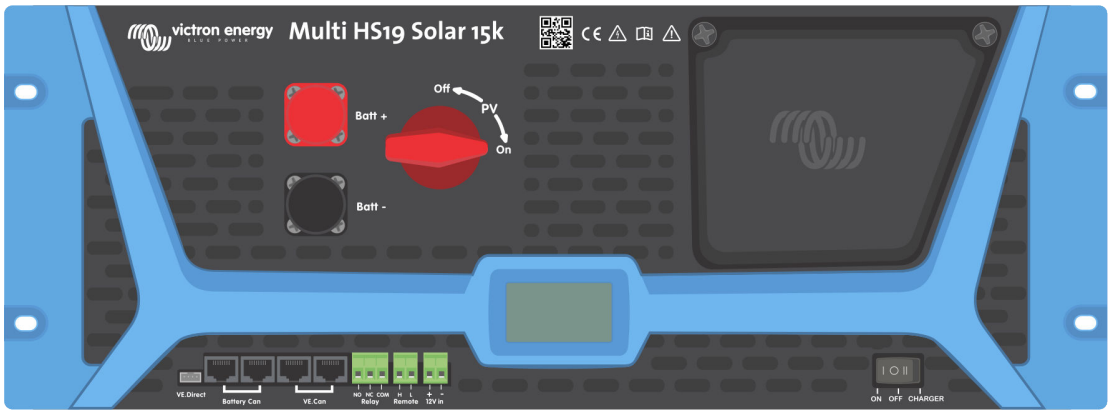
ENGLISH



Multi HS19 Solar 15k

Rev 02 - 10/2026

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1. Safety Instructions

ELECTRIC SHOCK HAZARD

HV safety warning and certified installer only

Please read the installation instructions in the installation manual before installing the Multi HS19 Solar. Connections must always be made in the sequence described in the installation section of this manual.

Do not open any covers of the enclosure; there are no serviceable parts inside. The internals can carry a 1000V DC voltage even when the Multi HS19 Solar is off! All connections are accessible on the front and rear panels of the enclosure.

The Multi HS19 Solar is designed and tested in accordance with international standards. The Multi HS19 Solar should be used for the designated application only. Using the Multi HS19 Solar outside of its specifications may impair its safety protections.

Refer to the specifications provided by the manufacturer of the battery to ensure that the battery is suitable for use with this product. The battery manufacturer's safety instructions should always be observed.

Batteries should only be replaced with the same type and number of modules.

Always follow the manufacturer's instructions for installation and removal of batteries.

Always disconnect all power connections (e.g. the battery isolator, DC solar PV isolator and AC input and output circuit breakers) and wait at least 5 minutes before carrying out work on the product. Input and/or output terminals may still be dangerously energized, even when the equipment is switched off.

Protect the solar modules from incident light during installation, e.g. cover them.

Never touch uninsulated cable ends.

Use only insulated tools.

The installer of the product must provide a means for cable strain relief to prevent the transmission of stress to the connections.

In addition to this manual, the system operation or service manual must include a battery maintenance manual applicable to the type of batteries used. The battery must be placed in a well-ventilated area.

SELECTION OF WIRE CONDUCTORS

Use flexible multistranded copper cable for the battery and PV connections.

The maximum diameter of the individual strands is 0,4mm/0,125mm² (0.016 inch/AWG26).

A 25mm² cable, for example, should have at least 196 strands (class 5 or higher stranding according to VDE 0295, IEC 60228 and BS6360).

An AWG2 gauge cable should have at least 259/26 stranding (259 strands of AWG26).

Maximum operating temperature: ≥ 90°C.

Example of suitable cable: class 5 “Tri-rated” cable (it has three approvals: American (UL), Canadian (CSA) and British (BS)).

In case of thicker strands the contact area will be too small and the resulting high contact resistance will cause severe overheating, eventually resulting in fire.







RISK OF INJURY OR DEATH

The product has no internal user-serviceable components. Do not remove the front plate or operate the product if any panels have been removed. All servicing must be undertaken by qualified personnel.

Please read the installation instructions in the installation manual before installing the equipment.

This is a Safety Class I product (supplied with a protective grounding terminal). The chassis must be grounded. Whenever it is likely that the grounding protection has been damaged, the product must be turned off and secured against unintended operation; please contact qualified service staff.

Non-isolated inverters shall be provided with installation instructions that require PV modules that have an IEC 61730 Class A rating.

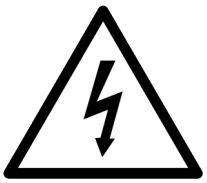
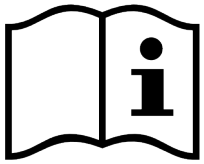
If the maximum AC mains operating voltage is higher than the PV array maximum system voltage, then the instructions shall require PV modules that have a maximum system voltage rating based upon the AC mains voltage.

Environment and Access

The Multi HS19 Solar is for indoor use only. Ensure that the equipment is used under the correct ambient conditions. Never operate the product in a wet or dusty environment. Never use the product where there is a risk of gas or dust explosions. Ensure there is adequate free space for ventilation above and below the product and check that the ventilation vents are not blocked.

Installation of the Multi HS19 Solar must be in a location that restricts access by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

The connections to live parts should be covered after installation.

Encolsure symbols	
	Caution, risk of electric shock
	Refer to the operating instructions
IP20	IP20 Protected from touch by fingers and objects greater than 12 millimetres. Protected from condensation.
	European conformity
	Regulatory compliance mark for Australia & New Zealand

2. Introduction

A 19-inch enclosure combining a 15kW high-voltage 3-phase inverter/charger and four MPPT high voltage solar trackers rated at 8kW each. The integrated design simplifies installations, saving time and money. Lightweight, efficient, and quiet in operation with low standby power due to high-frequency technology and a new design. Easy mounting with the 19-inch housing, sliding into the same rack as the batteries.

The Multi HS19 Solar features a powerful sinewave inverter/charger at its core with seamless transitions between inverting, grid feed-through, and charging. This bidirectional capability allows charging the battery when the AC supply is available or converting from the battery when needed.

- There are four individual 8kW, MPPT solar trackers with a wide MPPT voltage range of 100-600V, for a total PV capacity of 32kW at 600V.
- A dedicated Battery CAN-bus port supports managed battery banks from 650 up to 1000V, reducing battery cable thickness and installation costs. The Multi HS19 Solar 15k is capable of charging the battery with 33kW at 800V.

2.1. Scope

This manual covers the following models:

- Multi HS19 Solar 15k

2.2. Features

19" rack mountable enclosure

Easily installed in a standard 19" rack cabinet. Perfect for installation using 19" rack mountable battery packs.

Two AC Outputs

Besides the usual uninterruptible output (AC-out-1), an auxiliary output (AC-out-2) is available that disconnects its load in the event of battery-only operation. Example: an electric boiler that is allowed to operate only if the AC input is available. There are several applications for AC-out-2.

PowerControl - maximum use of limited AC power

The product can supply a huge charging current. This implies heavy loading of the AC input. Therefore a maximum current can be set. The product then takes other power users into account, and only uses 'surplus' current for charging purposes.

PowerAssist - Extended use of AC input current

This feature takes the principle of PowerControl to a further dimension allowing the product to supplement the capacity of the alternative source. Where peak power is often required only for a limited period, the product will make sure that insufficient AC input power is immediately compensated for by power from the battery. When the load reduces, the spare power is used to recharge the battery.

Programmable

All programmable settings and grid-interactive setpoints for this product can be changed with either a mobile phone or computer (Windows requires VE.Direct to USB dongle), using the free VictronConnect software available on the App Store of your device, or www.victronenergy.com.

Programmable relay

The product is equipped with a user programmable relay. The relay can be programmed for different applications, for example a low voltage alarm relay.

Remote on / off port

There is a remote on / off port to allow the Multi HS19 Solar to be switched on or off with a remote contact.

High efficiency

- **Outstanding inverter/charger efficiency:** Maximum efficiency of 98%. The inverter is short circuit proof and protected against overheating, whether due to overload or high ambient temperature.
- **Ultra-fast Maximum Power Point Tracking (MPPT):** Especially in case of a clouded sky, when light intensity is changing continuously, a fast MPPT algorithm will improve energy harvest by up to 30% compared to PWM charge controllers and by up to 10% compared to slower MPPT controllers.
- **Advanced Maximum Power Point Detection in case of partial shading conditions:** If partial shading occurs, two or more maximum power points may be present on the power-voltage curve. Conventional MPPTs tend to lock to a local MPP, which may not be the optimum MPP. The innovative algorithm will always maximize energy harvest by locking to the optimum MPP.

High power inverter

- **High peak power:** The inverter is able to supply a maximum AC output power to a peak 22kW or 32A AC, for 5 seconds. This supports smooth operation for motor start up and other demanding surge loads.
- **Continuous power output, with solar boost:** Continuous output power at 25C t ambient
- **Temperature Protected:** Over-temperature protection and power derating when temperature is high.

Interfacing and Communications

- **VE.Direct port:** The VE.Direct port can be used to connect a GlobalLink 520 for remote data monitoring, or USB to VE.Direct dongle for VictronConnect access on a Windows computer.
- **VE.Can port:** Use this port to connect to a GX device and other VE.Can devices in the system (such as an energy meter).
- **Battery Can:** Connects to the Can port of the battery's BMS.
- **Device display:** A LCD back-lit display shows operational information including battery levels, solar yield, and system status.
- **Remote on / off terminal:** H and L input terminal. Link H and L to enable.
- **Programmable relay:** Configurable relay contacts for alarms.
- **Bluetooth Smart:** The wireless solution to set-up, monitor and update the controller using Apple and Android smartphones, tablets or other compatible devices.
- **Configuring and monitoring with VictronConnect:** Configure with the VictronConnect app. Available for iOS, Android devices, as well as macOS and Windows computers. VictronConnect can be downloaded from our website: https://www.victronenergy.com/support-and-downloads/software
- **12V input:** This optional input is used to keep the Multi HS19 Solar alive and to allow for black start situations.

