



**Charge  
Controller**

Model  
**SMC-20**  
20 Amps

### Design Features

- Series Type with PWM control
- Automatic battery voltage detection: 12V / 24V
- 20A charging current
- 20A load terminals for current compensated low voltage disconnect and auto reconnect
- Multistage, temperature compensated charging
- Colored LEDs for operational status, State of Charge and faults
- Electronic protections
- CE and RoHS compliant

**2 YEAR WARRANTY**



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PARAMETER		SPECIFICATIONS – MODEL NO. SMC-20	
		12V BATTERY SYSTEM	24V BATTERY SYSTEM
SYSTEM	TYPE	Series Type with PWM control	
	BATTERY TYPE	Factory preset for Lead Acid - Liquid Type	
	NOMINAL BATTERY SYSTEM VOLTAGE	12V or 24V Auto Detection: 9V to 17V is detected as 12V Battery 17.1V to 34V is detected as 24V Battery	
	MAXIMUM CHARGING / LOAD CURRENT	20A	20A
	SELF CONSUMPTION	< 4mA	< 4mA
	MINIMUM BATTERY VOLTAGE TO START OPERATION	9V	9V
GROUNDING		Common Positive Grounding or Negative Grounding on Negative Battery Terminal	
INPUT SIDE (SOLAR PANEL / ARRAY)	MAXIMUM OPEN CIRCUIT VOLTAGE	< 47V	< 47V
	MAXIMUM SHORT CIRCUIT CURRENT	20A	20A
CHARGING CHARACTERISTICS	BOOST CHARGE VOLTAGE	14.4VDC	28.8VDC
	END OF CHARGE VOLTAGE	13.9VDC	27.8VDC
	EQUALIZATION VOLTAGE	14.7 VDC	29.4 VDC
	INTERNAL TEMPERATURE COMPENSATION	Voltage Coefficient of Temperature: – 4mV/°K/Cell – 24mV/°K    – 48mV/°K	
LOAD CONTROL	LOW VOLTAGE DISCONNECT (LVD)	<b>Current Compensated:</b> 11.6V at Load Current = 0A to 11.28V at Load current = 20A	<b>Current Compensated:</b> 23.2V at Load Current = 0A to 22.56V at Load current = 20A
	LOW VOLTAGE RECONNECT (LVR)	<b>Current Compensated:</b> 12.4V at Load Current = 0A to 12.72V at Load current = 20A	<b>Current Compensated:</b> 24.8V at Load Current = 0A to 25.44V at Load current = 20A
	LOAD CURRENT COMPENSATION	LVD: – 16mV/A; LVR: +16mV/A	LVD: – 16mV/A; LVR: +16mV/A
	NIGHT LIGHT FUNCTION	Factory preset in OFF condition	Factory preset in OFF condition
MONITORING AND DISPLAY	DISPLAY TYPE	5 Multicolor LEDs	5 Multicolor LEDs
	OPERATING PARAMETERS DISPLAYED	Normal Operation, State of Charge, Load Status and Faults	



PARAMETER		SPECIFICATIONS – MODEL NO. SMC-10	
		12V BATTERY SYSTEM	24V BATTERY SYSTEM
INPUT/OUTPUT CONNECTIONS	TYPE AND WIRE SIZE	Terminal with 6mm dia. tubular hole and setscrew. Will accommodate: Conductor - stranded wire: 16mm <sup>2</sup> / AWG #6 Conductor - solid wire: 25 mm <sup>2</sup> / AWG #4	
	OVERLOAD / SHORT CIRCUIT	<b>PV Side:</b> Disconnect input if current is > 25A for 3 sec <b>Load Side:</b> Disconnect Load output if load current > 25A for 3 sec	
PROTECTIONS	OVER TEMPERATURE (MEASURED INSIDE THE MICROCONTROLLER)	> 80°C: Shut down the Load (PV is still connected). Auto-reset at < 75°C. > 85°C: Disconnect PV input. Auto reset at 80°C.	
	OVER CHARGE	Disconnect PV and Load at ≥ 15V. Auto reset at < 15V.	Disconnect PV and Load at ≥ 30V. Auto reset at < 30V.
	OVER VOLTAGE AT PV INPUT	48V	48V
	REVERSE POLARITY OF PV PANEL	Up to 47V	Up to 36V
	REVERSE BATTERY AND LOAD POLARITY	Yes. NOTE: Reverse battery polarity combined with short circuited or polarized load may damage the load or the controller.	
	REVERSE CURRENT PROTECTION AT NIGHT	Yes	Yes
COMPLIANCE	SAFETY ELECTROMAGNETIC COMPATIBILITY EUROPEAN STANDARD ROHS QUALITY	CE Marking Directive 93/68/EWG CE marked - 2004/108/EG EN55014; EN55022 Compliant ISO-9001 ISO-14001	
ENVIRONMENTAL	OPERATING AMBIENT TEMPERATURE	-25°C to + 50°C / -13°F to +122°F	-25°C to + 50°C / -13°F to +122°F
	INGRESS PROTECTION	IP 32	IP 32
GENERAL	DIMENSIONS	187 x 96 x 45 mm / 3.36 x 3.75 x 1.77 in	
	WEIGHT	345 gm. / 0.76 lb.	

**NOTES:**

- All voltages are specified at 25°C / 77°F
- Special Order (Minimum Order Quantity applicable) with following customized programming. Customized programming is also possible with optional Programming Remote Control Model No. PA RC100:

Boost Voltage:	12V Battery: 14.0V to 14.9V; 24V Battery: 28.0V to 29.8V.
End of Charge Voltage:	12V Battery: 13.5V to 14.4V; 24V Battery: 27.0V to 28.8V.
Equalization Voltage:	12V Battery: 14.4V to 15.3V; 24V Battery: 28.8V to 30.6V.
Battery Type:	Liquid (Flooded / AGM) with Equalization; Gel without Equalization
Load Disconnect:	12V Battery: 10.8V to 12.3V; 24V Battery: 21.6V to 24.6V
Load Reconnect:	12V Battery: 11.5V to 12.9V; 24V Battery: 23.0V to 25.8V
Night Light Function:	OFF / ON or for set duration of 1 to 8 Hrs