

**Wind/Solar Hybrid Controller  
User Manual**


Model: HY-C10-24AWM and HY-C10-48AWM




## 1KW Wind/Solar Hybrid Controller User Manual

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### Notices

- 1 )  **Battery reverse-connection is forbidden.**
- 2 ) Battery virtual connection or damage is one main factor of malfunction. Please check battery voltage and connection status weekly, clear rust on positive, negative terminal in time; use lead terminal if available.
- 3 ) If the malfunction is not easy to eliminate or reason unclear, please write down the phenomenon in detailed record, and contact manufacturer for help in time.

### Installation Environment

- 1 ) The equipment should be installed indoor where is well-ventilated.
- 2 ) Avoid exposing the apparatus under direct sunshine, exposure, rain, moist, acid mist and dust.
- 3 ) Allow at least 20 inches (0.5 m) distance from battery.
- 4 ) Ambient Temperature is -20 ~ +55°C; Ambient Humidity is 35 ~ 85%RH, no condensing.
- 5 )  Do not install the equipment in a compartment with flammable liquids, such as gasoline, or explosive vapors. Be ware of the flame and the spark.

### General Description

The wind/solar hybrid controller is an intelligent control device which can control wind turbine and solar panel at the same time, specially designed for high-end wind/solar hybrid system and also suitable for wind/solar hybrid power system and wind/solar hybrid monitoring system. It is used to control the wind generator and solar panel to charge the batteries safely and efficiently.

With decent appearance, easy operation, visual LCD display and perfect protection functions, the apparatus has high charge efficiency, low no-load loss.

The wind/solar hybrid controller is the core component of the off-grid power generation system. The performance of the controller will impact the life and the stability of the whole system, especially the lifespan of battery banks.

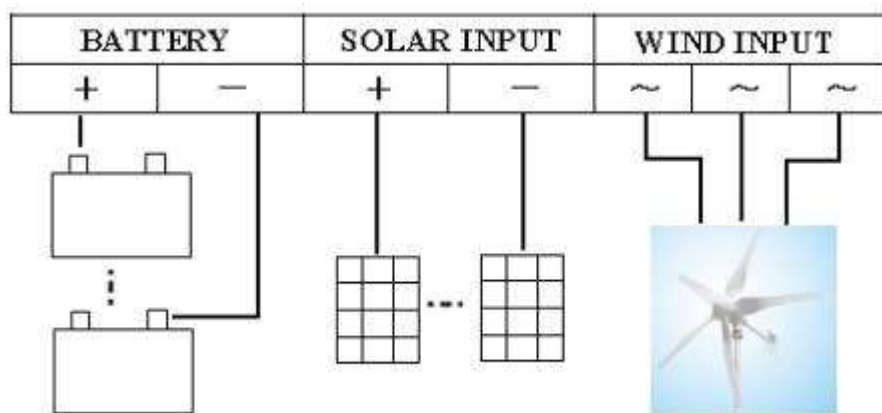
#### 1. Performance Description

- ✧ **Reliability** : Intelligentized, modularized design, simple mechanism, powerful functions. With industrial range superior components and strict production technology, the controller can be used in relatively bad working environment and has reliable performance and long life-span.
- ✧ **PWM Stepless Dump load Mode**: dump residual power with division into thousands of stages. It can dump residual power while charging battery banks, which is benefit to effectively extend battery longevity.
- ✧ **Voltage Limiting and Current Limiting Charge Mode**: When battery voltage exceeds the pre-set floating voltage point, the

controller will adopt PWM voltage limiting charge mode. It dumps the excess energy. When wind turbine charging current exceeds pre-set brake current point, the controller will automatically start brake to protect battery banks.

- ✧ **LCD Display Function:** LCD screen can display system status and parameters via visual digital and graphic form. Such as: battery voltage, wind turbine voltage, PV voltage, wind turbine current, PV current, wind turbine power, PV power, battery power status etc.
- ✧ **Perfect Protection Functions:** Battery over charge protection, Battery over discharge protection, Battery anti-reserve connection protection, wind turbine current-limiting charge, automatic brake, manual brake; solar anti-reverse charge protection, solar anti-reverse connection protection, lightning protection, etc.

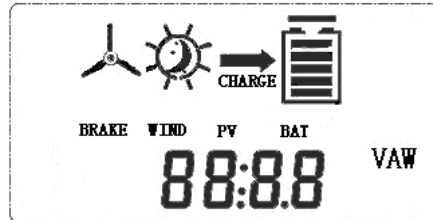
## 2. Installation Instruction









- Step 1.** Check the package and then check the controller for damage after unpacking. Damaged controller cannot be installed in the system.
- Step 2.** For controller whose dump load box is separated, please connect dump load box to the "DUMP LOAD" terminals of the controller.
- Step 3.** Connect battery positive pole to the positive (+) "BATTERY" terminal, Connect battery negative pole to the negative (-) "BATTERY" terminal with copper core cable.
- (Note: Although the controller has anti-reverse connection protection function, wrong polarity of battery shall be forbidden! Please refer to Appendix I for copper wire over current capability.)**
- Step 4.** Connect the wind turbine output lines to the "WIND INPUT" terminals in condition of wind turbine in action-less or low speed.
- Step 5.** Connect solar panels to the "SOLAR INPUT" terminals.
- Step 6.** Check all connection is proper and firm or not.
- Step 7.** If the controller has communication function, user can read and set relevant parameters via software.
- Step 8.** User can set relevant parameters through LCD buttons.

