

Energy - almost free

VOTRONIC - The specialists for professional solar charging technology

PRODUCT FEATURES

- 2 different control methods available, SR and MPP
- Small, lightweight and compact
- 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

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 VOTRONIC Charging Controllers are suitable for any conventional solar module. Two control methods are at disposal: The simple, cost-economic series controller technology (series SR) and the complex maximum power point control method (series MPP). The efficient charging controllers of series SR and MPP are equipped with a special feature: the terminal "AES". In case of sufficient excess power of the solar modules, this terminal "AES" switches Electrolux refrigerators automatically from gas operation to 12 V operation.

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 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 and can simply be connected to the solar charging controller due to the plug-and-play design.

SR Technology Solar Charging Controller



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)	131x77x40 mm	131x77x40 mm	131x77x40 mm	131x77x40 mm	131x77x40 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 some of the latest LiFePO4 Battery-Systems (with BMS inside)	5	5	5	5	—

Solar Charging Controller in SR Technology

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



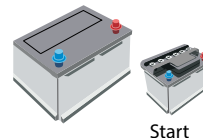
Available executionen for charging

12 V batteries:

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

24 V batteries:

Max. charging current: 10 A



Start

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

Charging of lead batteries is strongly depending on the temperature. Therefore, a temperature sensor 825 or a temperature sensor 625 should be used for full charging of gel and AGM batteries.

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

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

Charging of lead batteries is strongly depending on the temperature. Therefore, a temperature sensor 825 or a temperature sensor 625 should be used for full charging of gel and AGM batteries.

MPP Technology Solar Charging Controller



Unit Type	MPP 165 Duo Dig.	MPP 250 Duo Dig.	MPP 350 Duo Dig.	MPP 430 Duo Dig.	MPP 480/24 Duo Dig.
Order No.	1710	1715	1720	1725	6137
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	24 V / –
Capacity Solar Module (Pmax)	40-165 Wp	40-250 Wp	50-350 Wp	50-430 Wp	50-480 Wp
Current Solar Module max.	10 A	15 A	21 A	26 A	14 A
Voltage Solar Module (Voc) max.	60 V	60 V	60 V	60 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	18.0/1.0 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)	131x77x40 mm	131x77x40 mm	131x77x40 mm	131x77x40 mm	160x100x71 mm
Weight	190 g	210 g	250 g	260 g	670 g
Charging programs for Acid, Gel and AGM	3	3	3	3	3
Charging programs for some of the latest LiFePO4 Battery-Systems (with BMS inside)	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 for LiFePO4-Batteries

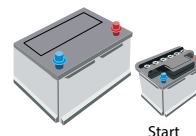
Available executionen for charging

12 V batteries:


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

24 V batteries:


Max. charging current: 18 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	●
Overvoltage Limitation for Protection of sensitive Consumers	●
Ambient Temperature Range	-20 to +45 °C
Mark of Conformity	CE, E Test (EMV/automotive Regulations)