

2. Check if the battery has been charged with a too high voltage. Very high charge voltage will damage the battery. Check the maximum battery voltage and the high voltage alarms in the battery monitor. Check if the measured maximum voltage has exceeded the battery manufacturer recommendations.

5.6. Solar issues

This chapter deals with the remaining potential solar issues that were not already discussed in the earlier chapters.

5.6.1. PV reverse current too high

Overcurrent does not necessarily damage the solar charger, but it will cause damage if the array produces too much current while, at the same time, the array has been connected in reverse polarity to the solar charger. Damage due to overcurrent is not covered under warranty.

Refer to the solar chargers technical specifications for the maximum PV short circuit power current rating.

5.6.2. PV yield less than expected

Check the solar charger history in the VictronConnect App. Check the total maximum power (Pmax) for each day. Does this match the array power?

To find the potential solar yield per day for a specific PV array size in a specific geographical location, use the MPPT sizing calculator on the [solar charge controller product page](#).

These are some of the reasons why the array is generating less power than expected:

- Low sun angle, seasonal differences or morning/evening.
- Cloud cover or bad weather.
- Shading from trees or buildings.
- Dirty panels.
- Incorrect orientation and/or inclination.
- Broken or faulty solar panel(s).
- Issues with wiring, fuses, circuit breakers, wiring voltage drop.
- Bad splitters or combiners, or these are used in an incorrect way.
- Part of the PV array not working.
- PV array design issues.
- Solar array configuration mistakes.
- The batteries are too small, or getting older, and have a reduced capacity.



VictronConnect history Pmax

5.6.3. Full rated output not reached

There are a few reasons why the solar charger is not reaching its full rated output.

Some of these reasons have already been explained in the the chapter: "The batteries take too long to charge, are undercharged or charge current less than expected". Some additional reasons are explained in this paragraph.

PV array too small

If the PV array power rating is less than the solar charger nominal power rating, the solar charger cannot output more power than the connected solar array can provide.

Temperature above 40°C

When the solar charger heats up, eventually the output current will derate. When the current is reduced naturally the output power will reduce as well.

The controller is operational up to 60°C, with a full rated output up to 40°C.

In case the solar charger heats up quicker than expected, pay attention to the way it has been mounted. Mount it in such a way that the generated heat can dissipate.

Ideally mount the solar charger on a vertical surface with the terminals facing downwards.

If the solar charger is located in a closed enclosure, such as a cabinet, make sure that cold air can enter and hot air can leave the enclosure. Mount vents in the enclosure.

For very hot environments consider mechanical air extraction or provide air conditioning.

5.6.4. Mixed PV panel types

It is not recommended to connect a mix of different PV panel types to the same solar charger.

Only use solar panels that are the same brand, type and model.

5.6.5. MC4 connectors wrongly connected

For a detailed explanation on how to connect MC4 connectors, MC4 splitters and MC4 combiners, see the [Wiring unlimited book](#), chapter 4.10: "Solar panels".

5.6.6. PV connections burned or melted

Burned or melted PV cables or connections are generally not covered under warranty. In most case this is due to any of the following reasons:

Solar cable

- Cables with rigid core wire or rigid strands used.
- Cables where the core wire has been soldered.
- Cable too thin - remember that the current will be higher when the PV voltage is lower. For more information on cable thickness see the [Wiring Unlimited book](#).

5.6.7. Optimisers cannot be used

Do not use solar panels with optimisers together with the solar charger.

Nearly all optimisers contain an MPPT or other tracking mechanisms and this interferes with the MPPT algorithm in the solar charger.

5.6.8. Ground current

The system should not have a current flowing to ground under normal operation.

If a ground current is detected, first investigate all the equipment connected to that system and check for ground faults.

Next, check how many connections to ground the system has. There should only be a single point in the system connected to ground . This should be at the battery.

For more information on system grounding, see chapter 7.7: "System grounding" in the [Wiring Unlimited book](#).

The connection between PV DC and battery DC is fully galvanically isolated.

5.7. Communication issues

This chapter describes issues that might arise when the solar charger is connected to the VictronConnect App, other Victron devices or third-party devices.

5.7.1. VictronConnect issues



For a full troubleshooting guide on the VictronConnect App see the [VictronConnect manual](#).

5.7.2. Bluetooth issues

Please note that it is highly unlikely that the Bluetooth interface is faulty. The problem is most likely caused by something else. Use this chapter to quickly rule out some of the common causes of Bluetooth issues.

For a full troubleshooting guide see the [VictronConnect manual](#).

•

- **Check if Bluetooth is enabled**

It is possible to enable/disable Bluetooth in the product settings. To re-enable:

Connect to the solar charger via the VE.Direct port.

Navigate to the controller settings and then to "product info".

Re-enable Bluetooth.

- **Check if the controller is powered-up**

Bluetooth is active as soon as the solar charger is powered-up.

- **Check that Bluetooth is in range**

In open space the maximum Bluetooth distance is about 20 meters. In a build-up area, inside a house, a shed, a vehicle or a boat this distance can be a lot less.

- **The Windows VictronConnect App does not support Bluetooth**

The Windows version of the VictronConnect App does not support Bluetooth. Use an Android, iOS or macOS device instead. Or alternatively connect using a [VE.Direct to USB interface](#).

- **The controller is missing in the VictronConnect device list**

Some steps to try to resolve this issue are:

Press the orange refresh button at the bottom of the VictronConnect device list and check if the solar charger is now listed.

Only one phone or tablet can be connected to the solar charger at any given time. Make sure no other devices are connected and try again.

Try to connect to another Victron product, does this work? If that also does not work, there probably is an issue with the phone or tablet.

Rule out any issues with the phone or the VictronConnect App by using another phone or tablet and try again.

