



## AWE 900 Series Power Converter

---

### Features

#### **Power Converter Features**

- Design allows for power production at low wind speeds
- System is capable of handling voltage overshoots due to over speed, sudden absence of the stator current or grid failure.
- Controls power from a variable speed, direct drive turbine
- 25 Year Life Converter
- Easy Service
- High Efficiency
- Rugged Operation
- Controls output power factor
- Controls line interaction

#### **Controls**

- Parallel Processing for control redundancy
- Field Programmable Gate Array (FPGA) based controls for high reliability
- Digital Signal Processing (DSP) technology is used only for monitoring communication & nonessential tasks

#### **Power Modules**

- Increased power switching capability
- IGBT Modules with integrated drivers
- Internal Module Protection makes IGBT semiconductors virtually indestructible
- Power modules of proven reliability with over 7 million hours MTBF
- Longer lasting self healing film type DC link capacitors

### Technical specifications

#### **Grid converter**

Grid voltage 690 or 600Vac +/-10 %,

Grid frequency 50 or 60 Hz, +/-4%,

Power 900kW, and 3MW

Apparent Power 1.06 PU, 956kVA and 3.18MVA

Continuous overload 3 %.

Remote off / on grid connect command.

Voltage, frequency and power limits settable by service personnel

Additional interior cabinet space reserved for customer equipment

Max Short Circuit Current contribution 125 % of nominal current, time<1 ms

Full VA of the converter is available for reactive power at zero power delivery.

### **Environmental**



## AWE 900 Series Power Converter

---

### **Transport and storage:**

Ambient temperature: -40 °C to +70 °C

Shock: < 3 G in all directions

### **Operation:**

Ambient temperature: -20 °C to +45 °C reduced by 3 [%/°C] to +55 °C

Relative air humidity: up to 100 %, with condensation prevention.

Salt water environment acceptable

Max. elevation of installation: 1000 [m] above sea level

### **Physical**

Dimensions: 900kW 3MW

78"H x 40"W X 24"D 78"H x 80"W X 24"D

1981H x 1016W X 160D (mm) 1981H x 2032W X 160D (mm)

The converter is equipped with a Main Circuit Breaker with mechanical lock

Transportable at all angles, for installation purposes (transport through the tower entrance).

### **Anti Islanding**

Islanding is recognized by the converter. It is possible to switch this feature on and off depending on the requirements of specific installations.

### **Power ride through**

*Voltage Ride Through available as required by grid operator.*

### **Control**

The main control of torque, by means of stator current.

Maximum overall power overshoot: 3%

Full 4-quadrants without reference of the rotor wheel position.

### **Serial Communication**

Serial communication for online monitoring by RS232 or RS485 connection with access to:

- All converter internal parameters
- All turbine / generator specific parameters
- All control loop parameters
- Converter actual state (temperature, DC-link voltage, etc)

### **Metering**

- |                      |   |
|----------------------|---|
| • Current (3x)       | • Energy +                                  |
| • Line voltage (3x)  | • Energy –                                  |
| • Phase voltage (3x) | • Reactive energy +                         |
| • Power              | • Reactive energy -                         |
| • Reactive power     | • Logic diagram parameters (modes / states) |
| • Apparent power     | • Fault analysis                            |
| • Frequency          |   |