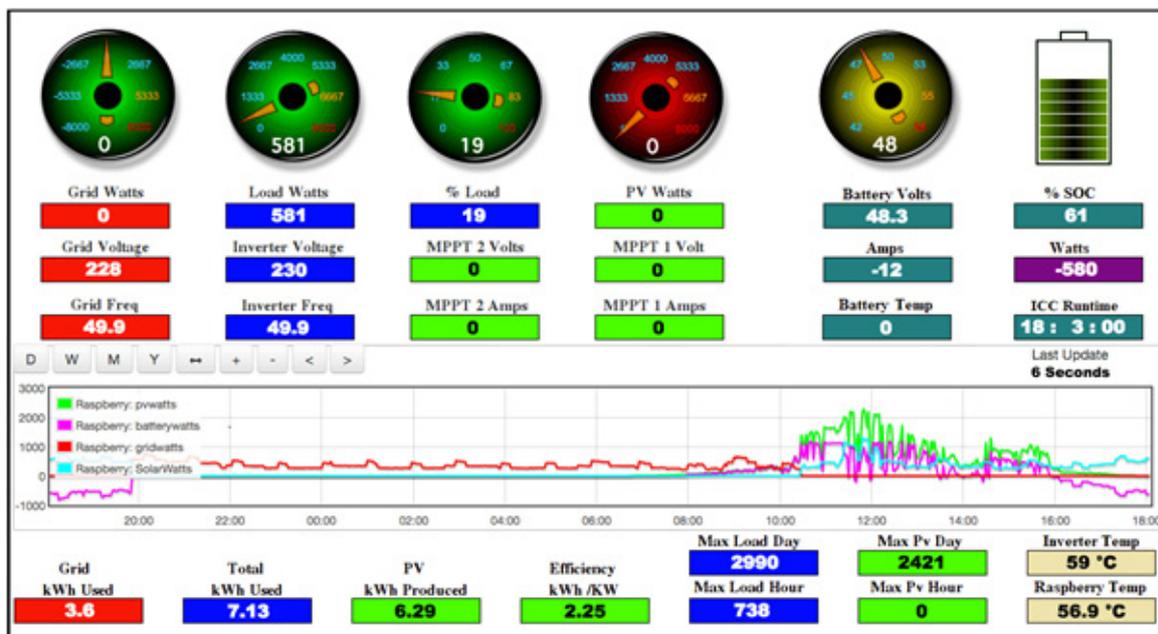


Figure 2 Web online monitoring example

ICC Initial Setup

The ICC Module plugs in using a normal AC adaptor and the adaptor must be plugged into a circuit connected to the backup of the inverter. The process is as follows:

- Make sure everything is powered down. The inverter, battery and ICC module must be off when connecting the communication cables.
- Connect the USB cable to the ICC and to the inverter. The USB cable is included in the box with the inverter.
- Now connect the Pylontech communication cable to the ICC module and to Pylontech battery - it plugs into the 'Console' port on the battery.

Everything is now ready to be powered on.

