



## 1.5 kW Wind Turbine System Specification Sheet

Wind is a naturally occurring and abundant resource and is one of the cleanest ways to produce electricity. Very little processing needs to be done to convert it into clean, free energy. Operation of our wind turbines produces no pollution with no emissions, excessive noise or waste heat by-products. Wind can be harvested with minimal impact on the environment, a very important factor in meeting our increasing energy needs.

### Synergy

- Solar
- Biomass
- Diesel Generator
- Hydroelectric
- Geothermal

### Applications

- Commercial and Industrial
- Residential and Resort
- Agricultural
- Remote Communities
- Off-Grid Power
- Institutional and Public

### Key Benefits

- Energy cost savings from wind generated power
- No scheduled maintenance
- Designed to reliably operate in harsh cold & hot climates
- Operation creates virtually no environmental impact
- Cost-effective and financially viable
- 5-Year Warranty

### Turbine

|   |                                       |
|---|---------------------------------------|
| Rated Power Output  | 1.5 kW                                |
| Energy Production*  | 230 kWh/month                         |
| Type  | 3 blades, horizontal axis             |
| Generator   | Gearless, brushless, permanent magnet |
| Swept Area  | 6.8 m <sup>2</sup>                    |
| Blade Diameter  | 2.9 m                                 |
| Blade Material  | Fibreglass reinforced plastic         |
| Total Turbine Mass  | 39 kg                                 |
| Voltage/Phase @ Rated Power   | 143 Vac peak                          |
| Current/Phase @ Rated Power   | 3.6 Aac peak                          |
| Generator NEMA Rating   | Class B, 2 HP                         |
| Life Expectancy   | > 25 years                            |
| *5.0 m/s (18 km/h) average wind speed, Rayleigh Distribution, Sea Level elevation |                                       |



### Operational Data

|                             |                             |
|-----------------------------|-----------------------------|
| Rated Wind Speed            | 11 m/s (39 km/h)            |
| Start-up Wind Speed         | 3.3 m/s (12 km/h)           |
| Furling Start-up Wind Speed | 10 m/s (36 km/h)            |
| Furling Method              | Spring/ hinge-based tilt-up |
| Brake Method (Optional)     | Active Brake System @ 16m/s |
| RPM at Rated Power          | 800 RPM                     |
| Survival Wind Speed         | 50 m/s (180 km/h)           |
| Survival RPM                | 1,400 RPM                   |

### Conversion Table

| m/s | km/h | mph |
|-----|------|-----|
| 4   | 14   | 9   |
| 6   | 22   | 13  |
| 8   | 29   | 18  |
| 10  | 36   | 22  |
| 12  | 43   | 27  |
| 16  | 57   | 36  |
| 18  | 65   | 41  |
| 45  | 162  | 101 |

# A Revolution in Wind Energy

## Inverter

|                             |                             |
|-----------------------------|-----------------------------|
| Type                        | Grid-tie                    |
| Input Power Rating          | 1500 W                      |
| Electrical Input            | Three-phase                 |
| Max Operating Input Voltage | 330 Vrms/L-L                |
| Max Operating Input Current | 7.8 Arms                    |
| Output Voltage              | 208/240 Vrms                |
| Max Output Current          | 7.25 Arms                   |
| Power Factor at Output      | >0.99                       |
| Certifications              | CSA 22.2 #107.1 and UL 1741 |
| Enclosure Weight            | 11 kg per unit              |
| Size                        | 510 mm x 300 mm x 150 mm    |

## Instantaneous System Power Curve

| Wind Speed (m/s) | Power Out (W) |
|------------------|---------------|
| 4                | 65            |
| 5                | 142           |
| 6                | 269           |
| 7                | 479           |
| 8                | 752           |
| 9                | 1022          |
| 10               | 1280          |
| 11               | 1500          |
| 12               | 1500          |
| 13               | 1500          |
| 14               | 1500          |
| 15               | 1500          |
| 16               | 1500          |
| 17               | 0             |

## Tower

|                           |   |
|---------------------------|---|
| Tower Type                | Engineered free-standing steel truss                      |
| Installation Method       | Gin pole and hinged mount                                 |
| Foundation                | 3 m <sup>3</sup> concrete (varies with regional standard) |
| Number of Sections        | 4 x 3 m (10') sections + 2m mast                          |
| Tower Height to Nacelle   | 14.5 m (48')  |
| Tower Mass                | 165 kg  |
| Max Lateral Load at Mast  | 2200 N (500 lbs)  |
| Max Vertical Load at Mast | 440 N (100 lbs)   |
| Survival Wind Speed*      | 45 m/s (162 km/h)   |

\*With 2200 N (500 lbs) loading at mast tip

## Annual Energy Output

| Wind Speed (m/s) | kWh/year |
|------------------|----------|
| 3.0              | 475      |
| 3.5              | 825      |
| 4.0              | 1360     |
| 4.5              | 1990     |
| 5.0              | 2779     |
| 5.5              | 3324     |
| 6.0              | 4143     |
| 6.5              | 4779     |



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