Isolated SmartSolar MPPT RS 450|100

5.76kW Solar Charge Controller with 450V PV input

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Ultra-fast Maximum Power Point Tracking (MPPT) Solar Charge Controller
The MPPT RS SmartSolar is a 48V Solar charge controller with up to 450VDC PV input and 100A output. It is used in on-grid and off-grid solar applications where maximum battery charging power is required.

Multiple independent MPPT tracking inputs
With multiple MPPT trackers, you can optimize your solar panel design for maximum performance for your specific location.

Isolated PV connections for additional safety
Full galvanic isolation between PV and battery connections provide additional overall system safety.

Wide MPPT voltage range
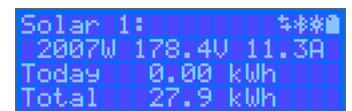80 – 450 VDC PV operating range, with a 120VDC PV startup voltage.

Light weight, efficient and quiet
Thanks to high frequency technology and a new design this powerful charger weighs only 7.9 kg. In addition to this it has an excellent efficiency, low standby power, and a very quiet operation.

Display and Bluetooth
The display reads battery, and solar charge controller parameters.
The parameters can be accessed with a smartphone or other Bluetooth enabled device. In addition, Bluetooth can be used to set up the system and to change settings with VictronConnect.

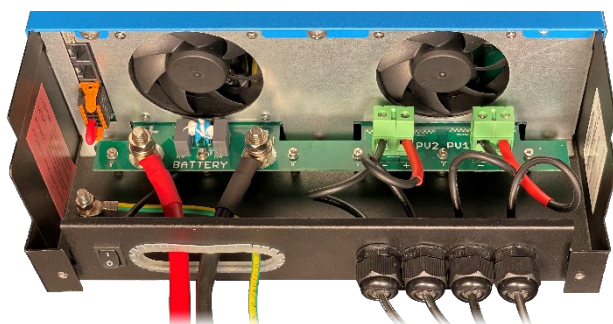### PV Isolation resistance monitoring for peace of mind at higher voltages
The MPPT RS continuously monitors the PV array and can detect if there are faults that reduce the isolation of the panels to unsafe levels.

VE.Can and VE.Direct port
For connection to a GX device for system monitoring, data logging, and remote firmware updates. VE.Can allows for up to 25 units to be connected together in parallel and synchronize their charging.

I/O Connections
Programmable Relay, temperature sensor, auxiliary, digital input and voltage sensor connections. The remote input can accept the Victron smallBMS, and other BMS with allow-to-charge signal.
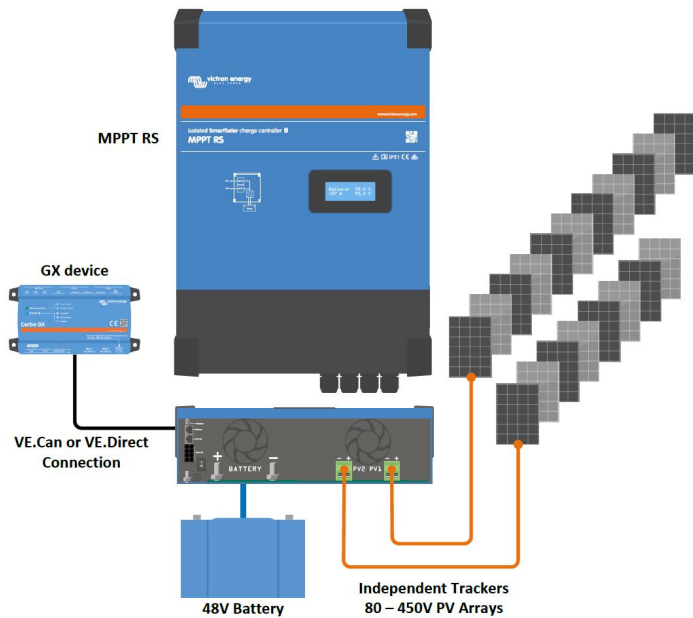

Inside the SmartSolar MPPT RS 450|100

Configure and monitor with VictronConnect

A built-in Smart Bluetooth connection allows for quick monitoring or settings adjustment of the MPPT RS.

The built in 30 day history shows individual performance of the separate MPPT trackers.