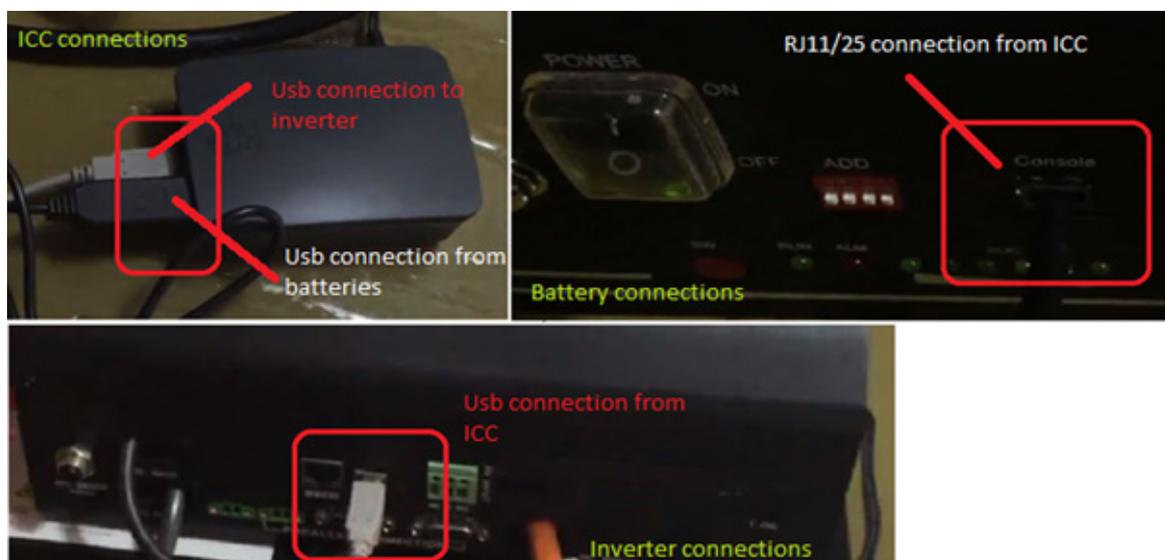


Figure 4: Communication Plugs

Please ensure that the settings on the inverter are set to the Pylontech Specified settings. Refer to the [Installation Manual Pylontech Voltronic Settings](#) for the inverter settings. When using the system for cycling, then Program 12 & 29 will be set to 46V (or 45.5V if 46V does not work). This will bypass the inverter control and will allow the ICC to control the cycling.

The next step will be to connect the ICC module to a network. This can be done by using a laptop or a mobile phone. It is recommended to use a mobile as the setup is very easy.

Step 1: Go to WiFi networks and connect to *ICC-Hotspot*, the password is *raspberry*.

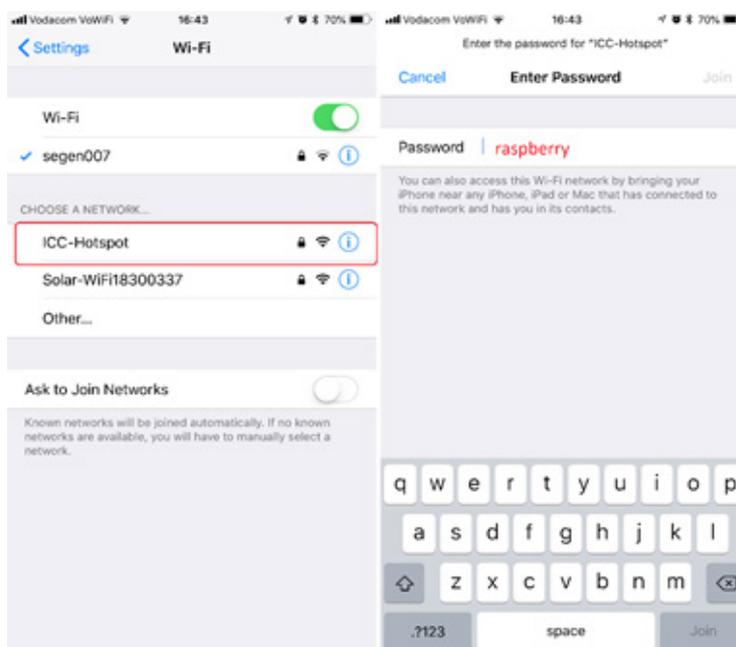


Figure 3 Wi Fi connection

Step 2: Open Web browser (Safari, Google Chrome or any browser app) and enter *10.3.141.1* and this will prompt for a username and password. The username is *pi* and the password is *raspberry*. This will open an ICC dashboard. Click on *Join WiFi Network*.

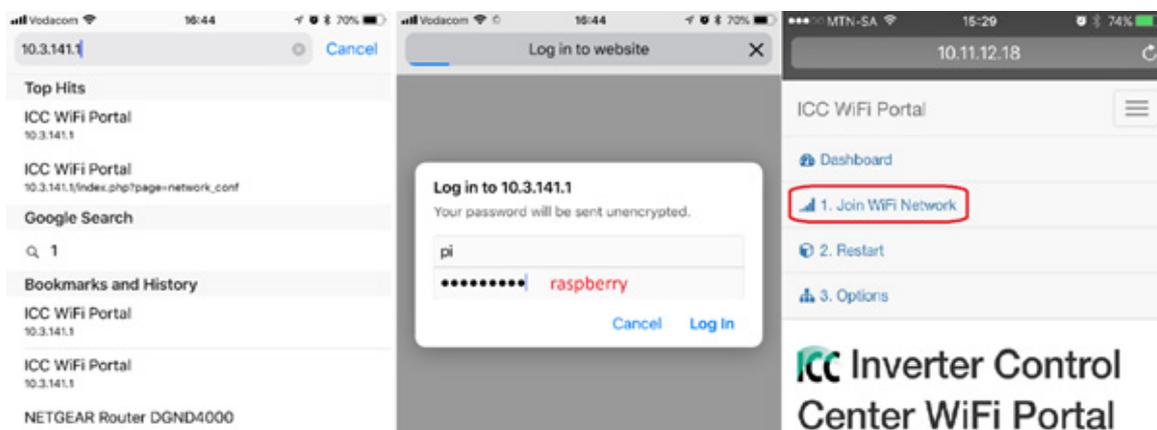


Figure 4 Connecting to the browser configuration

Step 3: All available WiFi networks will show up on the screen after clicking on **1. Join WiFi Network**. Select the desired network, enter the WiFi network password and click on add. After completing this step, the unit should be connected to the WiFi network. click on **2. Restart** and select **Reboot** to complete the setup process.

