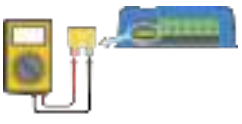
6. Pre-RMA test form - MPPT solar charger

1. General

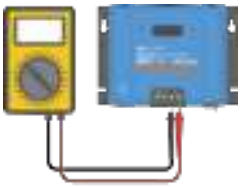
Product, system and fault information	
Date	.... 26.7.2025
Model	... SmartSolar 150/85 TR rev.2., ID 0xA05A
Part number	....
Serial number	.... HQ18476DSL8 , Firmware 1.68
Date of installation (if known)	....
Date of failure (if known)	.... 26.7.2025
VRM site name or ID (if applicable)	....
Battery type, brand name and overall capacity (if known)	.... LiFePo4 560 Ah 48V
Solar array power rating (W)	.... 3700 W
Solar array maximum open-circuit voltage (V)	.... ca 88 V abs. max. value winter 92 V

2. Initial check

Initial check	
Does the unit have mechanical damage to its housing?	☐ Yes, no warranty. ☒ X No.
Does the unit have burn marks or melting marks on its housing?	☐ Yes. ☒ X No.
Does the unit have mechanical or burn damage to its electrical connectors?	☐ Yes, no warranty. ☒ X 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.	☐ Yes, not covered by warranty if caused by mechanical damage. ☐ No.
For 10A, 15A and 20A models only: • Remove the fuse. • check the fuse for continuity using a multimeter in resistance mode. • 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.	☐ The fuse is not broken. ☐ The fuse was broken and has been replaced.

Initial check	
For models with a remote link only: • Check if the remote connector and the wire link are in place • If not, place the link. • What is the outcome? 	☐ The remote link was in place. ☐ The remote link was not in place and has now been placed. **Remote contact has been replaced by link**

3. PV short relay check

PV short relay check	
• Check for a short circuit between the two PV connectors, use a multimeter in resistance mode. • Is there a short circuit? 	☒ Yes. ☐ No, go to section 4
Is the unit a 250/100 TR VE.Can model?	☐ Yes. ☒ No, lodge a warranty claim.
Does the unit have a serial number HQ2150 and above?	☐ Yes. ☒ No, go to section 4
Power the solar charger with a bench power supply set to 12V and a current limit of 0.4A connected to the battery terminals. Does it turn on?	☒ Yes. ☐ No, lodge a warranty claim.
• Keep the solar charger powered. • Open the VictronConnect app and go to the "Settings" page, then to the "Product Info" page. • 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. • 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. • Disconnect the power supply • Check again for a short circuit between the two PV connectors, what is the outcome?  Background information: This solar charger features a safety latching relay that, when activated, causes a short circuit at the PV terminals. The reset procedure seeks to unlatch the relay, resolving the short-circuit. However, the reset may not always succeed. For additional information, see https://www.victronenergy.com/live/mppt_pv_short_relay_reset.	☐ The short circuit no longer exists, go to section 4. ☐ The short circuit still exists, lodge a warranty claim.

4. FET check and first power up

FET and power up check	
• Set a Multimeter to diode position. • Connect the multimeter positive wire (red) to the PV positive terminal. • Connect the multimeter negative (black) wire to the Battery positive terminal. • What value does the Multimeter indicate? 	☐ Below 0.3V (reverse FET and high side FET failed in short circuit). Lodge a warranty claim. ☐ Between 0.3 and 0.8V (high side FET failed in short circuit). Lodge a warranty claim. ☒ Above 0.8V or OL (=Over Limit).
• Power the solar charger using a bench power supply set to 12V with a current limit of 0.5A, connected to the battery terminals, or a 12V battery with a 0.5A fuse in the positive supply. • Are any LED(s) blinking or on, are all LEDs briefly on and then off again or is the solar charger drawing a small current (40 - 70mA)?  Background information: If the LEDs did not illuminate at all (not even briefly), 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.	**blue LED is blinking slowly other LED blinking when Bluetooth connection is established** ☒ Yes. ☐ No, and there was reverse battery polarity; no warranty. ☐ No, and there was no reverse battery polarity; lodge a warranty claim.
• Power the solar charger using 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?  Background information: 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. **Max PV Voltage is approx 88V**
Are any LED(s) on or blinking?	☒ Yes, go to section 5. ☐ No.

5. Bluetooth

Bluetooth check	
Is the unit a "Smart" product, i.e., does it have built-in Bluetooth?	☒ Yes. ☐ No, go to section 6.
Is Bluetooth active, i.e., do you see the unit listed in the device list of the VictronConnect app?	☒ Yes, go to section 6. ☐ No.

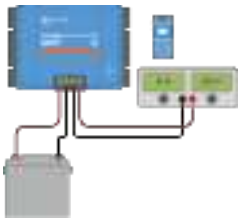
Bluetooth check	
If Bluetooth is not active, it is unlikely to be a faulty Bluetooth module. More likely, Bluetooth has been turned off in the VictronConnect settings. To re-activate Bluetooth: 1. Connect to the unit's VE.Direct port using a VE.Direct to USB interface and a computer, Android phone or 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 section 6. ☐ No.
If Bluetooth is still not active, rule out the following: • Are there problems with your phone or tablet? • Are you within Bluetooth range? • Just one phone or tablet can connect via Bluetooth at once. If another is connected, the unit will be listed but greyed out in VictronConnect app. • 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.

6. 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. Note that when connected via Bluetooth, both the solar charger and the BLE module needs to be up to date. If connecting via VE.Direct, only the solar charger needs to be up to date.	☒ Yes, the firmware has been updated. after after the problem has occurrred ☐ 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. after the problem occurred ☐ 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 tab. 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. **max approx 85 V , abs max 92V in Winter**
Check the trents tab. Does it contain data?	☒ Yes, make a screenshot and submit it with the RMA. ☐ No.

7. 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. 	**blue LED blinking slowly** **PV input is short 0 V on PV input circuit** ☒ Done. **Voltage on PV input breaks down immediately after connection to terminals** **current on Power supply 0.5 A then increased to max, 3 A** **current indicated by victron connect = 0A** **input voltage indicated 0.00V** **Resistance seems to be << 0.01 Ohm**
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 small deviation is allowed due to measurement inaccuracies.	☐ Yes. ☒ No, lodge a warranty claim. **exacity 0 V**
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 small deviation is allowed due to measurement inaccuracies.	☒ Yes. **identical within few mV** ☐ 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. **charge current is alway 0 , not possible ,**
Measure the charge current with a DC current clamp. Is the charge current the same as indicated in the VictronConnect app? A small deviation is allowed due to measurement inaccuracies.	☐ 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. **Current is always 0 , Voltage inperfect match within few mV** ☐ No. This is probably not warrantable as bad cables, or cable connectors can cause it.

8. Remarks

Provide additional fault information or add issues not already covered in earlier questions
....**The system includes two MPPT (this defectiove one an a second one also a 150/85 with CAN)** **The other is currently in service albeit with a flaw as is requires deactivation and activation every morning**
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9. 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	**27. July 2027**
Victron Energy RMA number	....
Your reference number	....