  The Multi HS19 Solar can operate without it, but it will lose communication if no other energy source is connected, possibly limiting the system black start.

Battery charger

The batteries can be charged by solar energy using the built-in four tracker MPPT solar charge controller or a compatible AC supply connected to the AC input.

- **Compatible BMS-Can batteries:** Batteries which support Victron HV Protocol or Pylontech HV battery systems.

  See the HV battery compatibility list.

Setup options

All programming and setup can be done using VictronConnect on a mobile device or laptop.

Limitations

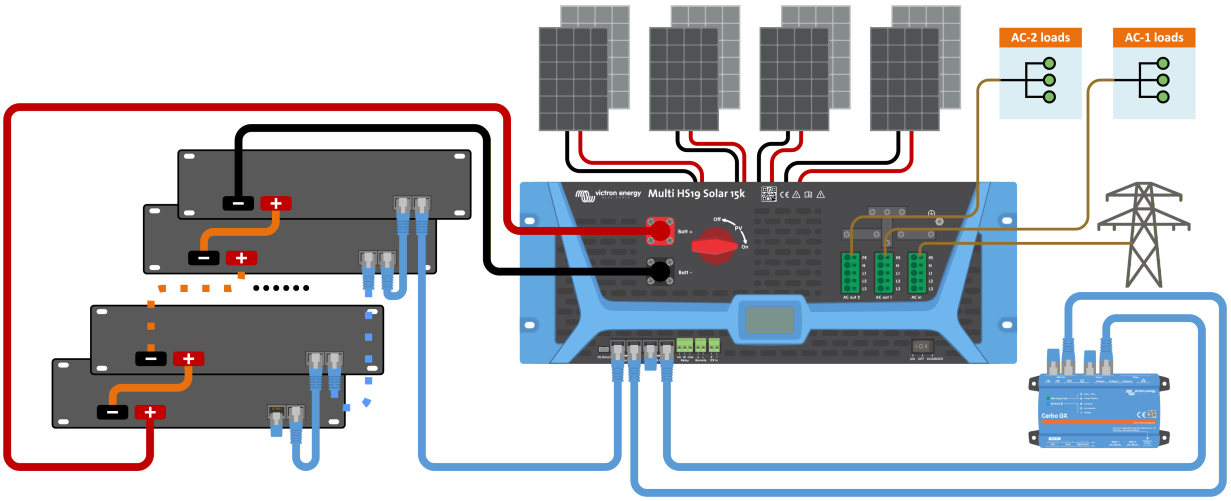
Some features have not been implemented yet, but may be available with future software updates. These include:

- **Grid code support:** Grid feed-in certification varies by country for the Multi HS19 Solar, and it is not currently certified in all countries.

  Do not assume the Multi HS19 Solar is certified or permitted for grid export in your country simply because its grid code is listed in the drop-down.

  Always check for current certificates for this product. These are available in the Downloads & Support section of the website.
- **Generator support:** It is not yet possible to use the Multi HS19 Solar with a generator.
- **Parallel operation:** Connecting multiple Multi HS19 Solar units in a parallel configuration is not possible at this time.
- **Frequency shift function:** PV inverters, when running off grid, are not supported at the moment. This does not apply when the AC input is connected and functioning properly.

2.3. System example



3. Installation

3.1. Mounting

	The Multi HS19 Solar is a 19" rack mountable unit. It is intended to be installed horizontally in a standard 19" rack mounting cabinet. The cabinet should allow unobstructed air flow through the Multi HS19 Solar from the front to the back. It's advisable to leave at least a 1U space above and below the unit to aid in cooling. If components within the cabinet are in contact with one another they'll exchange unwanted heat between them. To ensure a trouble free operation of the Multi HS19 Solar, it must be used in locations that meet the following requirements: a) Avoid any contact with water. Do not expose the Multi HS19 Solar to rain or moisture. b) Install the Multi HS19 Solar in a standard 19" cabinet, with a 1U clearance above and below it. c) The Multi HS19 Solar must be installed in a non-flammable cabinet and the construction materials surrounding the installation should also be non-flammable. d) Do not place the Multi HS19 Solar in direct sunlight. Ambient air temperature should be between 0°C and 60°C (humidity 95% non-condensing). e) Do not install the Multi HS19 Solar in an environment where the air could be contaminated with particulate matter such as soot, dust or salt. For example, conductive soot from the exhaust of a diesel generator could be drawn into the enclosure and cause short circuits inside it. f) Do not install the Multi HS19 Solar where flammable or corrosive gases or vapours could come near the installation. g) Do not obstruct the airflow through the Multi HS19 Solar. The cabinet should allow unobstructed air flow through the Multi HS19 Solar from the front to the back. h) If the Multi HS19 Solar is installed in an area used for general storage, ensure that no flammable materials such a cardboard boxes are stored close to the installation. Ensure that the end user is aware of these requirements.
	The Multi HS19 Solar contains potentially dangerous voltages. It should only be installed under the supervision of a suitable qualified installer with the appropriate training, and subject to local requirements. Please contact Victron Energy for further information or necessary training.
	Excessively high ambient temperature will result in the following: • Reduced service life. • Reduced charging current. • Reduced peak capacity or shutdown of the inverter. Never position the appliance directly above lead-acid batteries.
	For safety purposes, the Multi HS19 Solar should be installed in a heat-resistant environment. You should prevent the presence of: e.g. chemicals, synthetic components, curtains or other textiles, etc., in the immediate vicinity.
	Never connect batteries directly to the Multi HS19 Solar. Always ensure that adequate circuit protection is installed between the batteries and the Multi HS19 Solar.

The Multi HS19 Solar is designed for horizontal mounting only. Vertical mounting has not been tested or validated, and may affect thermal performance and mechanical reliability. Vertical installation is therefore not supported.

High DC voltages are supplied to the Multi HS19 Solar when a connected PV array is exposed to light.

PV modules must have an IEC 61730 Class A rating.

Ground the frame of the PV array following local regulations.

All disconnection means for batteries, PV isolators and AC circuit breakers must remain accessible at all times. A circuit breaker rated at 32A or less is required for the AC input.

If local installation regulations require an external Residual Current Device (RCD), a separate type A RCD with rated residual operating current of 300mA or higher may be installed at AC input. When required by local regulations, a type B RCD may also be used, although it is not required by Victron Energy.

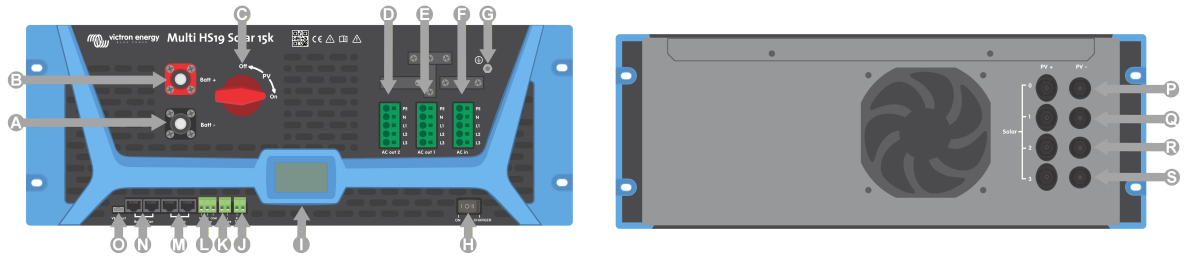
This is a safety class I product (supplied with a protective grounding terminal) and is intended to be used in a TN or TT earthing system. **Its AC input and/or output terminals and/or grounding point on the product must be provided with an uninterruptible grounding point for safety purposes**. In a fixed installation, an uninterruptible grounding can be secured by means of the grounding wire of the AC input. Otherwise the casing must be grounded. Whenever it is likely that the grounding protection has been damaged, the product must be turned off and secured against unintended operation; please contact qualified service staff. The Multi HS19 Solar is provided with a ground relay that **automatically connects the Neutral output to the chassis if no external AC supply is available**. If an external AC supply is provided, the ground relay will open before the input safety relay closes. Follow the local national wiring standards, regulations and installation instructions for electrical work.

Use the VictronConnect App for configuration, control and view the status of the Multi HS19 Solar. You can view the current firmware version and preform firmware updates using VictronConnect. Operational status and firmware version is also displayed on the front panel LCD.

The VE.Can port is used for other VE.Can connected products such as an external energy meter or a GX device for remote monitoring and fault indication.

3.2. Connection overview

The illustration shows the front and rear panel connectors with a description for each one in the table below.



Letter	Name	Description
A	Battery -	Battery negative connector
B	Battery +	Battery positive connector
C	PV Switch	PV disconnect switch. Disconnects all four strings.
D	AC Out 2	AC Output 2
E	AC Out 1	AC Output 1
F	Ac In	AC Input
G	Chassis ground	Chassis grounding terminal
H	Power Switch	Power on / off / charger only switch
I	Display	User LCD display
J	12V in	12V input for keep=alive circuit
K	Remote H / L	Remote on / off terminals
L	Relay	Programmable relay contacts
M	VE.Can	VE.Can Canbus connection pair
N	Battery Can	Battery BMS Canbus connector pair
O	VE.Direct	VE.Direct connector
P	PV 0	PV array 0 MC4 connectors
Q	PV 1	PV array 1 MC4 connectors
R	PV 2	PV array 2 MC4 connectors
S	PV 3	PV array 3 MC4 connectors

3.3. Solar array configuration

Always use genuine Staubli MC4 connectors for the PV connections to the Multi HS19 Solar.

Connectors from other brands may not be fully compatible with the Staubli connectors on the Multi HS19 Solar.

Do not hot-plug the PV connections. Ensure that the Multi HS19 Solar is switched off before connecting or disconnecting PV arrays.

The Multi HS19 Solar is built using Staubli MC4 connectors. There are many other brands available, but some manufacturing variations mean that they may make poor contact and cause excessive heat. There are also inferior brands on the market which will likely cause problems.

