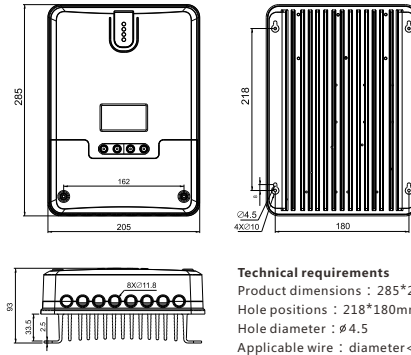


ML Series Maximum Power Point Tracking Solar Charge and Discharge Controller

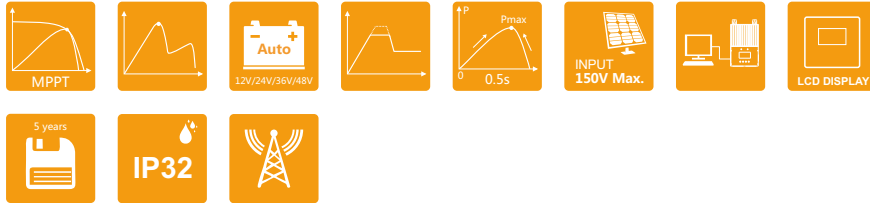
SR-ML4860



SR-ML4860



Features



- With the advanced dual-peak or multi-peak tracking technology, when the solar panel is shadowed or part of the panel fails resulting in multiple peaks on the I-V curve, the controller is still able to accurately track the maximum power point.
- A built-in maximum power point tracking algorithm can significantly improve the energy utilization efficiency of photovoltaic systems, and raise the charging efficiency by 15% to 20% compared with the conventional PWM method.
- A combination of multiple tracking algorithms enables accurate tracking of the optimum working point on the I-V curve in an extremely short time.
- The product boasts an optimum MPPT tracking efficiency of up to 99.9%.
- Advanced digital power supply technologies raise the circuit's energy conversion efficiency to as high as 98%.
- Different charging program options including those for gel batteries, sealed batteries and open batteries, customized ones, etc. are available.
- The controller features a limited current charging mode. When the solar panel power exceeds a certain level and the charging current is larger than the rated current, the controller will automatically lower the charging power and bring the charging current to the rated level.
- Instantaneous large current startup of capacitive loads is supported.
- Automatic recognition of battery voltage is supported.
- LED fault indicators and an LCD screen which can display abnormality information help users to quickly identify system faults.
- Historical data storage function is available, and data can be stored for up to a year.
- The controller is equipped with an LCD screen with which users can not only check device operating data and statuses, but also modify controller parameters.
- The controller supports standard Modbus protocol, fulfilling the communication needs of various occasions.
- All communications are electrically isolated, so users can rest assured in usage.
- The controller employs a built-in over-temperature protection mechanism. When temperature surpasses the set value, the charging current will decline in linear proportion to the temperature and discharging will be halted so as to curb the temperature rise of the controller, effectively keeping the controller from being damaged by overheating.
- With the help of an external battery voltage sampling function, battery voltage sampling is exempted from the effect of line loss, making control more precise.
- Featuring a temperature compensation function, the controller can automatically adjust charging and discharging parameters in order to extend the battery's service life.
- The controller also features a battery over-temperature protection function, and when the external battery temperature exceeds the set value, charging and discharging will be shut off so as to protect components from being damaged by overheating.
- TVS lightning protection

Parameter

Parameter	Value
Model	ML4860
System voltage	12V/24V/36V/48V Auto
No-load loss	0.7 W to 1.2W
Battery voltage	9V to 70V
Max. solar input voltage	150V (25°C), 145V (-25°C)
Max. power point voltage range	Battery voltage +2V to 120V
Rated charging current	60A
Rated load current	20A
Max. capacitive load capacity	10000uF
Max. photovoltaic system input power	800W/12V; 1600W/24V; 2400W/36V; 3200W/48V
Conversion efficiency	\leq 98%
MPPT tracking efficiency	$>$ 99%
Temperature compensation factor	-3mv/°C/2V (default)
Operating temperature	-35°C to +45°C
Waterproof level	IP32
Weight	3.6kg
Communication method	RS232 RS485
Altitude	\leq 3000m
Product dimensions	285*205*93mm

Comparison Table of Parameters for Each Type of BatterySetting Voltage

Battery Type	Sealed Lead-Acid Battery	Gelled Lead-Acid Battery	Open Lead-Acid Battery	User (User-Defined)Overvoltage
Disconnect Voltage	16.0V	16.0V	16.0V	9 ~ 17V
Equalizing Voltage	14.6V	---	14.8V	9 ~ 17V
Boost Voltage	14.4V	14.2V	14.6V	9 ~ 17V
Floating Voltage	13.8V	13.8V	13.8V	9 ~ 17V
Boost Restoring Voltage	13.2V	13.2V	13.2V	9 ~ 17V
Low Voltage Disconnect Restoring Voltage	12.6V	12.6V	12.6V	9 ~ 17V
Under-Voltage Alarming Restoring Voltage	12.2V	12.2V	12.2V	9 ~ 17V
Under-Voltage Alarming Voltage	12.0V	12.0V	12.0V	9 ~ 17V
Low Voltage Disconnect Voltage	11.1V	11.1V	11.1V	9 ~ 17V
Discharging Limit Voltage	10.6V	10.6V	10.6V	9 ~ 17V
Over-Discharge Delay Time	5s	5s	5s	1 ~ 30s
Equalizing Duration Time	120Min	---	120Min	0 ~ 600Min
Equalizing Charging Interval	30Days	0Day	30Days	0 ~ 250D (0 refers to close equalizing charging function)
	120Min	120Min	120Min	10 ~ 600Min

The User battery is customized battery. The system's default voltage parameters are consistent with sealed lead-acid battery parameters. When modifying battery charging and discharging parameters, observe the following logic:

- ◆ Overvoltage Disconnect Voltage> Charging Limit Voltage \geq Equalizing Voltage \geq Boost Voltage \geq Floating Charging Voltage> Boost Restoring Voltage ;
- ◆ Overvoltage Disconnect Voltage> Overvoltage Disconnect Restoring Voltage ;
- ◆ Low Voltage Disconnect Restoring Voltage> Low Voltage Disconnect Voltage \geq Discharging Limit Voltage ;
- ◆ Under-Voltage Alarming Restoring Voltage> Under-Voltage Alarming Voltage \geq Discharging Limit Voltage ;
- ◆ Boost Restoring Voltage> Low Voltage Disconnect Restoring Voltage ;

