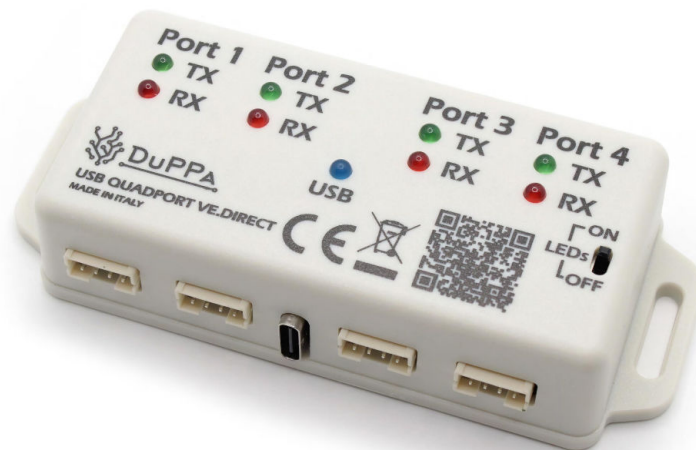




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USB QUADPORT VE.DIRECT

HW V1.3

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Revision History

Revision	Date	Author(s)	Description
1.1	14.12.2025	Simone	Updated to include external LED switch version
1.0	18.06.2025	Simone	Initial document release

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1. Device Overview

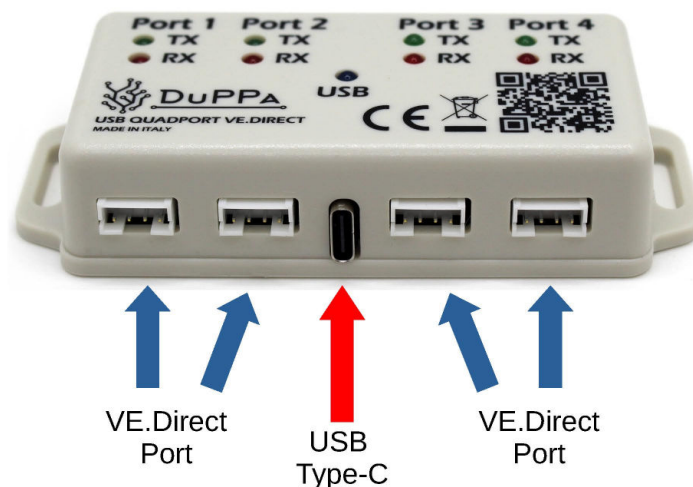
The USB QUADPORT VE.DIRECT is a USB to 4-port UART interface, purpose-built for applications utilizing the VE.Direct protocol.

It includes a USB Type-C connector and four galvanically isolated VE.Direct ports, each equipped with status LEDs for clear communication diagnostics.

The device is fully compatible with Victron Energy systems running Venus OS, like Cerbo GX, and also supports integration with platforms such as Raspberry Pi, Windows, Linux, and others.

Features:

