Bioenno Power SC-1220JU

SOLAR CHARGE CONTROLLER WITH MAXIMUM POWER POINT TRACKING (MPPT)

THIS CONTROLLER IS ONLY FOR USE WITH 12V LIFEPO4 (LITHIUM IRON PHOSPHATE) BATTERIES ONLY

OVERVIEW

Thank you for purchasing the Bioenno Power SC-1220JU Solar Charge Controller, which uses multi-stage MPPT technology, for use with LiFePO4 (lithium iron phosphate) batteries. The controller uses a Buck Conversion Circuit and further uses an MCU to adjust the solar panel to a working point in order to make the solar panels output maximum power. When the working point of the solar panels deviate from the maximum power point, the MCU will adjust the solar panels working point based on an MPPT calculation to make the solar panels provide their maximum power point. Compared with PWM controllers, this MPPT controller can increase the output power of the solar panels by 5% ~ 30%. The output power increases proportionally by various factors, such as the solar panel properties, light intensity, and humidity.

OPERATION

1) Mount the controller on the wall and fasten the screws.
2) Check whether the battery voltage and solar panel array voltage is within the requested range.
3) Connect the battery to the controller
4) Connect the load to the load terminal
5) Connect the solar panel array to the input of the solar controller
6) To switch the load on, hold the button for 3 seconds.
7) To switch the load off, hold the button for 3 seconds.

STATUS CODES

LED	STATUS	MEANING
SOLAR (RED)	OFF	PV Voltage is Low
	ON	The solar controller is conducting MPPT Charging
	BLINKING EVERY 2 SECONDS	The solar controller is in absorption charge mode
	BLINKING EVERY 1 SECONDS	The solar controller is in float charge mode
	BLINKING EVERY 0.5 SECONDS	The solar controller is conducting PV Overvoltage Protection
BATTERY (GREEN)	OFF	The battery is disconnected
	ON	The battery is under normal operation
	BLINKING EVERY 2 SECONDS	Undervoltage Protection is engaged
	BLINKING EVERY 1 SECOND	Overvoltage Protection is engaged
	BLINKING EVERY 0.5 SECONDS	Overtemperature protection is engaged
LOAD (RED)	OFF	Load is off
	ON	Load is on
	BLINKING EVERY 2.2 SECONDS	High Temperature Sensor Error
	BLINKING EVERY 1 SECOND	Overload protection is engaged
	BLINKING EVERY 0.5 SECONDS	Short-Circuit Protection Engaged on the Load

FAULTS AND REMEDIES

FAULT	PHENOMENON	CAUSE/REMEDY
Battery Voltage is Too low	Load Light Off Charge Light On	Check the battery voltage and manually recharge the battery if necessary.
Battery Voltage Too High	Load Light Off Charge Light Off	Check the battery voltage and check if there are any additional charging sources if present
PV Voltage Too High	Load Light On Charge Light Off	Check the PV System configuration. The PV open circuit voltage is beyond the limits
Excessive Load Current	Load Light Off Charge Light On	Reduce the load current at the load output. The load may be causing current peaks.
Short Circuit at the Load Output	Load Light Off Charge Light On	Check if there is a short circuit at the load output
Controller Temperature is Too High	Load Light On Charge Light Off	Allow the controller to cool down. Check for possible causes of overheating. Reduce the charge current. Make sure the controller is adequately ventilated.
Inside temperature Sensor Error	Load Light On Charge Light On	Disconnect the load, solar modules, and batteries. Re-install the controller

SPECIFICATIONS

Maximum PV Voltage	< 70 VDC
MPPT Voltage Range	12V to 70V (For use with 12V Solar Panels and 12V batteries)
System Voltage ***This controller must be used only with 12V LiFePO4 batteries.***	12V Nominal for 12V LiFePO4 Batteries
Maximum Battery Voltage	16VDC for 12V LiFePO4 Batteries
Maximum Charge Current	20A
Maximum Load Current	20A
Charge Control Mode	3-stage (Bulk, Absorption, Float)
Float Charge	13.8VDC for 12V LiFePo4 Batteries
Absorption Charge	14.4VDC for 12V LiFePO4 Batteries
Load Disconnection (LVD)	11.5VDC for 12V LiFePO4 Batteries
Load Reconnection (LVR)	12.6VDC for 12V LiFePO4 Batteries
Operation Temperature	-10 deg to 50 deg C (
Dimensions	119 mm x 188 mm x 55 mm
Weight	0.8 kg
Degree of Protection	IP32