

One customer - burdened with global costs of between twenty cents and several euros per mb of data - invented a clever solution: Using a VPN he modified the IP to route ALL traffic to and from the CCGX via his VPN. Using a firewall at the VPN server allows him to control traffic according to time, connection type, place and destinations. Although this is beyond the scope of this manual it works, and - with the help of a Linux and networking expert - it can work for you.

## 1.6.8 More information about setting up an internet connection and VRM

- [Setting up a VRM account \(/live/vrm\\_portal:start\)](#)
- [Trouble shooting connectivity between the CCGX and the VRM Portal \(/live/vrm\\_portal:troubleshooting\\_ccgx\\_vrm\\_connectivity\)](#)
- [VRM Portal alarms and monitoring \(/live/vrm\\_portal:alarms\)](#)
- [VRM Portal - Frequently asked questions \(/live/vrm\\_portal:faq\)](#)

## 1.7 Connecting a USB GPS

Use a GPS to track remote vehicles or boats and, optionally, get an alarm when they leave a designated area (geofencing). It is also possible to download a gps-tracks.kml file which can be opened with Navlink and Google Earth for example.

Victron does not sell USB-GPS, but the CCGX will support third-party GPS modules which use the NMEA0183 command-set - almost all do. It can communicate at both 4800 and 38400 baud rates. Plug the unit into either of the two USB sockets ...connection may take a few minutes, but the CCGX will automatically recognize the GPS. The unit's location will automatically be sent to the VRM online portal and its position shown on the map.

The CCGX has been tested for compatibility with:

- Globalsat BU353-W SiRF STAR III 4800 baud
- Globalsat ND100 SiRF STAR III 38400 baud
- Globalsat BU353S4 SiRF STAR IV 4800 baud
- Globalsat MR350 + BR305US SiRF STAR III 4800 baud

## 1.8 Connecting a Fischer Panda Generator

See [CCGX & Fischer Panda generators \(/live/ccgx:fischer\\_panda\)](#).

## 1.9 Connecting NMEA-2000 tank senders

A third party NMEA2000 tank sender must meet the following requirements to be visible on the GX Device:

- Transmit the NMEA2000 Fluid Level PGN, 127505
- The NMEA2000 device class needs to either General (80) in combination with function code Transducer (190), or Sensor (170). Or, the NMEA2000 device class needs to be Sensors (75), in combination with function Fluid Level (150).

A single function reporting multiple Fluid Levels is currently not supported.

For some tank senders it is also possible to configure the capacity and the fluid type on the GX Device - for example the Maretron TLA100. This facility may be available with other senders made by other manufacturers - it's well-worth trying.

To connect an NMEA2000 network to the VE.Can port on the CCGX, use a [VE.Can to NMEA2000 cable \[https://www.victronenergy.com/cables/ve-can-to-nmea2000-cable\]](#).

Alternatively, instead of a VE.Can to NMEA2000, you can use a 3802 cable from Oceanic Systems: [https://osukl.com/ve-can-adaptor/](#) [[https://osukl.com/ve-can-adaptor/1](#)]. The difference is that it lends itself well to connecting a single NMEA-2000 device into a VE.Can network. It's also able to power a lower voltage NMEA-2000 network directly from a 48V Victron system.

Tested NMEA2000 tank senders:

- Maretron TLA100
- Navico Fluid Level Sensor Fuel-0 PK, partno. 000-11518-001. Note that this sender requires a 12V powered NMEA2000 network; it breaks when connected to a 24V-powered NMEA2000 network. And note that you need a Navico display to configure the Capacity, Fluid type, and other parameters of the sensor.

Most likely others work as well. If you know of one working well, please edit this page -or- get in touch with us on [Community -> Modifications \[https://community.victronenergy.com/spaces/31/index.html\]](#).