If still unresolved, refer to the [VictronConnect manual](#).

- **PIN code lost**

If you have lost the PIN code, you will need to reset the PIN code to its default PIN code. This is done in the VictronConnect App:

Navigate to the device list of the VictronConnect App.

Enter the solar charger's unique PUK code as printed on its product information sticker.

Click on the option symbol next to the solar charger listing.

A new window will open which allows you to reset the PIN code back to its default: 000000.

- **How to communicate without Bluetooth**

In case Bluetooth is not functional, turned off or unavailable, VictronConnect can communicate via the unit's VE.Direct port. Or, if the unit is connected to a GX device, VictronConnect can communicate via VRM. For more information see paragraph: "The different ways to connect with VictronConnect".

5.7.3. VE.Direct port communication issues

These are not common and if this occurs it is probably due to one of these issues listed in this paragraph.

Physical cable connector or data port issues Try a different VE.Direct cable and see if the unit will now communicate. Is the connector inserted properly and deep enough? Is the connector damaged? Inspect the VE.Direct port, are there bent pins? If this is the case, use long nose pliers to straighten the pins, while the unit is unpowered.

VE.Direct TX port issues Check the “TX port function” setting in VictronConnect. Does the set function match the application it is being used in. To test if the TX port is operational check its functionality using a [TX digital output cable](#).

VE.Direct RX Port issues Check the “RX port function” setting in VictronConnect. Does the set function match the application it is being used in. To test if the RX port is operational check its functionality using a [VE.Direct non-inverting remote on/off cable](#).

5.7.4. VE.Smart communication issues

The does NOT support VE.Smart networking.

5.8. Settings or firmware issues

5.8.1. Incorrect settings

Incorrect settings can cause strange solar charger behaviour. Check if all settings are correct.

If in doubt, it could be an option to reset all settings to default using the VictronConnect App and then make all required settings. Consider saving the existing settings before performing a reset.

In most cases the default setting can be used with only minor changes.

If help is required with making settings, please refer to the manual or contact your Victron supplier or distributor.

5.8.2. Firmware issues

To rule out a firmware bug, update the firmware.

NOTE: It might be useful to write down the firmware number before and after the update. This can be usefull information should you need to request [support](#).

On first connection, the controller might have updated the firmware. If the controller did not automatically ask for a firmware update, check if the controller is running the most up to date firmware and perform a manual update:

- Connect to the controller.
- Click on the settings symbol .
- Click the option symbol .
- Go to product info.
- Check if you are running the latest firmware and look for the text: “This is the latest version”.
- If the controller does not have the most up to date firmware, perform a firmware update by pressing the update button.



Status screen - Settings screen - Product info screen

5.8.3. Interrupted firmware update

This is recoverable and is nothing to worry about. Just try to update the firmware again.

5.9. Operation issues

This chapter describes all remaining troubleshooting suggestions that were not covered in previous chapters.

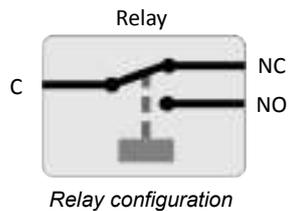
5.9.1. Unable to operate as a power supply

We do not recommend to use the solar charger as a power supply, that is without batteries connected.

Operation as a power supply will not damage the solar charger, but it is not guaranteed that the solar charger is able to run all types of loads. Some type of loads might run, others might not. Especially at low load power, the solar charger is too slow to keep the voltage constant. As such, we do not provide support in these kind of situations.

5.9.2. Relay issues

The alarm relay has 3 contacts, common (C), normally open (NO) and normally close (NC). It is programmed with the VictronConnect App.



Use VictronConnect to check the relay functionality setting. When checking the relay check if the relay contacts are opened and closed when the relay is energized and also when the relay is not energized.

The relay gets damaged if a circuit with a current larger than 8A is connected to the relay contacts. This is not covered by warranty.

5.10. Errors, and error codes

There are several ways errors are displayed:

-
- Via VictronConnect, status and history screen
- Via a display
- Via a GX device
- Via VRM (GX device needed)

5.10.1. Error codes

In case of an error, an error code will be displayed via VictronConnect, a display, a GX device or on VRM. Each number corresponds with a specific error.

For a full list of error codes and their meaning see the appendix: [Charger error code overview \[45\]](#)

VictronConnect error reporting

VictronConnect will indicate active errors while VictronConnect is actively connected to the solar charger. The error will show up in a pop-up window in the status screen together with the error number, name and a short error description.

VictronConnect also displays historical errors. To see these errors, navigate to the "History" tab and look at the bottom of each day column. If there is an error, an orange dot will indicate an error.



Active Error and Historical error

Errors via a display

If the controller has a built-in display or if a display, like the [MPPT Control Panel](#) or the [SmartSolar Control Display](#), is connected to the charge controller and the controller develops an error, an error message and an error number will show up on the display.

The display also keeps track of the last 4 errors. The errors are indicated by a number. Please refer to the display’s manual on how to access the historic errors.



MPPT Control display

SmartSolar Control Display

RS models with built-in display

Monitoring via a GX device and VRM

If the solar charger is connected to a [GX device](#), all its data can be accessed via the GX device. The GX device will also notify in case of solar charger alarms or faults.

For more information see the GX device manual.



GX device showing alarm notification and historic errors.

If the GX device is connected to [Victron Remote Monitoring \(VRM\) portal](#), the solar charger can be monitored remotely via the internet.

All solar charger data, alarms and errors can be accessed via the VRM portal and solar charger settings can be remotely changed via the VRM portal with the VictronConnect App.



