

# 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 <sup>(1)</sup>
BMV-712	Yes	No, has built in bluetooth	Voltage-sense, and (optionally) temperature <sup>(1)</sup>
SmartSolar MPPTs	Yes <sup>(2)</sup>	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*.

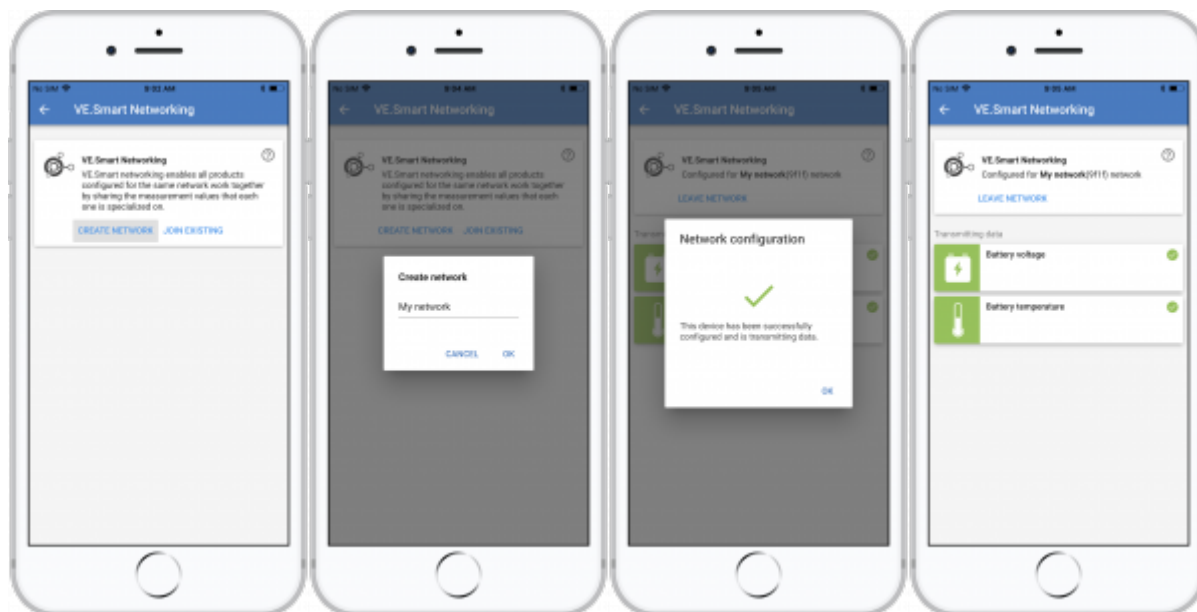
## 4. Step by step instructions

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*.

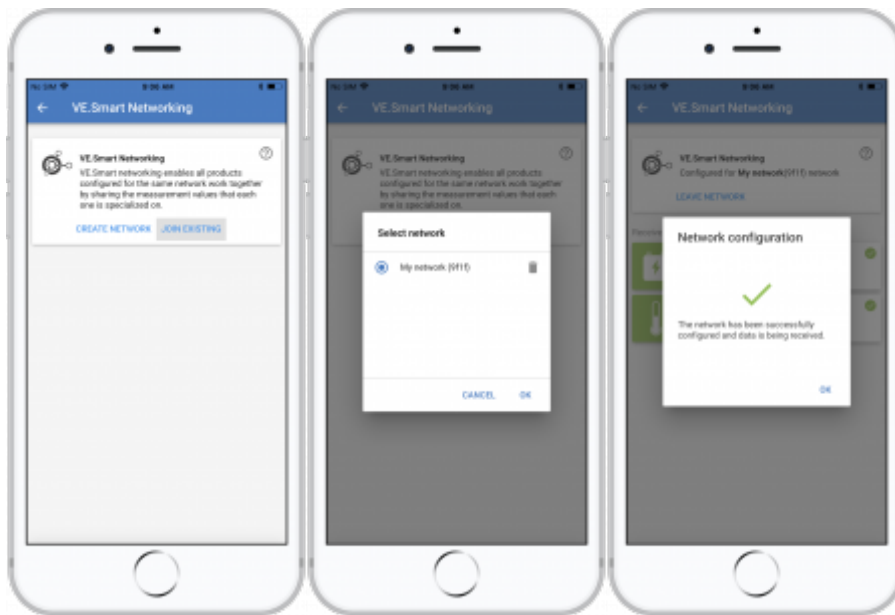
Click *Create Network*, enter a name. Click *Save* and wait for the 'OK' to show up.



### 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](#).

## DISQUS

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