



PowerModule™ PM3000W

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.

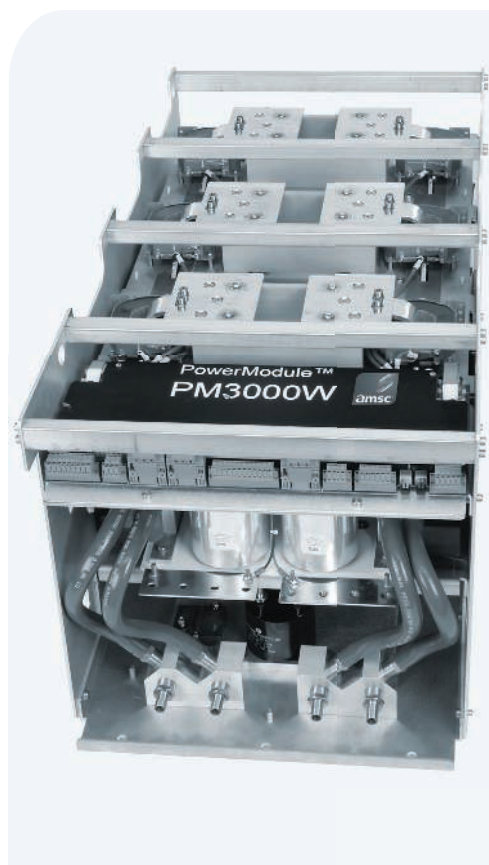
Advanced Grid Compatibility

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/in.³ (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.



Developed for wind power applications

- Wind power specific interface and application modules
- Double conversion architecture
- Common laminated DC Bus with dynamic control
- Mono-frame construction
- Advanced grid compatibility
- Universal generator connectivity
- Supports LVRT (Low Voltage Ride Through)
- High power density

Easy to use

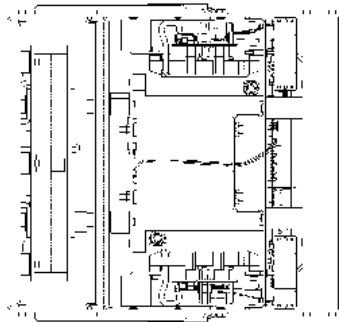
- Remote communication
- Self-protected
- Slide mounts
- Ground fault protection
- Fault annunciation
- Product protection against malfunction

Scalable design

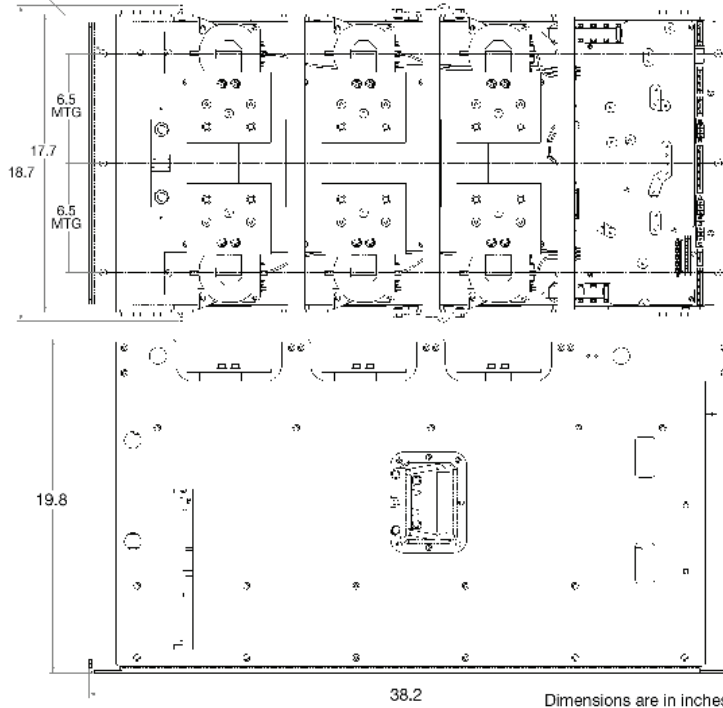
- Standard building block
- Bi-directional functionality
- Parallel operation



PowerModule™ PM3000W



Approximately 260 lbs (118 kg)



Dimensions are in inches

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: | <ul style="list-style-type: none"> • CAN communications • Power supply DC input • Incremental encoder | <ul style="list-style-type: none"> • AC voltage feedbacks (x3) • Crowbar (fiber optic - duplex) • Temp. sensors - thermistors (x9) | <ul style="list-style-type: none"> • CT's (x3) • Relay I/O (x4) • Sync signal |
| Control and Setup Parameters: | <ul style="list-style-type: none"> • Voltage limits • Voltage regulator gains | <ul style="list-style-type: none"> • Current regulator gains • Current limits | <ul style="list-style-type: none"> • AC line frequency • LVRT (low voltage ride through) |
| Protection Features: | <ul style="list-style-type: none"> • Over current • Over/under voltage • Over/under frequency • Ground fault | <ul style="list-style-type: none"> • DC bus over/under voltage • Ambient over/under temperature • Heatsink over/under temperature • Thermistor over/under temperature (x9) | <ul style="list-style-type: none"> • Loss of communications • Contactor monitors (2x) • IGBT de-saturation |
| Diagnostic Variables: | <ul style="list-style-type: none"> • Output current • Output voltage • Line frequency | <ul style="list-style-type: none"> • DC bus voltage • Ambient temperature • Heatsink temperature | <ul style="list-style-type: none"> • 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