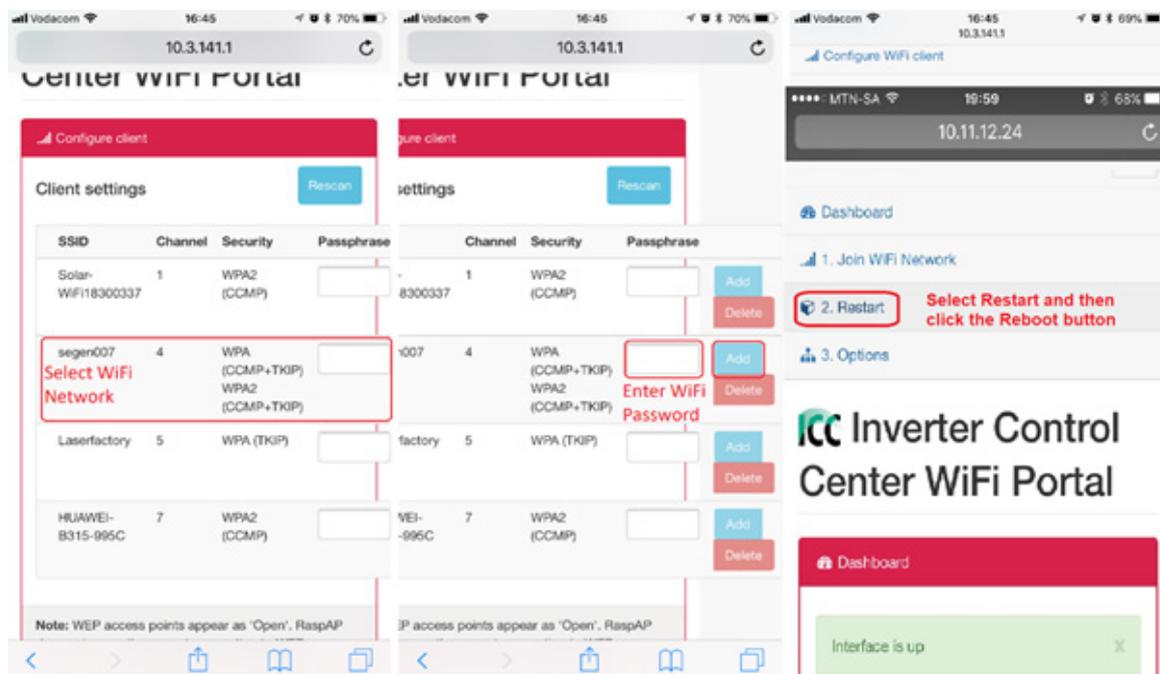


Figure 5 Connect to WiFi network example.

Now that the unit is connected to the internet, the remote monitoring can be used. The ICC account is pre-registered and the login details can be found inside the ICC module packaging. The username and password can be changed by the user. It is strongly recommended to change the password after registration. The registration link is also found inside the packaging. Please make sure to read this properly, as your account may be connected to a different instance.

