

# Inverter RS Smart Solar 48/6000

With 450 V / 4kW PV input

[www.victronenergy.com](http://www.victronenergy.com)



**Inverter RS Smart Solar 48/6000**

### Off-Grid solar inverter

The Inverter RS Smart Solar 48/6000 is a 48 V 6 kVA Inverter with 450 VDC 4 kWp PV input. It is used in off-grid solar applications where AC power is required.

### Combination of an inverter, bi-directional DC-DC converter and MPPT

The inverter produces a perfect sine wave, able to supply high powered appliances. It is supplied by a bi-directional DC-DC converter, that can either charge the battery when excess solar power is available or convert from the battery when it is needed.

### Wide MPPT voltage range

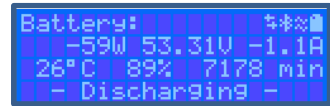
80 – 450 VDC, with a 120 VDC PV startup voltage.

### Light weight, efficient and quiet

Thanks to high frequency technology and a new design this powerful inverter weighs only 11 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, inverter and solar charge controller parameters. The same 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.



### VE.Can and VE.Direct port

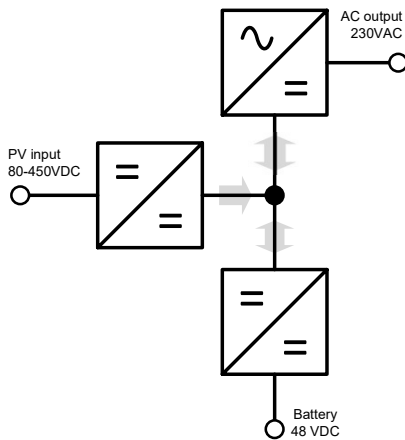
VE.Can connection to a GX device for system monitoring, data logging, and remote firmware updates. VE.Direct connection to a GlobalLink 520 for remote data monitoring.

### Built in PV isolator

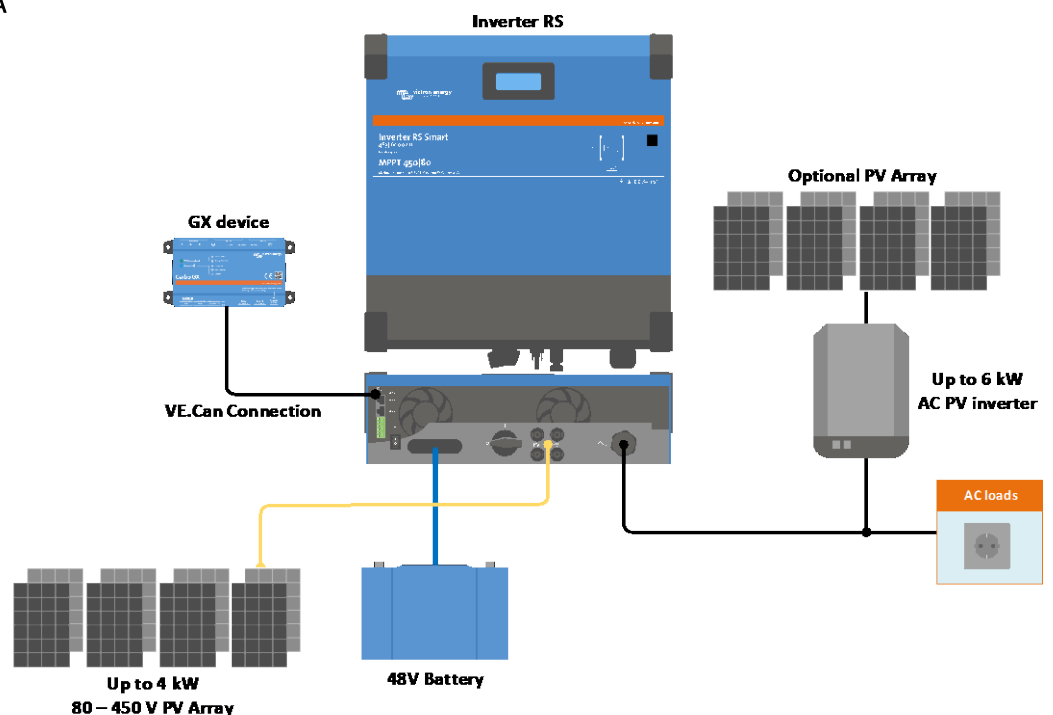
Both parallel PV strings connected to the MC4 plugs can be safely isolated with the large built-in switch on the bottom of the unit.

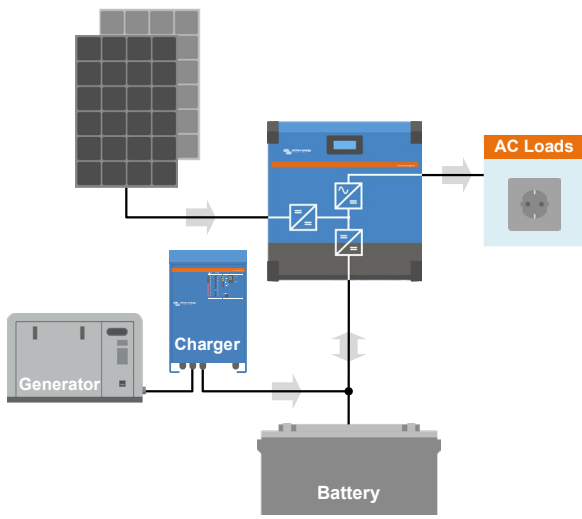
### I/O Connections

Programmable Relay, temperature sensor and voltage sensor connections. The remote input can also be configured to accept the Victron smallBMS.