Solar charger alarm logging via VRM

Monitoring via VRM

If a [GX device](#) is connected to the controller and the GX device is connected to Victron Remote Monitoring (VRM), errors will be sent to the VRM site as well as displayed on the GX device. This way active and past errors can be accessed remotely. Alarm logs are available from the “alarm logs” section on VRM. For more information see the [VRM manual](#).



Event	Reported by	Description	Reported on	Status (Prio)
Solar Charge (12V)	Automatic monitoring	State code: 409 - Input voltage too high	2020-09-24 08:30:32	No

VRM Alarm logs

5.11. Warranty

This product has a 5-year limited warranty. This limited warranty covers defects in materials and workmanship in this product and lasts for five years from the date of original purchase of this product. To claim warranty the customer must return the product together with the receipt of purchase to the point of purchase. This limited warranty does not cover damage, deterioration or malfunction resulting from alteration, modification, improper or unreasonable use or misuse, neglect, exposure to excess moisture, fire, improper packing, lightning, power surges, or other acts of nature. This limited warranty does not cover damage, deterioration or malfunction resulting from repairs attempted by anyone unauthorized by Victron Energy to make such repairs. Non-compliance with the instructions in this manual will render the warranty void. Victron Energy is not liable for any consequential damages arising from the use of this product. The maximum liability of Victron Energy under this limited warranty shall not exceed the actual purchase price of the product.

6. Technical Specifications

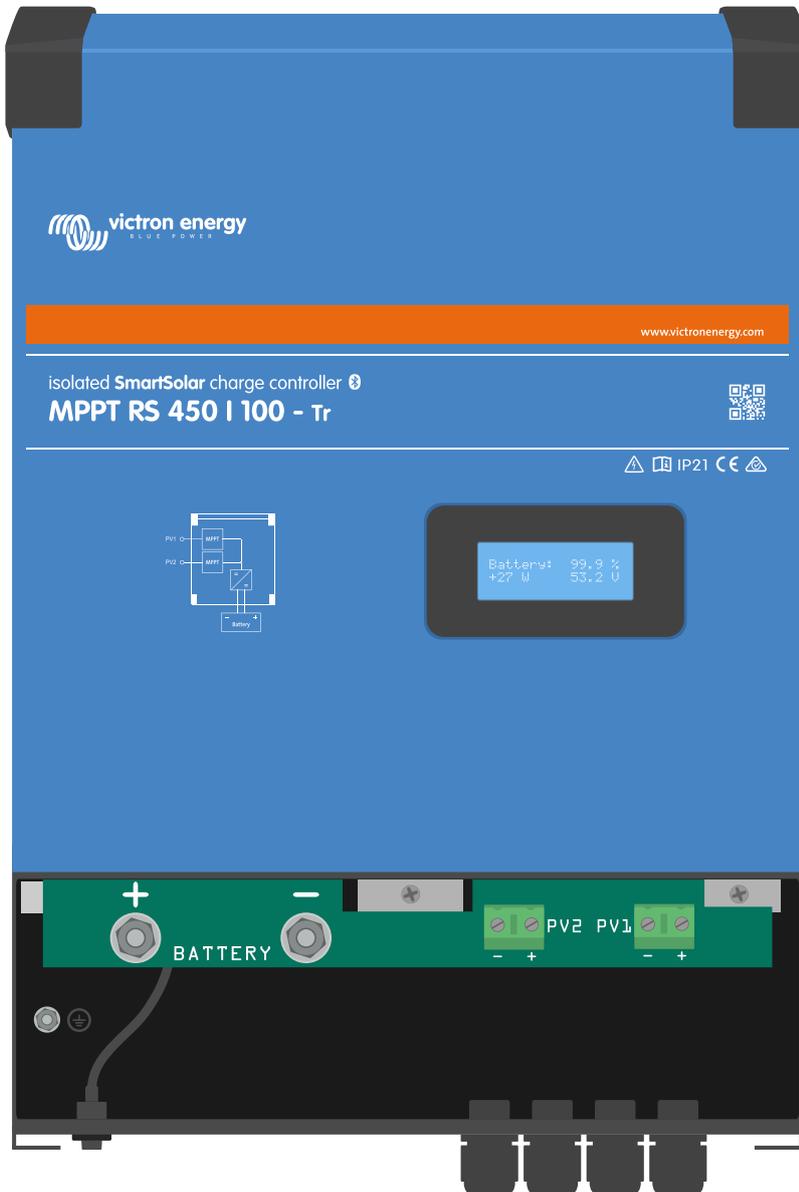
Isolated SmartSolar MPPT RS	450/100	450/200
CHARGER		
Programmable charge voltage range ⁽⁵⁾	Minimum: 36 V Maximum: 62 V	
Charge voltage 'absorption'	Default : 57.6 V	
Charge voltage 'float'	Default : 55.2 V	
Maximum charge current	100 A	200 A
Battery temperature sensor	Included	
SOLAR		
Maximum DC PV voltage	450 V	
Start-up voltage	120 V	
MPPT operating voltage range	80 – 400 V ⁽¹⁾	
Number of MPP Trackers	2	4
Maximum operational PV input current	18 A per tracker	
Max. PV short circuit current reverse polarity protection ⁽²⁾	20 A per tracker	
Maximum DC output charging power	4000 W per tracker 5760 W total	4000 W per tracker 11520 W total
Maximum PV array size per tracker ⁽³⁾	7200 Wp (450 V x 20 A)	
PV Isolation fail level ⁽⁴⁾	100 kΩ	
GENERAL		
Synchronised Parallel Operation	Yes, up to 25 units with VE.Can	
Programmable relay ⁽⁵⁾	Yes	
Protection ⁽⁶⁾	a, b, c	
Data Communications	VE.Direct port, VE.Can port & SmartSolar Bluetooth ⁽⁷⁾	
General purpose analog/digital in port	Yes, 2x	
Remote on-off	Yes	
Operating temperature range	-40 to +60°C (fan assisted cooling)	
Humidity (non-condensing)	max 95%	
Environmental condition	Indoor type 1, conditioned	
Suitable for wet locations	No	
Pollution degree	PD2	
Maximum altitude	2000m	
Over voltage category	OVCI	
ENCLOSURE		
Material & Colour	steel, blue RAL 5012	
Protection category	IP21	
Battery-connection	Two M8 bolts	
Power terminals PV input	2.5....16m ²	
Weight	7.9 kg	13.7 kg

