1. DESCRIPTION

1.1 General

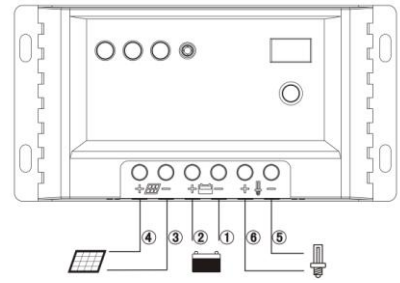
Series pass Pulse Width Modulation (PWM) charge voltage control combined with a multistage charge control algorithm leads to superior charging and enhanced battery performance. The filtered PWM power control system uses highly efficient and reliable power MOSFET transistors.

Fully automatic temperature compensation of charge voltage is available to further improve charge control and battery performance. The optional battery temperature sensor is built for long term reliability.

1.2 Features

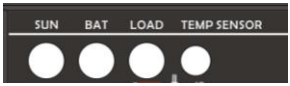
- ✧ Local internal temperature sensor.
- ✧ Three stage battery charging [bulk – absorption – float]
- ✧ Protected against over current.
- ✧ Protected against short circuit.
- ✧ Protected against reverse polarity connection of the solar panels and/or battery.
- ✧ With low voltage load disconnect output.

2. INSTALATION



- Connect wires in order indicated 1-6
- Use with 12V or 24V batteries
- Use with 12V or 24V systems
- Do not exceed Solar and Load ratings Max output current 10A

3. LED INDICATORS



1. SUN indicator:
   Green blink when solar is charging battery.
   Green on when there is no charging

2. BAT indicator:
   Green ON when battery level in the right range.
   Green slowly flashing when battery level full.
   Yellow ON when battery level low.
   Red ON when load cut off.
   Red blink in case of over temperature.
   Green blink in case of over voltage.

3. LOAD indicator:
   Red on when the output is working
   Red slowly flashing when its over load
   Red blink when the load is short-circuit.
   (the load Amp is 1.25 times of rated current for 60 seconds, or the load Amp is 1.5 times of rated current for 5 seconds)

Please note:

1. The load output will cut off in case of over load or short circuit. Afther the first overload or short circuit the controller will resume to work automatically after 30 seconds. Please check the load and press the start push button to start when it happens again.

2. After over discharge, the load will reconnect when the battery is charged to 13.1V,(for 24V, use 2x), but the load can be reconnected manually by pressing the on/off puch button, if the battery voltage exceeds the 12.6V

4. SPECIFICATIONS

SUN'E SunLight controller	SHS Controller-10 12/24	
	12V	24V
Battery Voltage	12V	24V
Rated charge current	5A or 10A	
Automatic load disconnect	Yes (maximum load 5A or 10A)	
Recommended solar panel array	12V	24V
Maximum solar voltage	25V	55V
Self-consumption	6mA	
Default settings		
Absorption charge (1)	14.4V	28.8V
Float charge (1)	13.7V	27.4V
Load disconnect	11.1V	22.2V
Load reconnect	12,6V (manual)	25.2V (manual)
Battery temperature sensor	Yes (Internal sensor)	
Temperature compensation	-30mV/°C	-60mV/°C
Protection class	IP20	
Enclosure		
Terminal size	6mm² / AWG10	
Weight	160gr	
Dimension (h x w x d)	mm	
Mounting	Vertical wall mount Indoor only	
Humidity (non condensing)	Max. 95%	
Operating temperature	-35°C to +55°C (full load)	
Cooling	Natural convection	
Standards		
Safety	EN60335-1	
EMC	EN61000-6-1, EN61000-6-3	

5. TO CORRECT PROBLEMS

1. Check wires
2. Reduce load if needed
3. Reset controller

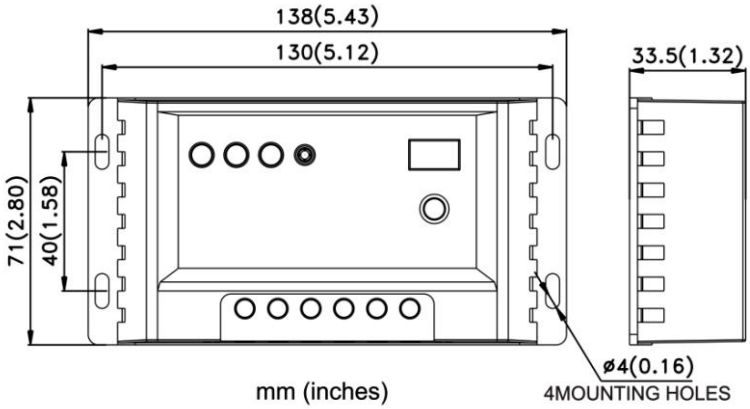
6. INSPECTION AND MAINTENANCE

The following inspections and maintenance tasks are recommended at least once per year for best controller performance

1. Confirm that the correct battery type has been selected.

2. Confirm that the current levels of the solar array and load do not exceed the controller ratings.
3. Tighten all the terminals. Inspect for loose, broken, or burnt wire connections. Be certain no loose strands of wire are touching other terminals
4. Check that the controller is securely mounted in a clean environment. Inspect for dirt, insects and corrosion.
5. Check the air flow around the controller is not blocked.
6. Protect from sun and rain. Confirm that water is not collecting under the cover
7. Check that the controller functions and LED indicators are correct for the system conditions at that time.
8. Make sure the PV array is clean and clear of debris and snow. Confirm the array is oriented correctly for the installation location.

7. MECHANICAL DRAWING



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