The maximum rated voltage of the solar charger is 600V. A PV overvoltage event will damage the solar charger. This damage is not covered by warranty.

There is a maximum short circuit current per tracker. Check the technical specifications [26] section for details.

BEWARE that the product warranty will be void if a PV array with a short circuit current larger than rated is connected in reverse polarity.

The Multi HS19 Solar must keep the individual tracker inputs isolated from each other. That means one solar PV array per input, do not attempt to connect a single array to multiple tracker inputs.

When the MPPT switches to float stage it reduces battery charge current by increasing the PV Power Point voltage.

The maximum open circuit voltage of the PV array must be less than 600 V when the battery is at float voltage.

3.4. Battery connections

In order to utilize the full capacity of the product, batteries with sufficient capacity and battery cables with sufficient cross section should be used. The use of undersized batteries or battery cables will lead to:

- Reduction in system efficiency
- Unwanted system alarms or shutdowns
- Permanent damage to the system

The battery connection terminals on the Multi HS19 Solar are Amphenol SurLok Plus.

The battery is not galvanically isolated from the AC input, AC output or Solar PV.

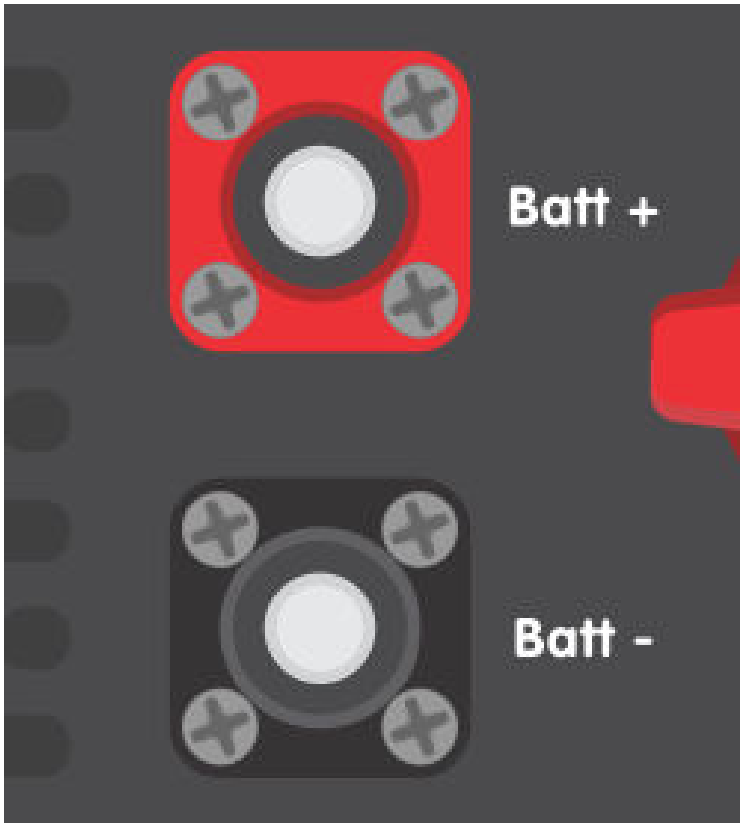


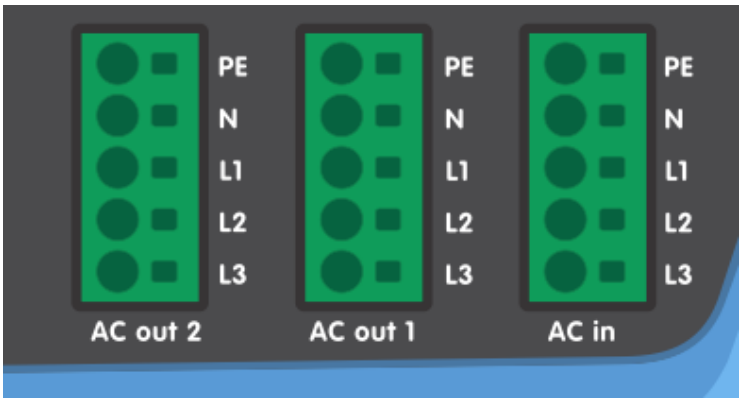
Table 1. Amphenol SurLok Plus plugs

Connector Designation	Colour	Orientation	Amphenol part number
Battery positive	Red	Right Angle	SLPPA25BSR
Battery positive	Red	Straight	SLPIPA25BSR
Battery negative	Black	Right Angle	SLPPA25BSB
Battery negative	Black	Straight	SLPIPA25BSB

Consult battery manufacturer recommendations to ensure the batteries can take the total charge current of the system. Decision on battery sizing should be made in consultation with your system designer.

3.5. AC connections

The AC connection terminal blocks can be found on the front panel.



The AC connector block is a push-in spring connector.

Conductor insulation should be stripped to expose 15mm of bare conductor.

Push the conductor into the round hole of the terminal block position. Multi-stranded conductors may require a small screwdriver to be inserted into the square hole to release the spring tension which will ease insertion of the conductor.

Refer to the technical specifications [26] page for information about cable cross sectional area.

DO NOT reverse the polarity of the neutral and line conductors when connecting AC cabling.

Galvanic isolation is **NOT** provided between AC output and PV DC input.

It is possible for high voltage to be present on the PV DC input connectors even if the PV array is disconnected or at night. Ensure that the Multi HS19 Solar is switched off before working on the PV array or wiring.

Always use DC tolerant earth leakage circuit breakers in the AC circuits according to local regulations.

AC output 1 will be active when the Multi HS19 Solar is running on battery. Both AC outputs will be active when the AC input is available.

The AC input must be protected by a fuse or circuit breaker rated according to the model of Multi HS19 Solar, and cable cross-section must be sized accordingly. If the input AC supply is rated at a lower value, the fuse or circuit breaker should be down sized accordingly.

3.6. Auxilary connections

VE.Direct

This can be used to connect a PC/laptop to configure the inverter with a VE.Direct to USB accessory. Can also be used to connect a Victron GlobalLink 520 to allow for remote data monitoring.

VE.Can

Used to connect to a GX Device, and/or daisy-chain communications to other VE.Can compatible products.

Battery Can

Connect to the Canbus port of the battery system.

Bluetooth

Used to connect to the device via VictronConnect for configuration.

Remote on / off connector

The remote on/off connector has two terminals, the “Remote L” and the “Remote H” terminal.

The Multi HS19 Solar ships with the remote on/off connector terminals connected to each other via a wire link.

Note that for the remote connector to be operational, the main on/off switch on the Multi needs to be switched to “on”.

The default function of the remote on/off connector is to remotely switch the unit on or off.

- The unit will switch on if “Remote L” and the “Remote H” are connected to each other (via a remote switch, relay or the wire link).
- The unit will switch off if “Remote L” and the “Remote H” are not connected to each other and are free floating.
- The unit will switch on if “Remote H” is connected to battery positive (Vcc).

Programmable relay

Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function. See the Technical specifications [26] section for contact ratings.

12V input

This input is used to keep the Multi HS19 Solar alive and to allow for black start situations.

4. VictronConnect setup, configuration and operation

4.1. Setup

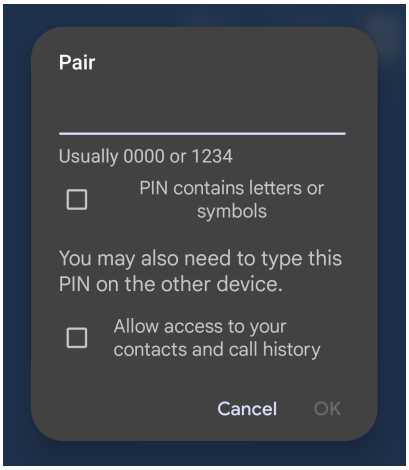
The following steps are necessary to successfully connect the Multi HS19 Solar via Bluetooth and the VictronConnect app:

1. Make sure that Bluetooth is enabled on your Multi HS19 Solar. Bluetooth is enabled by default.

   If Bluetooth has been disabled before then you'll need to connect to the Multi HS19 Solar using a VE.Direct to USB interface and the VictronConnect app to enable it again.

2. Download and install the VictronConnect app from the App Store or Google Play.
3. Open the VictronConnect app and scroll through the list of devices for the Multi HS19 Solar.
4. Tap on it to launch the pairing dialog. Enter the default pairing code which is either 000000 or is a unique PIN printed on the serial number sticker of the Multi HS19 Solar.

   It is strongly advised, when prompted, to change the default PIN to a different one of your choice.
5. Once pairing is successful then the Overview page will be displayed.



