

SOLAR-MATE

MPPT SOLAR CHARGE CONTROLLER



A solar charge controller is a device that works as an interconnection between solar panel and systems like (UPS/HUPS/Inverter). It is required for monitoring and controlling the charging of battery bank connected to the PV modules. Main function of a Solar Charge Controller is to limit the rate at which electric current is added to or drawn from batteries. It prevents overcharging and protects battery from voltage fluctuation, which can reduce battery performance or lifespan, and may pose a safety risk.

Solar Charge Controller with MPP Technology – “Solar Mate”

Su- Kam’s MPPT based Solar Charge Controller is a high frequency DC to DC converter. It takes the DC input from the solar panels, changes it into high frequency AC, and then converts it back to a different DC voltage and current to match the panel output to the battery capacity. It is microprocessor controlled and knows when to adjust the output that it is being sent to the battery, and it actually shuts down for a few microseconds and "look" at the solar panel and battery and make any needed adjustments.

Features:

- Equipped with Micro controller based MPPT Technology.
- In-built Remote Monitoring software.
- 30% Faster battery charging.
- Compatible with wide range of batteries.
- Reverse current flow battery to solar array during night

TECHNICAL SPECIFICATIONS OF MPPT SOLAR CHARGE CONTROLLERS

MODEL			MPPT SCC 12 V/24 V – 20A		
Nominal Battery Voltage	12 V		24 V		
Maximum Output Current /Rated Load current	20 A				
Maximum PV panel rating	12V DC system		24 V DC System		
	Typical: 240 W		Typical: 480 W		
	Maximum: 300Wp		Maximum: 600Wp		
Maximum PV open circuit voltage	50 VDC				
Charging Stages	Four stage charging algorithm: Bulk, Absorption, Float and Equalization				
Bulk Charge	13.8 V (Adjustable 13.8V - 14.4V)		27.6 V (Adjustable 27.6V – 28.8 V)		
Absorption period	Held battery voltage at bulk setting for a cumulative period of 2 hour				
Float voltage	13.7 V + temperature compensation		27.2 V + temperature Compensation		
Equalization Voltage	Bulk Voltage + 1V		Bulk Voltage + 2V		
Automatic Temperature Compensation	Yes				
Compensation	18mV/°C for 12V battery (25°C Reference)				
LOAD CONTROLLER					
Battery Low voltage load disconnect	11.4V		22.8V		
Battery Low voltage load reconnect	12.8 V				
Battery high voltage load & charging disconnect	15.5V		31V		
Battery high voltage load reconnect	14.5V		29V		
PV high voltage charging stop	> 30V		> 55V		
PV high voltage charging reconnect	< 25V		< 48V		
Over load (110%)	22A ±1A				
Short circuit (peak load current)	≥ 60A				
Nos. of over load retries / Nos. of short circuit retries	After every 3.5 min.				
PROTECTIONS FUNCTIONS					
Surge / Battery low voltage protection	Yes				
Batter/ Hi / h Voltage Protection	Yes				
Battery Open Protection	Yes; System is not ON if battery is not connected				
Battery overload / Load overload cut-off protection	Yes				
Load Short Circuit / PV high voltage protection	Yes				
Thermal Protection	If Heat sink temperature is ≥ 90 °C charging PWM OFF; when temperature falls below 70 °C charging current flows through the system				
Standby Power Consumption	£ 10 mA				
Power Conversion Efficiency	≥ 94 %				
ACCURACY					
Current	± 10%				
Voltage	± 2%				

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