Wind&Solar Hybrid (Street Light) Controller

Users' Manual

This manual is suitable for the following models:

SN-WSL0.6K-12/24V

Version: WS2012A1.0

Please read this manual carefully before installation

Important safety guidelines

Please keep these instructions in hands.

This manual contains important key-points, the installation and maintenance of the equipment should be strictly kept well Please read all instructions before operation, and keep this manual properly for future reference.

Safety precautions:

(1) Thank you very much for purchasing our products, please read the instruction carefully before you install and use this product, and keep it well.

(2) Must be installed operation by the experienced technical personnel, the installation process must be in strict accordance with the user manuals, and ensure that the product can work normally.

(3)This product should avoid long-term contact corrosive gas and moist environment.

(4)At the low temperature environment, and open controller packaging may have led to the equipment inside and outside condensation phenomenon happened.

(5)This product is never placed in the environments like damp, rain, and under the sun, serious dust, vibration, corrosion and strong electromagnetic interference.

(6)Do not open the product to repair by yourself.

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Function and features

Be shortage of energy step by step at present, and the energy crisis is increased seriously, so the wind and solar energy is the most suitable and the safest, and the most ideal alternative energy sources in the future. Intelligent wind solar complementary (street lamp or monitoring device) control system, which R&D by adopting the latest intelligence chip and "CoolMos" technology, it is the most ideal control system in new generation of wind power and solar power.

Main application for: The wind/solar hybrid street lamp, the wind/solar hybrid monitoring device. Independent wind/solar hybrid power generation system, mobile communication base stations, highway, etc. in the no man's land , coastal islands, a remote mountain area, border posts and power supply shortage regions, also in the government demonstration projects, landscape lighting project, etc.

Main features as follow:

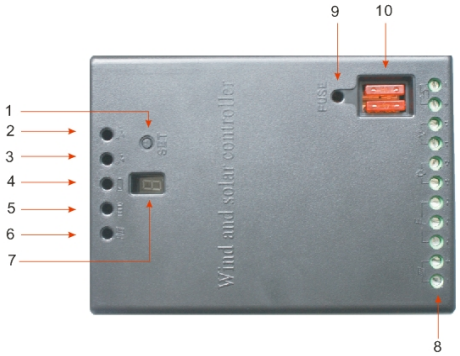
- To adopt the advanced MPPT power tracking technology, can guarantee the best use of wind power.
- Have two-way independent output functions.
- Intelligent software control, automatic recognition 12 V / 24 V control system.
- Overload protection function.
- Short circuit protection function.
- With float charging function.
- Intelligence filtering of short light interference function.
- Fan intelligent shutdown system.
- Three kind of lighting control modes: light control mode, monitoring mode, light control+ time control mode.
- Time control mode can automatically turn on the light to the

designated duration and 24 hours of circulation.

- Light according to intensity control at the light control mode.
- Control output within 24 hours at the monitoring mode.
- Morning light function.
- Can set kinds of operation parameters.
- High power load output capacity.
- Charging control ability at the large current wind generator.

1. Controller function

(1) Diagram and indicators function:



Indicator light buttons	Explain
1.set SET	Set key
2 .overload 2	The second load power overload or short circuit, indicator keep lighting, controller protection needs the new electricity to exit protection.
3.overload1	The first load power overload or short circuit, indicator keep bright state, controller protection needs the new electricity to exit protection.
	Controller detected battery voltage below set

4.under voltage	limit, lights flashing, voltage up to the recovery of the set point, the lights go out.
 5.over voltage	Controller detected battery voltage over set limit, lights flash, voltage down to the recovery of the set point the lights go out , Over-voltage, controller disconnect solar charging and start up fan intelligent stop system.
 6.charge	When controller detected that there is wind power or solar energy to charge battery indicator flashes, no charge indicator go out.
7.display window LED	LED display all of controller Settings data
8.terminals	Connected the outside wind generator .solar panels, street lamp, batteries.
9.safety plate	In the case charger over-current load over-current etc, it burned.
10 safety plate open indicator	Safety plate burned open circuit then indicates keep bright state.

2. Mode descriptions

(1) Mode descriptions

★ Light control mode (A): in light control mode controller open load according to solar cell input voltage below the set point and shut load according to solar cell input voltage is higher than the set point.

★ Monitoring mode (C): monitor mode load output open, when battery voltage or load overload and short circuit output closed.

★ Light control mode +time control mode (E) in light control mode +time control mode when there are solar batteries, the controller to solar battery test the input voltage point less than the open load

and according to the set time work. When using not installed solar cell, according to the set time controller open load. The specified time close and 24 hours work cycle, light start time by installation electricity time to start keeping time.