4.2. Overview page

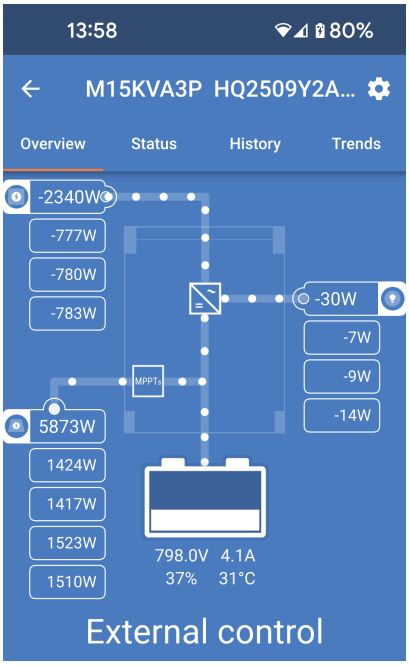
The main overview page provides at-a-glance information of the Multi HS19 Solar. It is divided into four tabs:

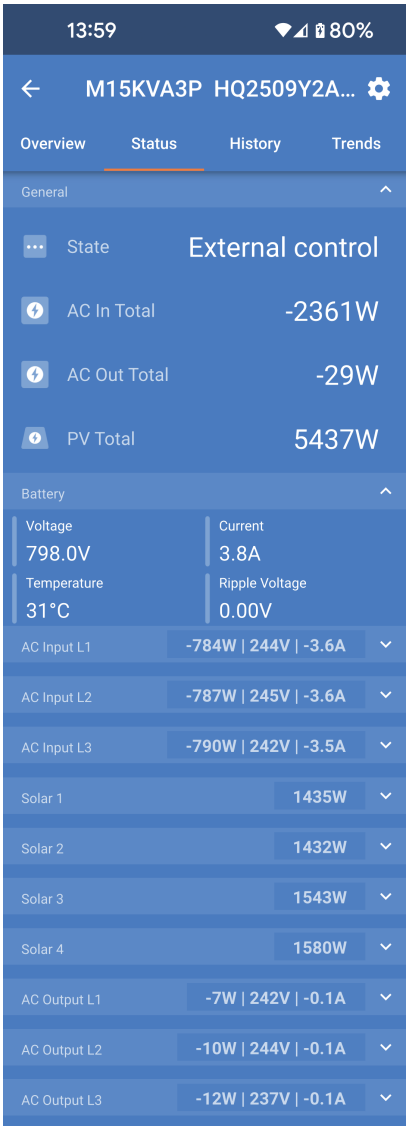
- **Overview:** Instant readout of the basic state of the solar power yield, AC input and AC output.
- **Status:** Instant readout of the basic state of the Multi HS19 Solar.
- **History:** View up to the last 30 days of solar and battery data.
- **Trends:** Review current trend data.

Overview:

- **AC input:** The top left icon displays the total AC input power in the top box, with the power of each phase shown in the boxes below it. A negative value means that power in being exported.
- **Solar:** This shows the total amount of PV power being produced and also the power produced by each of the four trackers.
- **AC output:** The total AC output power for all phases is displayed. The power for each phase is shown in the boxes below.
- **Battery:** Below the battery graphic, the voltage, current and state of charge are shown.

  External control means that the battery BMS is controlling the charge voltage and current.





Status tab:

The status tab provides more detailed information than the overview tab.

> Some fields shows limited information at a glance. For more detailed information, tap the little down arrow at the right hand side of each field.
>
> Each field can be collapsed again to reduce clutter.

- **General:** Shows the battery charging state.

  Additional details include:

  - **AC In Total:** Sum power of all phases at the AC input.
  - **AC Out Total:** Total power of all phases at the AC output.
  - **PV Total:** The total power of all PV trackers together.

- **Battery:** The battery voltage and state of charge are highlighted.

  Tapping the down arrow will then show battery voltage, battery current, battery temperature and ripple voltage.

- **AC Input L1-L3:** The AC input power, voltage and current for each phase are displayed. Negative values mean export.

- **Solar 1-4:** Displays the PV power of each tracker.

- **AC Output L1-L3:** The output power, voltage and current for each phase

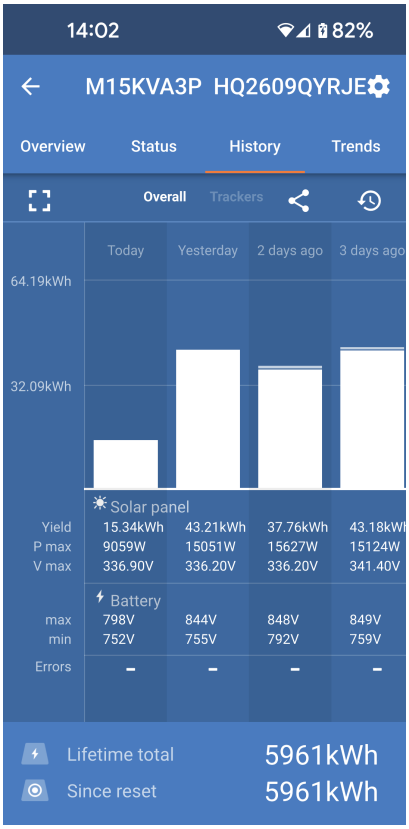
History tab:

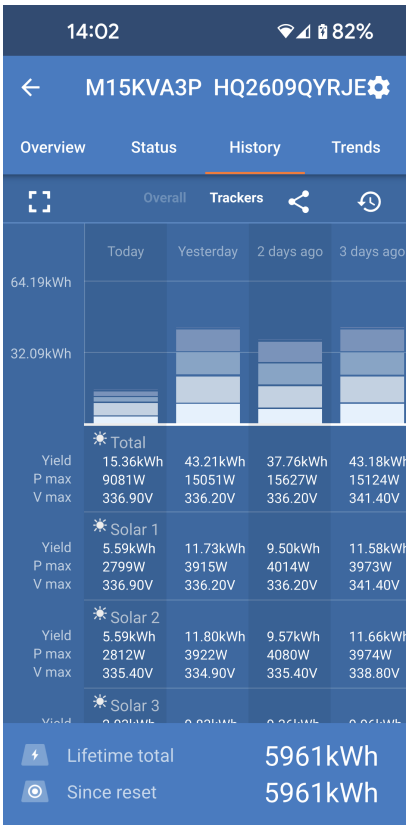
Up to 30 days of historical data is displayed.

Overall

Within the History tab, the default view show the Overall data.

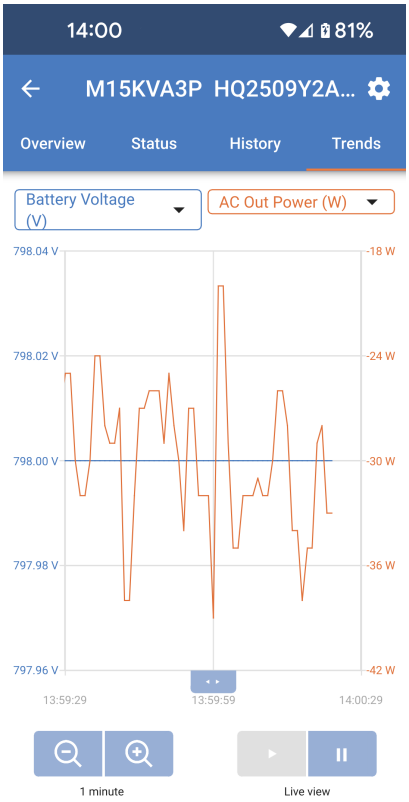
- Bar graphs show the solar yield in kWh. The shaded areas highlight the time spend in the different charging stages.
- The "Solar panel" area records the total solar yield in kWh, maximum PV power and voltage.
- Maximum and minimum battery voltages are stored in the "Battery" section.
- If any errors were raised that day then they are shown with an orange circle.
- Total energy consumption for the day is totalled in kWh.
- Lifetime total energy produced by the connected Multi HS19 Solar. The totals can be reset and so "Since reset" keeps the record yield since then.
- To export the graph as a .csv you can tap the triangular three dot icon at the top of the graph area. You'll then be presented with various methods by which to share the .csv (e.g. email, WhatsApp etc.).





Trackers

Also within the History tab, you can tap on the Trackers view to see the historical data of each of the four PV trackers.

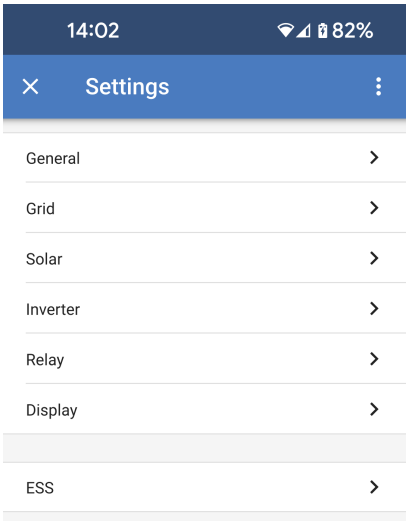


Trends tab:

- Two different data points can be selected using the drop down menus just above the graph.
- A graph will be rendered according to the selected parameters.

4.3. Settings

The Settings menu is accessible by pressing the cog wheel from the top right of the Overview page.

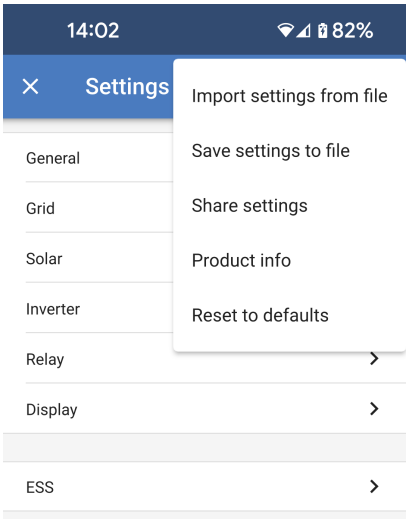


The following menu options are available:

- **General:** Define the general settings for the Multi HS19 Solar.
- **Grid:** Grid disconnect and reconnect voltage limits can be set including the option to monitor the PE to neutral voltage.
- **Solar:** Switch PV optimisation on or off, set custom names for each PV tracker and hide their visibility if unused.
- **Inverter:** Set the output voltage of the inverter and the behaviour of the ground relay.
- **Display:** Choose how the LCD backlight behaves and the preferred temperature unit.
- **ESS:** Setup the energy storage system mode, and settings related to each mode.

Tap the three vertical dots in the top right corner of the settings page to perform the following actions:

- **Import settings from file:** Import previously saved settings from a file in the settings library.
- **Save settings to file:** Save the current settings to a file, which will be stored in the settings library. This file can be used as a backup to restore settings on this Multi HS19 Solar, or to easily apply the same settings to another one.
- **Share settings:** Share the settings file via email or other social apps.
- **Product info:** Displays the Multi HS19 Solar model number and serial number. There is also a switch to enable or disable Bluetooth.
- **Reset to defaults:** Reset all settings to the factory defaults. This will mean that any customised settings will be lost. Setup will need to be performed again, or imported from a previously saved settings file.

