

6. Pre-RMA test form - MPPT solar charger

1. General

Product, system and fault information	
Date	....
Model	....
Part number	....
Date of installation (if known)	....
Date of failure (if known)	....
Battery type, brand name and overall capacity (if known)	....
Solar array power rating (W)	....
Solar array maximum open-circuit voltage (V)	....

2. Initial check

Initial check	
Does the unit have mechanical damage to its housing?	☐ Yes, no warranty. ☐ No.
Does the unit have burn marks or melting marks on its housing, or does it smell burned?	☐ Yes. ☐ No.
Does the unit have mechanical or burn damage to its electrical connectors?	☐ Yes, no warranty. ☐ No.
<u>For the 15A model only:</u> Is there sand coming out of the unit? <u>Background information:</u> Sand is used as a cooling agent. If the unit has sustained mechanical damage, like being dropped from a height onto a hard floor, the unit might get damaged so that sand is coming out of the unit. Mechanical damage is not covered by warranty.	☐ Yes, not covered by warranty if caused by mechanical damage. ☐ No.

3. First power up

Power the unit up and check	
Power the solar charger using either a bench power supply set to 12V with a current limit of 0.5A, connected to the battery terminals, or use a 12V battery with a 0.5A fuse in the positive supply. Are any LED(s) on or blinking? <u>Background information:</u> If none of the LEDs are on or are blinking, this usually signals that the internal, non-replaceable fuse has blown due to a reverse battery polarity connection. Note that reverse battery polarity is not covered under the warranty.	☐ Yes. ☐ No, and there was reverse battery polarity; no warranty. ☐ No, and there was no reverse battery polarity; lodge a warranty claim.

Power the unit up and check	
<u>For 10A, 15A and 20A models only:</u> Remove the fuse and check the fuse for continuity. If the fuse is broken, replace the fuse. What is the outcome? <u>Background information:</u> If the replacement fuse blows, the solar charger has a short circuit; this is almost always an indication that the solar charger has been connected to reverse battery polarity. Reverse battery polarity is not covered under warranty.	☐ The fuse is not broken. ☐ The replacement fuse blew, and there was reverse battery polarity; no warranty. ☐ The replacement fuse blew, and there was no reverse polarity; lodge a warranty claim. ☐ The fuse was broken and has been replaced.
<u>For VE.Can MPPT 250/100, models only, with serial number HQ2150 and above:</u> Check for a short circuit between the two PV connectors, use a multimeter in resistance mode. If a short circuit is detected, perform the following steps to reset the PV short relay: 1. Power the solar charger with a bench power supply set to 12V and a current limit of 0.4A connected to the battery terminals. 2. Leave the PV terminals disconnected. 3. Open the VictronConnect app and go to the "Settings" page, then to the "Product Info" page. 4. Check the "Product Info" page for the PV Short reset feature. This feature is only available if the connected unit has the protection (e.g. 250/100 VE.Can model, HQ2150 and later), battery voltage is between 10 and 15V, VictronConnect v.580 or later is installed, and firmware version v3.12 or later is installed. 5. Click the PV Short relay RESET button. Wait for a few seconds until the button turns blue again, and a click might be heard from the solar charger. <u>Background information:</u> This model of the solar charger has a safety latching relay that can cause a short circuit between the PV terminals if tripped. The reset procedure resets the relay and resolves the short-circuit issue. For more information see this link: https://www.victronenergy.com/live/mppt_pv_short_relay_reset.	☐ No, go to the next step. ☐ Yes, and the reset procedure fixed it, go to the next step. ☐ Yes, and the reset procedure did not fix it, lodge a warranty claim.
Power the solar charger using either a bench power supply set to 12V with a current limit of 0.5A, connected to the PV terminals, or use a 12V battery with a 0.5A fuse in the positive supply. Is there a DC short-circuit? <u>Background information:</u> A short circuit on the PV terminals is nearly always an indication that the solar charger has been connected to a too high PV voltage or there has been a too high short circuit current (can occur when there is PV reverse polarity and PV array is too big). Both situations are not covered under warranty. The maximum PV open circuit voltage and maximum PV short circuit current are indicated in the product manual and datasheet.	☐ No. ☐ Yes, and there was too much open circuit PV voltage or too much PV polarity short circuit current; no warranty. ☐ Yes, and there was not too much open circuit PV voltage or too much PV polarity short circuit; lodge a warranty claim.
Are any LED(s) on or blinking?	☐ Yes, go to 4. ☐ No.
<u>For models with a remote link only:</u> Check if the remote link is in place; if not, place the link. Are any LED(s) on or blinking now? <u>Note:</u> To find the location of the remote link, refer to the product manual.	☐ Yes. ☐ No, lodge a warranty claim.

