

Pre-RMA testing MPPT Solar Controllers



5. Pre-RMA test form - MPPT solar charger

1. General

Product, system and fault information	
Date	
Model Number	
Serial 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?	<input type="checkbox"/> Yes, no warranty. <input type="checkbox"/> No.
Does the unit have burn marks or melting marks on its housing, or does it smell burned?	<input type="checkbox"/> Yes. <input type="checkbox"/> No.
Does the unit have mechanical or burn damage to its electrical connectors?	<input type="checkbox"/> Yes, no warranty. <input type="checkbox"/> No.
For the 15A model only: Is there sand coming out of the unit? Background information: 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.	<input type="checkbox"/> Yes, not covered by warranty if caused by mechanical damage. <input type="checkbox"/> No.
Have all connections and fuse holders been checked and cleaned to ensure continuity?	<input type="checkbox"/> Yes (compulsory)

3. First power up

Power the unit up and check	
Connect the battery terminals to a current limited 12V power supply or a 12V battery with a DC fuse. Is there a DC short-circuit? Background information: A DC short-circuit nearly always indicates that the solar charger has been connected to reverse battery polarity. Reverse battery polarity is not covered under warranty.	<input type="checkbox"/> No. <input type="checkbox"/> Yes, and there was reverse battery polarity; no warranty. <input type="checkbox"/> Yes, and there was no reverse battery polarity; lodge a warranty claim.
For 10A, 15A and 20A models only: Remove the fuse and check the fuse for continuity. If the fuse is broken, replace the fuse. What is the outcome? Background information: 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.	<input type="checkbox"/> The fuse is not broken. <input type="checkbox"/> The replacement fuse blew, and there was reverse battery polarity; no warranty. <input type="checkbox"/> The replacement fuse blew, and there was no reverse polarity; lodge a warranty claim. <input type="checkbox"/> The fuse was broken and has been replaced.

Power the unit up and check	
<p>Connect the PV terminals to a current limited 12V power supply or a 12V battery with a DC fuse. Is there a DC short-circuit?</p> <p><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.</p>	<input type="checkbox"/> No. <input type="checkbox"/> Yes, and there was too much open circuit PV voltage or too much PV polarity short circuit current; no warranty. <input type="checkbox"/> Yes, and there was not too much open circuit PV voltage or too much PV polarity short circuit; lodge a warranty claim.
<p>Are any LED(s) on or blinking?</p>	<input type="checkbox"/> Yes, go to 4. <input type="checkbox"/> No.
<p><u>For models with a remote link only:</u></p> <p>Check if the remote link is in place; if not, place the link. Are any LED(s) on or blinking now?</p> <p><u>Note:</u> To find the location of the remote link, refer to the product manual.</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.

4. Bluetooth

Bluetooth check	
<p>Is the product a "Smart" product, i.e., does it have built-in Bluetooth?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, go to step 5.
<p>Is Bluetooth active, i.e., do you see the unit listed in the device list of the VictronConnect app?</p>	<input type="checkbox"/> Yes, go to step 5. <input type="checkbox"/> No.
<p>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:</p> <ul style="list-style-type: none"> Press and hold the "mode" button for 10 seconds to turn Bluetooth back on. <p>Is Bluetooth active now?</p>	<input type="checkbox"/> Yes, go to step 5. <input type="checkbox"/> No.
<p>If Bluetooth is still not active, rule out the following:</p> <ul style="list-style-type: none"> 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. <p>Is Bluetooth active now?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.

5. Firmware and settings

Update the firmware and reset the settings to default	
<p>Connect via an interface (or Bluetooth) to the VictronConnect app and navigate to the unit. Is this possible?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, not possible; lodge a warranty claim.

Update the firmware and reset the settings to default	
<p>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:</p> <ul style="list-style-type: none"> • 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. 	<input type="checkbox"/> Yes, the firmware has been updated. <input type="checkbox"/> Yes, the firmware was already up to date. <input type="checkbox"/> No, not possible to update the firmware.
<p>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:</p> <ul style="list-style-type: none"> • Go to the VictronConnect settings page. • On the settings page, click on the "disk" symbol at the top. 	<input type="checkbox"/> Yes, the settings file has been saved. <input type="checkbox"/> No, not possible to save the settings.
<p>Reset all settings to default:</p> <ul style="list-style-type: none"> • 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". 	<input type="checkbox"/> Yes, the settings are set to default. <input type="checkbox"/> No, not possible to set the settings to default.
<p>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?</p>	<input type="checkbox"/> No errors. <input type="checkbox"/> There were errors, but they were resolved. <input type="checkbox"/> There were errors, but they were not resolved.
<p>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.</p>	Error number: Error name:
<p>Check the history. Were there any historical errors? If so, write them down. Save a copy of the history file for your reference.</p>	<input type="checkbox"/> Yes, Number(s): <input type="checkbox"/> No.
<p>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?</p>	<input type="checkbox"/> Yes, highest PV voltage: <input type="checkbox"/> No.

6. Functionality

Solar charger functionality check	
<p>Prepare the solar charger for the functionality test:</p> <ul style="list-style-type: none"> • 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. 	<input type="checkbox"/> Done.
<p>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)?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>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)?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>Is the battery being charged? Check if the solar charger is progressing through the bulk, absorption and float charge stages. Is this the case?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>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?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.

Solar charger functionality check

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

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