Isolated SmartSolar MPPT RS	450/100	450/200
Dimensions (hwxwd)	440 x 313 x 126 mm	487 x 434 x 146 mm
STANDARDS		
Safety	EN-IEC 62109-1, EN-IEC 62109-2	
Country of Origin	Designed in The Netherlands, Made in India	
<p>¹⁾ MPPT operating range is also constrained by battery voltage - PV VOC should not exceed 8xbattery float voltage. For example, a 52,8V float voltage results in a maximum PV VOC of 422,4V. See Solar array configuration [6] for further information.</p> <p>²⁾ A higher short circuit current may damage the controller if PV array is connected in reverse polarity.</p> <p>³⁾ Max. 450 Voc result in appr. 360 Vmpp, therefor the maximum PV array is appr. 360V x 20A = 7200Wp</p> <p>⁴⁾ The MPPT RS will test for sufficient resistive isolation between PV+ and GND, and PV- and GND. In the event of a resistance below the threshold, the unit will stop charging, display the error, and send the error signal to the GX device (if connected) for audible and email notification.</p> <p>⁵⁾ Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function. DC rating: 4A up to 35VDC and 1A up to 70VDC</p> <p>⁶⁾ Protection key:</p> <ul style="list-style-type: none"> c) battery voltage too high d) battery voltage too low e) temperature too high <p>⁷⁾ The MPPT RS is not currently compatible with VE.Smart Networks</p>		

7. Appendix

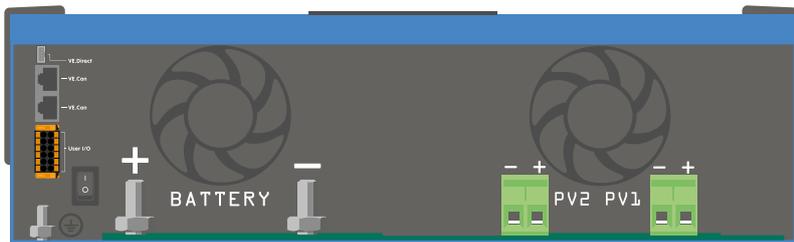
7.1. Appendix A : Connection Overview

Figure 5. MPPT RS 450|100 Front



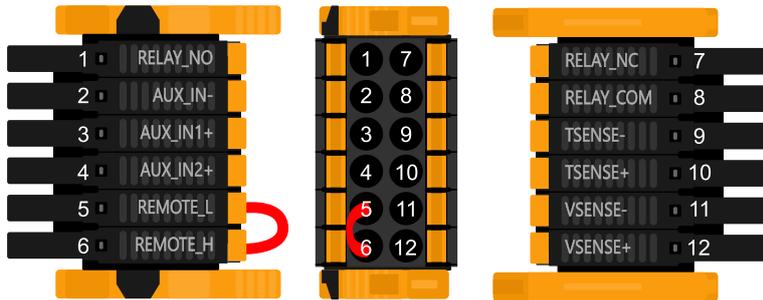
Front bottom plate cover removed to reveal connection area

