# MPPT- Solar Charge Controller SMR1000Li

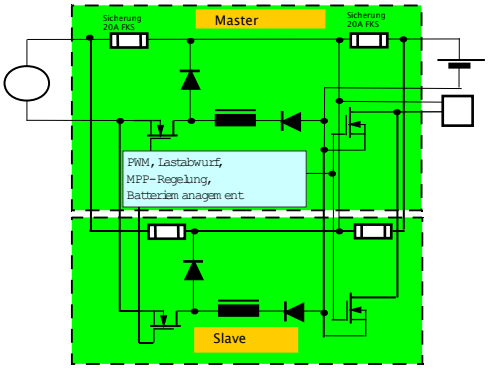
## Description:

The SMR1000 consists of 2x SMR500-MPP-Modules, of 1 Master and 1 slave. The charge current and consumer current is divided 1:1. The automatic electronic controll ajusts the exact proportion of current for each module.
This charger in processor technique contains all functions for smooth charging of **Lithium Batteries** by solar modules of 70Wp at 48V-, 560Wp at 24V- and 280Wp at 12V-Battery Systems. High precision voltage controll allows save management of Lithium batteries.
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 150V. (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 (14.4V/28.8V/57.6V) the charger drives the solar voltage towards open circuit voltage, preventing overcharging of the Battery. A yellow LED indicates this state of charge.
Deep discharge protection is activatet with 60 Seconds delay. Switching is done by a Power Mosfet on the ground level. Indication of consumer switch off by a red LED.
The green LED indicates solar current.
The powertracking system is utilized every 8 seconds to optimize the solar power point.
This charge controller should only be used for Lithium Batteries together with a Charge Balancing System.

## Highlights:

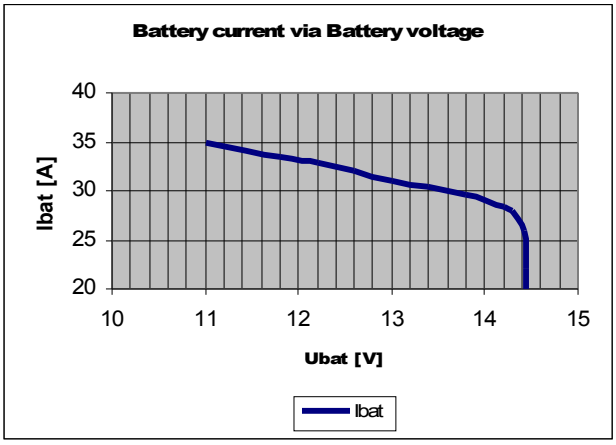
*** DC-Converter to optimize solar power income**
***MPP-Tracking of solar voltage**
***Selection of 3 Battery voltages 12V/24V/48V**
***Indication of state of charge per LED**
***Deep discharge protection**
*** overvoltage protection for Lithium batteries**
*** precision end of charge voltage regulation**
***Option: LCD for Solar-, Battery voltage, -current, Power, Energy**

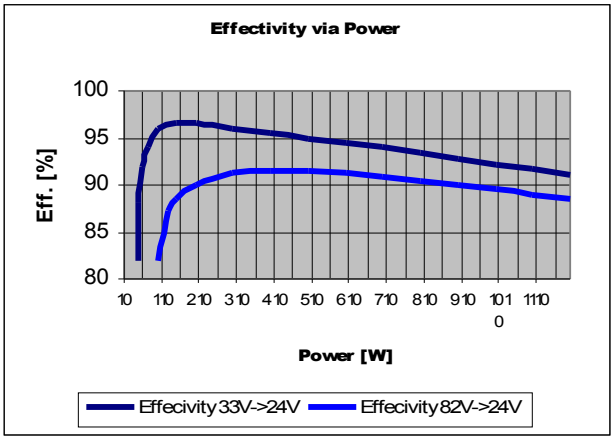
## Principal circuit diagram




## Technical data for Highpower,LiFePo4 charge control:

| | 12V-Battery | 24V-Battery | 48V-Battery |
|---|---|---|---|
| Max. solar open circuit voltage, Usoc | 150V | 150V | 150V |
| Max. solar current | 40A | 40A | 25A |
| Max. charge current | 40A | 40A | 25A |
| Max. solar power, Pnom | 560Wp | 1120Wp | 1410Wp |
| Efficiency | Ca. 93% @ 0.5Pnom | Ca. 96%@ 0.5Pnom | Ca. 96% @ 0.5Pnom |
| End of charge voltage (±2% at -25°C to 60°C) | 14.4V | 28.8V | 57.6V |
| Overvoltage protection | 15,1V | 30.2V | 60.4V |
| Deep discharge protection<br>Load disconnect (±2%)<br><br>Load reconnect | 10.3V, with 1s delay<br>12.5V | 20.6V, with 1s delay<br>25.0V | 41.2V, with 1s delay<br>50.0V |
| Current consumption | 7mA | 7mA | 7mA |
| Terminals:<br>2x Solar generator<br>2x Battery output<br>2x consumer output<br>2x temperture sensor | 16sqmm/10sqmm<br>16sqmm/10sqmm<br>16sqmm/10sqmm<br>1.5sqmm | | |
| Temperatur sensor | KTY10-5 or 1.91kOhm | | |
| Cable glands | 3xPG16, 1xPG7 | | |
| LED's | right: yellow (Indication of max Battery voltage)<br>left: green (Battery current>0.5A)<br>middle: red (consumer off) | | |
| housing | Steel wall mounted wxhxd 300x300x150mm | | |
| protection | IP65 | | |
| weight | 11kg | | |
| Moisture | 90% (coating) | | |
| Operating Temperature | -25°C to +60°C | | |

