



WINDMAX Green Energy

www.greenpower4less.com

**WIND TURBINE & SOLAR
H2O HYBRID CONTROLLOR
OPERATION MANUAL**

OVERVIEW

H20 hybrid wind turbine controller is designed to work with H20 hybrid wind turbine. This multifunctional Hybrid controller combines the functions of AC to DC rectifier, load control and dump load control for wind turbine and/or solar systems. It eliminates the need for separate rectifier, solar charge controller and wind turbine controller. It is the most cost effective solution for renewable energy systems. Separate dump loader included with controller.



Main Features:

- High Reliability: Separate dump loader and efficient ventilation design ensure reliable and efficient operation.
- Great for hybrid wind/solar system, hybrid controller can support battery charging from simultaneous wind generator load and solar load combined up to 4000w.
- Charge Control: Constant voltage series PWM regulation to provide highly efficient battery charging increase battery capacity and life.
- Built-in "ON/OFF Switch" to connect the wind turbine or solar panels to the controller.

- Load control and diversion control: The controller has over-charge protection, short-circuit protection, pole-confusion protection and automatic dump-load function. It is reliable with a highly efficient, long service life.
- Uses advanced technology and automated production to provide exciting new features at a competitive cost.

The wind turbine shut down automatically when the battery voltage gets to 125%; and startup automatically when the voltage drops to 108%.

Charge control, load control and dump load functions

1. When the battery's voltage is lower than the discharging bottom limit (see the details in the attached form), the shortage indicator shines, it reminds the user that it is in the discharging lower limit and needs charge.
2. When the charging fuse breaks, the charging fuse indicator will shine to remind the user to change the fuse.
3. When the wind turbine is working, it is not allowed to open or change the fuse to avoid the user from being hurt or damage the controller. When user change the fuse, the wind turbine should in brake state, shut off all the switches, break the connection of the battery and then check or change the fuse.
4. When the wind speed is too high or the storage battery is fully charged, the dump loader starts working and the dump load indicator shines. At this time the wind turbine continues charging a little electric current into battery.
5. When the battery is fully charged and the voltage gets to 125%, the wind turbine will automatically stop charging and the stop indicator will shine, there is no value on the Ampere Meter at this time. When the battery voltage drop to 108% of the rated voltage, the stop indicator and dump load indicator will go off, the wind turbine will resume to work and then charge to the battery automatically.

INSTALLATION INSTRUCTIONS

When installing controller for wind turbine, you should follow the below operation steps.

1. Wiring

- 1.1. Before operation, put the manual switch in “OFF” position, and make the wind turbine in stop state.
- 1.2. Connect 3-phase output wires of wind turbine separately with the terminals on the controller’s back panel (No order among 3-phase).
- 1.3. Connect the dump loader of the turbine with a, b, c terminal blocks on the back of the controller separately.
- 1.4. Connect the controller with battery bank. Connect the “+” & “-” terminals of storage battery separately to the battery “+” & “-” terminals on the back panel of the charge controller. Take precautions against wrong polarity connection or short circuit. Don’t connect the battery “+” and “-” pole conversely.
- 1.5. Connect the “+” & “-” poles of solar panels separately to the back panel’s solar “+” & “-” terminals of the charge controller. Forbidden to connect the solar “+” and “-” pole conversely.

Caution: When the poles are wrongly connected, reversed indicator will shine.

- 1.6. After check the storage battery is connected correctly, press the button to “ON” position in the back panel, the turbine is in working condition.

- 1.7. Press the wind turbine button to “OFF” position when the controller is not in use.
- 1.8. When the controller’s rated power is above 3kw, it is forbidden to operate the manual breaking switch when the wind turbine is working.



Notice

1. Before installation and operation, please shut off all the electric power. And then install them orderly.
2. The control switch must be added to the battery bank (>60V).
3. Wind turbine and controller should be installed and operated by a professional wind turbine installer certified by state or local government.

2. Working conditions

1. Using in dry, clean, ventilated environment.
2. Avoid direct sunshine, insolate, drench, damp, and acid mist.
3. Avoid using in dusty environment.
4. Distance from controller to battery should be no less than 6.5 feet (2 meters).
5. The controller must be placed on the dry insulated panel, and add the anti-dust cap. Place controller in ventilated places.
6. When the dump loader is working, there is a high temperature, so it should be placed in a ventilated place. The dump loader should not be covered and no flammable, explosive materials should be nearby.

TROUBLE SHOOTING

1. When the wind turbine is working but the controller has repeated noise, stop wind turbine immediately, check the fuse and the connection of battery group are good or not, maybe the battery is damaged.
2. After connecting the battery, if the voltmeter shows no value, you should check if fuse is broken, the battery is connected correctly, the polarity is connected by mistake or the battery has already been damaged.

NOTES

This controller has already considered the possibility of any incidents in design, and adopts the protection methods. But those protections are not perfect. The frequent restart of some function such as short-circuit-protect; inverse-connection-protect etc. will damage the internal components seriously. Therefore, the customer shouldn't depend on these protect functions excessively.

The following is very important for extend the equipments' life-span:

1. The exhausted batteries and the connection are the main reason of failure.

Exhausted or wrong connection can cause the charge voltage too high or too low, over-charge, over-discharge, shunt, stop frequently, and malfunction.