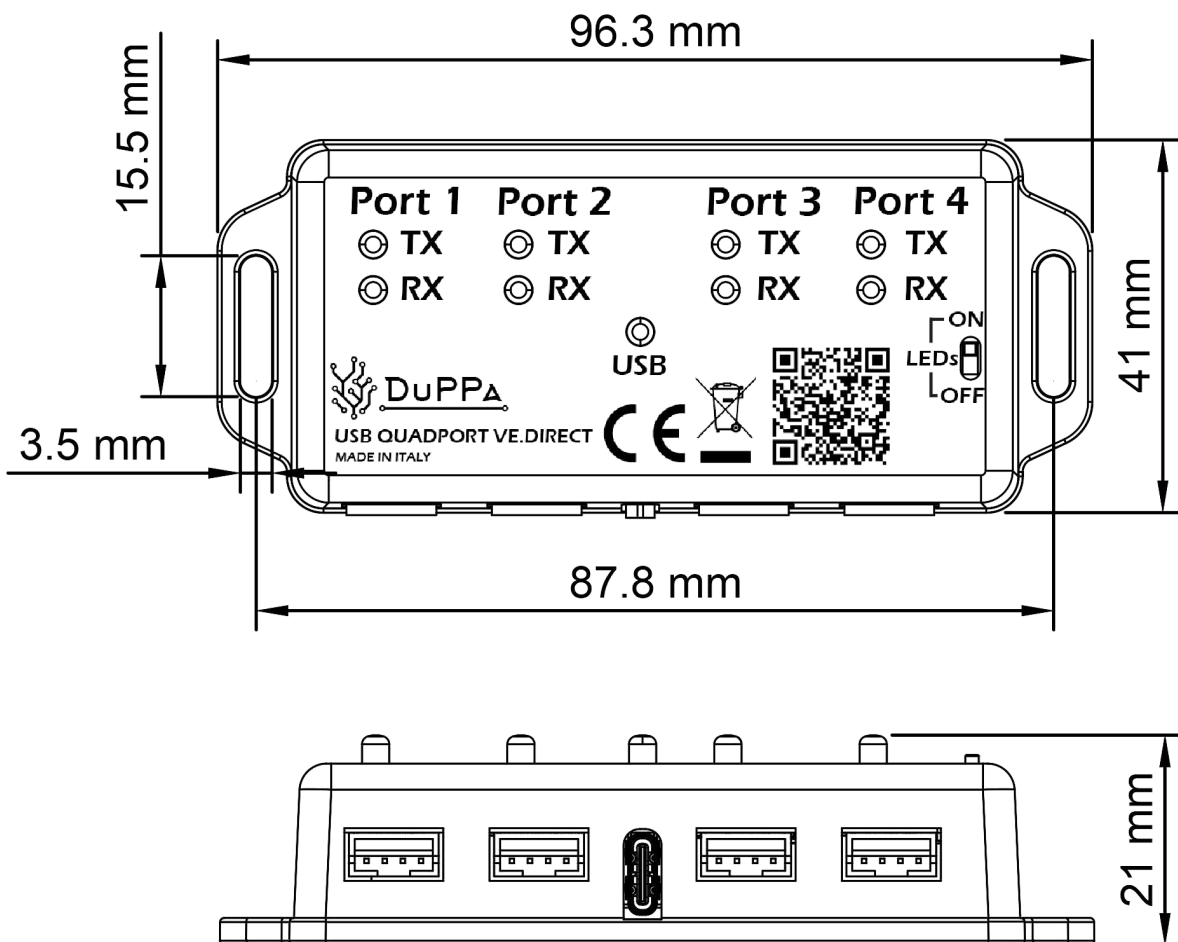
- Original FTDI FT4232H-56Q
- Up to 12Mb/s each port
- Plastic case 97 x 41 x 21 mm
- 4 isolated port VE.Direct
- Compatible with original Victron cables
- Each ports can work independently at 3.3V up to 5V
- Power, TX and RX LEDs indicators
- Switch for disable/enable the LEDs
- USB type-C connector
- Compatible with: Linux, Windows, Android and Mac OS



1.1 Electrical and Environmental Specifications

Item	Value / Range	Notes
Power supply	USB 5 V	Standard USB power input
VE.Direct power	3.3 V – 5 V	Mandatory for port communication
Consumption (LEDs ON)	95 mA (typ.)	
Consumption (LEDs OFF)	83 mA (typ.)	
Temperature range	-20 °C to +85 °C	Industrial grade

1.2 Dimensions



2. Usage

2.1 Setup Instructions

The USB QUADPORT VE.DIRECT comes fully assembled and tested. To integrate it into your system, please follow these steps:

1. Power off your system.
2. Connect the VE.Direct cable from your Victron device to one or more of the VE.Direct ports on the USB QUADPORT VE.DIRECT.
Note: You do not need to use all four ports, connecting fewer is perfectly fine.
3. Connect the USB QUADPORT VE.DIRECT to your control hub (Cerbo GX, Raspberry Pi, etc.) using a USB-C cable.
4. Power on your system.
5. Venus OS will recognize automatically the device, no need to install the driver.

If LEDs indicators are enabled:

- The blue LED will remain ON to indicate power.
- The port TX and RX LEDs will blink to show active communication.



Please ensure you are using a USB cable that includes data lines. Some USB cables are designed for power only and do not support data transmission.



The VE.Direct ports on the USB QUADPORT VE.DIRECT act as master interfaces. Do not connect them to other VE.Direct ports of the communication centers.

In Figure 2.1, you can see an example of a connection to the Cerbo GX with four MPPTs. However, you can also use a Raspberry Pi instead of the Cerbo GX and choose different products that support the VE.Direct interface.