Figure 6. MPPT RS 450|100 Bottom Connections



Detail of connection area looking up from the bottom

Figure 7. User I/O

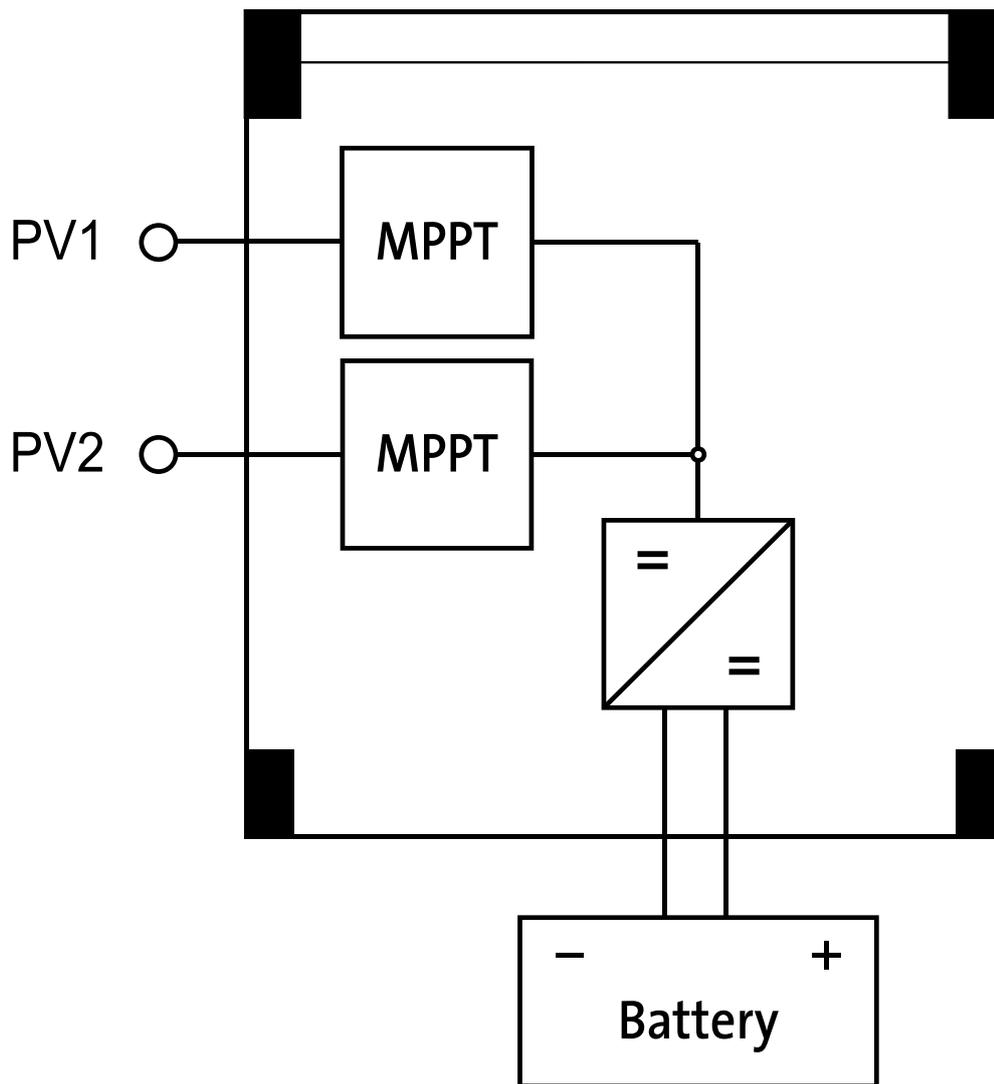


User I/O Connector is located on bottom left side of connection area, diagram shows 3 perspectives. Left Side - Top - Right Side

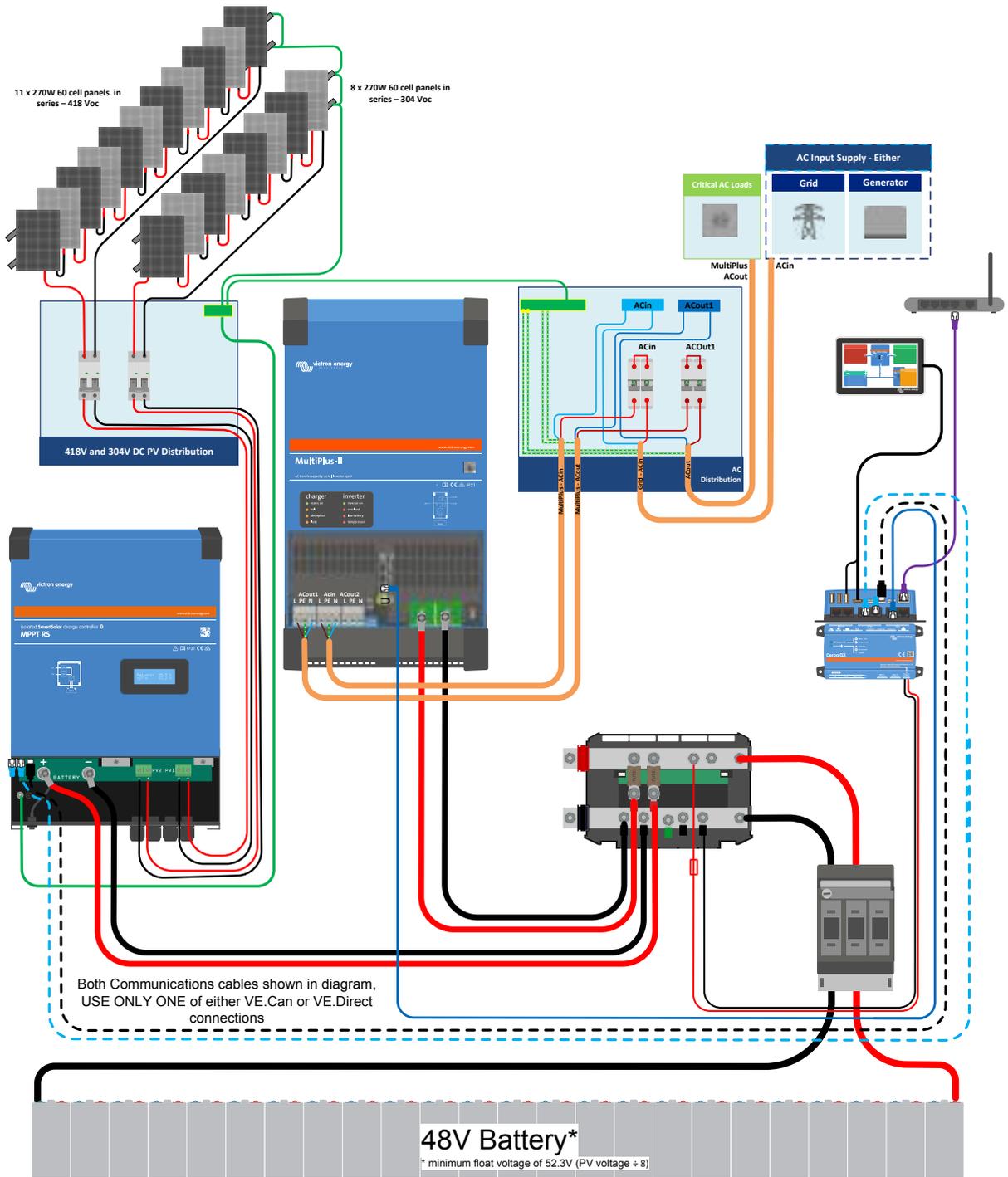
Table 3. User I/O Functions - See Installation Section for more details.