3. Parameter set

(1).Control instructions

★ Light control mode (A is for) and monitoring mode(C is for) the two pattern without other parameters need not set.

★ Light control mode +time control mode (E is for)

E mode is for light control mode +load one time control mode + load two time control mode +morning light.

F for: the lighting time of load one time control mode 1-10(0 stand for 10) is for 1-10 hour.

L for: the lighting time of load two time control mode 1-10(0 stand for 10) is for 1-10 hour.

U for: morning light time 0-9 is for 0-9 hour, 0 is for without morning light.

Note: the working time of No two time control is the total of No one time control and No two time control.

(2).Setting method

★ When not to enter setting state press the button display the current work patterns (A C E) Close display after 5 seconds. When there is no set, digital display is in the closed position Long press button 3 seconds to enter setting state, the state code to shine, press the button for short cycle that is (A, C, E). Choose to need options then, not press the buttons after 5 seconds to stop flashing, shut down automatically digital display, exit set and keep the current Settings, run the current content options.

★ When choosing to A model, A mode without other options long press set key no other changes.

★ When choosing to C mode, C mode without other options long press set key no other changes.

★ Choose E mode, long press 3 seconds show F, again a short for loops and by 1-10 (is for 1-10 hours, "0" stand for 10). Choose a time then long press 3 seconds into L, short press for cycle according to add 1-10 (is for 1-10 hours, "0" stand for 10). Choose a time long press 3 seconds then jump into U, short for cycle according to add 0-9 (is for1-9 hours). Set to 0 means no morning light function.

Note: to enter setting, in any layer do not press the set key 5 seconds it save this parameter state and exit.

4. The factory initialization Settings

Note: Electricity initially voltage under 18v the system default for 12 V power supply control system,12V and 24V automatically switch.

★ **12V Controller parameters**

Battery over charge voltage	14.8V	Load 1 Discharge voltage	10.5V
Battery overcharge recovery	14V	Load 1 discharge recovery	12.3V
The first light open	6H	Load 2 discharge voltage	10.5V
The second light open	2H	Load 2 discharge recovery	12.3V
Daybreak time	Automatic	Solar charging	10A

	recognition	electric current	
Before daybreak light duration	0H	Dark time	Automatic recognition

Note: Electricity initially voltage over 18v the system default for 24V power supply control system, 12V and 24V automatically switch

★ **24 V Controller parameters**

Battery over charge voltage	29.6V	Load 1 Discharge voltage	21V
Battery overcharge recovery	28V	Load 1 discharge recovery	24.5V
The first light open	6H	Load 2 discharge voltage	21V
The second light open	2H	Load 2 discharge recovery	24.5V
Daybreak time	Automatic recognition	Solar charging electric current	10A
Before daybreak light duration	0H	Dark time	Automatic recognition

5. Specifications

★ **Environment and safety**

Size(L×W×H)	177mm×135mm×56mm
Weight (kg)	0.5
Working temperature	－40℃～＋45℃
Transportation/storage	－40℃～＋55℃

temperature	
Working humidity	0 ~ 95% R.H. (not gel)
Working height	The highest altitude of 3000 m
Protection class	IP22

★ **12V Electrical parameters of the control**

Type	SN-WSL0.6-12V
Battery rated voltage	12V
The wind generator rated power	400W
Input current range	0-30A
The wind generator Max input power	440W
Intelligent stop system start voltage	≥14.8V
Max current of solar charge	10A
Battery over discharge protection voltage	10.5V
Solar Max input power	180W
Battery over discharge recovery voltage	12.3V
Output rated power	Single road 120 W (resistance sex load)
No1outputrated current	10A
No2outputrated current	10A

★ **24 V Electrical parameters of the control**

Type	SN-WSL0.6K-24V
Battery rated voltage	24V

The wind generator rated power	600W
Input current range	0-30A
Max input power of the wind generator	660W
Intelligent stop system start voltage	≥29.6V
Solar charging max current	10A
Battery over discharge protection voltage	21V
Solar Max input power	360W
Battery over discharge recovery voltage	24.6V
Output rated power	Single road 200 W (resistance sex load)
No1 output rated current	10A
No2 output rated current	10A
In order to better serve our customers, our company can adjust and configuration parameters according to customer requirements.	

6. Installation guide

★Installation matters need attention

⑴.Do not install directly the place that the rain can caught.

⑵.Should use the vertical wall hanging installation.

⑶.Battery, the load, light panels at the positive and negative do not reverse.