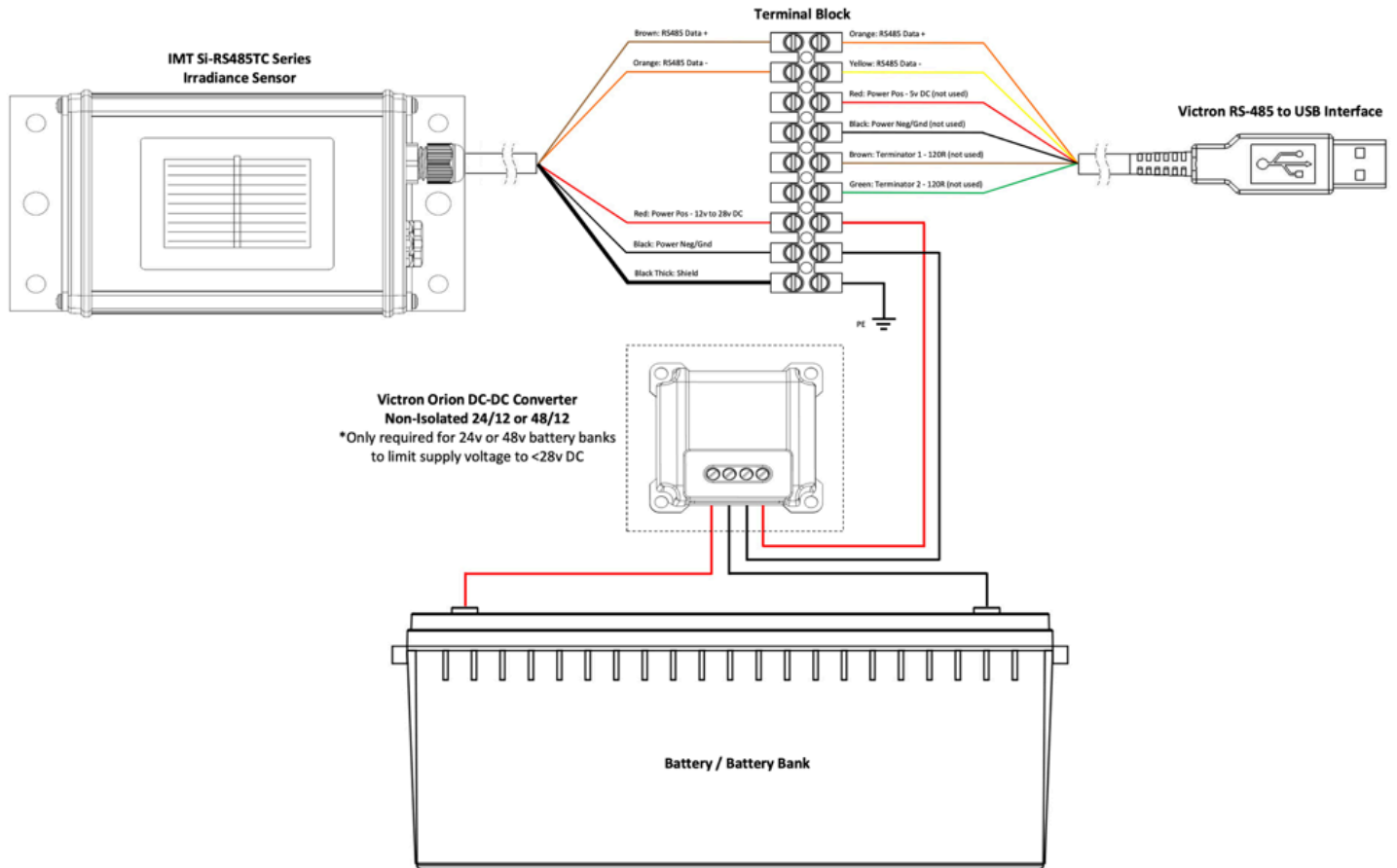
## 1.10 Connecting IMT Solar Irradiance, Temperature and wind sensors

[Compatibility and wiring](#)

The compatible types are the [Si-RS485TC Series \[https://www.imt-solar.com/fileadmin/docs/en/products/Si\\_Instruction\\_digital\\_2017\\_E.pdf\]](#). The optional wind and temperature sensor are also supported.

The sensor is connected using RS485 wiring, and requires our [USB to RS485 accessory cable \[https://www.victronenergy.com/accessories/rs485%20to%20usb%20interface\]](#).

Follow this diagram for the connection of the Sensor to the GX device's USB port, via the RS-485 to USB interface.



(/live/\_media/ccgx:sensordiagram.jpg)

The Si-Sensor needs to be powered with 12 to 28V DC supply. If the system voltage will exceed this (eg 24V or 48V systems) then use a nonisolated 24V to 24V DCDC Converter [https://www.victronenergy.com/dc-dc-converters/orion-24-12-5-10], or isolated 48V to 24V DCDC Converter [https://www.victronenergy.com/dc-dc-converters/orion-tr-dc-dc-converters-isolated], with its input in parallel to the GX Device, and output connected to Si-Sensor.

BEWARE! The maximum input voltage is 28V, which is too low for a 24V battery system (normally up to 28.8V or more), so it is recommended to use an Orion DCDC Converter.

#### Wire connections

Si-Sensor	RS 485 interface	Signal	Note
Black	Black	Minus	Connect to GX Device minus as well.
Brown	Orange	RS485 Data A +	
Orange	Yellow	RS485 Data B -	
Black (thick)		Ground	Ground
Red		Power positive (12/24V)	Connect to either battery or output of DCDC Converter

Make sure all unused wires of the RS485 USB interface are terminated in an isolated manner. The data sheet for the RS485 to USB adapter is here [http://www.farnell.com/datasheets/652302.pdf?\_ga=2.109087045.1341578072.1576877093-346170190.1576877093&\_gac=1.114585333.1576877093.CjwKCAiA\_HvBRACEiwAbViuU6u5HSgNPtRACH3Qrw5A5ugDJSgYqGM6xd03nfl0i6vuYwIwTncoRoComkQAvD\_BwE].