**Inside the Inverter RS 48V 6000VA**





### System example with generator

Add a generator and external battery charger if additional power is needed.



### VRM Portal

When the Inverter RS is connected to a GX device with internet connection, you can access our free remote monitoring website (VRM). This will display all your system data in a comprehensive graphical format. System settings can be changed remotely via the portal. Alarms can be received by email.

Inverter RS Smart Solar		48/6000
<b>INVERTER</b>		
DC Input voltage range	38 – 62 V <sup>(6)</sup>	
Output	Output voltage: 230 VAC ± 2 % Frequency: 50 Hz ± 0.1 % <sup>(1)</sup> Maximum continuous inverter current: 25 Aac Increases linearly from 4800 W at 46 VDC to 5300 W at 52 VDC	
Continuous output power at 25 °C	4500 W	
Continuous output power at 40 °C	3000 W	
Continuous output power at 65 °C	9 kW for 3 seconds 7 kW for 4 minutes	
Peak power	45 A	
Short-circuit output current	96.5 % at 1 kW load 94 % at 5 kW load	
Maximum efficiency	20 W	
Zero load power	37.2 V (adjustable)	
Low Battery shutdown	43.6 V (adjustable)	
Low Battery restart		
<b>SOLAR</b>		
Maximum DC voltage	450 V	
Nominal DC voltage	300 V	
Start-up voltage	120 V	
MPPT operating voltage range	80 – 450 V <sup>(5)</sup>	
Max operational PV input current	18 A <sup>(4)</sup>	
Max PV Short circuit current reverse polarity protection	20 A	
Maximum DC solar charging power	4000 W	
Max PV short circuit current (Isc PV)	30 A	
Earth leakage trip level	30 mA	
Isolation fail level (detection before start-up)	100 kΩ	
<b>CHARGER</b>		
Programmable Charger voltage range (VDC)	36 – 60 V <sup>(7)</sup>	
Charge voltage 'absorption' (VDC)	Default setting: 57,6 V (adjustable)	
Charge voltage 'float' (VDC)	Default setting: 55,2 V (adjustable)	
Maximum AC coupled solar charging power <sup>(9)</sup>	5000 W	
Maximum combined charger current	100 A <sup>(8)</sup>	
Battery temperature sensor	Included	
Battery voltage sense	Yes	
<b>GENERAL</b>		
Parallel and 3-phase operation	12 parallel units supported, 3 phase supports 4 units per phase	
Programmable relay <sup>(3)</sup>	Yes	
Protection <sup>(2)</sup>	a - g	
Data Communications Ports	VE.Direct port and VE.Can port (**)	
Bluetooth frequency	2402 – 2480 MHz	
Bluetooth power	4dBm	
General purpose analogue/digital in port	Yes, 2x	
Remote on-off	Yes	
Operating temperature range	-40 to +65 °C (fan assisted cooling)	
Maximum altitude	2000 m	
Humidity (non-condensing)	max 95 %	
<b>ENCLOSURE</b>		
Material & Colour	steel, blue RAL 5012	
Protection category	IP21 Protective Class: I	
Battery-connection	M8 bolts	
230 VAC-connection	Screw terminals 10 mm <sup>2</sup> (6 AWG)	
Weight	11 kg	
Dimensions (hwxwx d)	425 x 440 x 125 mm	
<b>STANDARDS</b>		
Safety	EN-IEC 60335-1, EN-IEC 60335-2-29, EN-IEC 62109-1, EN-IEC 62109-2	
Emission, Immunity	EN 55014-1, EN 55014-2 EN-IEC 61000-3-2, EN-IEC 61000-3-3 IEC 61000-6-1, IEC 61000-6-2, IEC 61000-6-3, Pollution degree 2	

- 1) Can be adjusted to 60 Hz.
  - 2) Protection key: a) output short circuit b) overload c) battery voltage too high d) battery voltage too low e) temperature too high f) 230 VAC on inverter output g) Solar earth leakage.
  - 3) Programmable relay which can be set for general alarm, DC under voltage or genset start/stop function. DC rating: 4 A up to 35 VDC and 1 A up to 70 VDC.
  - 4) Normal operation is regulated to 18 A, with maximum reverse polarity protection 20 A.
  - 5) MPPT operating range is also constrained by battery voltage - PV VOC should not exceed 8x battery float voltage, e.g. a 50V battery voltage maximum should have 400 V maximum PV array - see product manual for further information.
  - 6) Minimum start-up voltage is 41 V. Inverter shutdown can be set as low as 32 VDC, but may shut down on low AC output voltage (due to load). Over-voltage disconnect is 65.5 V.
  - 7) The Charger set-point (float and absorption) can be set to max 60 V. The output voltage at the charger terminals can be higher, due to temperature compensation as well as compensation for voltage drop over the battery cables. The maximum output current is reduced on a linear basis from full current at 60 V to 5 A at 62 V. The equalization voltage can be set to max 62 V, the equalization current percentage can be set to max 6 %.
  - 8) Maximum charging current from AC and DC sources varies with AC and DC voltages. See product manual for more detailed limitation specifications due to these variables.
  - 9) AC coupled solar charging requires an external PV inverter to be connected on a circuit at the AC output of the Inverter RS Solar.
- \*\* Note only the VE.Can port can be used for connection to a GX device. The VE.Direct port supports the GlobalLink 520.