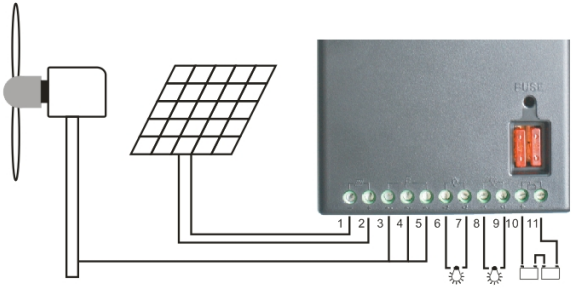
⑷.Load power should not be over the power rating or electric current.

⑸.Ensure controller ventilated smooth, good heat dissipation.

⑹.Should be regularly check controller working status, promptly

eliminate adverse impact.

★ Installation here: terminals from left to right Numbers for 1-11, specific defined as follows.



(1) Solar-: Solar charging negative input.

(2) Solar +: Solar charging positive input.

(3) R: Wind generators U phase input.

(4) S: Wind generators V phase input.

(5) T: Wind generators W phase input.

(6)-2: The second loaded negative output.

(7)+ 2: The second loaded positive output.

(8)-1: The first loaded negative output.

(9) + 1: The first loaded positive output.

(10) Battery +: Batteries positive input.

(11) Battery-: Batteries negative input.

★ **Installation steps**

(1).Check whether the controller and fan, solar cells and batteries voltage, power match.

(2).Based on the using condition set work mode, see the mode setting.

(3).Using a multimeter to check weather the battery voltage is correct, and confirm the battery anode.

(4). Connect the battery pack to the controller.

(5).Connect the applicable DC load or lamp to the controller. (Please note polarity!).

⑹.The wind generator connected to the controller. (When the wind generator in high speed rotating should not be installed, suggest the wind generator not turn then connection).

⑺.Using a multimeter to check weather components test voltage is correct. (Components test open voltage is higher than nominal voltage of 1.5 times or so, this is normal).

⑻. Connect solar cells to the controller. (Note the polarity!).

⑼.When in Double Street light mode, need to work in a relatively short time lights going in the first road, need to work longer time to have in the second road.

Warning: install good connections must be pulling and torsion test, or maybe because current big, bad contacts and burned connecting terminals and controller. Tighten the moment not less than 1.0 N.m, can withstand the 40 N pull don't loose.

★ Check method

⑴.Solar charging check: in the sunshine, the controller "  " indicating lamp glimmer, with dc clamp type ammeter measurement solar cell components to controller should indicate current attachment, (current size depends on the light intensity and battery capacity).

⑵.The wind generator charging check: in a wind (more than 3 Class) cases, observation to rotate the fan is normal. The wind generator dc voltage is higher than battery voltage controller "  " indicator light flashing, with clamp type ammeter measuring wind generators to controller cords to be current instructions. (For current and current size depends on the size and battery wind capacity).

⑶.Street light control test: after completing the installation then is test after completing the installation set the controller in monitor mode check whether the load are working properly after the completion of the examination is set the mode that controller actual

work need.

7. Equipment usage environment

★Dry: Can't water or rain, away from combustible and explosive substances.

★Cool: environment temperature -40℃…45℃.

8. The common problems and solutions

The common problem judgment and solutions

★ If controller with load in work the overload light, indicate that the load output exceeded rated load or output has short circuit.

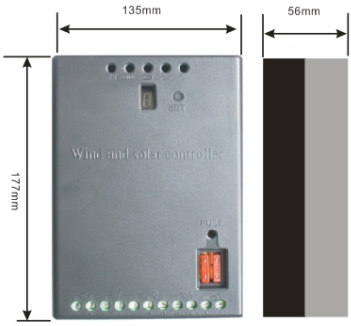
★ No charge, no display: light FUSE keep bright state check the controller of dc insurance whether fusing. When you find that fuse fusing, should first check the battery, whether the polar of component test meet wrong, output load power is matching, confirmed then replace it of the same specifications of dc insurance. (Insurance piece of specifications 40A).

★ The wind generator not turn: in the good wind cases, other fan operation, the fan not turn or slow speed ,please observe if the fan rudder direction and the direction of the wind is the same, check whether controller instructions over-voltage, if the same direction, and the controller did not over voltage. Try to disconnect controller and battery connection, wait for controller stop work then again through to the battery, the wind generator not turn or speed is slow, try to disconnect air blower and the controller connection, the fan rotation normal, indicate controller intelligent stop system damage, need to change.

★ Charger voltage over high: If battery voltage is higher than charging over-voltage protection more than 5%of the upper limit component test or fan with clamp ampere ammeter measurement

are still charging electric current. The problem may be charging controller damage and need to change.

9. Outlook size



10. The warranty and after-sales service

The warranty period is within two years since the device sold. Longer than warranty period, being damaged by transportation, improper usage, man-made damage, or natural disasters caused by force majeure damage, which are not in the list of the warranty.

Declaration: this product has applied for patent protection; counterfeit will be the legal sanction.