

# ENERGY – ALMOST FREE

## VOTRONIC – The specialists for professional solar charging technology

### PRODUCT FEATURES

- 2 different control methods available, SR and MPP
- High operating safety by micro-controller
- Charging programs adjustable for lead-acid, gel and AGM, as well as LiFePO4 batteries
- Temperature compensation
- Recharging or trickle charging of the vehicle's starter battery
- Control refrigerator AES
- Continuous control, immediate recharging
- 5 LED pilot lamps at the unit
- Suitable for any conventional solar module
- Option: Plug-and-Play Power Measurement Unit LCD-Solar-Computer S
- Option: Display on a mobile terminal device via Bluetooth-Connector with free app

When travelling with a camper, caravan or boat, everyone prefers to be free and independent from country current connections. To satisfy this demand, only a correctly dimensioned solar system is required, which is adapted to the user and its current consumption. Moving autonomously and independent of country current connections is possible with a solar system. The solar charging controller is the link between solar module and board battery ensuring automatic and correct charging of the battery.

The appliance range is completed by an energy and power measurement unit for the solar system. On the one hand, the VOTRONIC LCD Solar Computer S serves for measurement and display of the instantaneous capacity of the solar system, and, on the other hand, for storage of the measuring values for determination of the yield of a defined period. The unit is adapted to the VOTRONIC modular system (height 85 mm) and can simply be connected to the solar charging controller due to the plug-and-play design. We also recommend the multi panel systems of the series VPC (Votronic Power Control) giving information about the solar charging controller and - depending on the execution - further measuring values, such as the levels of fresh water tanks or sewage water tanks.

Even the display of the information of the solar charging controller on a mobile phone or tablet is possible. For this purpose, an additional communication module (Bluetooth Connector S-BC) will be installed in the connection between Solar Charging Controller and LCD Solar Computer S, which communicates the data to the mobile terminal device via Bluetooth. Of course, the corresponding app for the Energy Monitor is free of charge.

### SOLAR CHARGING CONTROLLER SR TECHNOLOGY

Unit Type	SR 140 Duo Dig.	SR 220 Duo Dig.	SR 330 Duo Dig.	SR 530 Duo Dig.	SR 300-24 Duo Dig.
Order No.	1610	1615	1620	1625	6615
Battery Voltage	12 V	12 V	12 V	12 V	24 V
Capacity Solar Module (Pmax)	30-140 Wp	40-220 Wp	50-330 Wp	50-530 Wp	50-300 Wp
Current Solar Module max.	9 A	14 A	21 A	33 A	10 A
Voltage Solar Module (Voc) max.	28 V	28 V	28 V	28 V	50 V
Charging Current Bord-/Starter Battery max.	9.0/0.8 A	14.0/0.8 A	21.0/1.5 A	33.0/1.5 A	10.0/0.8 A
Temperature Compensation	●	●	●	●	●
Switching Output AES Refrigerator	—	—	12V/0.2 A	12V/0.2 A	—
Connection Solar Computer S, ready to plug in	●	●	●	●	●
Output for EBL Solar Power Display	●	●	●	●	—
Dimensions* (WxDxH)	77x131x40 mm	77x131x40 mm	77x131x40 mm	77x131x40 mm	77x131x40 mm
Weight	150 g	155 g	165 g	170 g	155 g
Charging Programs for Acid/Gel/AGM	3	3	3	3	4
Charging programs for current LiFePO4 complete batteries with BMS	5	5	5	5	—



## SOLAR CHARGING CONTROLLER IN SR TECHNOLOGY

### Effective, cost-efficient battery charging for camper, caravan and boat

#### Available executionen for charging

##### 12 V batteries:

Max. charging current: 9, 14, 21, 33 A

##### 24 V batteries:

Max. charging current: 10 A



The VOTRONIC Solar Controllers of series SR are working automatically and ensure optimum charging of the board batteries without overcharging. An intelligent microprocessor control ensures exact observation of the charging voltage rates and of the charging current rates according to the specifications of the battery manufacturers. Furthermore, it supervises the battery and recharges the battery immediately in case of power consumption. Temperature-compensated charging of lead-acid, gel and AGM batteries is possible by means of an optional temperature sensor 825 via the main charging port. The second charging port is provided for support charging and trickle charging of the vehicle's starter battery. The decisive factor for the choice of the suitable charging controller is the maximum capacity (Wp) of the solar module. If subsequent retrofitting of a solar module is planned, the size of solar controller is already to be chosen correspondingly larger.



#### ✓ OUR TIP

With the Bluetooth Connector S-BC (see page 68/69) and the free Energy Monitor App all values can also be displayed on a mobile phone or tablet.



