VE.Smart Networking

1. Introduction

A VE.Smart Network is a wireless network which allows a number of Victron products to exchange information. It is a wireless technology using Bluetooth Smart.

Use VE.Smart to add remote voltage- and temperature- sensing to your Victron MPPT Solar Chargers. Connect either a BMV battery monitor - or the new Smart Battery Sense, to a Solar Charger. The Solar Charger will receive battery voltage & temperature information, and use that data to optimize its charge parameters. This will improve charging-efficiency and prolong battery life.

Video

2. Voltage and temperature sense - further details

The battery voltage data is used to compensate for voltage-drop over the battery cables. This ensures that the battery is charged with the exact voltage as configured in the charger - instead of a lower voltage due to resistance in the wiring.

The battery temperature data is used to adjust the charge voltages. When cold, a lead/acid battery typically needs a higher charge-voltage …and a lower charge-voltage when it's hot.

For lithium batteries the charge-voltages remain the same at all temperatures, as long as it’s not *too* cold. Its better to not charge Ltihium batteries below 5C, to prevent them from being damaged and degraded.

3. Specifications

3.1 VE.Smart Networking compatible products

Product range	Compatible	Requires VE.Direct Bluetooth Smart dongle	Function
BMV-700	Yes	Yes	Voltage-sense
BMV-702	Yes	Yes	Voltage-sense, and (optionally) temperature [1]
BMV-712	Yes	No, has built in bluetooth	Voltage-sense, and (optionally) temperature [1]
SmartSolar MPPTs	Yes [2]	No, has built in bluetooth	Uses received sense data to optimize charging
BlueSolar MPPTs	Yes	Yes	Uses received sense data to optimize charging

1. To measure battery temperature, the BMV series temperature sensor is required.
2. Check the table below to see which models are incompatible with this feature.

All new SmartSolar MPPT's support VE.Smart Networking. However some older versions of our hardware do **not** support VE.Smart Networking. A list of the older *incompatible* products and part-numbers - together with the part numbers of their compatible successors is as follows :

Product	Old Incompatible Part-number	New Compatible Part-number
VE.Direct Bluetooth Smart dongle	ASS030536010	ASS030536011
SmartSolar MPPT 150/85 Tr	SCC010085210	SCC115085211
SmartSolar MPPT 150/85 MC4	SCC010085310	SCC115085311
SmartSolar MPPT 150/100 Tr	SCC010100210	SCC115110211
SmartSolar MPPT 150/100 MC4	SCC010100310	SCC115110311
SmartSolar MPPT 250/85	SCC125085210 (before s/n HQ1811) SCC125085310 (before s/n HQ1811)	SCC125085210 (after s/n HQ1811) SCC125085310 (after s/n HQ1811)
SmartSolar MPPT 250/100	SCC125110210 (before s/n HQ1811) SCC125110310 (before s/n HQ1811)	SCC125110210 (after s/n HQ1811) SCC125110310 (after s/n HQ1811)

Note that when listed as not compatible; they will also not become compatible later. The incompatibility is due to a hardware limitation in those devices.

3.2 Limitations

- The maximum number of devices which can be connected on one network is 25.
- VE.Smart Networking is designed for small systems which do not have a Venus-device - such as a Color Control GX or Venus GX. In systems which have a Venus-device, do not use VE.Smart Networking - See FAQ 6.
- The transmitter range will be found to be the same as the Bluetooth range - as experienced when connecting a device to *VictronConnect*.

4. Step by step instructions

We recommend you configure the Smart Battery Sense, or BMV first ...and *then* add one or more solar chargers to that network. You can read the Smart Battery Sense manual here.