We suggest you to check the followings weekly: the battery voltage, capacity, connection and clean the “+”and “-” pole in time. (Please stop the wind turbine before checking the battery).

When the voltage of the storage battery falls to 85%, the “Power Shortage” button on the panel shines. Stop using immediately and charge the battery in time. Or else, it will affect the life of the battery.

This equipment can't charge the exhausted battery. If the battery's voltage is under 75% of rated voltage, the wind turbine will stop working, please change for a new one or charge the battery separately.

2. During charging, the temperature should be kept between 5~45 °C. When the temperature is too high, take measures to lower temperature or intermittent charging should be used. After charging, the injection plug should be spun tightly. Use clean water to wash the dirty or acid marks on the surface of the battery.



3. When using the battery, distilled water should be added constantly and acid is forbidden. Regular check should be taken.

Before checking or repairing, the out-connected manual controller must be on "OFF".

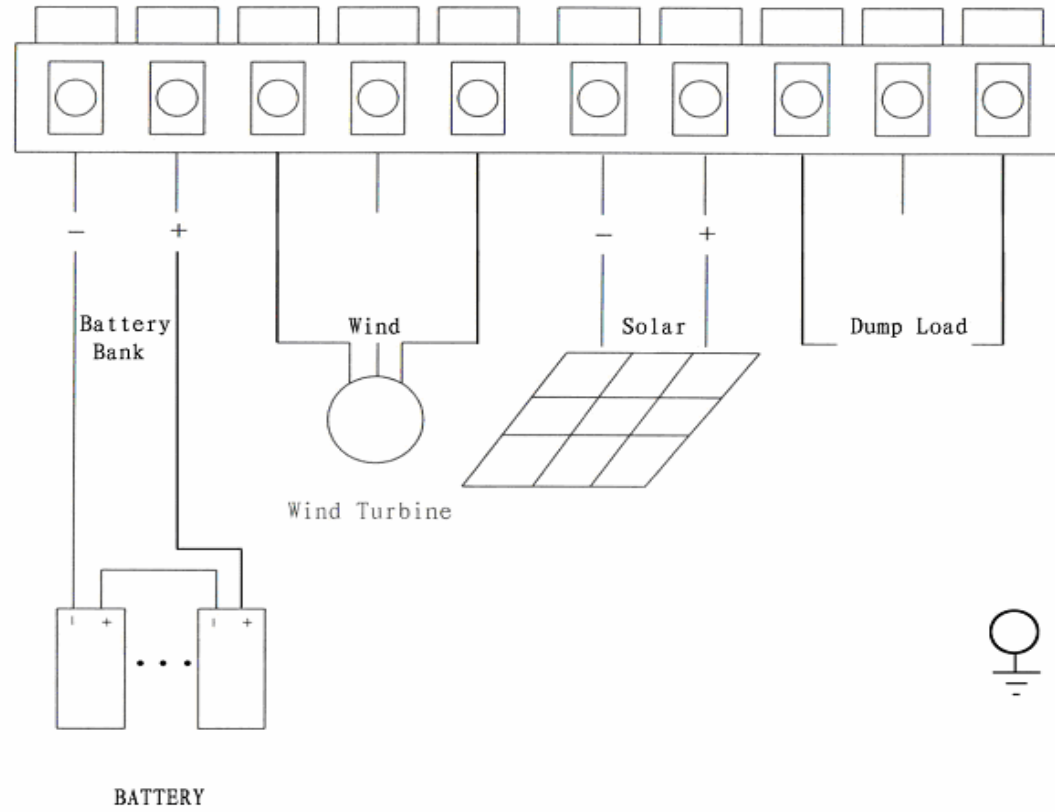


4. Do not connect the battery conversely to prevent the machine from being damaged.



5. It should connect with the ground to prevent from an electric shock.

Controller Connection Diagram



H20 Wind Turbine Controller Technical Parameters

Rated Wind power (W)	2000
Maximum Wind Power (W)	3000
Solar panel power (W)	1000
Matching battery Bank (V)	48
Working method	Continuous
Wind Turbine dump load voltage (V)	60 ± 1
Wind Turbine Stop voltage (V)	60 ± 1
Wind Turbine restore charge voltage (V)	54 ± 1
Wire Size (mm ²)	>10



Caution: For your security, please do the ground-connect well and reliably. This dump loader should be put in good ventilation and easy radiating places, inflammable and explosive materials should not be put near the dump loader, and the dump loader can not be covered by other materials.

Thank you for choosing WindMax H20 wind turbine controller. Please read this user's manual carefully before installation to assure optimal performance, please read the following Important Safety information before installation to ensure safe use of this product.

We recommend the wind turbine and controller are installed by professional wind turbine installers certified by NABCEP, state or local government. WindMax wind turbine and controller must be installed following the guidelines established by state and local regulations. Consult a local electrical contractor or the local planning and zoning office for details and regulations. The H20 wind turbine and controller may output high current and high voltages, if you install the wind turbine yourself, you assume full responsibility and risk such as electrical shock or improper operation. WindMax Green Energy Corp. / Applied Magnets shall not be responsible for any consequential damages that any person or property might suffer as a result of wind turbine defects and failures. The end user of information and products by WindMax Green Energy Corp. / Applied Magnets products assumes full responsibility and risk.

All specifications are subject to change without notice