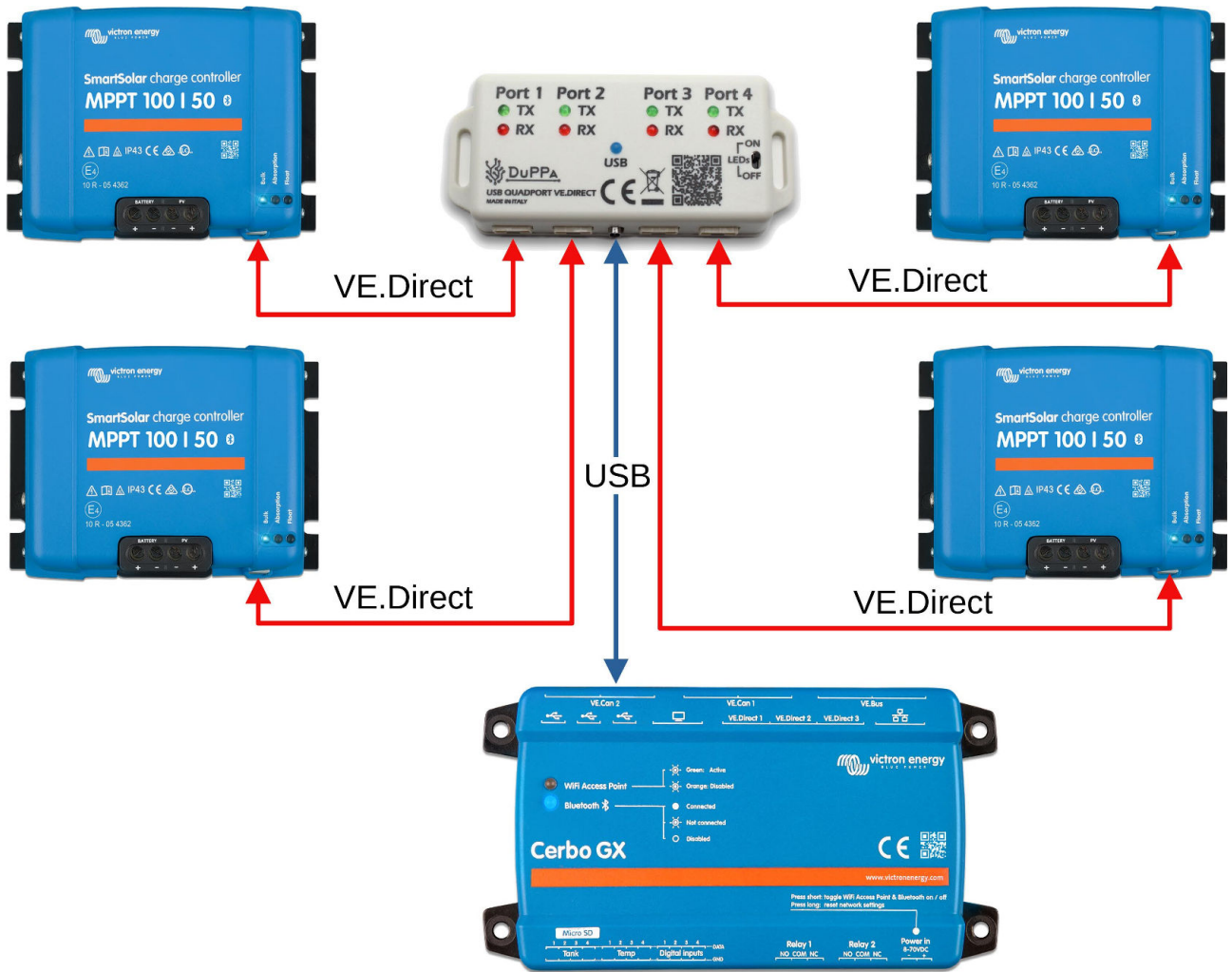


Figure 2.1: Example of connection of 4 MPPT to a Cerbo GX

2.2 Enabling/Disabling LED Indicators

By default, the USB QUADPORT VE.DIRECT is shipped with the LED indicators enabled. If you wish to disable them, toggle the LED switch.

In the latest hardware revision of the USB QUADPORT VE.DIRECT, the LED switch is located on the top side of the unit. This switch allows you to enable or disable all LEDs with a single action.



