

MPPT-Solar charge controller SMR1500

Description:

This charger in processor technique contains all functions for smooth charging of lead Batteries by solar modules of 1800Wp at 24V- and 900Wp at 12V-Systems.

Because of the powertracking it is possible to increase the electrical power of a solar system up to 40%, than standart charger can do.

The maximum solar voltage can be for a 12V-system as well as for a 24V-system and 48V-System 200V. (Open circuit voltage)

This buck converter feeds the maximum possible current from the power maximum into the Battery. As soon as the Battery is full and reaches its maximum voltage (14.5V/29.0V/58.0V) the charger drives the solar voltage towards open circuit voltage, preventing overcharging of the Battery.

Deep discharge protection is activatet with 60 Seconds delay. Switch off is done by a Power Mosfet on the ground level. Indication of consumer switch off, by a red LED. Yellow LED on shows battery full. The green LED indicates solar current.

A temperature sensor tracks the maximum Battery voltage at $-4mV/^{\circ}C$ /Battery cell.

The powertracking system is utilized every 8 seconds to optimize the solar power point.

A battery management system allows adaptation to different battery types and optimal use of the battery capacity, including automatic and manual equalization controll.

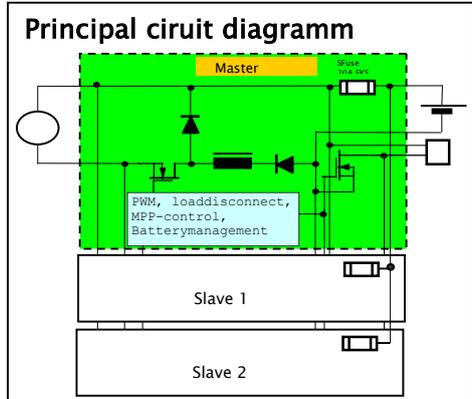
Optionally a LCD, can be added, displaying Battery voltage, Battery current and ampere hours.

Optionally a RS232 can be added.



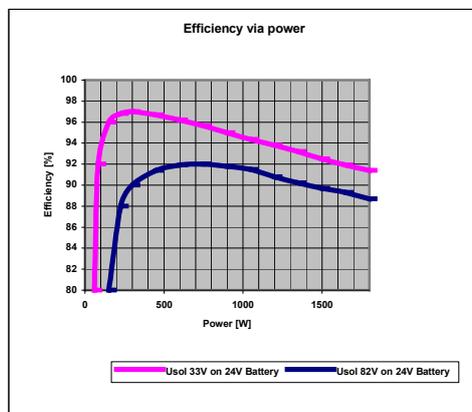
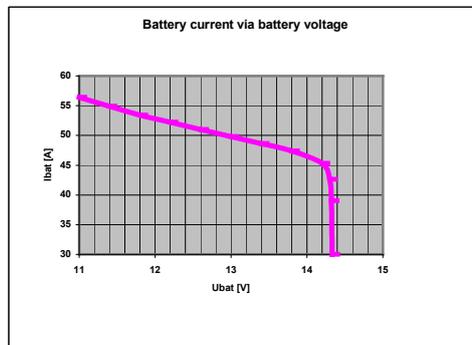
Highlights:

- * DC-Converter to adapt battery to solar voltage
- * MPPT-Tracking of solar power
- * Selection of 3 Battery voltages 12V/24V/48V
- * Deep discharge protection short cut protected
- * Option: Temperature tracking of Battery voltage
- * Option: LCD for Battery voltage, -current, power and energy (kilowatt hour meter).