Number	Connection	Description
1	Relay_NO	Programmable relay Normally Open connection
2	AUX_IN -	Common negative for programmable auxiliary inputs
3	AUX_IN1+	Programmable auxiliary input 1 positive connection
4	AUX_IN2+	Programmable auxiliary input 2 positive connection
5	REMOTE_L	Remote on/off connector Low
6	REMOTE_H	Remote on/off connector High
7	RELAY_NC	Programmable relay Normally Closed connection
8	RELAY_COM	Programmable relay common negative
9	TSENSE -	Temperature Sensor negative
10	TSENSE +	Temperature Sensor positive
11	VSENSE -	Voltage Sensor negative
12	VSENSE +	Voltage Sensor positive

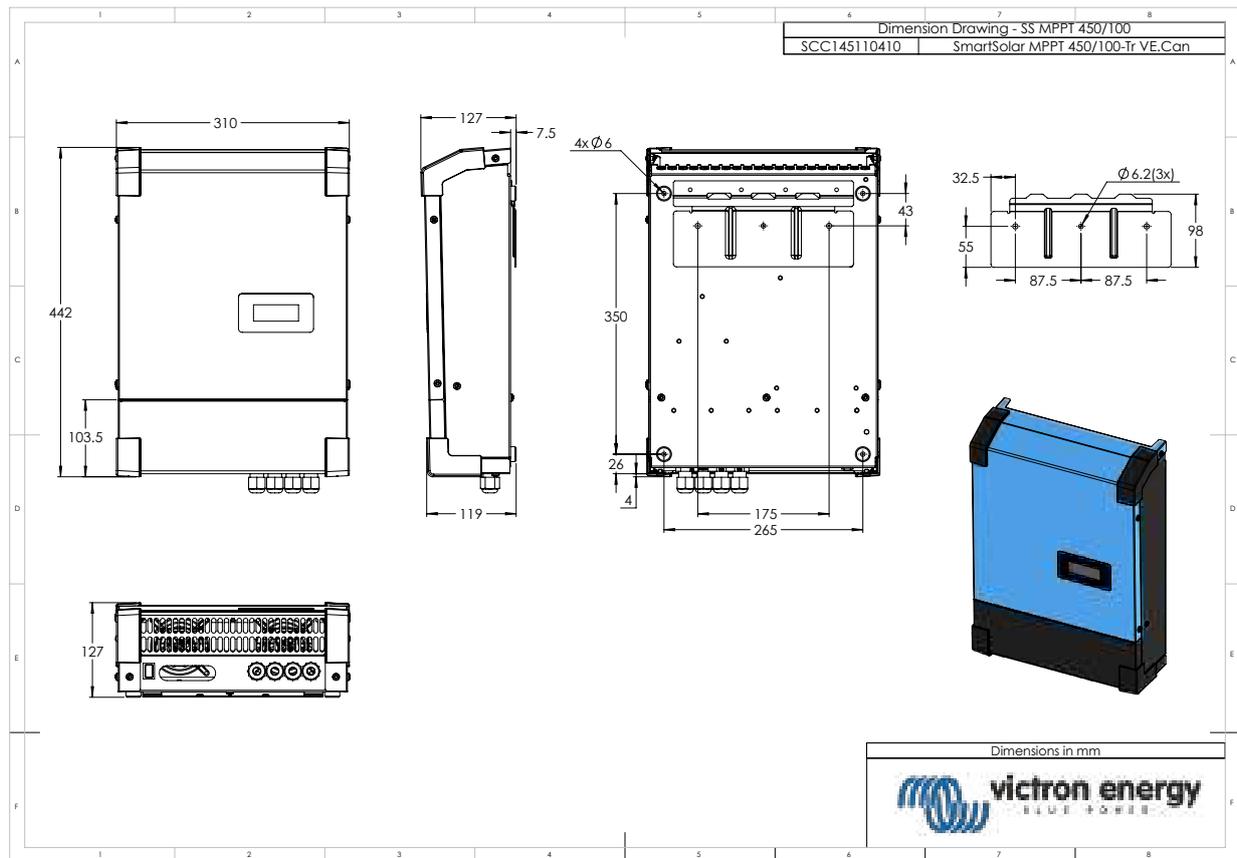
7.2. Appendix B : Block Diagram



7.3. Appendix C : Example system schematic and wiring diagram



7.4. Appendix D : Dimensions



7.5. Error Codes

7.5.1. Error 2 - Battery voltage too high

This error will auto-reset after the battery voltage has dropped. This error can be due to other charging equipment connected to the battery or a fault in the charge controller.

7.5.2. Error 3, Err 4 - Remote temperature sensor failure

Check if the T-sense connector is properly connected to a remote temperature sensor. Most likely cause: the remote T-sense connector is connected to the BAT+ or BAT- terminal. This error will auto-reset after proper connection.

7.5.3. Error 5 - Remote temperature sensor failure (connection lost)

Check if the T-sense connector is properly connected to a remote temperature sensor. This error will not auto-reset.

7.5.4. Error 6, Error 7 - Remote battery voltage sense failure

Check if the V-sense connector is properly connected to the battery terminals. Most likely cause: the remote V-sense connector is connected in reverse polarity to the BAT+ or BAT- terminals.

7.5.5. Error 8 - Remote battery voltage sense failure (connection lost)

Check if the V-sense connector is properly connected to the battery terminals.

7.5.6. Error 11 - Battery high ripple voltage

High DC ripple is usually caused by loose DC cable connections and/or too thin DC wiring. After the inverter has switched off due to high DC ripple voltage, it waits 30 seconds and then restarts.

After three restarts followed by a shutdown due to high DC ripple within 30 seconds of restarting, the inverter will shutdown and stops retrying. To restart the inverter, switch it Off and then On.

