

## Hetronix Wind Power Generator Keith\_2K System

### Hetronix Keith\_2K System Assambly



*Keith\_2K*



*Blade*



*Generator Coil*



*Tail Assembly*



*Grid-tied Inverter*



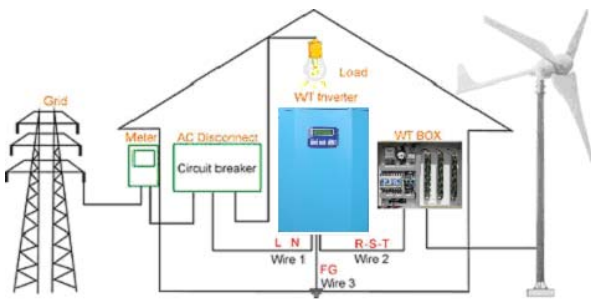
*Control Box*

### **CE Certification**

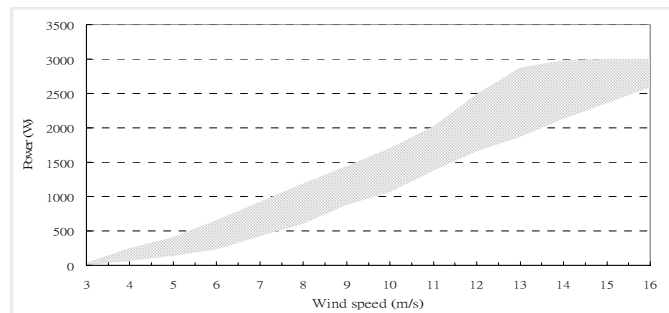
- EN 61400-2 : 2006, Wind turbines – Part 2 : Design requirement for small wind turbines
- EN ISO 12100-1 : 2003, Safety of machinery – Basic concepts, general principles for design – Part 1 : Basic terminology, methodology
- EN ISO 12100-2 : 2003, Safety of machinery – Basic concepts, general principles for design – Part 2 : Technical principles
- EN 1050 : 1996, Safety of machinery – Risk assessment
- EN 60204-1 : 2006, Safety of machinery –Electrical equipment of machines-Part 1 : General requirements
- EN 44011 : 1998, Electromagnetic compatibility – Industrial, scientific and medical (ISM) radio-frequency equipment- Radio disturbance characteristics- Limits and methods of measurement
- EN 61000-4-2 : 1995, Electrostatic discharge (ESD)
- EN 61000-4-4 : 1995, Electrical fast transient/burst requirements (EFT/Burst)
- EN 61000-4-6 : 1995, Immunity to conducted disturbances, induced by radio-frequency fields (CS)

## Hetronix Keith\_2K Wind Turbine Features

- Start-up wind speed : 3.5m/s
- Rated wind speed : 12.5m/s
- Survival wind speed : 50m/s
- Rated Power : 2KW
- Maximum Power : 3KW
- Rotational speed : 145rpm~780rpm
- Generator : 3Phase/18Poles
- Over speed protection : Active side furling protect
- Rotor Diameter : 2.488m
- Weight : 58kg
- Blade : carbon/glass fiber reinforced composite



Wind power generation system architecture



Keith\_2K Wind turbine Power curve

## Hetronix Keith\_2K Wind Turbine Specification

Hetronix Keith\_2K wind turbine system is the latest small wind turbine generator system designed to provide electricity which can be used on several different type applications, such as batteries charging, or stand alone remote electrical power supply system. Furthermore, with the additional Power Grid Inverter, the Hetronix Keith\_2K wind turbine system can also be connected to the power grid.

The Hetronix Keith\_2K wind turbine system consists of a 2.5 meter rotor system and a generator which is 35cm in diameter. The 58 kilogram wind turbine is rated at 2000 watts @ 12.5 m/s wind.

The Hetronix Keith\_2K wind turbine system features superior low wind-speed blade design which provides great performance, very high system efficiency, and low noise. The Hetronix Keith\_2K wind turbine system also provides the optional mono-tower kit and guyed tubular tilt tower kit.

