

## 4. Pre-RMA test form - Inverter/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)	....

### 2. Initial check

Initial check	
Does the unit have internal water damage or corrosion?	<input type="checkbox"/> Yes, no warranty. <input type="checkbox"/> No.
Are the internals of the unit very dirty, or is there soot, dust or oil present inside the unit?	<input type="checkbox"/> Yes, no warranty. <input type="checkbox"/> No.
Are there foreign objects inside the unit: like screws, animals or insects?	<input type="checkbox"/> Yes, no warranty. <input type="checkbox"/> No.
Does the unit have burn marks on its internal parts, or does it smell burned?	<input type="checkbox"/> Yes. <input type="checkbox"/> No.
Does the unit have mechanical damage to any of its internal parts?	<input type="checkbox"/> Yes, no warranty. <input type="checkbox"/> No.
Does the unit have external mechanical, water or corrosion damage?	<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.

### 3. First power up

Power the unit up and check	
Remove all wires and cables from the unit. Connect the unit to a DC power supply or battery bank. Turn the DC supply on and turn the unit on via its main switch. Is there a DC short-circuit?	<input type="checkbox"/> Yes, lodge a warranty claim. <input type="checkbox"/> No.
Are there any LED(s) on or blinking?	<input type="checkbox"/> Yes, go to 4. <input type="checkbox"/> No.

Power the unit up and check	
<p><u>For MultiPlus 500-1600VA or MultiPlus Compact only:</u></p> <p>Check the internal fuse and replace the fuse if it is broken. What is the outcome?</p>	<input type="checkbox"/> The fuse is not broken. <input type="checkbox"/> The replacement fuse blew, lodge a warranty claim. <input type="checkbox"/> Fuse replaced, no LED(s) are on or blinking. <input type="checkbox"/> Fuse replaced, LED(s) are on or blinking, go to 4.
<p><u>For all units except the MultiPlus Compact:</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, go to 4. <input type="checkbox"/> No.
<p><u>For the MultiPlus Compact:</u></p> <p>Check the DIP switches. DIP switch 1 should be set to "off", and DIP switch 2 should be set to "on". If this is not the case, set DIP switch 1 to "off" and set DIP switch 2 to "on". Are any LED(s) on or blinking now?</p> <p><u>Note:</u> For more information on the DIP switches, see the product manual, chapter 5.5.</p>	<input type="checkbox"/> Yes, go to 4. <input type="checkbox"/> No.

## 4. Bluetooth

Bluetooth check	
Is the product a "Smart" product, i.e., does it have built-in Bluetooth?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, go to step 5.
Is Bluetooth active, i.e., do you see the unit listed in the device list of the VictronConnect app?	<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, consult the product manual.</p> <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"> <li>• Are there problems with your phone or tablet?</li> <li>• Are you within Bluetooth range?</li> <li>• Only one phone or tablet can connect via Bluetooth at a time; is perhaps another phone or tablet already connected?</li> <li>• Consult the product manual and the <a href="#">VictronConnect manual</a> to try to resolve the Bluetooth issue.</li> </ul> <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	
Connect via an interface (or Bluetooth) to the VictronConnect app and navigate to the unit. Is this possible?	<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"> <li>• Go to the VictronConnect settings page.</li> <li>• On the settings page, click on the "3 dots" symbol in the top right-hand corner.</li> <li>• Select "Product info".</li> <li>• On the product info page, check and/or update the firmware.</li> </ul>	<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"> <li>• Go to the VictronConnect settings page.</li> <li>• On the settings page, click on the "disk" symbol at the top.</li> </ul>	<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:  <u>For all models except RS models:</u></p> <ul style="list-style-type: none"> <li>• Connect with <a href="#">VE.Configure</a>.</li> <li>• Go to the "Defaults" menu and click "Set all settings to default"</li> <li>• Navigate to the "Assistant" tab and delete all assistants.</li> </ul> <p><u>For the RS models:</u></p> <ul style="list-style-type: none"> <li>• Go to the VictronConnect settings page.</li> <li>• On the settings page, click on the "3 dots" symbol in the top right-hand corner of the page and select "Reset to defaults".</li> </ul>	<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 error codes? If so, try to resolve the errors by consulting the product manual.          Did it get resolved?</p>	<input type="checkbox"/> No errors, go to 6. <input type="checkbox"/> There were errors, but they were resolved. <input type="checkbox"/> There were errors, but they were not resolved.
<p>Write down the error number and name.</p>	<p>Error number: ....          Error name: ....</p>