Continuous high DC ripple reduces the inverter life expectancy

7.5.7. Error 14 - Battery low temperature

The charger is stopped to avoid charging LiFePO4 batteries at low temperature as this damages the cells.

7.5.8. Error 17 - Controller overheated despite reduced output current

This error will auto-reset after charger has cooled down. Check the ambient temperature and check for obstructions near the heatsink.

7.5.9. Error 18 - Controller over-current

This error will auto-reset. If the error does not auto-reset disconnect the charge controller from all power-sources, wait 3 minutes, and power up again. If the error persists the charge controller is probably faulty. A cause for this error can be switching on a very large load on the battery side.

7.5.10. Error 20 - Maximum Bulk-time exceeded**Solar Chargers**

The maximum bulk time protection is a feature that was in the chargers when they were just released (2015 or earlier) and later the feature was removed.

If you do see this error, then update to the latest firmware.

If you then still have the error, perform a reset to factory defaults of the configuration, and reconfigure the solar charger.

AC Chargers

This protection is default enabled on the Skylla-i and the Skylla IP44.

This error is generated when the battery-absorption-voltage is not reached after 10 hours of charging.

The feature of this safety protection is to detect a shorted cell; and stop charging.

7.5.11. Error 22, 23 - Internal temperature sensor failure

The internal temperature measurements are out of range. Disconnect all wires, and then reconnect all wires, to restart the unit. This error will not auto-reset. If the error remains, please contact your dealer, there might be a hardware defect.

7.5.12. Error 26 - Terminal overheated

Power terminals overheated, check wiring, including the wiring type and type of strands, and/or fasten bolts if possible.

This error will auto-reset.

7.5.13. Error 27 - Charger short circuit

This error will auto-reset. If the error does not auto-reset disconnect the charge controller from all power-sources, wait 3 minutes, and power up again. If the error persists the charge controller is probably faulty.

7.5.14. Error 28 - Power stage issue

This error will not auto-reset.

Disconnect all wires, and then reconnect all wires. If the error persists the charge controller is probably faulty.

Note that this error was introduced in v1.36. So when doing an update, it might look like the firmware update caused this issue; but it doesn't. The Solar charger was then already not performing 100% before the update; updating to v1.36 or later merely made the issue more visible. The unit needs to be replaced.

7.5.15. Error 29 - Over-Charge protection

This error will auto-reset. This protection looks at the actual battery voltage and compares this to the settings. In case your actual voltage is above what is expected it shuts down to isolate the battery from the rest of the unit. Firstly check battery settings (absorption/float voltages) to see if something is wrong here. Another possible cause is an over-sized PV array configuration, if there are too many panels in series the battery voltage cannot be reduced any further. Consider modifying PV panel wiring to reduce the PV voltage.

7.5.16. Error 33 - PV over-voltage

This error will auto-reset after PV-voltage has dropped to safe limit. This error is an indication that the PV-array configuration with regard to open-circuit voltage is critical for this charger. Check configuration, and if required, re-organise panels.

7.5.17. Error 34 - PV over-current

The current from the solar-panel array has exceeded 75A. This error could be generated due to an internal system fault. Disconnect the charger from all power-sources, wait 3 minutes, and power-up again. If the error persists the controller is probably faulty, contact your dealer.

7.5.18. Error 35 - PV over-power

This indicates that the panel voltage is too high in combination with the desired battery voltage. Reduce the PV voltage by removing panels from the string, or rewiring them in parallel.

7.5.19. Error 38, Error 39 - PV Input shutdown

To protect the battery from over-charging the panel input is shorted.

Possible reasons for this error to occur:

- The Battery voltage (12/24/48V) is set, or auto-detected, incorrectly. Use VictronConnect to disable auto-detect and set the Battery Voltage to a fixed voltage.
- There is another device connected to the battery, which is configured to a higher voltage. For example a MultiPlus, configured to equalise at 17 Volts, while in the MPPT this is not configured.
- The battery is disconnected using a manual switch. Ideally the charger should be switched off before disconnecting the battery, this avoids a voltage overshoot on the charger output. If necessary the voltage trip-level for the PV Short protection can be increased by raising the Equalization voltage set-point (note: equalization does not have to be enabled in this case).
- The battery is disconnected using a Lithium charge relay connected to the "allow-to-charge" output of a BMS. Consider wiring this signal to the Remote terminal of the charger instead. This shuts down the charger gracefully without creating a voltage overshoot.

Error recovery:

- Error 38: First disconnect the solar panels and disconnect the battery. Wait for 3 minutes, then reconnect the battery first and next the panels.
- Error 39: The charger will automatically resume operation once the battery voltage drops below its maximum voltage setting (normally Equalisation or Absorption voltages), for 250V versions or float voltage for the other units. It can also takes a minute to reset the fault.

If the error persists the charge controller is probably faulty.

7.5.20. Error 40 - PV Input failed to shutdown

If the charger is unable to turn off the PV input, it will go into a safe mode in order to protect the battery from over-charging or having a high voltage on the battery terminals. In order to do that, the charger will stop charging and disconnect its own output. The charger will become faulty.

7.5.21. Error 41 - Inverter shutdown (PV isolation)

PV panel isolation resistance too low. Check the PV array cabling and panel isolation, the inverter restarts automatically once the issue is resolved.

7.5.22. Error 42 - Inverter shutdown (Ground Fault)

The ground leakage current exceeds the allowed 30mA limit. Check the PV array cabling and panel isolation. This error will not auto-reset. Check the installation and restart the unit using the power-switch.

7.5.23. Error 43 - Inverter shutdown (Ground Fault)

The voltage difference between Neutral and Ground is too high.

Inverter or Multi (not connected to the grid):

- The internal ground relay is activated but the voltage over the relay is too high. The relay might be damaged.

