



PowerModule™ PM3100W

The Standard for Wind Power Converter Technology

Developed specifically for wind power applications, the PowerModule™ PM3100W 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.

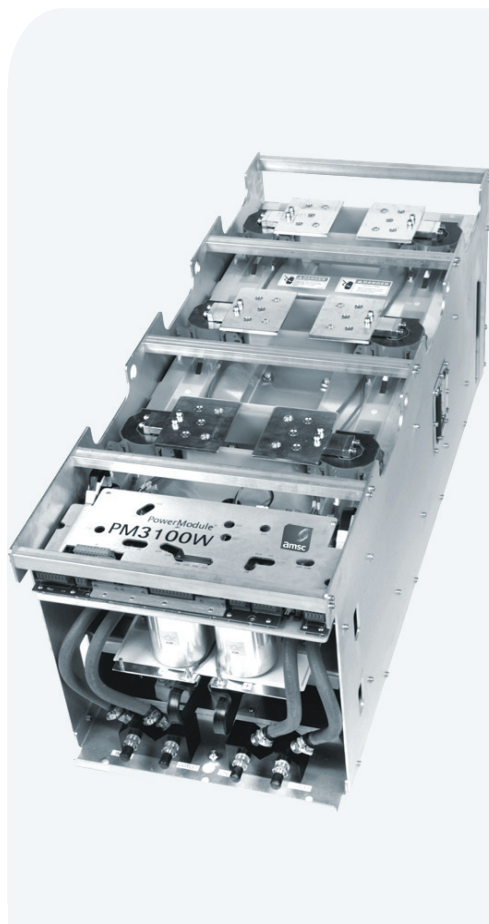
Advanced Grid Compatibility

The PM3100W is an intelligent and highly integrated power converter. It meets the demanding needs of wind power applications and features advanced grid compatibility control. Its compact package design yields a very high power density of up to 150 W/in.³ (9.1 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 PM3100W 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

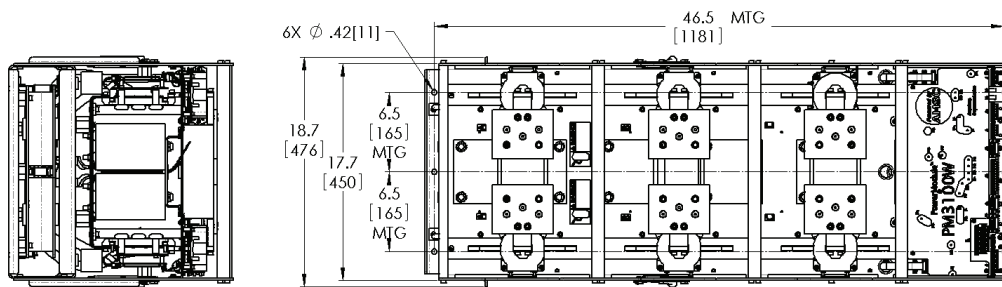
- Remote communication
- Self-protected
- Slide mounts
- Ground fault protection
- Fault annunciation
- Product protection against malfunction

Scalable design

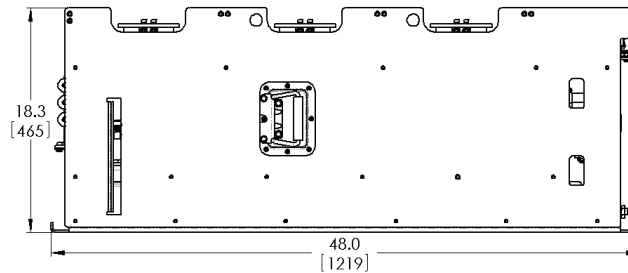
- Standard building block
- Bi-directional functionality
- Parallel operation



PowerModule™ PM3100W



Approximately 360 lbs (163 kg)



Dimensions are in inches [mm]

SPECIFICATIONS FOR PM3100W

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:	1000A		
Nominal Frequency:	50 Hz / 60 Hz		
Overload:	115% for 10 seconds every 60 seconds		
Voltage Imbalance Tolerance:	5% continuous, 10% transient LVRT compatible (contact factory for specific LVRT standards)		
DC Bus Protection:	Integral dynamic brake; dynamic brake resistor may require mounting in the ECS cabinet depending on system requirements		
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 • Grid Transient Protection Options • 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

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...better energy

