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Solar charge controller(PWM) catalogue

The Solar Charge controller is used in photovoltaic systems, coordinating the functions of photovoltaic panels, batteries and loads. The controller contains several protective functions, such that the entire system will operate efficiently and safely

Picture	Model			Weight (unit)	PACKING	Weight (Carton)	Carton Size
	**WS-C2415**	6A	12\24V	0.25kg	50pcs/ctn	13kg	41*36.5*33cm
		10A	12\24V				
		15A	12\24V				
	**WS-C2430**	20A	12\24V	0.46kg	27pcs/ctn	13.1kg	41*36.5*33cm
		25A	12\24V				
		30A	12\24V				
	**WS-C2460**	40A	12\24V	0.97kg	18pcs	18kg	41*36.5*33cm
		50A	12\24V				
		60A	12\24V				
	**WS-C4860**	40A	48V	1.1kg	18pcs	20kg	41*36.5*33cm
		50A	48V				
		60A	48V				

Functions	1. Overload protection/ Short circuit protection 2. Converse discharge protection /Reverse polarity connection protection 3. Thunder protection 4.Low voltage protection/Overcharge protection 5.Batteries stop and charge voltage HVD sets up 6.Charge and low voltage LCD sets up 7.Display the capability of the battery SOC 8.Loads and comeback setups. 9.Intellectualized temperature compensation 10.Record, calculate and display the charged AH on the LCD screen. 11.Record, calculate and display the discharged AH on the LCD screen. 12.CPU control and LCD display
Features	1. Applying with various types of batteries. 2. Automatic detection of input voltage between 12V and 24V. 3. Controlled PWM controller battery charge. 4. Temperature sensor for battery charging in compensation. **5. OEM available** **6. Lead time: 3-5 days**

Solar Controller **WS-C2415 USER MANUAL**

Thanks for purchasing our WELLSEE solar controller. Please read these instructions before using.

Our controller named as follow:

WS –C 24 15

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| | | |_____15: maximum current (A), 15= 15A

| | |_____ 24: system voltage (V), 24 =24V/12V automatic recognition

| |_____ C: solar universal controller

|_____WS= WELLSEE brand

WELLSEE

Function：

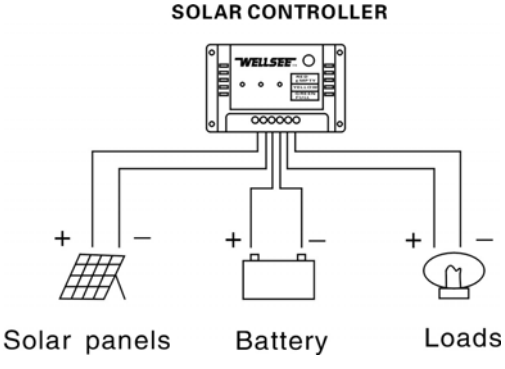
According to the voltage of the battery, the controller can adjust the charging current and decide whether to supply power to the loads.

1. Always keep the battery on full voltage condition.
2. Prevent the battery from over-charging.
3. Prevent the battery from over-discharging.
4. Prevent the battery from reverse charging to solar panels during nights.
5. Choose the suitable Wire Diameter according to the current, Please refer to the technical Index for details.
6. The solution for the controller can't charged because of the low voltage of battery : please remove the load first, press the bottom RESET to make the controller will reture to work, then charge the battery, in the last place,you can connect the load again.
7. If there is some problem with charging the battery, you should increse the power of panel or change the battery

Connection：

As indicated in diagram:

1. Connect “+” and “-“poles of the solar panels with the correct terminals on the controller (the first and second from the left).



2. Connect"+" and "-"poles of the battery with the correct terminals on the controller (the third and fourth from the left).
3. Connect "+" and "-"poles of the load with the correct terminals on the controller (the fifth and sixth from the left).