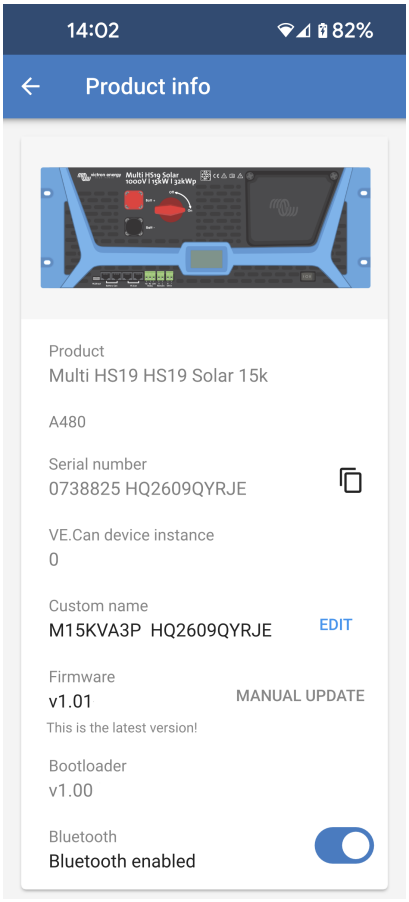


4.4. Product info

To get to the Product info page, tap the 3 vertical dots icon from the Settings page.

- **Product:** Shows the product name and the model number.
- **Serial number:** Shows the serial number of the Multi HS19 Solar.
- **VE.Can device instance:** Displays the network device instance number for this particular device.
- **Custom name:** Change the friendly name of the Multi HS19 Solar.
- **Firmware:** Displays the current firmware version running on the Multi HS19 Solar.
- **Bootloader:** The bootloader version.
- **Bluetooth:** Enable or disable the Bluetooth functionality of the Multi HS19 Solar.

> ⚠ Note that if you disable Bluetooth, then connection to this device via Bluetooth will no longer be possible after you return to the Device list or exit the VictronConnect app. You'll need to connect using a VE.Direct to USB interface in order to enable Bluetooth again.



4.5. General

Use the General settings to configure the following:

- **Mode:** Tap the box on the right to change the operating mode of the Multi HS19 Solar. See the section below for a list of options.

  The physical on / off switch should be in the on position. The menu options can override the on position of the physical switch.

- **Output frequency:** Set the nominal output frequency that the Multi HS19 Solar will produce. Choose between 50Hz or 60Hz.

- **AC input type:** Select the type of AC source that will be connected to the AC input of the Multi HS19 Solar. Choose between "Grid," "Generator," or "Shore power." If there is no AC input, then you can choose "Not available."

  Generator support has not been implemented yet.

  These settings are only used to change the input type on the VRM dashboard, they don't change the functionality of the Multi HS19 Solar.The icon and text will change accordingly. VRM will then be able to record the relevant energy source being used, and the corresponding graphs will show energy used from generator, or from grid, for example.

  Choosing "Shore power" will display the input current limit on the VRM dashboard.

- **Moderate generator load changes:**

  This feature, along with generator support is not yet implemented.

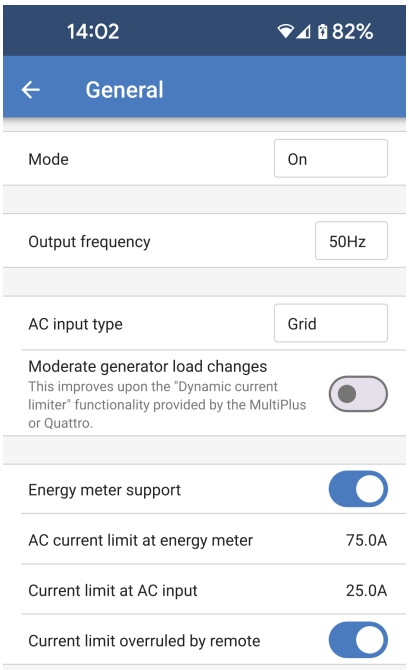
- **Energy meter support:** If you have an energy meter in the system, then you should enable this option.

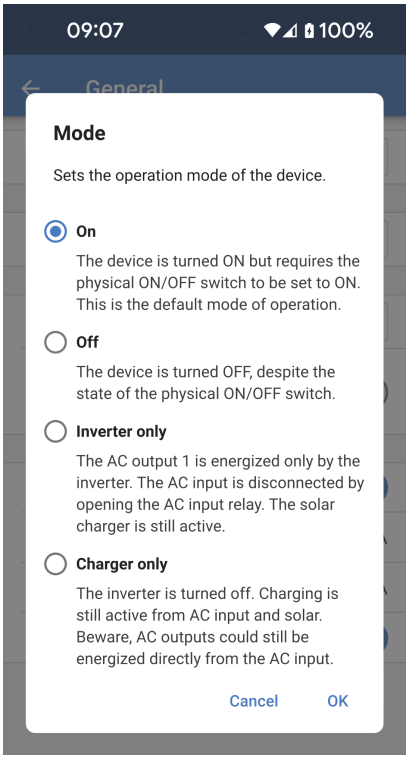
- **AC current limit at energy meter:** This field will only be visible if "Energy meter support" is enabled. Adjust the current limit at the point that the energy meter is installed.

- **Current limit at AC input:** Adjust the current limit at the AC input of the Multi HS19 Solar.

- **Current limit overruled by remote:** Enable this option to allow the current limit to be adjusted remotely. For example, a GX device can be used to adjust the current limit remotely.

  It is not possible to remotely set the current limit any higher than the level defined here.





Mode

The following options are available from the pop up menu:

- **On:** The Multi HS19 Solar will be on and fully functional. This is the default mode of operation.
- **Off:** The device will be switched off even if the physical switch is on.
- **Inverter Only:** In this mode, the AC input will be disconnected by the internal input relays. The inverter will provide AC to the output. Charging will not be possible from AC, but charging from solar will be possible.
- **Charger Only:** This means that the inverter will be disabled and therefore the battery will not be discharged. Charging will be supplied by solar or AC input. If AC input is available, it will be transferred through to the AC output.

4.6. Grid

The grid settings page offers selection of a regional grid code and to adjust the AC input voltage limits.

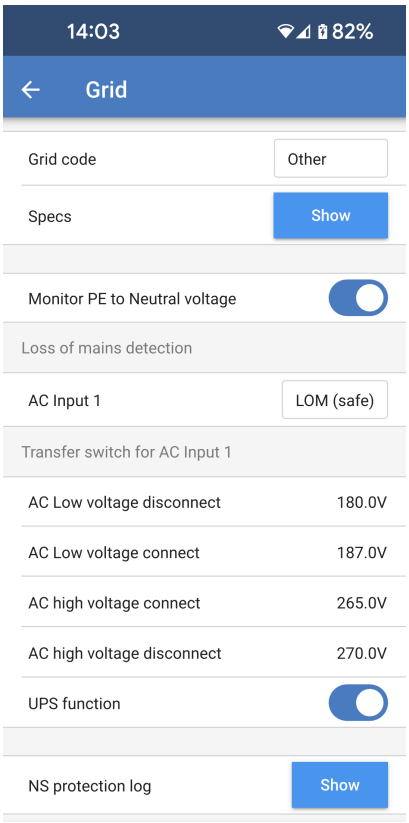
- **Grid code:** The default option is None, grid feed in will not be possible.

  Select the appropriate grid code for your region.

  > The Multi HS19 Solar is not yet certified for grid feed-in for all regions. More regions will be added when the Multi HS19 Solar is certified for them.

- **Specs:** Tap "Show" to view the specifications of the currently selected grid code.
- **Monitor PE to Neutral voltage:** When enabled, the AC input will be disconnected if the voltage between PE and Neutral becomes too high.

  There may be installations where the voltage between PE and Neutral is abnormally high due to long cable runs or poor grounding conditions. Ensure that these abnormalities cannot be overcome before disabling this setting.



Loss of mains detection: Most of these settings are typically greyed out and are intended for informational purposes only. The values are defined by the selected grid code.

The below settings allow upper and lower AC input disconnection levels to be set. If the AC input voltage goes outside of these limits, then it will be disconnected and not passed through to the AC output. When the AC input is disconnected then, when the operation mode is set to "On," the inverter will provide power to the AC output.

- **AC low voltage disconnect:** The AC input will be disconnected when the voltage drops below this level.
- **AC low voltage connect:** After a low voltage disconnect, the AC input will re-connect when the voltage rises above this level.
- **AC high voltage connect:** After a high voltage disconnect, the AC input will re-connect when the voltage drops below this level.
- **AC high voltage disconnect:** The AC input will be disconnected when the voltage rises above this level.
- **UPS function:** Toggle this setting on to enable faster transfer from AC input to inverter power.

  It may be necessary to disable this setting when using a generator. This is because the generator's output is less stable and may cause unwanted transfer to inverter when it is running.

  > Generator support has not been implemented yet.

- **NS protection log:** Any grid protection events are recorded in this log. Tapping on the "Show" button will list such events.

4.7. Solar

This page allows setting the Partial shading detection algorithm and giving each tracker a custom name.

- **Solar charger enabled:** Enable or disable the solar charger. This affects all of the internal PV trackers .

PV Optimization:

- **Partial shading detection:** The default setting is enabled. It is recommended to leave this setting enabled. Only in some specific solar installations may it need to be disabled.

PV trackers names:

- Each tracker can be given a custom name. The column on the left will always display the tracker number and the column on the right will show the custom name if given.

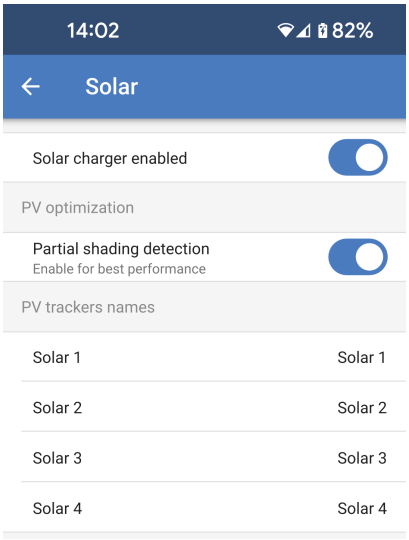
  The custom name will also be shown on the LCD on the front of the Multi HS19 Solar.