Try the VictronConnect demo to see the full range of configuration and display options with sample data.
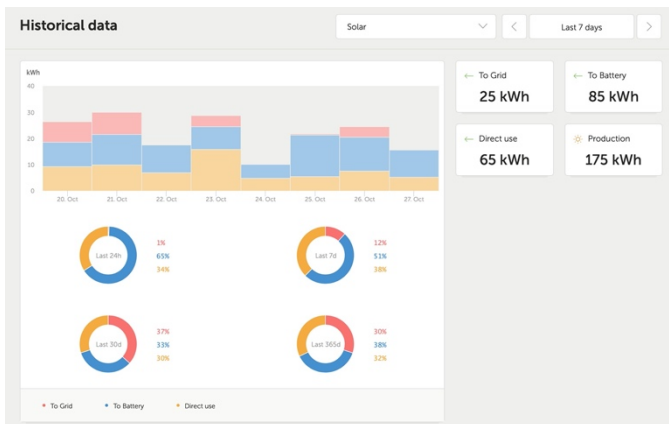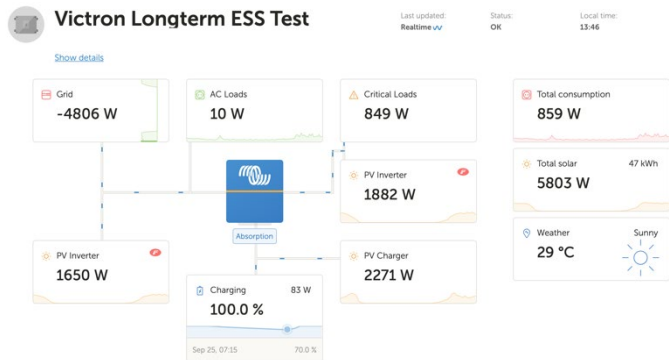
System example diagram

The MPPT RS combined with a GX device, charging a 48V battery with 2 separate solar PV strings.

VRM Portal

When the MPPT RS is connected to a GX device with internet connection, or the GlobalLink 520 with built in 4G connectivity, you can access our free remote monitoring website (VRM). This will display all your system data in a comprehensive graphical format. Alarms can be received by e-mail.

Isolated SmartSolar MPPT RS	450|100
SOLAR	
Maximum DC PV voltage	450 V
Start-up voltage	120 V
MPPT operating voltage range	80 – 450 V [1]
Number of trackers	2
Maximum operational PV input current	18 A per tracker
Max. PV short circuit current reverse polarity protection [2]	20 A per tracker
Maximum PV array size per tracker [3]	9000 Wp (450 V x 20 A)
Maximum DC output charging power	4000 W per tracker 5760 W total 100 A at 57.6 V
PV Isolation fail level [4]	100 kΩ
CHARGER	
Programmable charger voltage range [5]	Minimum: 36 V Maximum 62 V
Charge voltage 'absorption'	default: 57,6 V
Charge voltage 'float'	default: 55,2 V
Maximum charge current	100 A
Battery temperature sensor	Included
GENERAL	
Synchronised Parallel Operation	Yes, up to 25 units with VE.Can
Programmable relay [5]	Yes
Protection [6]	a, b, c
Data Communications	VE.Direct port, VE.Can port & Bluetooth [7]
General purpose analogue/digital in port	Yes, 2x
Remote on-off	Yes
Operating temperature range	-40 to +65°C (fan assisted cooling)
Humidity (non-condensing)	max 95%
ENCLOSURE	
Material & Colour	steel, blue RAL 5012
Protection category	IP22
Battery-connection	M8 bolts
Weight	7.9 kg
Dimensions (hxwxd)	440 x 313 x 126 mm
STANDARDS	
Safety	EN-IEC 62109-1, EN-IEC 62109-2

1) MPPT operating range is also constrained by battery voltage - PV VOC should not exceed 8x battery float voltage. For example, a 52,8V float voltage results in a maximum PV VOC of 422,4V. See product manual for further information.

2) A higher short circuit current may damage the controller if PV array is connected in reverse polarity.

3) Max. 450 Voc result in appr. 360 Vmpp, therefor the maximum PV array is appr. 360V x 20A = 7200Wp

4) The MPPT RS will test for sufficient resistive isolation between PV+ and GND, and PV- and GND. In the event of a resistance below the threshold, the unit will stop charging, display the error, and send the error signal to the GX device (if connected) for audible and email notification.

5) Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function. DC rating: 4A up to 35VDC and 1A up to 70VDC

6) Protection key:
   a) battery voltage too high
   b) battery voltage too low
   c) temperature too high

7) The MPPT RS is not currently compatible with VE.Smart Networks

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