## 6. Functionality

Inverter functionality check	
<p>Measure the DC voltage at the DC connection terminals inside the unit. Is this voltage the same as the battery voltage reading in the VictronConnect app?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>Measure the AC output using a True RMS multimeter. Are you measuring exactly 230Vac or 120Vac depending on the unit's AC voltage rating?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>Does the measured AC voltage correspond with the AC voltage reading in the VictronConnect app?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>Load the unit using incandescent light globes, electric heaters or any other type of resistive AC load. Can the unit power a load as high as its power rating without overload or temperature alarm?</p>	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge a warranty claim.
<p>Is the unit making an unusual noise?</p>	<input type="checkbox"/> No. <input type="checkbox"/> Yes, lodge a warranty claim.

**Ground relay and back-feed relay safety circuit check - Only applicable to MultiPlus-II, EasySolar-II and Quattro-II**

Scope: Bench test for unit reporting an Error 8 (ground relay) or Error 11 (back-feed relays).

**Preparations, check the bench test supply:**

Measure the voltage between ground/earth and neutral. Ensure that it is below 30Vac. Usually the voltage between ground and neutral does not exceed a few volts.

- A voltage of around 230Vac indicates that line and neutral are swapped. Fix that before continuing.
- A voltage above 30Vac indicates problem in the grounding of either the test bench or the installation of the building. This needs to be fixed prior to continuing the test.

Note that this bench test can only be conducted if the voltage between ground/earth and neutral is below 30Vac.

**Benchtest:**

1. Switch the unit off.
2. Connect a battery or power supply to the battery terminals.
3. Connect AC input to the unit, including ground/earth. Make sure not to swap line and neutral.
4. Double check line and neutral position by measuring the AC voltage between neutral and ground. This should not be above a few Volts maximum.
5. Do not connect anything to the AC output terminals.
6. Switch the unit on.
7. Update the firmware to the latest version. If already on latest version, use VEConfigure to reset all settings to default (in the top menu select "Defaults" and then select "Set all settings to default").
8. Use VEConfigure and select the grid code "Other: not compliant to any grid code standard".  
Do not use a gid code with "AC Neutral path externally joined".
9. Send all settings.
10. Ensure that nothing is connected to the AC output terminals.

- Yes, the unit is working as expected.
- No, lodge warranty claim.

**CHECK:** Does the unit start up and connect to the grid without errors?

Background information: when wired with correct line, neutral and ground connections on the AC input, and nothing is connected to the output, if the unit works both in island mode (inverting) and connects to the grid (charging), then all relays and their testing circuits are OK. If the unit gives problems in the field, despite passing this bench test, then there is an issue in the electrical installation and the troubleshooting steps for [Error 8](#) (ground relay) and [Error 11](#) (back-feed relays) must be followed.

**Transfer switch check**

- Connect the AC input and switch the unit on.

Check if, after a few seconds, the AC input switches over to the AC output and the unit starts charging the battery.

- Yes.
- No, lodge warranty claim.

For 3kVA units and above:

Measure the voltage of the second AC output. Do you measure the same voltage as the AC input after a 2-minute delay?

- Yes.
- No, lodge warranty claim.

For Quattros only:

Repeat the above steps for the second input (AC2-in). Has this been successful?

- Yes.
- No, lodge warranty claim.

Charger functionality check	
Connect the charger to a partly discharged battery. Measure the battery voltage. Is the voltage of the battery slowly increasing?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge warranty claim.
Is the battery being charged? Check if the charger is progressing through the "bulk", "abs", "float", and "storage" charge stages. Is this the case?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge 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)?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge warranty claim.
Force the unit to provide more charge current by using partly empty batteries or switch a large DC load on. Can the unit provide 80% of its rated charge current (80% is the default setting)?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge warranty claim.

Additional functionality check	
<u>For GX units only:</u> Check the functionality of the GX device. Is the GX device operating correctly?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge warranty claim.
<u>For EasySolar units only:</u> Check the operation of the solar charger using the <a href="#">solar charger MPPT pre-RMA test form [21]</a> . Is the solar charger operating correctly?	<input type="checkbox"/> Yes. <input type="checkbox"/> No, lodge warranty claim.

## 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:	<input type="checkbox"/> Warranty claim. <input type="checkbox"/> Non-warranty repair or replacement request.
RMA lodgement date	....
Victron Energy RMA number	....
Your reference number	....