

User manual of super-intelligent wind and solar hybrid controller

Suitable for 600W 24V/48V Wind turbines



Product model: HY-T2-WSII-06-NNHN-2
HY-T4-WSII-06-NNHN-2

1 . Comprehensive introduction of products

1-1 Basic information

Super-intelligent wind/solar hybrid controller is a new type of special high performance control device for new energy application which is designed on the basis of ultra high performance controller. It contains many years of application experience (such as waterproof, dustproof, salt spray, wiring error, wind resistance limit control of Wind turbines, energy management etc.), it has done to ultimate no matter it applied to the charging control or street light control. In order to meet variety of applications, the controller adopts a hierarchical and modular structure, all functions can be achieved with different functional plates according to actual application, and it is convenient for rapid customization and application.

1-2 Characteristics

❖ Waterproof

Three defenses for circuit board, hierarchical design, even if small amount water enters, it will not damage the device

❖ RS232 communication

Standard configuration RS232 communication, it is easy to do the monitoring with the computer software. (RS485, short-range wireless is optional). Using a USB to RS232 members, more convenient to exchange data with a computer (computer with USB interface can be used).

❖ Safety wire connecting

Terminals are treated with injection molding process, wiring short circuit and cross will not occur, more safety for customers' operating.

❖ Automatically alarming of battery reverse

Battery input terminal will not be damaged with continuous reverse, and it has buzzer alarm. Avoid equipment damage and fire caused by wiring errors, and better protect the battery.

❖ Automatically alarming of Photovoltaic panels reverse

Photovoltaic panels will not be damaged with continuous reverse, and it has buzzer alarm. It will not cause wiring errors especially when work at night. (Note: reverse connection detection in the night needs manually keys intervention)

❖ Continuous short-circuit output protection

Discharge output terminal has continuous short-circuit protection, and over current protection. It is recovered after the abnormal excluded. Avoid damage of the controller or fire caused by electrical equipment fault (especially the short circuit).

❖ Patented Wind turbines steady speed generation control technology

Patented Wind turbines steady speed generation control method, which makes the Wind turbines not run with super speed, the Wind turbines can keep generation with a limited set speed even in the high winds, avoid direct stop of Wind turbines with over speed caused by strong wind. Greatly improve the Wind turbines generation energy and keep the safe running of the Wind turbines.

❖ Patented Wind turbines stall current limit control technology

Patented Wind turbines stall current limit control methods, which makes Wind turbines not run over current, avoid the damage of expensive generator caused by heating due to over current.

❖ Wind turbines input MPPT generation technology (boost)

Controller can provide automatically Wind turbines input maximum power tracking mode, or the 5 segments match curve input configuration mode(input rev to input current; or output voltage to input current curve), which makes the high efficient generation of the Wind turbines, but with low speed.

❖ Support multiple output mode selection

This controller provides optional multiple output modes (light control, time control,

light on in the morning, PWM dimming, reverse direction), which can satisfy a variety of applications.

❖ **Statistics the cumulative generating capacity, remaining power, speed, current, temperature and other data**

The controller screen displays not only the current, voltage, power of conventional Wind turbines, PV, battery, and the output terminal; but also the cumulative generating capacity of Wind turbines and PV, the remaining battery power, Wind turbines speed, unloading current, and the temperature of controller.

❖ **Alarm function when terminals up**

When the terminals are up, the controller will alarm, which requires customers to use with the correct install direction, avoid the possibility of damage caused by water comes into the controller when used in the open air or due to bad weather.

2.Product Parameter

Model	HY-T2-WSII-06-NNHN-2	HY-T4-WSII-06-NNHN-2
Battery parameters		
Applied battery voltage	24V	48V
Battery protect method	Reverse connection protection (do not burn any components, with voice prompt); over voltage protection, under voltage protection (for street light and such kind of load)	
Voltage at the over voltage protection point	29.0V ±0.2V	58.0V ±0.3V
Voltage at the over voltage recovery point	27.5V ±0.2V	55.0V ±0.3V
Voltage at the under voltage protection point	21.0V ±0.2V	42.0V ±0.3V
Voltage at the under voltage recovery point	23.0V ±0.2V	46.0V ±0.3V
Battery temperature compensation	5mv/°C/2V (settable) (optional component)	
Wind turbines input parameters		
Rated power of applied Wind turbines	600W/24V	600W/48V
Rated power of the terminal	30A dc (after rectification)	15A dc (after rectification)
Max. input current of the terminal	40A dc (after rectification)	20A dc (after rectification)
The default speed of the Wind turbines generation with limited speed	500 Rpm (settable)	
The default current of the Wind turbines generation with limited current	30A (settable)	15A (settable)
Wind turbines protection method	over rev protection, over current protection, induction lightning protection	
Unloading method	PWM stepless high-frequency soft unloading (built-in)	
MPPT function	Boost MPPT model (automatic tracking or 5 segments curve tracking)	
Input current of MPPT channel	12A	
PV input parameters		
Rated input current of applied PV	550W/24V (standard) 1100W/24V (optional)	1100W/48V (standard) 2000W/48V (optional)
Rated input current of terminal	15A (standard) 30A (optional)	
Charging voltage drop	<0.2V	
PV protection methods	Reverse connection protection (voice prompt)	
Unloading method	Open circuit unloading	
Discharge the output port parameters		
output	2 outputs	

Current of each output	12A
Output protection methods	Over current protection (15A/30sec. 18A/0.4sec.), short-circuit protection (current > 150A)
Output control methods	light control, time control, reverse output, PWM output (250HZ, only the 2 nd output has it)
Others	
Auxiliary function	Monitor of air temperature inside controller, temperature of unloading parts and Wind turbines MPPT components, and also the monitor of control terminals installed on the inversion (with voice prompt)
Display mode	Liquid crystal (LCD) display
Communication mode	RS232(5V electrical level)/RS485 (standard) Short-range wireless (optional)
Displayed parameters	Wind turbines input voltage/current/power/generated energy/rev/unloading current PV input voltage/current/power/generated energy Battery voltage/charging current/power/total charging capacity/battery status information output current/power/abnormal information of the 2nd output port
Power consumption in standby mode(screen backlight closed)	About 20ma /24V system
Operating mode	3M foil key operation (4 keys)
Working temperature / humidity range (environment)	-40~+80℃ /20~85% RH (non condensing)
Protection grade	IP41
Controller size (L*W*H)	175mm*148mm *84mm
Net weight	1.8KG