4. Bluetooth

Bluetooth check	
Is the product a "Smart" product, i.e., does it have built-in Bluetooth?	☐ Yes. ☐ No, go to step 5.
Is Bluetooth active, i.e., do you see the unit listed in the device list of the VictronConnect app?	☐ Yes, go to step 5. ☐ No.
If Bluetooth is not active, it is unlikely to be a faulty Bluetooth module. More likely, Bluetooth has been turned off in the VictronConnect settings. To re-activate Bluetooth: 1. Connect to the unit's VE.Direct port using a VE.Direct to USB interface and a computer, android phone or android tablet. 2. Open the VictronConnect app and navigate to the unit's "Settings" page. 3. From the "Settings" page, go to the "Product Info" page. 4. Verify if Bluetooth is enabled. If it is not enabled, activate it. Is Bluetooth active now?	☐ Yes, go to step 5. ☐ No.
If Bluetooth is still not active, rule out the following: • Are there problems with your phone or tablet? • Are you within Bluetooth range? • Only one phone or tablet can connect via Bluetooth at a time; is perhaps another phone or tablet already connected? • Consult the product manual and the VictronConnect manual to try to resolve the Bluetooth issue. Is Bluetooth active now?	☐ Yes. ☐ No, lodge a warranty claim.

5. Firmware and settings

Update the firmware and reset the settings to default	
Connect via an interface (or Bluetooth) to the VictronConnect app and navigate to the unit. Is this possible?	☐ Yes. ☐ No, not possible; lodge a warranty claim.
Check if the firmware is up to date. If the firmware is not up to date, update the firmware to the most recent version using the VictronConnect app: • Go to the VictronConnect settings page. • On the settings page, click on the "3 dots" symbol in the top right-hand corner. • Select "Product info". • On the product info page, check and/or update the firmware.	☐ Yes, the firmware has been updated. ☐ Yes, the firmware was already up to date. ☐ No, not possible to update the firmware.
Save the unit's settings. File the settings under its serial number and keep the file on record for future reference. To save the settings: • Go to the VictronConnect settings page. • On the settings page, click on the "disk" symbol at the top.	☐ Yes, the settings file has been saved. ☐ No, not possible to save the settings.
Reset all settings to default: • Go to the VictronConnect settings page. • On the settings page, click on the "3 dots" symbol in the top right-hand corner of the page and select "Reset to defaults".	☐ Yes, the settings are set to default. ☐ No, not possible to set the settings to default.

Update the firmware and reset the settings to default	
Does the VictronConnect app display any active error codes? If so, try to resolve the errors by consulting the product manual. Did it get resolved?	☐ No errors. ☐ There were errors, but they were resolved. ☐ There were errors, but they were not resolved.
If there is an active error, write down the error number(s) and name(s). Use this form's "Remarks" section if more space is needed.	Error number: Error name:
Check the history. Were there any historical errors? If so, write them down. Save a copy of the history file for your reference.	☐ Yes, Number(s): ☐ No.
Check the history. What was the highest PV voltage recorded? Compare this to the rated maximum PV voltage of the solar charger. Has the PV voltage been higher than the rated maximum voltage?	☐ Yes, highest PV voltage: ☐ No.

6. Functionality

Solar charger functionality check	
Prepare the solar charger for the functionality test: • Connect the battery terminals to a 12V battery. • Connect the PV terminals to a 24V power supply or 24V battery. • Connect the VictronConnect app with the solar charger. • Go to the settings page and set the "battery voltage" to 12V.	☐ Done.
Measure the voltage on the solar charger PV terminals. Compare this to the solar voltage as indicated in the VictronConnect app. Are they both the same (a deviation of up to 1% is allowed)?	☐ Yes. ☐ No, lodge a warranty claim.
Measure the voltage on the solar charger battery terminals. Compare this to the battery voltage as indicated in the VictronConnect app. Are they both the same (a deviation of up to 1% is allowed)?	☐ Yes. ☐ No, lodge a warranty claim.
Is the battery being charged? Check if the solar charger is progressing through the bulk, absorption and float charge stages. Is this the case?	☐ Yes. ☐ No, lodge a warranty claim.
Force the solar charger to provide more charge current by connecting it to an empty battery or by switching on a large DC load connected to the same battery. Is the unit able to provide its full current rating?	☐ Yes. ☐ No, lodge a warranty claim.
Measure the charge current with a DC current clamp. Is the charge current the same as indicated in the VictronConnect app (a deviation of up to 1% is allowed)?	☐ Yes. ☐ No, lodge a warranty claim.
While the solar charger is providing the full current, measure the battery voltage. Compare this to the voltage as indicated in the VictronConnect app. Do the voltages deviate less than 3% from each other?	☐ Yes. ☐ No. This is probably not warrantable as bad cables, or cable connectors can cause it.

7. Remarks

Provide additional fault information or add issues not already covered in earlier questions
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8. RMA lodgement

For your information purposes, provide details after lodging the RMA	
RMA type:	☐ Warranty claim. ☐ Non-warranty repair or replacement request.
RMA lodgement date	....
Victron Energy RMA number	....
Your reference number	....