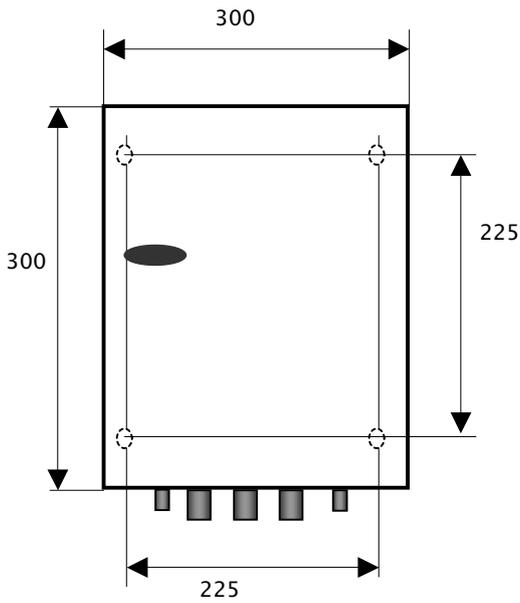
Technical Data:

	12V-Battery	24V-Battery	48V-Battery
Max. solar open circuit voltage, U _{oc}	200V	200V	200V
Max. solar current	65A	63A	39A
Max. charge current	60A	60A	37.5A
Max. solar power, P _{nom}	935Wp	1813Wp	2266Wp
Efficiency	Ca. 93% @ 0.5P _{nom}	Ca. 96% @ 0.5P _{nom}	Ca. 96% @ 0.5P _{nom}
End of charge voltage	14.5V	29.0V	58V
Deep discharge protection	10.8V Battery voltage with 60 Sec. Delay	21.6V Battery voltage with 60 Sec. delay	43.2V Battery voltage with 60 Sec. delay
Load disconnect (short cut protected)	12.5V	25.0V	50.0V
Load reconnect	37.5A	37.5A	37.5A
Max. consumer current	13mA	13mA	13mA
Current consumption	13mA		
Terminals	3x solargenerator 2x battery output 2x consumer outp. 2x temp. sensor 2x pot.free contacts 1x Earth		
Temperatur sensor	KTY10-5 or 1.91 kOhm		
Cable glands	3xPG16, 2xPG7		
LED's	right: yellow (Indication of max Battery voltage) left: green (Battery current > 0.5A) middle: red (consumer off)		
housing	Steel wall mounted wxhxd 300x300x150mm		
protection	IP55		
weight	15kg		
Moisture	90% (coating)		
Operating Temperature	-20°C to +50°C		



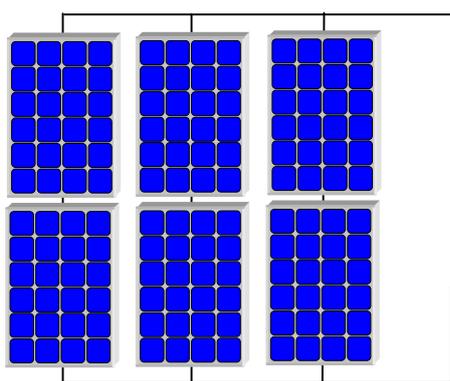
Technical data are subject to change

Housing dimensions:

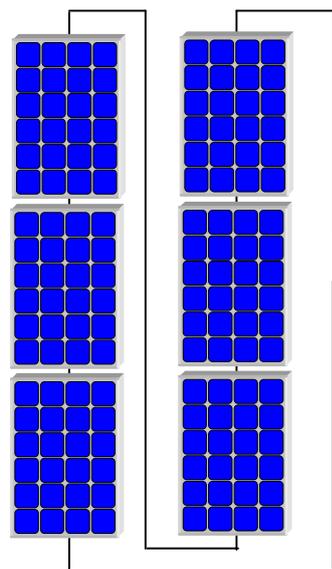
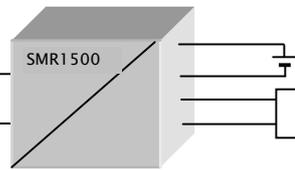


Height=150mm
Mounting holes in bottom of housing
D=10mm

Applications:



Configuration with optimum efficiency:
2 Modules string, 72 Zellen.
Umpp=34V, Usoc=41.5V
Pnom=1680Wp,
Efficiency=96% at 0.1Pnom
95% at 0.5Pnom, 92% at 1Pnom
24V-Battery system, I_{Battery}=60A



Configuration with maximum Solarvoltage:

6 Modules string, 216 Cells.
Umpp=102V, Usoc=124V
Pnom=1680Wp,
Efficiency=81% at 0.1Pnom
91% at 0.5Pnom, 89% at 1Pnom
24V-Battery system, I_{Battery}=60A

Connection diagram

