The Standard for Wind Power Converter Technology

Developed specifically for wind power applications, the PowerModule™ PM3000W power converter from AMSC® introduces a new era in wind power conversion with a scalable, double conversion architecture that uses easily mountable mono-frame construction for a common building block.

Advanced Grid Compatibility
The PM3000W is an intelligent and highly integrated power converter. It meets the demanding needs of wind power applications and features advanced grid compatibility control. Its a compact package design that yields a very high power density of up to 130 W/in³ (7.9 W/cm³).

Double Conversion Architecture
The double conversion architecture includes a common laminated DC bus design with dynamic control, state-of-the-art ruggedized (thermally and mechanically enhanced) IGBTs, control algorithms and liquid cooling. Two dual-DSP embedded controllers (one for each power conversion process) allow implementation of two separate control functions with independent software for each. Additionally, OEM proprietary algorithms can reside in one or two of the DSPs.

The PM3000W converter’s wind power specific interface and application modules offer unmatched versatility — making it the best solution for wind power applications.
SPECIFICATIONS FOR PM3000W

Nominal AC Voltage: 690 VAC
Nominal DC Bus Voltage: 1150 VDC
Max. Transient DC Bus Voltage: 1400 VDC
PWM Switching Frequency: 3 kHz
Max. Continuous AC Phase Current: 750A
Nominal Frequency: 50 Hz / 60 Hz
Overload: 115% for 10 seconds every 60 seconds
Voltage Imbalance Tolerance: 5% continuous, 10% transient (contact factory for application specific LVRT compatibility)

DC Bus Protection: Integral dynamic brake

Control: 2 dual-DSP embedded controllers with wind power specific application modules

Communication: Real-time CAN (1 Mbps) over galvanic link

I/O Interface:
- CAN communications
- Power supply DC input
- Incremental encoder
- AC voltage feedbacks (x3)
- Crowbar (fiber optic - duplex)
- Temp. sensors - thermistors (x9)
- CT’s (x3)
- Relay I/O (x4)
- Sync signal

Control and Setup Parameters:
- Voltage limits
- Voltage regulator gains
- Current regulator gains
- Current limits
- AC line frequency
- LVRT (low voltage ride through)

Protection Features:
- Over current
- Over/under voltage
- Over/under frequency
- Ground fault
- DC bus over/under voltage
- Ambient over/under temperature
- Heat sink over/under temperature
- Thermostat over/under temperature (x9)
- Loss of communications
- Contactor monitors (x2)
- IGBT de-saturation

Diagnostic Variables:
- Output current
- Output voltage
- Line frequency
- DC bus voltage
- Ambient temperature
- Heat sink temperature
- All control variables

Ambient Operating Temperature*: -25°C to 65°C (-13°F to 149°F)
Liquid-cooled Inlet Temperature: -10°C to 50°C (-13°F to 122°F), 5 gpm - 10 gpm (18.9 L/min - 37.9 L/min)
Storage Conditions: IEC 60721-3-1, class 1K2
Humidity: 0% to 95% RH non-condensing
Elevation**: 2000 meters

*In approved ECS cabinet design
**High altitude version available