4.1 Setup the Smart Battery Sense or BMV

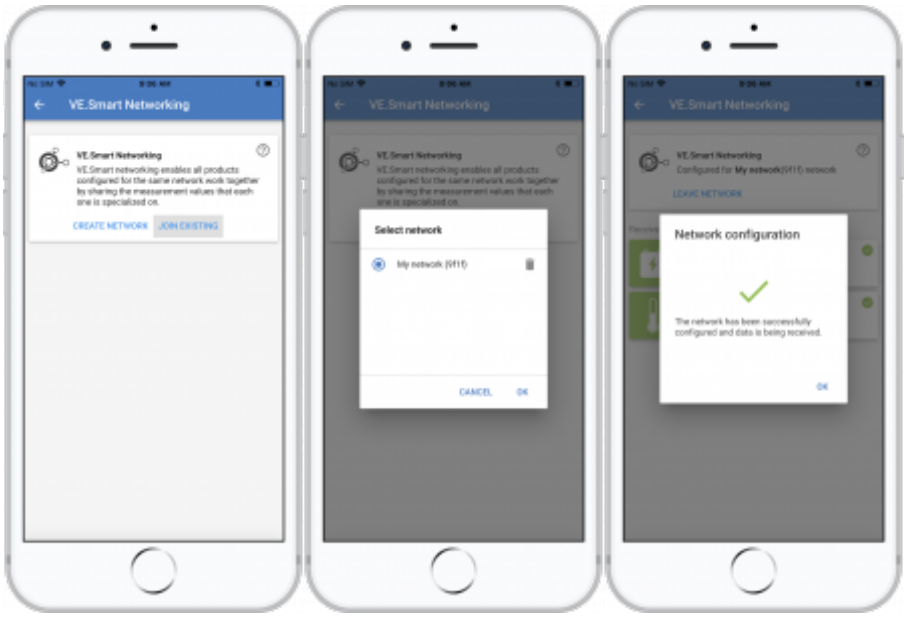
Open VictronConnect, connect the device, and then navigate to *Settings* and select *VE.Smart Networking*.

Click *Create Network*, enter a name. Click *Save* and wait for the 'OK' to show up.

4.2 Join the Solar Chargers to the network

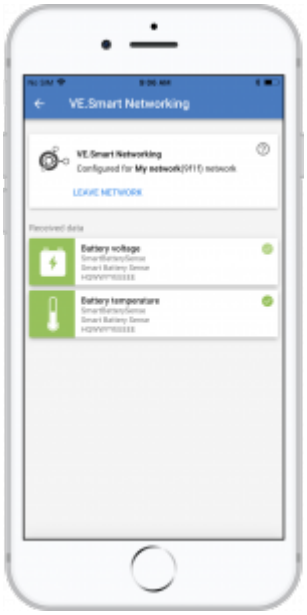
Go back and navigate to the *Solar charger*, then click *Settings* followed by *VE.Smart Networking* followed by *Join Existing*. Now select the network which you created at the previous step.

Wait for the 'OK' to show.



4.3 Verify operation

When everything is working OK, you will be able to see that the VE.Smart Networking page of the Solar Charger is receiving data:



Also the network icon will be shown on the main page:

Clicking on that icon will show the network status.

5. FAQ

Q1: Will you be adding wireless parallel charging as a feature?

Yes we will - though we do not have a date for its introduction yet.

Q2: Can several MPPTs be paired to one Smart Battery Sense or BMV?

Yes.

Q3: Is VE.Smart Networking disrupted if I connect a smartphone to it at the same time?

Not at all. It is possible to connect with a smart phone, computer or tablet, at the same time.

Q4: Will you add the same functionality to the BlueSmart Charger product range?

Yes we will - though the exact functionality, and the models to be included has yet to be determined.

Q5: Can Smart Battery Sense be used as a standalone product?

Yes. In this instance it will simply act as a voltage- and temperature-measuring device. Note that the functionality is limited in that it does not (yet) show the graphs or other data which would normally be generated from these measurements.

Q6: Can I use Smart Battery Sense in systems already controlled by a CCGX/Venus GX?

No. The CCGX/Venus GX already has voltage sensing (soon they will have temperature sensing too). Adding Smart Battery Sense to the installation will confuse the voltage-sensing data. For further information please see: CCGX/Distributed Voltage and Current Control.

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