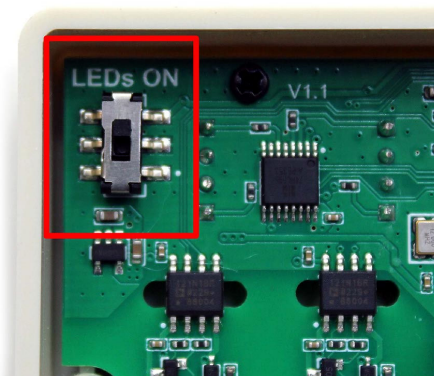
Figure 2.2: LEDs switch location

If the LED switch is not present on the top side, it is located internally. To disable the LED indicators in this case, follow these steps:

1. Power off the device.
2. Unscrew the two screws located on the bottom of the enclosure:



3. Locate the slide switch in the top-left corner of the internal board:



4. Toggle the switch to change the LED status:
 - UP position: LEDs enabled
 - DOWN position: LEDs disabled
5. Reassemble the enclosure and power the device back on.



Always ensure the device is powered off before opening the enclosure to avoid damage or injury.

3. Pinout

The USB QUADPORT VE.DIRECT follow the VE.direct pinout as a "producer"

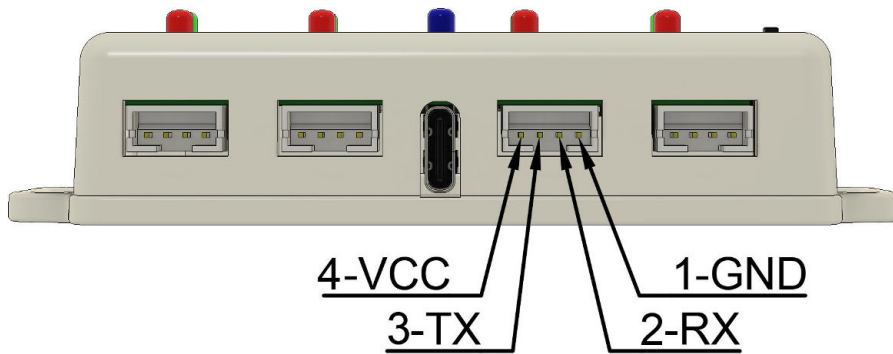


Figure 3.1: Pinout of one VE.Direct port. All the 4 port follow the same pinout

Pin	Name	Description
1	GND	Gound connection
2	RX	Input data
3	TX	Output data
4	VCC	3V - 5V Power supply (mandatory)

All four VE.Direct port are electrically isolated from each other and from the USB interface. They do not share ground or any power source.

For this reason, the external VCC supply is required. The converter cannot operate if the supply is missing or if its voltage is outside the supported range, as is the case with some JK BMS units.

Below is the schematic of the VE.Direct cable used to connect the USB QUADPORT VE.DIRECT to other VE.Direct devices.

The connectors are JST PH, 2 mm pitch, 4-pin.

RX and TX are crossed, while the power lines pass straight through.

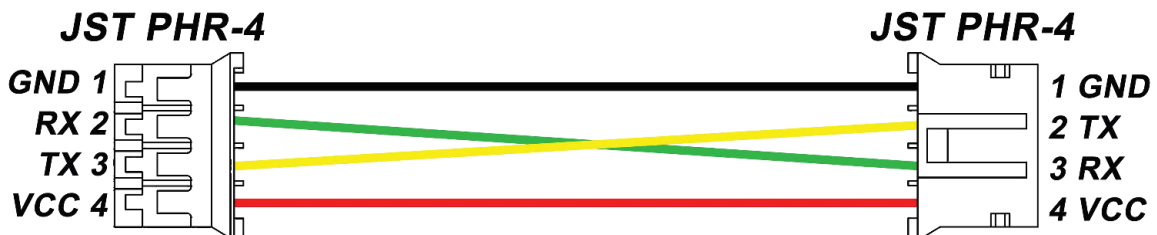



Figure 3.2: VE.Direct cable schematic

4. Troubleshooting Guide


Power LED is ON, but no communication


This is a common issue. The most likely cause is the use of a USB cable that only carries power and lacks data lines.

 **Solution:** Replace the cable with a USB data cable.


Random disconnections

Possible causes and solutions:

 **Faulty or degraded SD card:** Try replacing the SD card in your system.

 **Poor quality or overly long USB cable:** Use a shorter, high-quality USB cable.

Not all VE.Direct ports are working

 Try rebooting the device to reset the communication interfaces.