**Pikasola P-WTGK-400W-24V**

# Pikasola Wind Turbine Generator 400W 24V Instruction Manual

Model: P-WTGK-400W-24V

## 1. Introduction

This manual provides essential information for the safe and efficient assembly, installation, operation, and maintenance of your Pikasola Wind Turbine Generator 400W 24V. Please read this manual thoroughly before proceeding with any steps.

### Product Features:

- **Low Speed Starting:** Designed to begin operation at low wind speeds, maximizing energy capture.
- **High Wind Energy Utilization:** Optimized blade design for efficient power generation.
- **Low Vibration:** Engineered for stable and quiet operation.
- **Durable Blades:** Three 23.4-inch blades constructed from nylon carbon fiber, offering waterproof, corrosion-resistant, and lightweight properties.
- **Efficient Generator:** Features a three-phase permanent magnet synchronous motor with high-performance NdFeB permanent magnets.
- **Integrated Charge Controller:** Includes an MPPT intelligent microprocessor for effective current and voltage regulation, with automatic shutdown when batteries are fully charged.
- **Yaw Adjustment System:** Automatically adjusts rotor position to align with wind direction for maximum energy capture.

## 2. Safety Information

Adherence to safety precautions is crucial during all phases of installation, operation, and maintenance. Failure to follow these guidelines may result in serious injury or damage to the equipment.

- Always wear appropriate personal protective equipment (PPE), including gloves and eye protection.
- Ensure the installation site is clear of obstacles and other personnel during assembly and installation.
- Disconnect all power sources before performing any maintenance or wiring.

- Avoid contact with rotating blades. Blades can cause severe injury.
- Do not install the turbine near power lines or other electrical hazards.
- Secure all connections properly to prevent electrical shorts or disconnections.
- Consult a qualified electrician for wiring if you are unsure.
- Ensure the mounting pole is stable and securely anchored to withstand strong winds.

## 3. Product Components

Verify that all components listed below are present and undamaged before beginning assembly.

- Wind turbine body
- 3 Blades
- Hub
- Screw set
- Charge controller
- User manual (this document)




Figure 3.1: Overview of all included components.

## 4. Assembly Instructions

Follow these steps carefully to assemble your wind turbine.

1. **Attach Blades to Hub:** Securely fasten each of the three blades to the central hub using the provided screws. Ensure they are tightly secured to prevent detachment during operation.
2. **Mount Hub to Generator Shaft:** Attach the assembled hub with blades to the generator shaft on the turbine body. Use the appropriate fasteners and ensure a snug fit.
3. **Connect Tail Fin:** Attach the tail fin to the rear of the turbine body. This component is crucial for the turbine's ability to orient itself into the wind.




Figure 4.1: Blade assembly onto the hub. The assembled rotor has a diameter of approximately 51.18 inches.



Figure 4.2: Detailed view of the hub and blade attachment.

## 5. Installation Guidelines

Proper installation is critical for the performance and longevity of your wind turbine.

### 5.1 Site Selection

The wind turbine should be installed in an area with consistent strong wind and minimal obstructions. Consider the following:

- **Obstruction Clearance:** If installing near obstacles, position the turbine as far as possible from them, or ensure the installation height is at least 20 feet higher than the top of any obstructions. This maximizes wind power utilization.
- **Elevated Locations:** Hills or elevated areas can benefit from a growth effect, making them suitable installation sites.
- **Avoid Turbulent Regions:** Do not install near cliffs or areas known for turbulent wind patterns.

## 5.2 Mounting

The turbine is designed to be mounted on a pole with a diameter of approximately 2 inches (+/- 0.08 inches). Ensure the pole is robust, securely anchored, and capable of supporting the turbine's weight and resisting wind forces.




Figure 5.1: Assembled turbine with key dimensions, including the 2-inch pole diameter.

## 5.3 Electrical Connections

Connect the wind turbine to the charge controller, and then connect the charge controller to your 24V battery bank. Ensure correct polarity and secure connections.