Depending on the output voltage, there are six types of Hetronix Keith\_2K system, see the following table for more details.

Keith_2K Wind Turbine System			
Rotor diameter	2.488 m	Total weight	Less than 58 KG
Cut-in wind Speed	3.5 m/s	High Wind Protection	Start @ 13.5 m/s
Rated wind Speed	12.5 m/s	Rated output	2kW @ 12.5 m/s

Survival Wind Speed	50 m/s	Rotor RPM	145rpm-780rpm
		Maximum Power	3kW
Generator Output (six types)	A_type : 3Phase	AC 7V ~ 55V	
	B_type : 3Phase	AC 15V ~ 125V	
	C_type : 3Phase	AC 30V ~ 240V	
	D_type : 3Phase	AC 60 V ~ 380 V	
	E_type : 3Phase	AC 120 V ~ 440 V	
	F_type : 3Phase	AC 160 V ~ 600 V	
Generator	3-phase permanent magnet generator of a 18 polarity structure		

**High-Wind Protection**

In case of high wind speeds, the High-Wind Protection Function system will protect the wind turbine automatically. When furled, the rotor will turn away from the wind direction, the rotor speed will reduce, and the power output of the turbine will be significantly reduced.

High-Wind Protection Function is an easy method to provide high wind speed protection. The High-Wind Protection Function is based on basic physical relationship between the aerodynamics, rotor, gravity, and the specially designed tail shape and weight balance of The Keith\_2K wind turbine system.

The High-Wind Protection Function is completely passive, so it is very reliable. But there is one situation in the field that we have found can disrupt the operation of High-Wind Protection Function. If the wind turbine is installed on a sharp hill or next to a cliff so that the wind can come up through the rotor on an incline (e.g., from below; as opposed to horizontally) this will affect furling and can produce higher peak outputs. We strongly recommend avoiding this situation.

**High-Wind Protection Action**



high wind speed <1>



high wind speed <2>



high wind speed <3>

**Caution**

- Please do not install Keith\_2K wind turbine system near cliffs or precipices or on sharp hills such that the wind does not travel horizontally through the rotor.
- The weight distribution of the system is specially balanced. Any change of the system weight and balance, especially the tail, may cause malfunction of the High-Wind Protection Function

**Note**

- Additional Electromagnetic over-speed protection is provided by the electronic system controller.

## Keith\_WG Serials Grid-tied Inverter

### Product Features:

- Utility-Tied Inverter with Sinusoidal Supply Current
- DSP-Controlled Line Interactive Windpower Inverter
- Large DC Input Voltage Range
- Output Frequency 50/60 Hz Auto-detection
- Low Output Current THD
- High Power Conversion Efficiency



Model	Keith_WG3K_110V	Keith_WG3K_230V
<b>DSP Fully Digital-Controlled Grid-tied Inverter</b>		
Output power	2000W	3000W
Maximum power	2200W	3300W
<b>Input (AC)</b>		
Nominal AC voltage	180VAC	
Working rang	30~300 VAC	
Max. input current	13A	18A
<b>Output</b>		
Operational voltage	110V /115V / 120V	220V / 230V / 240V
Operational frequency	50/60Hz auto select	
Power factor	>0.99 @ Full-Load	
Current distortion	<4%	
Normal Output current	17.4A	13A
Maximum Efficiency	>93%	>93%
Safety	VDE-0126, EN50178, IEC62103	
<b>Environment</b>		
Protection degree	IP43	
Operation temperature	-20 to 40°C	
Humidity	0 to 95%, non-condensing	
Heat Dissipation	Convection	
<b>Mechanical</b>		
W×H×D (mm)	480*365*175	480*365*175
Weight (kg)	20Kg	20Kg

### Shipping Package

Contents	Keith_2K Generator	Keith_2K Blodxs 3	Keith_2K Tail x 1	Keith_WG3K Inverter	Control Box
weight	39.5Kg	13Kg	7.3Kg	23Kg	48Kg
Size(mm)	680 x 485 x 360	1250 x 280 x 360	1550 x 490 x 60	585 x 445 x 320	910 x 650 x 220