  Tap on the row to set a custom name.

PV trackers visibility:

- Any unused trackers can be hidden from showing on the VictronConnect overview page and from VRM.

  Trackers will be visible if the switch is toggled on.

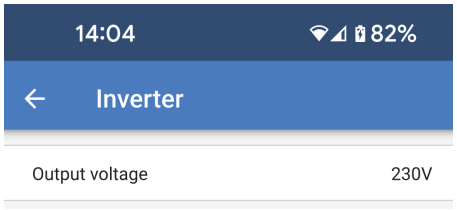


4.8. Inverter

Change settings related to the inverter here.

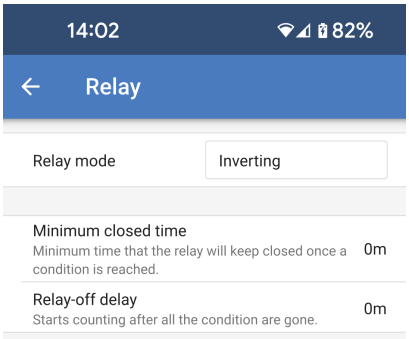
- **Output voltage:** Set the output voltage that the Multi HS19 Solar will produce when the inverter is running and the AC input is disconnected.

  If the AC input is connected, then the output voltage will be the same as the input voltage



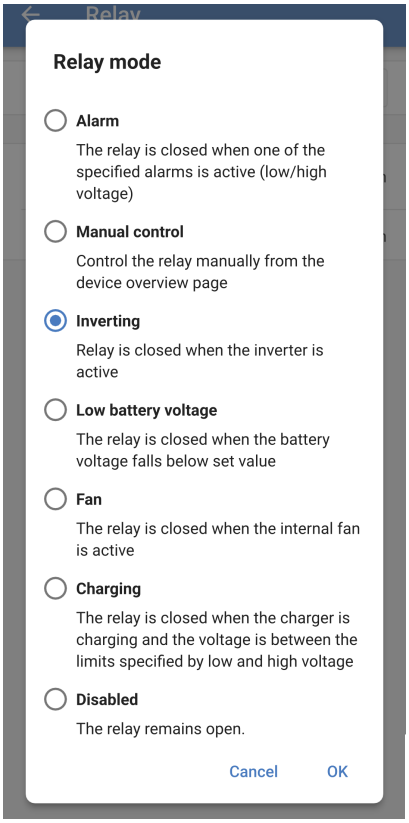
4.9. Relay

A programmable relay is available in the Multi HS19 Solar. The contacts are accessible via the pluggable terminal block on the front panel.



One of several relay modes can be selected from the list:

- **Alarm:** The relay is closed when either a high battery voltage or low battery voltage alarm is active.
  - **Low voltage relay:** Choose the parameters to set and to clear a low battery voltage alarm.
  - **High voltage relay:** Choose the parameters to set and to clear a high battery voltage alarm.
- **Manual control:** Use this option to control the relay manually from the Settings - Relay page or from the Status page.
- **Inverting:** The relay contacts will close when the Multi HS19 Solar is inverting.
- **Low battery voltage:** The relay will close when the battery voltage falls below the set value.
  - **Low voltage relay:** When the battery voltage falls below the set level, the relay will close. The relay will open again when the voltage rises above a higher set voltage.
- **Fan:** The relay will close whenever the internal fan of the Multi HS19 Solar is running.
- **Charging:** The relay will be closed when the charger is charging and the battery voltage is between the low and high voltage limits.
  - **Low voltage relay:** The relay opens when the battery voltage falls below the lower set voltage and it closes again when the battery voltage is above the higher set voltage.
  - **High voltage relay:** The relay opens when the battery voltage is above the higher set voltage and it closes again when the battery voltage is below the lower set voltage.
- **Disabled:** The relay is always open, and will not close under any condition.

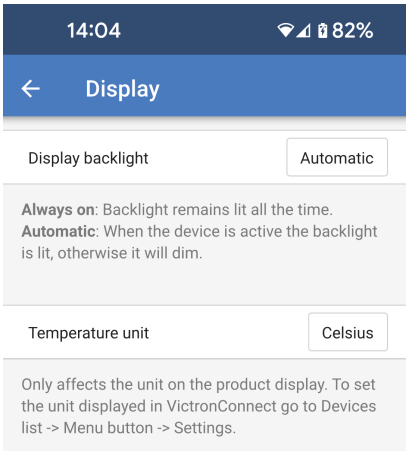


4.10. Display

These settings define the behaviour of the front panel LCD backlight and the temperature unit that it will display.

- **Display backlight:** Set up whether the front panel LCD backlight will be on or off.
  - **Always off:** The backlight will always be off.

    The LCD may still be readable under strong ambient light but it will not emit light.
  - **Always on:** The LCD backlight is always on making it easy to read at a glance at any time.
  - **Automatic:** The LCD backlight is only on when the device is active.
- **Temperature unit:** Select which temperature unit will be used by the front panel LCD.
  - **Celcius:** Temperature is displayed in °C.
  - **Fahrenheit:** Temperature is displayed in °F.





This setting only affects the temperature unit on the front panel LCD.

4.11. ESS

In some cases the user may want to only use the AC input to charge the battery when necessary, and instead allow the batteries to discharge to provide for the loads and recharge from solar.

To enable this flexibility there are several possible configuration options.

The ESS settings are available out-of-the-box without the need to install an assistant.

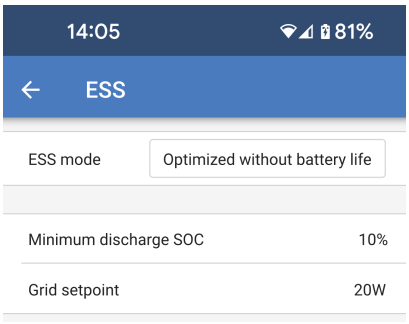
ESS relies on an AC input being present, so it does not provide useful functionality in an off grid system.

The ESS settings for the can only be changed using VictronConnect as shown below.

There is currently limited functionality from the ESS menu of a GX device.

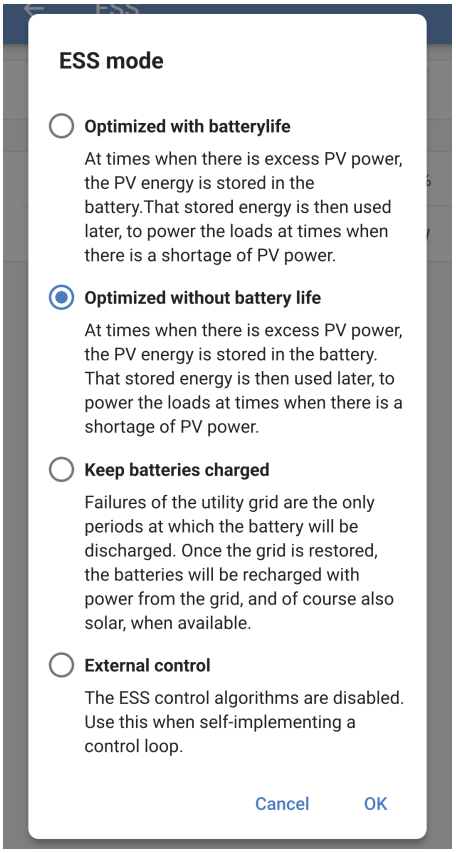
There are currently no ESS controls from VRM.

The factory default operation when an AC input is connected to a is that the charger will begin charging the batteries up to the maximum AC input current and charge current limits. We call this factory default mode "Keep batteries charged."



- **ESS mode:** The factory default is "Keep batteries charged." Tap in the box to choose a different ESS mode. See the table below for details.
- **Minimum discharge SOC:** This is the lowest SOC that the battery will be allowed to discharge down to. Once this limit is reached then power for the loads will be supplied from the AC input.
- **Grid setpoint:** This sets the point at which power is taken from the grid when the installation is in self-consumption mode. Setting this value slightly above 0W prevents the system from feeding back power to the grid when there is a bit of over-shoot in the regulation.

From the ESS mode pop box there are four options to choose from.



- **Optimized with batterylife:** When there is enough solar power to satisfy the loads, then the excess solar power will be used to charge the battery. The power stored in the battery will then be used when the solar power is not enough or during the night.

  The batterylife algorithm will be active. This means that the minimum SOC level will gradually increase for each day that the battery is not fully charged. Once the battery gets fully charged then, the SOC level will reduce down to its originally set level.

  This is suitable for lead acid battery chemistries.

- **Optimized without batterylife:** As above, when there is enough solar power to satisfy the loads, then the excess solar power will be used to charge the battery. The power stored in the battery will then be used when the solar power is not enough or during the night.

  Batterylife is not used, and so the minimum SOC level will remain at its preset level.

  This "Optimised" mode is best for lithium batteries.

- **Keep batteries charged:** In this mode, the batteries will be kept fully charged as long as the AC input is available. Loads will be supplied from the AC input. If there is enough solar power, then this will be used to supply the loads, and excess solar will charge the battery if it is not fully charged.

  Use this mode in off grid installations to prevent feedback to a generator, which may be connected to the AC input.

  This mode should also be used where grid is available, but feed in is not permitted.

- **External control:** There may be use cases where an external ESS control is required. There will be no automatic control of the ESS setpoints. All ESS setpoints will need to be written from an external appliance.

5. Operation

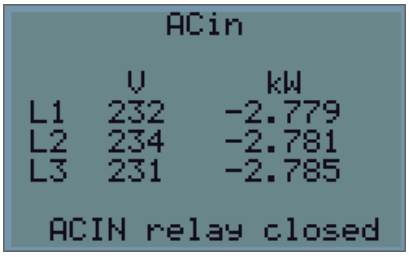
5.1. Device display

The Multi HS19 Solar has an LCD screen that displays operational information.

