



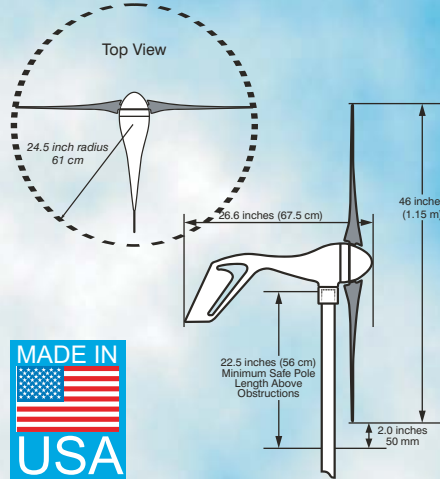
Patent Pending

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# SPECIFICATIONS

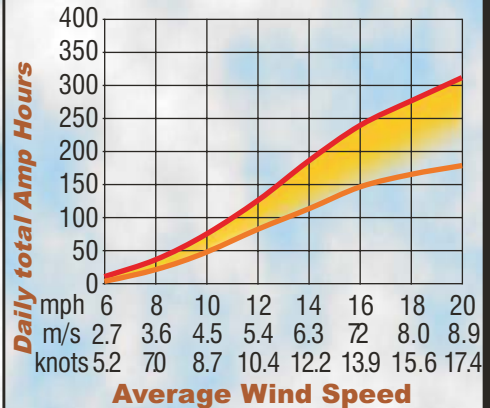
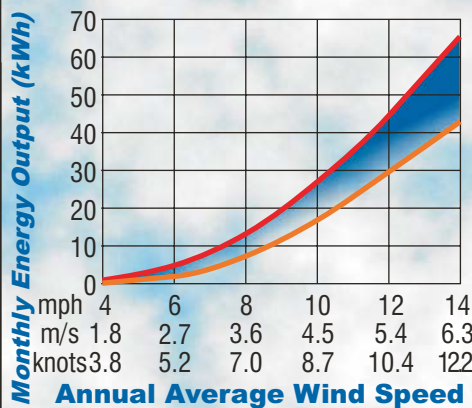
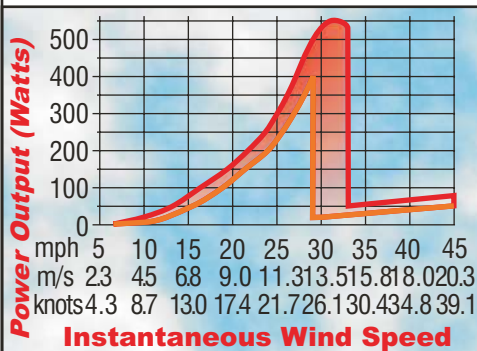


## Sphere of Operation



<b>Rotor Diameter:</b>	<b>46 inches (1.15m)</b>
<b>Weight:</b>	<b>13 lbs (5.85kg) (Shipping: 27"x15"x9" (686x38x228mm) / 17 lbs (7.7kg))</b>
<b>Mount:</b>	<b>1.5" schedule 40 pipe (1.9" OD, 48 mm)</b>
<b>Start-up wind speed:</b>	<b>7 mph (3.13 m/s)</b>
<b>Voltage:</b>	<b>12 and 24 VDC (36 and 48 VDC available soon)</b>
<b>Rated Power:</b>	<b>400 watts at 28mph (12.5m/s)</b>
<b>Controller:</b>	<b>Microprocessor-based smart internal regulator with Peak Power Tracking</b>
<b>Blades:</b>	<b>Carbon Fiber Composite</b>
<b>Body:</b>	<b>Cast aluminum (Air-X Marine is powder coated for corrosion protection)</b>
<b>Energy Production:</b>	<b>38 kWh/mo @12mph (5.4m/s)</b>
<b>Warranty:</b>	<b>3 Year Limited Warranty</b>
<b>Survival Wind speed</b>	<b>110 mph (49.2 m/s)</b>
<b>Over-speed Protection:</b>	<b>Electronic torque control</b>
<b>Battery Bank Minimum</b>	<b>100 amp hours @ 12V, 50 amp hours @ 24V</b>

## Performance Curves



— Top Line - Non-Turbulent Site  
 — Bottom Line - Turbulent Site

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02SWP069



## A breakthrough in small wind turbines



Southwest Windpower is pleased to introduce the latest evolution in small wind turbines, the NEW AIR-X. The AIR-X combines what has made AIR the world's number one selling small wind turbine with new technology previously found only in today's state-of-the-art mega-watt-class wind turbines.

All of these features are primarily found within the body of the turbine. The new microprocessor based speed control results in increased performance, improved battery charging capability and the elimination of "flutter" noise from the machine. The controller allows for peak-power tracking of the wind by optimizing the alternators output on all points of the cubic curve and then efficiently delivers the energy to the battery. The turbine's smart controller allows it to actually control blade rotation speed thus eliminating the buzzing noise commonly found with the AIR 403 and 303 in high winds. Furthermore, a new series of carbon-reinforced blades with a modified pitch angle further increases power production.

The new electronics are a considerable improvement over the previous AIR-403 controller that consisted of diode-rectification and a simple on/off voltage switch. To the customer this means:

**Much Lower Noise:** Previous AIR wind modules relied on their aero-elastic blade design for over speed protection in high winds, causing loud flutter noise in winds above 35 mph (16 m/s). AIR-X's circuit monitors the wind speed and slows the blades as it reaches its rated output preventing it from going into flutter. The result is a much quieter, neighbor friendly wind turbine. In high winds, the AIR-X will continue to produce power at a reduced level until the wind decreases, at which point maximum output will resume. Additionally, when the battery has reached its charged state, the AIR-X will slow to an almost complete stop. Only when the battery has dropped below its user adjustable voltage set point will it startup and resume charging.

**Improved battery charging:** Previous AIR designs required 300-400 amp hour battery banks so the trickle charge of the wind turbine could be adequately absorbed. The AIR-X's charge controller periodically stops charging, reads the battery voltage, compares it to the voltage setting and if the battery is charged, it completely shuts off all current going to the battery. This function is performed within a few milliseconds. The closer the battery is reaching its full state of charge, the more often the AIR-X's circuit repeats this action. This means any size battery from 25 to 25,000 a/h or higher can be charged safely.

**Lower stress design:** AIR-X limits power on the input side of the electronics by controlling the torque from the blades. The power no longer has to be dissipated by the electronics resulting in lower heat stress on the circuit, bearings and other materials. Furthermore, stress on wind turbines occurs primarily in high winds. Under these conditions, the electronic stall design reduces the speed to 600 rpm, thereby significantly reducing turbine and tower loading.

The AIR-X is our most expensive venture to date. Thousands of hours of research and testing have gone into the design. We are confident you will love the improvements the AIR-X has to offer.

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