B2B

DC/DC



## PRODUCT FEATURES

- Maximum solar-energy-usage done by MPP technology
- Small, lightweight and compact
- High operating safety by microcontroller
- Charging programs adjustable for lead-acid, gel and AGM, as well as LiFePO4 batteries
- Temperature compensation
- Recharging or trickle charging of the vehicle's starter battery
- Control refrigerator AES
- Stepless control, instant recharging
- 5 LED pilot lamps at the unit
- Suitable for any conventional solar modules
- Optional: Plug and Play remote-display LCD-Solar-Computer S
- Optional: Display on a mobile terminal device via Bluetooth-Connector with free app

The VOTRONIC Solar Controllers in MPP technology are the royal class of solar charging controllers. A microprocessor uses the maximum power point (MPP) of the solar module and determines the maximum power yield of the solar system several times a second. The voltage surplus will be transformed into a higher charging current for the battery. This surplus of charging current ensures short charging times and the best possible power yield of the solar system. The design of the MPP controllers is more complex due to the high-frequency switching controller technology. Particularly high-quality components are reducing the losses to a minimum. In contrast to conventional controllers, the charging current of VOTRONIC MPP Solar Controllers is increased by approx. 10-30 %. This advantage shows particularly in cooler times of the year, in cooler holiday regions, or in case of solar modules with increased number of cells. Solar modules with a permanently higher solar module voltage combined with a MPP controller generate maximum capacity on a small surface. The VOTRONIC Solar Controllers of series MPP are working automatically and ensure optimum charging of the board batteries without overcharging. An intelligent microprocessor control ensures exact observation of the charging voltage rates and of the charging current rates according to the specifications of the battery manufacturers. Furthermore, it supervises the battery and recharges the battery immediately in case of power consumption.

With the main charging port, charging of the following batteries is possible:

- Lead-acid, gel- and AGM batteries and
- advanced lithium-LiFePO4-batteries. The second charging port is provided for support charging and trickle charging of the vehicle's lead starter battery.

### ✓ OUR TIP

With the Bluetooth Connector S-BC (see page 68/69) and the free Energy Monitor App all values can also be displayed on a mobile phone or tablet.

## SOLAR CHARGING CONTROLLER MPP TECHNOLOGY

Unit Type	MPP 165 Duo Dig.	MPP 250 Duo Dig	MPP 350 Duo Dig.	MPP 430 Duo Dig.
Order No.	1710	1715	1720	1725
Battery Voltage Blei / LiFePO4	12 V / 12.0-13.3 V	12 V / 12.0-13.3 V	12 V / 12.0-13.3 V	12 V / 12.0-13.3 V
Capacity Solar Module (Pmax)	40-165 Wp	40-250 Wp	50-350 Wp	50-430 Wp
Current Solar Module max.	10 A	15 A	21 A	26 A
Voltage Solar Module (Voc) max.	50 V	50 V	50 V	50 V
Charging Current Bord-/Starter Battery max.	12.0/1.0 A	18.0/1.0 A	25.5/1.0 A	31.5/1.0 A
Lead Temperature Compensation/LiFePO4 Protection	●/●	●/●	●/●	●/●
Switching Output AES Refrigerator	—	12 V/0.2 A	12 V/0.2 A	12 V/0.2 A
Connection Solar Computer S, ready to plug in	●	●	●	●
Output for EBL Solar Power Display	●	●	●	●
Dimensions* (WxDxH)	77x131x40 mm	77x131x40 mm	77x131x40 mm	77x131x40 mm
Weight	225 g	235 g	285 g	285 g
Charging programs for Acid, Gel and AGM	3	3	3	3
Chargers with temperature protection for current LiFePO4 complete batteries with BMS	5	5	5	5

\* Dimensions incl. mounting flanges, without connections

Delivery Scope: Manual

# SOLAR CHARGING CONTROLLER IN MPP-TECHNOLOGY

Optimum solar-energy-usage due to 10% to 30% higher charging current

ADJUSTABLE  
LIFEPO4-  
BATTERIES



### Available executionen for charging

12 V batteries:

Max. charging current: 12, 18, 25.5, 31.5 A



### RECOMMENDED ACCESSORIES SR AND MPP



Order No. 1250  
LCD Solar Computer S



Order No. 2001/2088  
Temperature Sensor 825/625

Order No. 2007  
Cable-Set for connecting the solar-chargers to an  
EBL with Solar-Current-Indicator  
(See Accessories on page 106)

### GENERAL TECHNICAL DETAILS OF THE SOLAR CHARGING CONTROLLERS SERIES SR AND MPP

Overcharge Protection	●
Characteristic Line of Charging	IU1oU2
Reverse Current Protection (Night Operation)	●
Integrated On-Board Mains Suppression Filter, unproblematic parallel Operation of Chargers, Dynamos, Generators at the same Battery	●
Protection against Overload, Overheating, Short-Circuit, Reverse Battery	●
Automatic Battery Temperature Compensation, designed separately for Acid, Gel and AGM batteries, Temperature Sensor 825/625, Order No. 2001/2088, required	●
Automatic Compensation of Voltage loss on the Charging Cables	●
Overtoltage Limitation for Protection of sensitive Consumers	●
Ambient Temperature Range	-20 to +45 °C
Mark of Conformity	CE, ETest (EMV/automotive Regulations)