#### Isolated RS485 to USB Adapters

In some applications it may be necessary to use an isolated RS485 interface (eg positive ground systems). You must use the USB485-STIXL : Isolated USB to RS485 converter from Hjelmshund Electronics [https://hjelmshund.eu/default.asp]. Don't use any others, they will not be recognised by the GX Device.

#### Configuration of the sensor

Normally, the Sensor should work out of the box. In case it does not, for example when the sensor has previously been used in another system, then:

1. Download the Si-MODBUS-Configuration software tool from the IMT website.
2. Configure the following settings: Modbus Address - 3, Baud Rate: 9600, Data Format: 8N1 (10 Bit).

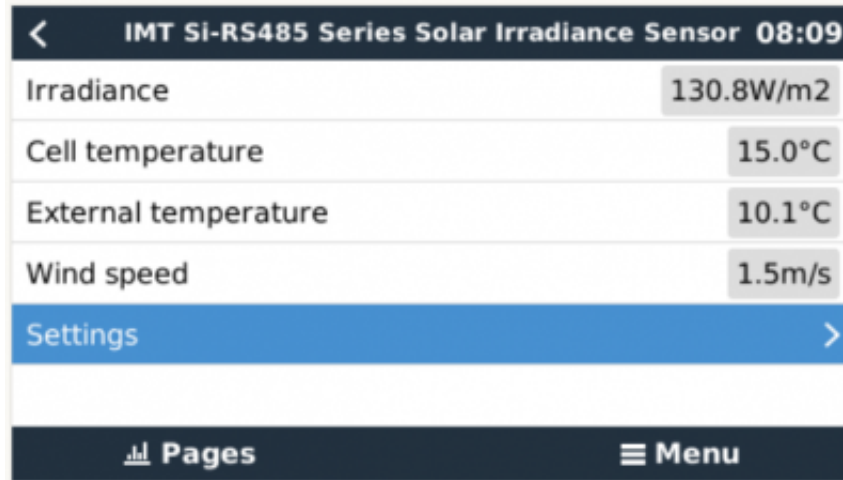
For more support on configuring the IMT sensor, please contact IMT [https://imtsolar.com/contact/].

### Connecting multiple IMT sensors

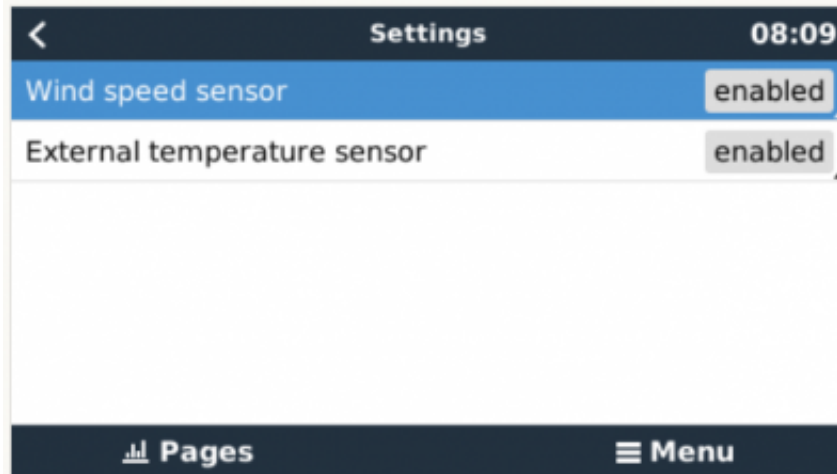
It's possible to connect multiple IMT sensors. A separate USB to RS485 converter cable is required for each sensor.

You can't combine multiple Si-Sensor RS485 sensors on one bus, our software supports only one. To use multiple sensors, you will also need to add multiple USB to RS485 converters.