Indicator light：

There are 3 red LEDs indicate the voltage level of the battery: a red charging indicator light (CHARGE), a green load indicator light (LIGHT), and a battery power indicator light (BATTERY). The battery is full when all 3 LEDs are on. When 1 or 2 LEDs are on, it means the battery is on the low level; in this case the loads may not work normally. As the voltage of the battery reaches 12.6V, the loads will start working automatically.

1. The battery is strongly charged when CHARGE is on. The battery is floating charged when this LED is flickering, and the battery has stopped charging when the LED is off.
2. When LIGHT is on, it means the load can work; when it's off, it means the load can not work.
3. When BATTERY is red means the battery is under voltage, green means the battery is full and orange means the battery is under normal situation.

Notice：

1. Please check the rated voltage of solar panels, battery, and load before connecting. Make sure their rated voltage all be 12v (or 24v).
2. Pay more attention to "+" and "-"poles of solar panels, battery, controller and loads during the process of connection.
3. The rated current of solar panels and loads must be lower than the controller.

Technical Index:

Model	WS-C2415 6A	WS-C2415 10A	WS-C2415 15A
Rated Voltage	12V/24V Automatic voltage recognition		
Max Load current	6A	10A	15A
Input current range	12V～20V/24V～40V		
Length≤1m Charge loop drop	＜0.25V		
Length≤1m Discharge loop drop	＜0.05V		
Over voltage protection	17V/34V		
Full charge cut	13.7V/27.4V		
Low voltage cut	10.5~11V/21V~22V		
Temperature compensation	-3mv/℃/cell		
No load loss	≤10mA		
Max wire area	2.5mm^2		
Ambient temperature	-25℃——55℃		

Model	WS-C2430 20A	WS-C2430 25A	WS-C2430 30A
Rated Voltage	12V/24V Automatic voltage recognition		
Max Load current	≤20A	≤25A	≤30A
Full charge cut	13.7V/27.4V Default value, can be reset		
Low voltage cut	10.5V/21V Default value, can be reset		
Temperature compensation	-3mv/℃/cell	-3mv/℃/cell	-3mv/℃/cell
No load loss	≤20mA	≤20mA	≤20mA
Max wire diameter	6 mm^2		
Length≤1m Charge loop drop	< 0.25V		

Length≤1m Discharge loop drop	< 0.05V
Ambient temperature	-25℃—55℃
Solar panel Input voltage	12V stytem≤20V / 24system≤40V

Model	WS-C2460 40A	WS-C2460 50A	WS-C2460 60A
Rated Voltage	12V/24V Automatic voltage recognition		
Max Load current	≤40A	≤50A	≤60A
Full charge cut	13.7V/27.4V Default value, can be reset		
Low voltage cut	10.5V/21V Default value, can be reset		
Temperature compensation	-3mv/℃/cell	-3mv/℃/cell	-3mv/℃/cell
No load loss	≤30mA	≤30mA	≤30mA
Max wire diameter	8 mm^2		
Length≤1m Charge loop drop	< 0.25V		
Length≤1m Discharge loop drop	< 0.05V		
Ambient temperature	-25℃—55℃		
Solar panel Input voltage	12V stytem≤20V / 24V system≤40V		

Model	WS-C4860 40A	WS-C4860 50A	WS-C4860 60A
Rated Voltage	48V		
Max Load current	40A	50A	60A
Full charge cut	54.8V Default value, can be reset		
Low voltage cut	42V Default value, can be reset		
Temperature compensation	-3mv/℃/cell		
No load loss	≤50mA		
Max wire diameter	12 mm^2		
Length≤1m Charge loop drop	< 0.24V		
Length≤1m Discharge loop drop	< 0.05V		
Ambient temperature	-25℃—55℃		
Solar panel Input voltage	≤80V		

WS-C2415 Solar Charge Controller

The WELLSEE Solar Charge Controller applies in solar photovoltaic systems, which coordinates the working of solar panels, batteries and loads. It adds some protection functions, so that the entire system can be in efficient and safe operation WS-C series charge controllers apply to all types of photoelectric panels and various types of batteries, MCU (Micro-Processing Controller) has PMW (Pulse Modulation Wide-frequency) 0~100% variable duty cycle process. According to the types and actual charging situation of the battery, WS-C controller series can provide the fast and best charging voltage and electricity from the PV panel. C30 and C60 series are equipped with advanced man-machine interactive function, so the user can adjust the charging voltage.