The pages will change one after the other. There is no button or any other means to change to the next page.

ACin: This page shows the voltage and power for each of the input phases.

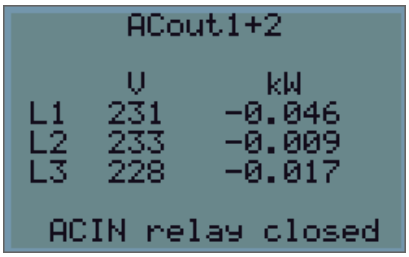
The state of the AC input relay, open or closed, is shown on the bottom row of the screen.



ACout1+2: On this page, the voltage and power for each of the phases at the AC output.

The power figures are the sum of the loads on the AC output 1 and AC output 2.

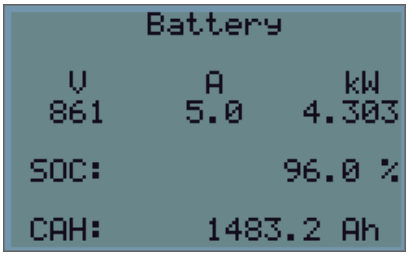
The state of the AC input relay, open or closed, is also shown on the bottom row of this screen so that you can more easily see that the Multi HS19 Solar is passing the AC input power through to the AC output.



Battery: The battery voltage, current and power are displayed. Negative current and power values mean that the battery is discharging.

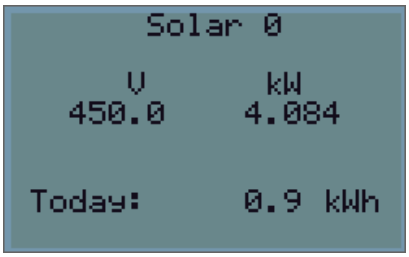
SOC is the state of charge of the battery.

CAH displays the capacity of the battery in Ah.



Solar There are four separate pages for each of the solar PV trackers.

The PV voltage and power as well as the total energy harvest for the day per tracker.



6. Troubleshooting

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 Multi HS19 Solar.

Error 10 - Battery voltage too low:

Battery voltage below 650V. Please charge the battery using solar or externally to allow the inverter to startup.

Error 15 - Battery relay fault:

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

This error will automatically reset 3 times and if it persists, please check the installation and restart the unit using the power-switch. If the error persists, the unit is most likely faulty and must be sent in for repair/replacement.

Error 16 - Battery not found:

The inverter monitors the battery communication and the voltage reported by the battery against the voltage at its DC terminal. If the communication drops out for more than 3 minutes or there is a mismatch in the voltage measurements, this error is triggered.

This error will automatically reset 3 times and if it persists, please check the installation and the communication between the battery and the inverter and restart the unit using the power-switch. If the error persists, the battery or unit is most likely faulty and must be sent in for repair/replacement.

Error 23 - Charger temperature sensor connection lost:

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

This error will automatically reset 3 times and if it persists, please check the installation and restart the unit using the power-switch. If the error persists, the unit is most likely faulty and must be sent in for repair/replacement.

Error 24 - Charger fan missing:

This error indicates that the fan is powered on but the circuit does not measure any current draw by the fan. Most likely its either broken or obstructed. Please contact your dealer, there might be a hardware defect.

Error 40 - Internal failure:

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

This error will automatically reset 3 times and if it persists, please check the installation and restart the unit using the power-switch. If the error persists, the unit is most likely faulty and must be sent in for repair/replacement.

Error 41 - PV isolation resistance too low:

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

Error 42 - Ground fault:

The ground leakage current in the PV array and/or battery exceeds the allowed 30mA limit. Check the PV array and/or battery cabling and panel/battery isolation.

Check the installation and restart the unit using the power-switch.

Error 43 - Ground relay fault:

The voltage difference between Neutral and Ground is too high.

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.

Error 50, 52 - Inverter overload:

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 exceed 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.

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.

Error 59 - AC Input 1 relay fault:

Automatic checking of the disconnect means failure. This usually indicates a broken relay (sticky contact) in the AC input stage.

This error will automatically reset 3 times and if it persists, please check the installation and restart the unit using the power-switch. If the error persists, the unit is most likely faulty and must be sent in for repair/replacement.

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.

Error 117 - Invalid firmware:

This error indicates that a firmware update did not complete, so the device is only partially updated. Possible causes are: device out of range when updating over the air, a cable got disconnected or power was lost during the update session.

To fix this the update needs to be retried, download the correct firmware for your device from the Victron Professional Portal

When your GX device is connected to VRM, you can do a remote firmware update using this firmware file. You can do this via the VRM website or using the VRM tab in VictronConnect. VictronConnect can also be used together with the firmware file to update using a Bluetooth connection.

Error 118 - Incompatible hardware:

This error indicates that there is incompatible hardware detected inside the Multi HS19 Solar. This error will not auto-reset.

Disconnect the Multi HS19 Solar from all power-sources, wait 3 minutes, and power up again.If error persists, the unit is faulty, contact your dealer for a replacement.

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.

Error 180 - Precharge failed:

This error indicates an issue on the startup sequence of the inverter.

This error will automatically reset 3 times and if it persists, please check the installation and restart the unit using the power-switch. If the error still persists, the unit is most likely faulty and must be sent in for repair/replacement.

Error 201 - Internal DC voltage error:

This “Internal DC voltage measurement error”, is raised in case an internal (high) voltage measurement does not match certain criteria.

First, make sure to update the firmware to the latest version.

This error will not auto-reset. Check the installation and restart the unit using the power-switch. If the error persists, even after above mentioned firmware update, the unit is most likely faulty and must be sent in for repair/replacement.

7. Technical data

7.1. Technical specifications

	Multi HS19 Solar 15k
Max. AC input and pass-through current	32A
INVERTER	
Inverter apparent / rated power	15kVA / 15kW
Continuous output power up to 40°C (1)	15kW
Peak Power (2)	22kW (5s)
Inverter peak AC current (2)	32A (5s)
Continuous AC current per phase (1)	22A RMS
AC voltage	400Vac ± 10% 3-phase
AC frequency (range)	50/60 Hz (45 - 65 Hz)
Total harmonic distortion	<3%
Maximum efficiency (3)	98%
No load power at 650V battery voltage	50W
AC connections	L1, L2, L3, N, PE
Number of AC inputs	1
Number of AC outputs	2
SOLAR	
Maximum open circuit voltage	600V
Maximum short circuit current per string	20A
Maximum MPP current per string	13.5A
Number of strings	4
Number of independent trackers	4
MPPT operating voltage	100 - 600V
Minimum solar voltage for wake-up (4)	300V
Maximum total power per string (1)	8kW (32kW total)
Maximum efficiency	99%
BATTERY	
Operating voltage range	650 - 1000V
Maximum discharge current	25A
Maximum charge current	41A
Communication	CAN
Supported batteries (5)	Batteries supporting Victron HV Protocol
FEATURES & PROTECTION	
Parallel operation (7)	No
Overvoltage category	PV II / AC III
Environment condition	Indoor, conditioned
Protections	PV overvoltage / PV overcurrent / DC insulation resistance / Residual current monitoring unit / AC overcurrent
GENERAL	

	Multi HS19 Solar 15k
Weight	26.5kg
19" rack height	4U
Depth	71cm
AC connectors	Push-in spring connectors: Rigid cable 0.2mm2 to 10mm2 Flexible cable 0.25mm2 to 6mm2
DC connectors	5.7mm Surlok
Solar PV connectors	MC4 Female: Staubli (Multi-Contact) PV-ADBP4-S2-UR-2,5 MC4 Male: Staubli (Multi-Contact) PV-ADSP4-S2-UR-2,5
Operating temperature	0 to +60°C (full rated operation up to 40°C)
Cooling	Forced air
Maximum altitude	2000m
Humidity (non-condensing)	95%
Protection grade	IP 20
Programmable relay (6)	Yes, (3A, up to 30Vdc)
Data communication	1x battery CAN port, 1x VE.Can port, VE.Direct port and Bluetooth
Remote on/off terminal	Yes
STANDARDS	
Electrical safety	EN-IEC 62109-1, EN-IEC 62109-2, Pollution degree 2
Emission / Immunity	EN-IEC 61000-3-11, EN-IEC 61000-3-12 IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-4

1) When both the inverter and solar are running at full power, derating on the solar and, in more severe cases, on the inverter can occur.

2) Peak power and duration depend on start temperature of heatsink. Mentioned times are with cold unit.

3) Efficiency reduces with higher battery voltages.