- Connect the three-phase AC output from the wind turbine to the AC input terminals on the charge controller.
- Connect the DC output terminals of the charge controller to your 24V battery group, observing correct positive and negative connections.
- An inverter (UPS Inverter) can be connected to the battery group to convert DC power to AC for household appliances (AC Load) or for grid connection.

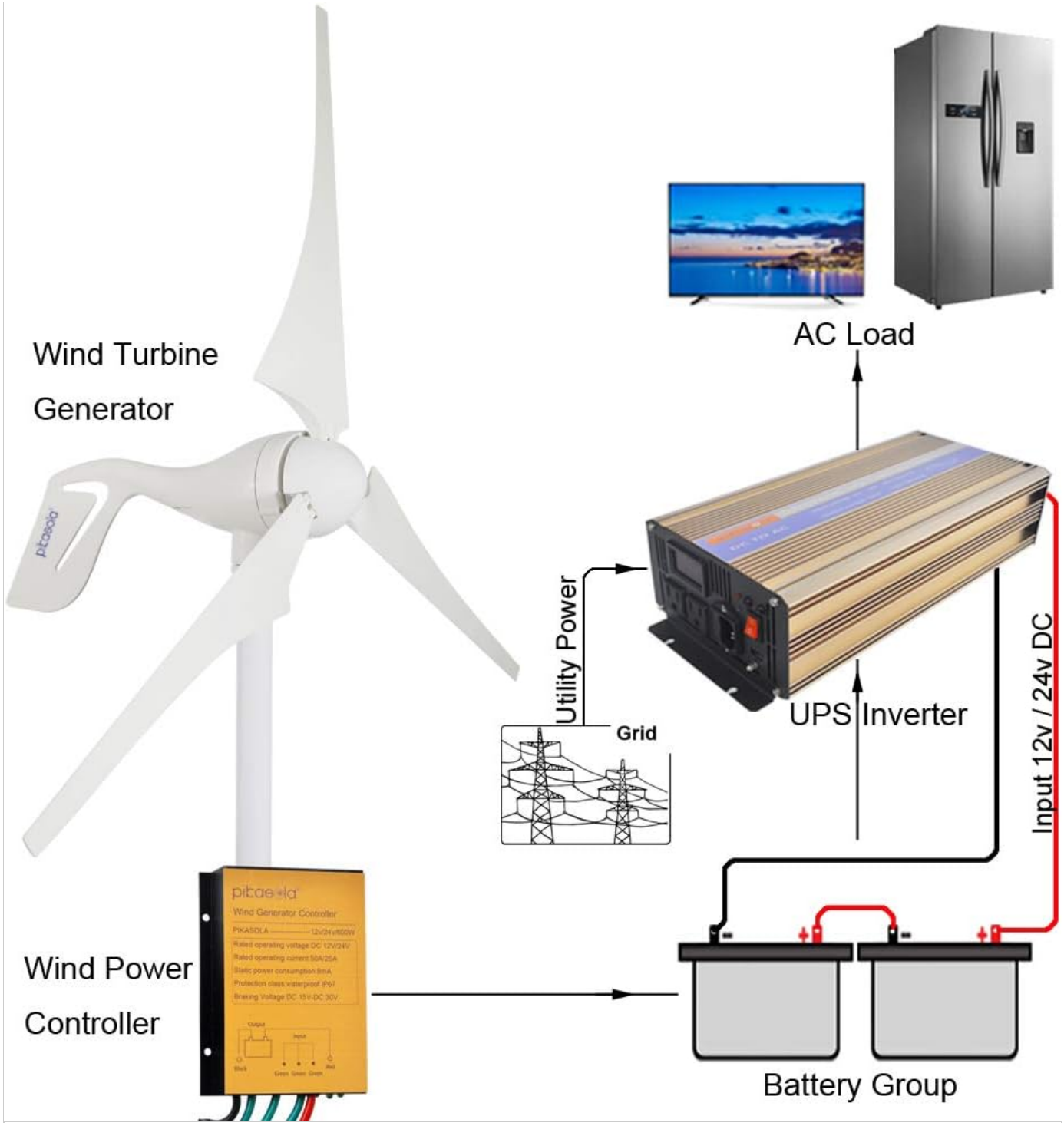



Figure 5.2: System wiring diagram for the Pikasola Wind Turbine Generator.