Functions:

1. Applying various types of batteries

2. Automatic recognition of input voltage
3. Micro processing controller Pulse Modulation Wide-frequency（PWM）charge
4. Temperature sensor for charging a battery in compensation
5. Overload protection (automatic comeback)
6. Overcharge protection
7. The temperature compensate
8. Short circuit protection (automatic comeback)
9. Thunder protection
10. Reverse discharge protection
11. Converse polarity connection protection (automatic comeback)
12. Low voltage protection

WS-C2430 Solar Charge Controller

The WELLSEE Solar Charge Controller applies in solar photovoltaic systems, which coordinates the working of solar panels, batteries and loads. It adds some protection functions, so that the entire system can be in efficient and safe operation. WS-C series charge controllers apply to all types of photoelectric panels and various types of batteries, MCU (Micro-Processing Controller) has PMW (Pulse Modulation Wide-frequency) 0~100% variable duty cycle process. According to the types and actual charging situation of the battery, WS-C controller series can provide the fast and best charging voltage and electricity from the PV panel. C30 and C60 series are equipped with advanced man-machine interactive function, so the user can adjust the charging voltage.

Functions:

1. CPU control, LCD display
2. Automatic recognition of input voltage
3. Applying with various types of durable batteries
4. Micro processing controller Pulse Modulation Wide-frequency（PWM）charge
5. Setting the voltage of low voltage cut-off/resuming connection of the DC output of the load port
6. Temperature sensor for charging a battery in compensation
7. Protective circuit of PV from reverse-charging
8. Overload protection
9. Overcharge protection
10. Short circuit protection
11. The temperature compensate
12. Reverse polarity connection protection
13. Converse discharge protection
14. Thunder protection
15. Low voltage protection

WS-C2460 Solar Charge Controller

WS-C2460 series solar charge controllers are of stable quality and high reliability, and can be applied under various worse geological conditions. Its appearance and function design has reached international advanced level. Depending on the types and actual charging situation of the battery,WS-C controller series can provide the fast and best charging voltage and electricity from the PV panel. WELLSEE solar charge controllers are equipped with advanced man-machine interactive function, so the user can adjust the charging voltage.

Function:

1. Overload protection
2. Short circuit protection

3. Converse discharge protection
4. Reverse polarity connection protection
5. Thunder protection
6. Low voltage protection
7. Overcharge protection
8. Batteries stop and charge voltage HVD sets up
9. Charge and low voltage LCD sets up
10. Display the capability of the battery SOC
11. Loads and comeback setups.
12. Intellectualized temperature compensation
13.Record, calculate and display the charged AH on the LCD screen.
14.Record, calculate and display the discharged AH on the LCD screen.
15. CPU control and LCD display

WS-C4860 Solar Controller

WS-C4860 MPPT type series solar charge controllers (WELLSEE solar intelligent charge controller) are of stable quality and high reliability, and can be applied under various worse geological conditions. Its appearance and function design has reached international advanced level. Depending on the types and actual charging situation of the battery,WS-C controller series (Charge controller, Voltage controlle) can provide the fast and best charging voltage and electricity from the PV panel. WELLSEE solar charge controllers are equipped with advanced man-machine interactive function, so the user can adjust the charging voltage.

Functions:

1. Overload protection
2. Short circuit protection
3. Reverse discharge protection
4. Reverse polarity connection protection
5. Thunder protection
6. Low voltage protection
7. Overcharge protection
8. Battery stop and charge voltage HVD sets up
9. Charge and low voltage LCD sets up
10. Display the capability of the battery SOC
11. Loads and comeback setups.
12. Intellectualized temperature compensation
13. Record calculate the charged AHand display it on the LCD screen.
14. Record calculate the discharged AHand display it on the LCD screen.
15. working temperature:-25℃-100℃