### Usage

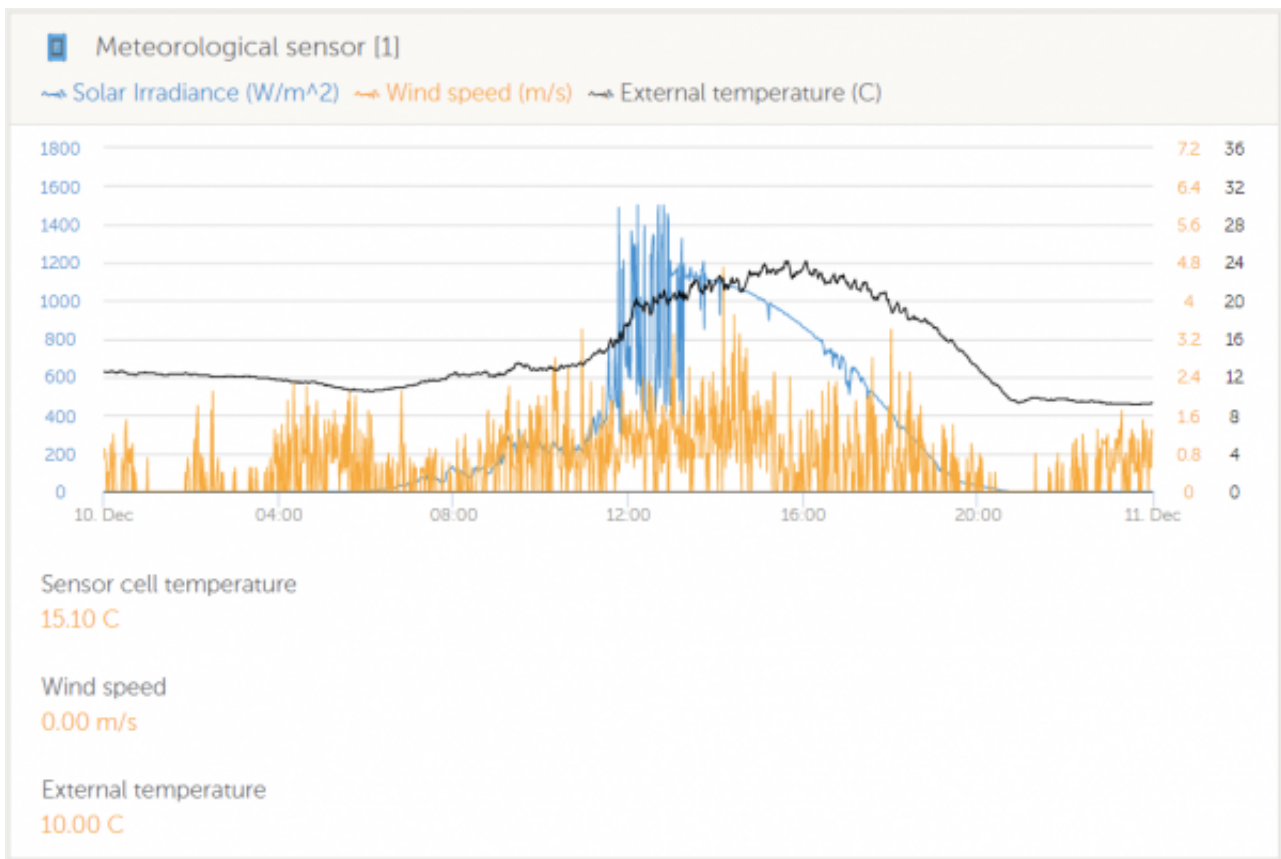


[\(/live/\\_detail/ccgx:imt-main-menu.png?id=ccgx%3Astart\)](#)



[\(/live/\\_detail/ccgx:imt-settings.png?id=ccgx%3Astart\)](#)

This picture shows how its visualised on VRM:



[//live/\\_detail/ccgx:imt\\_visualisation\\_on\\_vrm\\_portal.png?id=ccgx%3Astart](#)

## 2 Configuration

### 2.1 Configurable parameters

After completing the installation and setting up the internet connection (if required), go through the menu from top to bottom to configure the CCGX:

Item	Default	Description
<b>General</b>		
Remote support	Off	Enable this to allow Victron engineers to access your system in case there is a problem.
Access level	User and installer	Set this to 'User' to prevent accidental and unwanted changes to the configuration.
Audible alarm	On	When there is an alarm on the CCGX or a connected product, the CCGX will beep - unless this setting is set to 'Off'.
Demo mode	Off	Turn 'On' to demonstrate product and installation features to a client or at an exhibition. This simulation mode will allow better understanding without (yet) changing any settings.
<b>Firmware</b>		
Online updates: Auto update	Check and update	We recommend the factory default. A reason to disable it would be to eliminate the risk of a firmware update causing problems.
Online updates: Update to	Latest release	Use the default setting unless you want to participate in test versions. End-user systems should certainly be set to 'Latest release'.
Offline updates		Use this menu to install a new version from a microSD card or USB stick. Insert the card or stick that holds the new firmware .swu file.
Stored backup firmware		With this feature you can go back to the previously installed firmware version.
<b>Date &amp; time</b>		
Date/Time local	Automatic from internet	When connected to the internet, time will be automatically synchronised regardless of this setting. Toggle the setting Manually input the time where no internet connection is present.
Change time zone	Select the correct time zone.	
<b>Remote console</b>		
Disable password check		Password authentication not required for remote console access.
Enable password check		Choose password to allow remote console access.