### 3. LCD Display Instruction and Key Specification

#### 4.1 LCD Display Instruction



- 1)  Wind turbine symbol.
- 2)  Day symbol.  Night symbol.
- 3)  Battery symbol, inner strip graph indicates the battery power status. Five inner horizontal strips display indicates the battery is full. The symbol  shall be flashing when the battery is over-discharge, flashing will not stop until battery voltage recover. The symbol  shall be flashing when the battery is over charge, flashing will not stop until battery voltage recover.
- 4) **88:8.8** Parameters display symbol. Each system parameters are displayed via visual digit and graph.
- 5) Press the "Enter" key and "Esc" button at the same time, LCD displays the symbol **BRAKE** which indicates wind turbine in brake status. Wind turbine will stop rotating or running in low speed under brake status. Press the "Enter" key and "Esc" button at the same time under brake status, the symbol **BRAKE** will disappear and brake status is released. In normal situation, the wind turbine shall be in running status rather than brake status.

#### 4.2 Button Specification

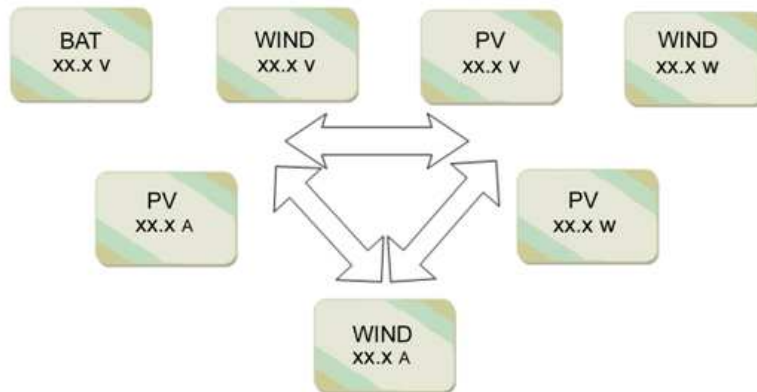
LCD backlight will be on after pressing any button. The backlight will go out to save power if there is no button operation for 10 seconds.

- ✧ "↑(+)": Up/ Increase. In browsing status, press ↑(+ ) to check the previous parameter. In setting window, press this button to check the next adjustable parameter or increase the value of current parameter.
- ✧ "↓(-)": Down/Decrease. In browsing window, press ↓(- ) to check the next parameter. In setting window, press this button to check the previous adjustable parameter or decrease the value of current parameter.
- ✧ "Enter": Set/Confirm. In browsing window, press "Enter" to access setting window. In setting window, press this button to save parameters and return back to browsing window.
- ✧ "Esc": Cancel/Manual reset. In setting window, press "Esc" to return to browsing window without saving the modified parameters.

#### 4.3 Parameters Browsing

- 1) When power is on, the LCD is under browsing window and displays battery voltage: XX.X V;
- 2) In browsing window, LCD will circularly display the following parameters by pressing "↑(+)" button and "↓(-)"

button.



#### 4. Technical Data

Product Model	HY-C10-24AWM	HY-C10-48AWM
Rated Battery Voltage	24V	48V
Rated Wind Turbine Input Power	1000W	
Maximum Wind Turbine Input Power	1500W	
Wind Turbine Brake Current	42A	21A
Rated Solar Input Power	300W	
Floating Charging Voltage	29V	58V
Display Mode	LCD	
Quiescent Current	≤20mA	
Ambient Temperature & Humidity	-20 ~ +55°C/35 ~ 85%RH ( Without Condensation )	
Temperature Compensation Function (Optional)	-4mV/°C/2V , -35°C~+80°C , Precision : ±1°C	
Package size (L×W×H)	51×50×25cm	
Net Weight	10kg	
Gross Weight	11kg	


**In order to serve our customers better. Our company can adjust parameters configuration according to customer's requirement.**

#### 5. Troubleshooting

If your phenomenon is out of following descriptions or should you have any problems about these products, please contact



manufacturer in time.

Phenomenon	Troubleshooting
The symbol  flashing, without charge or discharge	Battery is over-voltage, check battery voltage, and whether the cables are well-connected or not, re-connect all components.
LCD display "BRAKE" all the time	a) Firstly, open the software "parameter"- "control", please check if the setting is "BRAKE". If yes, please cancel it. b) Secondly, Disconnect wind turbine, battery with controller successively. Reconnect them a few minutes later, then check if it comes back to normal.

## 6. Guarantee and Liability

One year warranty is available for our product from the date of delivery. If the product is out of warranty or damaged by transportation, inappropriate operation, human factors, force majeure, no guarantee is made.

### Appendix

#### Appendix I: Copper Wire Over-current Capacity

Wire Diameter ( mm <sup>2</sup> )	Over current capability ( A )	Wire Diameter ( mm <sup>2</sup> )	Over current capability ( A )
4	≤20	16	≤90
6	≤30	25	≤125
10	≤50		