Figure 5.3: Example of an installed wind turbine.

## 6. Operating Instructions

Once properly installed and connected, the Pikasola Wind Turbine Generator operates automatically.

- The turbine will begin to rotate and generate power when wind speeds are sufficient (low starting speed).
- The integrated charge controller will manage the power output, ensuring optimal charging of your 24V battery bank.
- The yaw adjustment system will automatically orient the turbine to face the wind, maximizing energy capture.
- The charge controller will automatically stop charging when the battery bank is fully charged to prevent overcharging.

## 7. Maintenance

Regular maintenance ensures optimal performance and extends the lifespan of your wind turbine.

- **Visual Inspection:** Periodically inspect the blades, hub, and tail fin for any signs of damage, cracks, or wear.
- **Fastener Check:** Ensure all bolts and screws are tight, especially those securing the blades and the turbine to the mounting pole.
- **Cable Inspection:** Check all electrical cables for fraying, damage, or loose connections.
- **Cleaning:** Keep the blades and turbine body clean from dirt, ice, or debris that could affect performance or balance.
- **Bearing Check:** Listen for unusual noises from the generator, which could indicate bearing wear.
- **Braking System:** If your setup includes a manual braking system, test its functionality periodically.

## 8. Troubleshooting

This section addresses common issues you might encounter with your wind turbine.

### 8.1 Turbine Not Spinning or Low Output

- **Insufficient Wind:** Verify current wind speed. The turbine requires a minimum wind speed to start and generate significant power.
- **Obstructions:** Check for nearby obstacles blocking wind flow to the turbine.
- **Blade Damage:** Inspect blades for damage or imbalance. Damaged blades can reduce efficiency or prevent rotation.
- **Wiring Issues:** Ensure all electrical connections are secure and correct. Check for loose wires or shorts.
- **Controller Malfunction:** Verify the charge controller is functioning correctly and indicating proper operation.

### 8.2 Excessive Noise or Vibration

- **Unbalanced Blades:** Ensure blades are correctly installed and balanced. An imbalance can cause significant vibration.
- **Loose Fasteners:** Check all mounting bolts and screws for tightness.
- **Bearing Wear:** If a grinding or persistent mechanical noise is present, the generator bearings may be worn and require inspection by a qualified technician.
- **Mounting Pole Stability:** Ensure the mounting pole is rigid and securely anchored.

### 8.3 No Charging to Batteries

- **Battery Voltage:** Confirm battery voltage is within the operational range for the 24V system.
- **Controller Connections:** Double-check connections between the turbine, controller, and batteries.
- **Controller Status:** Observe the charge controller's indicators for error codes or charging status.
- **Turbine Output:** Verify the turbine is spinning and generating AC power before it reaches the controller.

## 9. Specifications

| Specification | Value |
| --- | --- |
| Brand | Pikasola |
| Model Number | P-WTGK-400W-24V |
| Wattage | 400 watts |

| | |
|---|---|
| Voltage | 24 Volts |
| Fuel Type | Wind |
| Power Source | Wind Powered |
| Recommended Uses | Residential |
| Item Weight | 18.55 pounds (8.43 Kilograms) |
| Special Feature | Corrosion Resistant |
| Color | White |
| Material | Nylon Carbon Fiber, Die-casting Aluminum |
| Included Components | Wind turbine body, 3 blades, hub, screw set, controller, user manual |
| Package Dimensions | 28 x 11.5 x 8 inches |
| UPC | 745499000864 |

## 10. Warranty and Support

Pikasola products are manufactured to high-quality standards. For warranty information or technical support, please refer to the contact details provided at the point of purchase or visit the official Pikasola website. Keep your purchase receipt as proof of purchase.


### Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

**Name**

Anonymous

**Email**

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

**Question**

Example: How do I reset this device or fix this error?

**Details**

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question