User' s Manual

Safety Attentions

1.Get the tools and cables ready.Select the appropriate cable to ensure that the current density is less than <6A/ mm ²,which is conductive to reduce the cable voltage damage.
2.This controller will be heat when working.Please install the controller on the flat,well ventilated environment.
3.In the process of connecting wires,please connect the battery first (in order to ensure the correct identification of the battery voltage level),then connect the solar panel.After the controller completes the battery voltage lever indentification,manually close the load output of the controller and connect the controller finally.
4.In order to use security,please do not use solar panels that exceed the rated current of the solar controller; please do not connect the load over rated current ;please do not use AC/DC switching power supply instead of solar panel to connet the controller.

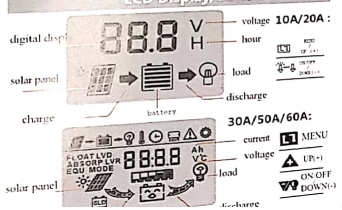
Product Features

- Simple button operation
- Adjustable charging and discharging control parameters
- Load overcurrent short-circuit protection
- Various load mode
- 5V/2A USB (WP20D/WP30D)
- Support Lead acid battery and lithium battery charging and discharging
- Intelligent 3-stage PWM charging mode
- Battery over discharge/overvoltage/low voltage protection
- Battery reverse discharge protection
- Solar panel/Battery reverse connect protection

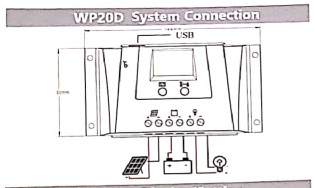
Product Features of WP30D/WP50D/WP60D

- 12/24/36/48V Full automatic indentification
- Voltage temperature compensation
- Remote monitoring and communication function
- LCD display screen with backlight function
- Reverse light control mode
- Accumulated amper hours
- Solar controllers can be work ,even the solar panel when the voltage of lithium battery is 0V

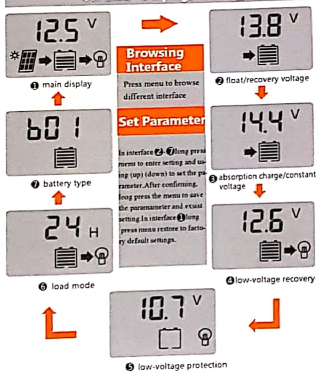
LCD Display/Button



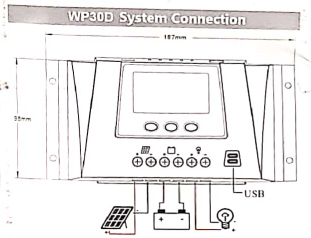
WP20D System Connection



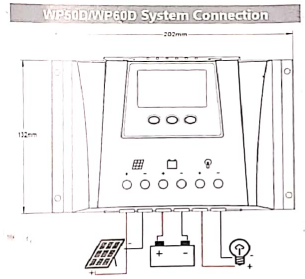
WP20D Display/Setting



WP30D System Connection



WP50D/WP60D System Connection

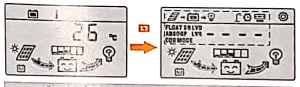


1.First,according to the diagram,connect the positive and negative electrodes of the battery to the controller,it will auto indentify the battery voltage.
2.Then connect the solar panel to the controller.
3.Finally, connect the positive and negative electrodes of the load to the controller, prevent reverse.
4.When using lithium battery with protective panel,set the voltage level to be a fixed value.Do not set the battery to be automatic indentification.In order to prevent the protection of the lithium battery board from the solar input after starting the controller to indentify the error voltage.
5.The open circuit voltage of the solar panels must be smaller than the maxium allowable voltage required by the lithium battery to prevent battery damage from excessive voltage.
6.When using the lithium battery,the short-circuit current of solar panel should be less than 0.3C (Lithium battery capacity).

Note :
1.When using lithium battery in the environment below 0°C ,lithium battery should be work well at low temperature
2.Solar controllers do not have the equalizing function for lithium battery.So,the lithium battery must build in protective equalizing function
3.Please strictly connect the controller in the right order otherwise it may damage the controller
4.When repairing controller please in the reverse order

Factory Default Settings

At main loop interface 2.long press Menu till the symbols in the dotted column starts flashing,the controlling parameters will recover to the default value.Controller will restart automatically to renew the controller data.