Multi (connected to the grid):

- The ground wire in the installation is not present or not connected properly.
- Line and Neutral are swapped in the installation.

This error will not auto-reset. Check the installation and restart the unit using the power-switch.

7.5.24. Error 50, Error 52 - Inverter overload, Inverter peak current

Some loads like motors or pumps draw large inrush currents in a start-up situation. In such circumstances, it is possible that the start-up current exceeds the over current trip level of the inverter. In this case the output voltage will quickly decrease to limit the output current of the inverter. If the over current trip level is continuously exceeded, the inverter will shut down: wait 30 seconds and then restart.

The Inverter can supply more power than the nominal power level for a short time. If the time is exceeded the inverter stops.

After three restarts followed by another overload within 30 seconds of restarting, the inverter will shutdown and remain off. To restart the inverter, switch it Off, then On.

If the error persists reduce the load on the AC out terminal by switching off or disconnecting appliances.

7.5.25. Error 51 - Inverter temperature too high

A high ambient temperature or enduring high load may result in shut down to over temperature. Reduce load and/or move inverter to better ventilated area and check for obstructions near the fan outlets.

The inverter will restart after 30 seconds. The inverter will not stay off after multiple retries.

7.5.26. Error 53, Error 54 - Inverter output voltage

If the battery voltage is getting low and a large load is applied to the AC output the inverter is unable to maintain the proper output voltage. Re-charge the battery or reduce the AC loads to continue operation.

7.5.27. Error 55, Error 56, Error 58 - Inverter self test failed

The inverter performs diagnostic tests before it activates its output. In the case that one of these tests fails an error message is displayed and the inverter does not turn on.

First try to restart the inverter, by switching it Off, and then On. If error persists the inverter is probably faulty.

7.5.28. Error 57 - Inverter ac voltage on output

There is already AC voltage on the AC out terminal before switching on the inverter. Check that the AC out is not connected to a mains outlet or to another inverter.

This error will not auto-reset. Check the installation and restart the unit using the power-switch.

7.5.29. Notification 65 - Communication warning

Communication with one of the paralleled controllers was lost. To clear the warning, switch the controller off and back on

7.5.30. Notification 66 - Incompatible device

The controller is being paralleled to another controller that has different settings and/or a different charge algorithm.

Make sure all settings are the same and update firmware on all chargers to the latest version

7.5.31. Error 67 - BMS Connection lost

The charger is configured to be controlled by a BMS, but it does not receive any control messages from a BMS. The charger stopped charging, as a safety precaution.

This Error only shows when there is solar power available and thus the Solarcharger is ready to initiate charging. It does not show at night. And in case there is a permanent problem, the error will raise in the morning and clear at night, and so forth.

Check the connection between the charger and the BMS.

How to reconfigure the charger to standalone mode

Our Chargers and Solarchargers automatically configure themselves to be BMS-controlled when they are connected to one; either direct or via a GX Device. And that setting is semi-permanent: power cycling the charger will not reset it.

Here is what needs to be done to make the charger operate in stand-alone mode again, ie. not controlled by a BMS:

- VE.Can solar chargers, go into the setup menu, and change setting 'BMS' from 'Y' to 'N' (setup item 31).
- VE.Direct solar chargers, reset the charger to factory defaults with VictronConnect, and then reconfigure it.

7.5.32. Error 68 - Network misconfigured

Applies to SmartSolar/BlueSolar MPPTs VE.Can (FW version v1.04 or higher) and SmartSolar VE.Direct MPPTs (FW version v1.47).

To clear the error on the SmartSolar VE.Direct MPPTs update the FW version to v1.48 or higher.

To clear the error on the SmartSolar/BlueSolar MPPTs VE.Can, update the software. If the error persists, it will be because the charger is connected with both a VE.Direct cable and on VE.Can. That is not supported. Remove one of the two cables. The error will disappear and the charger will resume normal operation, within a minute.

7.5.33. Error 114 - CPU temperature too high

This error will reset after the CPU has cooled down. If the error persists, check the ambient temperature and check for obstructions near the air inlet and outlet holes of the charger cabinet. Check manual for mounting instructions with regard to cooling. If error persists the controller is probably faulty.

7.5.34. Error 116 - Calibration data lost

If the unit does not work and error 116 pops up as the active error the unit is faulty, contact your dealer for a replacement.

If the error is only present in the history data and the unit operates normally this error can be ignored safely. Explanation: when the units power up for the very first time in the factory, it does not have calibration data and an error 116 is logged. Obviously this should have been cleared, but in the beginning units left the factory with this message still in the history data.

SmartSolar models (not the BlueSolar models): upgrading to v1.4x firmware is a one-way trip, you cannot go back to an older firmware version once you upgrade to v1.4x. Reverting to older firmware gives error 116 (calibration data lost), this can be fixed by re-installing the v1.4x firmware.

7.5.35. Error 119 - Settings data lost

The charger cannot read its configuration, and stopped.

This error will not auto-reset. To get it working again:

1. First, restore it to factory defaults. (top right in Victron Connect, click on the three dots)
2. Disconnect the charge controller from all power-sources
3. wait 3 minutes, and power up again.
4. Reconfigure the charger.

Please report this to your Victron dealer and ask them to escalate the matter to Victron; as this error should never happen. Preferably include firmware version and any other specifics (VRM URL, VictronConnect screenshots or similar).

7.5.36. Error 121 - Tester fail

If the unit does not work and error 121 pops up as the active error the unit is faulty, contact your dealer for a replacement. If the error is only present in the history data and the unit operates normally this error can be ignored safely. Explanation: when the unit powers up for the very first time in the factory, it does not have calibration data and an error 121 is logged. Obviously this should have been cleared, but in the beginning units left the factory with this message still in the history data.