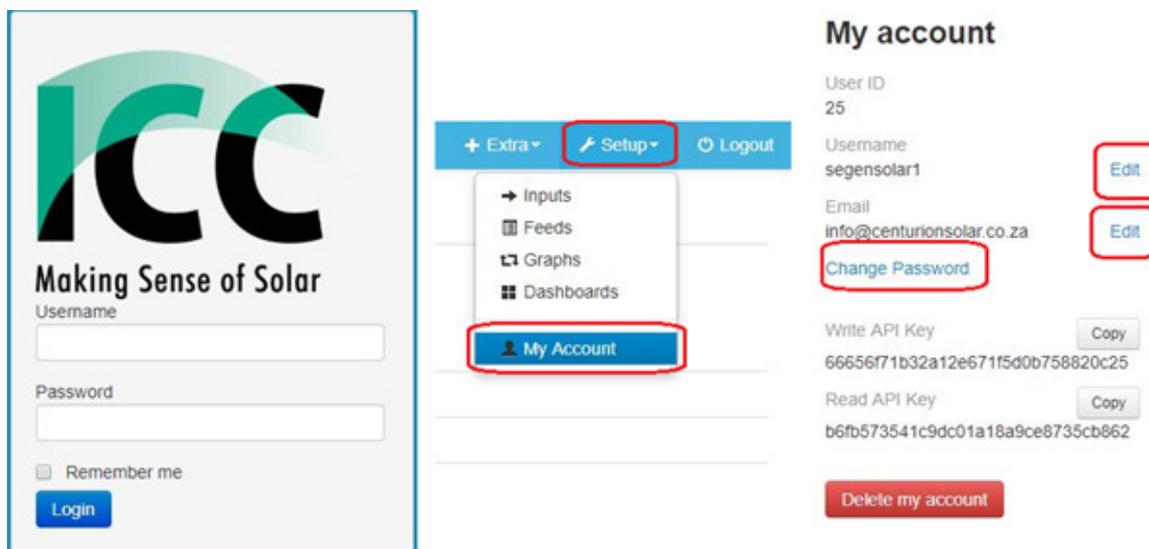


Figure 8: ICC Monitoring Account

The Mobile app setup is done from the ICC portal and all that is needed is an app to be downloaded and then to scan a QR code with the app, after which the mobile monitoring will work. The Emoncms APP can be downloaded on the Google Playstore. IOS support is coming soon.

Android APP direct link: <https://play.google.com/store/apps/details?id=org.emoncms.myapps>

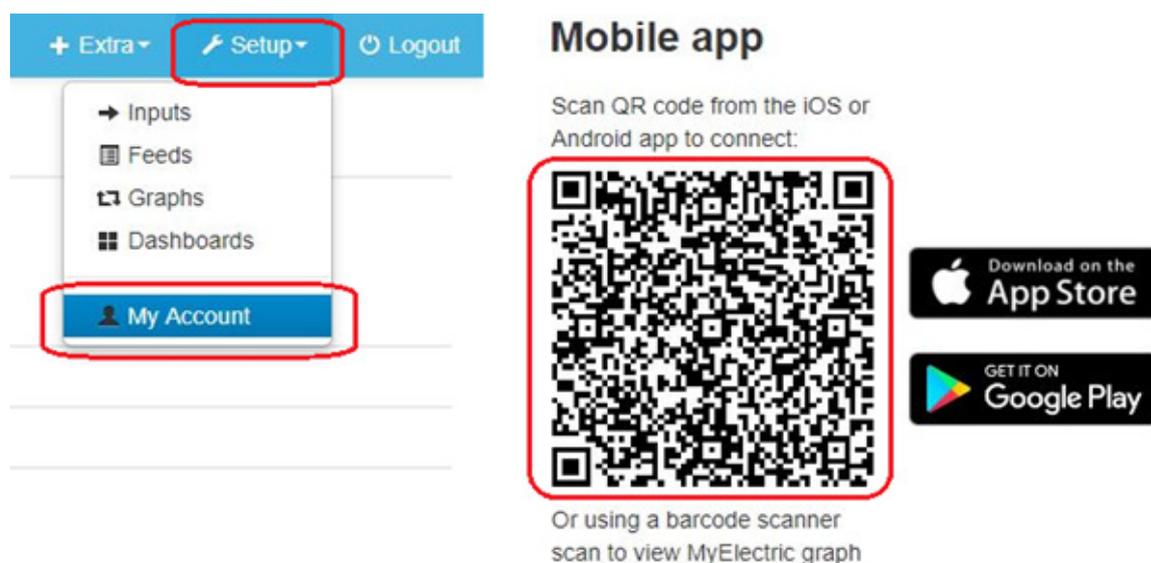


Figure 9: Mobile App Registration

Online Resources

Most of what is needed to know on how to setup the ICC is shown above in this document. If there is a need to access the ICC dashboard to make changes, please refer to the Centurion Solar YouTube guides. Go to <https://centurionsolar.co.za> and click on support for a list of YouTube guides.

Additional information including manuals and data sheets can be found on the SegenSolar portal under the relevant product.

PLEASE NOTE: ICC remote monitoring is currently free; Centurion Solar reserves the right to provide the service for free and may charge for the service in the future. Centurion Solar will notify its users in advance if any changes are planned.

Packages:

SegenSolar has pre-made packages that utilize the ICC. This is a cost effective and convenient way to order systems. Custom systems can also be created with the [Segen System Designer](#).

Inverter Control Centre Module recommended packages:

[OGX5.48-US3000B-PLUS-7.0](#)

[OGX5.48-US2000B-PLUS-7.2](#)

[OGX5.48-US2000B-PLUS-9.6](#)

[OGX5.48-US3000B-PLUS-10.5](#)

[OGX5.48-US2000B-PLUS-12.0](#)



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