Various Working Modes For Load

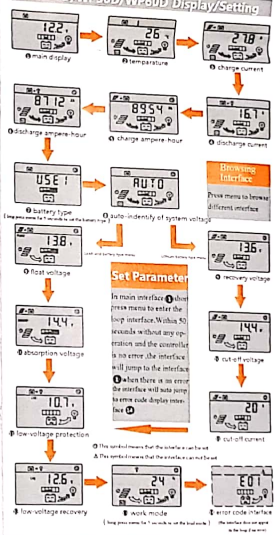
There are four control modes for load:1)normal control mode;2)light control on and delayed off mode;3)light control mode;4)reverse light control mode.The delayed duration can be 1-20h.

Following are the workings introduction for each mode:

Load mode	event		
	dark	setting time	dawn
All normal control mode	-	-	-
1-20H light control on and delayed off mode	Load on	Load off	Load off
0H light control mode	Load on	-	Load off
CH reverse light control mode	Load off	-	Load on

Note: WP20D do not have reverse light control mode

WP30D/WP50D/WP60D Display/Setting



WP30D/WP50D/WP60D Error Code and Solution

Error code	Cause	Solution
E01	Low voltage of battery load off	Charge the battery or change a new battery
E02	Overload load off	Decrease the load,then use Menu button to turn on the load or the load will be automatically turn on after 2 minutes.
E03	Load short-circuit load off	Remove the short-circuit load,use Menu button to turn on the load.
E04	Over-voltage of battery load off	Check the connection of battery and whether the capacity of battery is too small,check if there is another charger connected with the battery
E05	Solar panel reverse connection or controller stop charging	Check whether the power of solar panel has been over power ,decrease the panels and then the controller can be start to charging automatically after 2 minutes.

Technology Parameters

	Model	WP30D	WP50D	WP60D	WP60D
Solar Input	Rated Current	30A	50A	60A	60A
	Input Voltage	≤ 50V		≤ 100V	
	Max input power	390W	650W	780W	780W
Battery Parameters					
Lead-acid batteries	Charge mode	Three stage charge (bulk charge, absorption charge, float charge)			
	Lead-acid batteries	Sealed	GEL	Flood	USER
	Float voltage	13.8V	13.8V	13.8V	13.8V (9~15) adjustable
	Absorption voltage	14.4V	14.4V	14.4V	14.4V (9~15) adjustable
	Absorption time	2h			
	Equalize charge voltage	14.6V			
	Low-voltage charge	13.2V			
	Temperature compensation	-4mV/cell/℃			
Lithium batteries	3 stage charge (bulk charge, constant voltage charge, stop charge)				
	Lithium batteries	3.2-4	3.7-4	3.2-4	3.2-3	USER
	Constant voltage	14.6V	14.8V	14.6V	14.0V	12.8V(9~15) adjustable
	Cut-off charge current	2A(0.1A~10A adjustable)				
	Recovery charge voltage	13.4V	14.0V	13.8V	13.6V	12.6V(9~15) adjustable

Battery Management

Battery Type	Lead-acid batteries	Lithium Battery				
		3.7-3	3.7-4	3.2-4	3.2-3	USET
Low-voltage protection	10.7V(9~15V) adjustable)	9.9V	11.2V	11.2V	10.0V	11.2V(9~15V) adjustable)
Low-voltage recovery	12.6V(9~15V) adjustable)	11.1V	11.8V	12.8V	10.5V	12.8V(9~15V) adjustable
Over-voltage protection	16.0V	16.5V				
Over-voltage recovery	15.5V	16.0V				
USB power	5V/USB , the maxium output current is 2A					

Voltage Indentify Range Of Battery

System voltage	Lead-acid batteries	Lithium Battery				
		3.7-3	3.7-4	3.2-4	3.2-3	USER
12V	5.17V	5.18.6V	5.18.8V	5.18.4V	5.22V	5.16.4
24V	5.30V	5.28.2V	5.34.6V	5.29.8V	5.17V	5.29.8
36V	5.40.8V	5.18.2V	5.50.8V	5.43.6V	5.54.8V	5.43.6
48V	5.40.8V	5.18.2V	5.50.8V	5.43.6V	5.54.8V	5.43.6

Others

Max wire size	Power (30A/12.6V) 16mm² (6 AWG) ; 50A/12.6V)
Working temperature	-20 ℃ ~50 ℃
Storage temperature	-40 ℃ ~70 ℃
Working humidity	10%~90% , non condensation
Dimensions	WP20D 166*88*35mm WP30D 187*88*35mm WP50D 202*132*35mm WP60D 202*132*35mm
Weight	270g/470g/610g/710g
Waterproof	IP30

Note: Above parameters apply to nominal 12V ,as an example of 24V 36V 48V system, the voltage parameter should be doubled or triple

Note: WP20D controller without temperature compensation. Non-light function without cut-off function

Note: Sealed battery

Note: Gel battery

Note: Flood battery

Note: Lithium battery charging mode

Note: Lead-acid battery charging flow

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