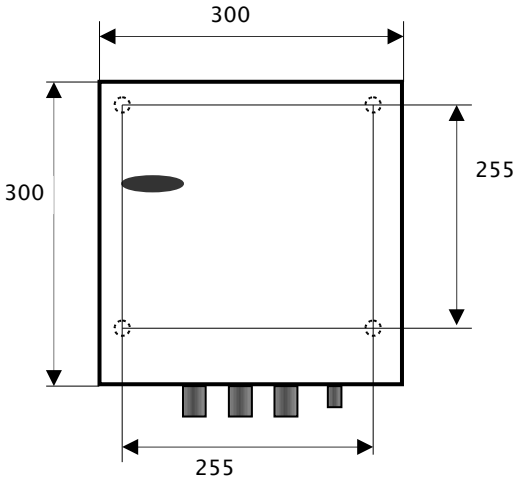



33V & 82V Solarvoltage to 24V Battery

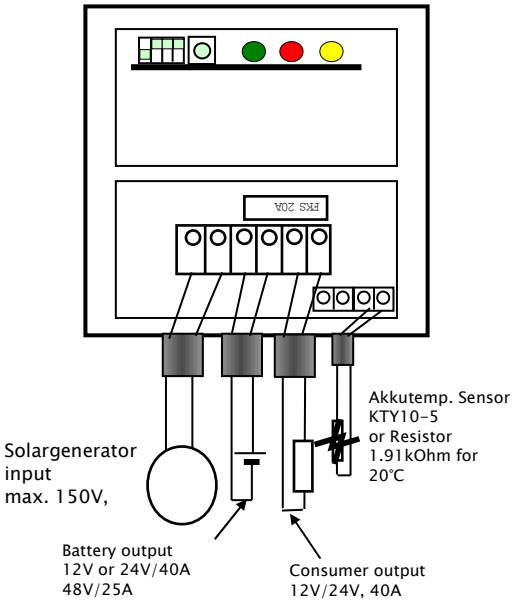
Technical data are subject to change

## Housing dimensions:

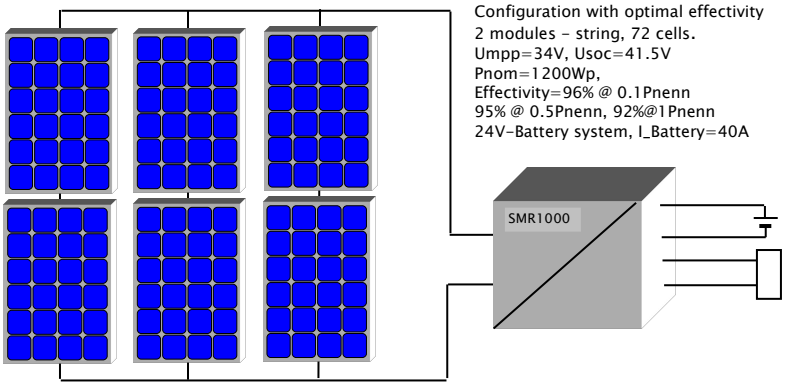



Height=150mm
Mounting holes in bottom of housing
D=10mm

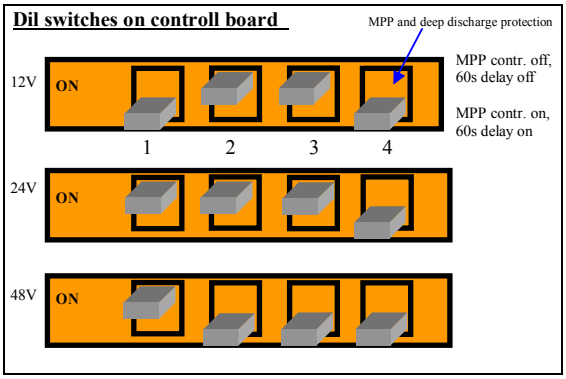
## Connection diagram

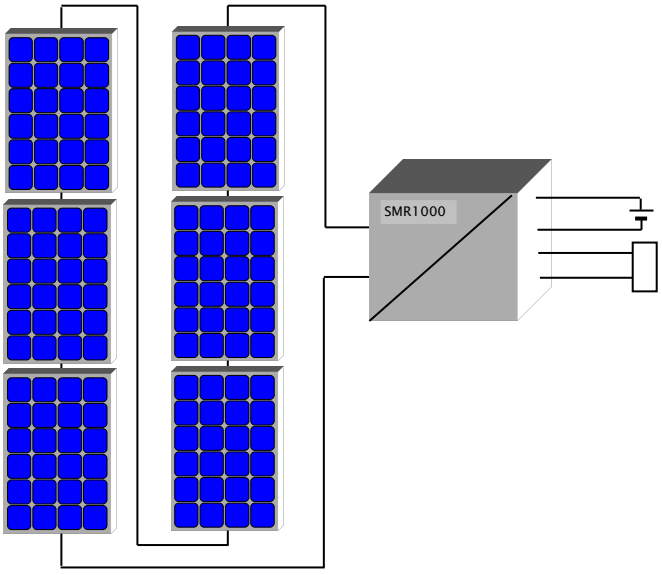



## Applications:




Configuration with optimal effectivity
2 modules - string, 72 cells.
Umpp=34V, Usoc=41.5V
Pnom=1200Wp,
Effectivity=96% @ 0.1Pnenn
95% @ 0.5Pnenn, 92%@1Pnenn
24V-Battery system, I_Battery=40A




Configuration with
maximum Solar voltage
6 modules - string, 216
cells.
Umpp=102V, Usoc=124V
Pnom=1200Wp,
Effectivity=81%@ 0.1Pnom
91% @ 0.5Pnom, 89% @1Pnom
24V-Batterysystem,
I_Battery=40A