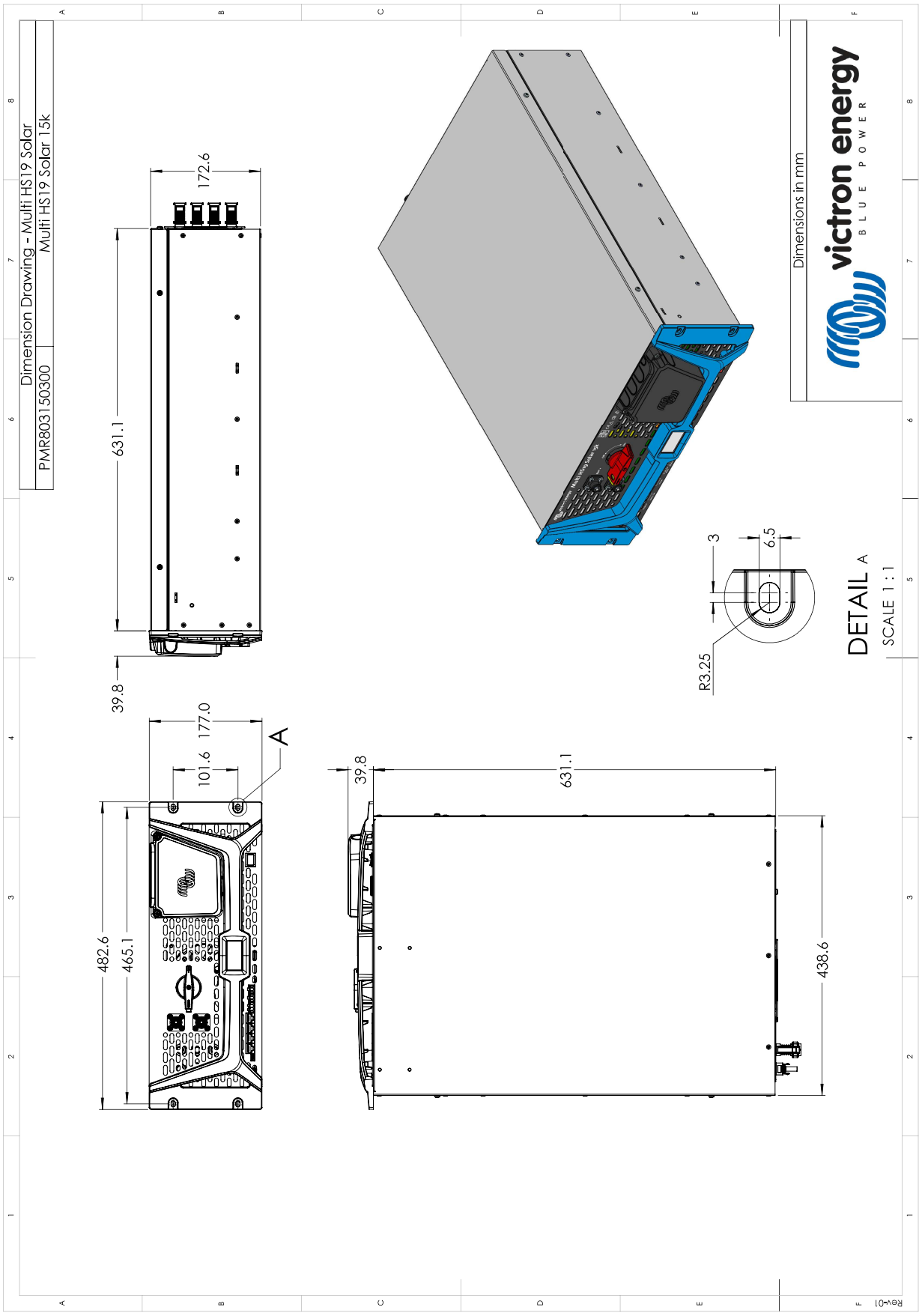
4) Minimum voltage for communication to start when the Multi HS19 is only powered by solar.

5) Check the manual for the full list of supported batteries.

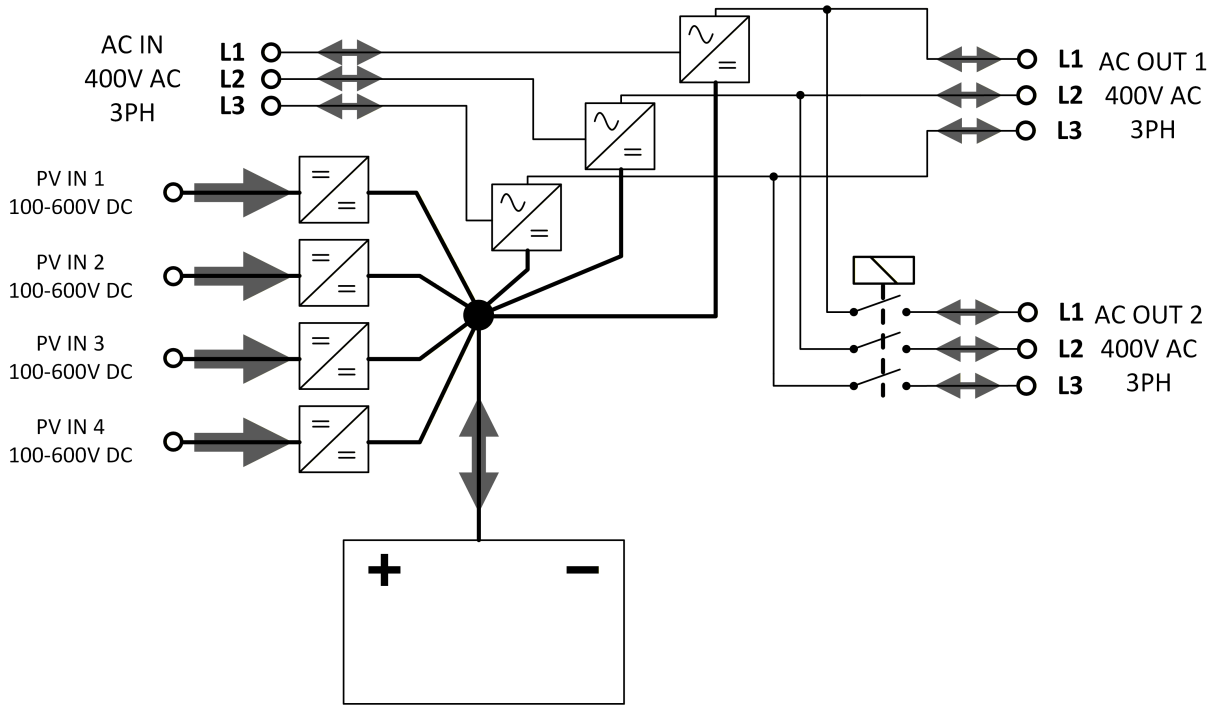
6) Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function.

7) Future hardware revisions will support parallel operation.

7.2. Dimensions



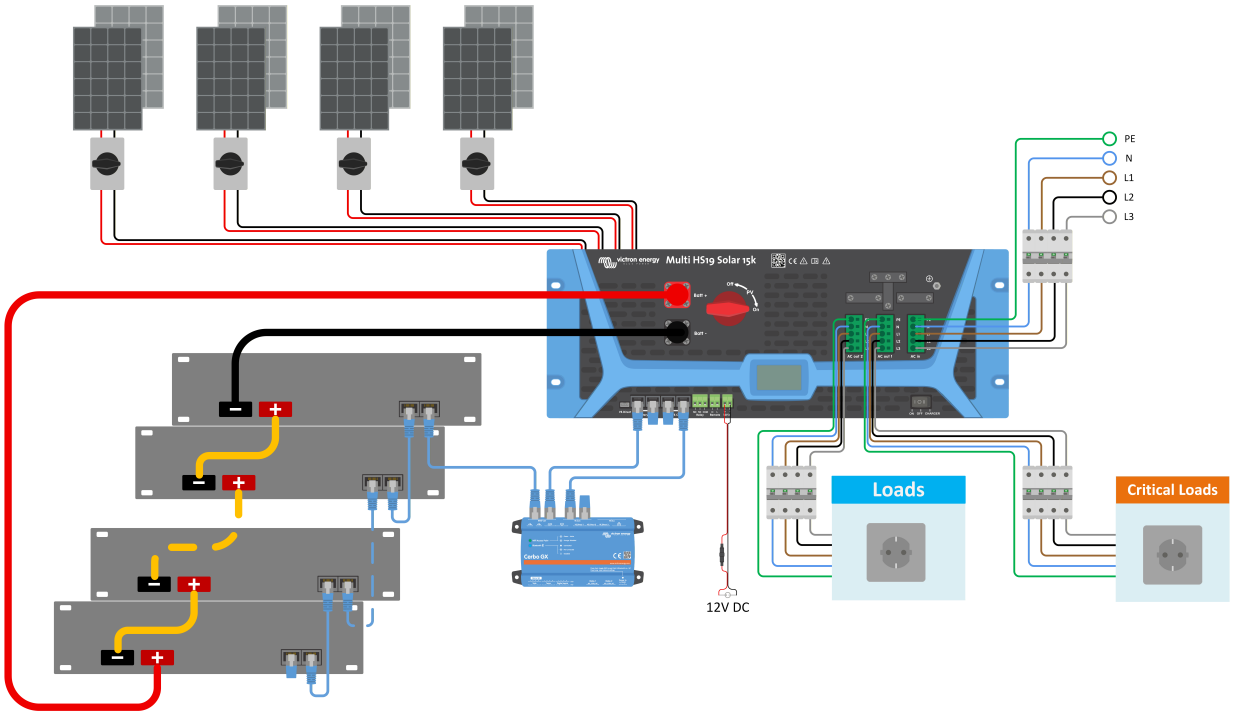
7.3. Internal block diagram



The battery is not galvanically isolated from the internal DC bus.

The battery terminals, PV MPPT inputs and inverter AC inputs and outputs ultimately all share a common internal DC bus and are not galvanically isolated from each other.

7.4. Example wiring diagram



⚠ Follow the battery manufacturer's guidance for battery overcurrent protection.

⚠ Ensure that the grounding requirements for your particular region are followed.

7.5. Compliance

EU & UK DECLARATION OF CONFORMITY

Manufacturer:	Victron Energy B.V.
Address:	PO Box 50016, 1305 AA Almere, The Netherlands
Product:	Multi HS19 Solar
Models:	15k
Directives:	**2014/53/EU and S.I. 2017/1206**

Hereby, Victron Energy B.V declares that the equipment types stated above are in compliance with Directive 2014/53/EU and S.I. 2017:1206.

Rev 01 - 06/2026

The complete product manual and the official EU & UK Declaration of Conformity can be downloaded from the Multi HS19 Solar 15k product page (scan the QR code or visit https://ve3.nl/7q), under 'Downloads' > 'Manuals' or 'Certificates'.

UK PSTI STATEMENT OF COMPLIANCE: We, Victron Energy B.V., confirm that our product Multi HS19 Solar 15k meets the security requirements for manufacturers outlined in Schedule 1 of the Product Security and Telecommunications Infrastructure (PSTI) Regulations 2023 No. 1007. For a full statement of compliance, visit https://ve3.nl/7q.