



Gamesa Electric Proteus PCS-E Inverters

1500V Battery Inverters



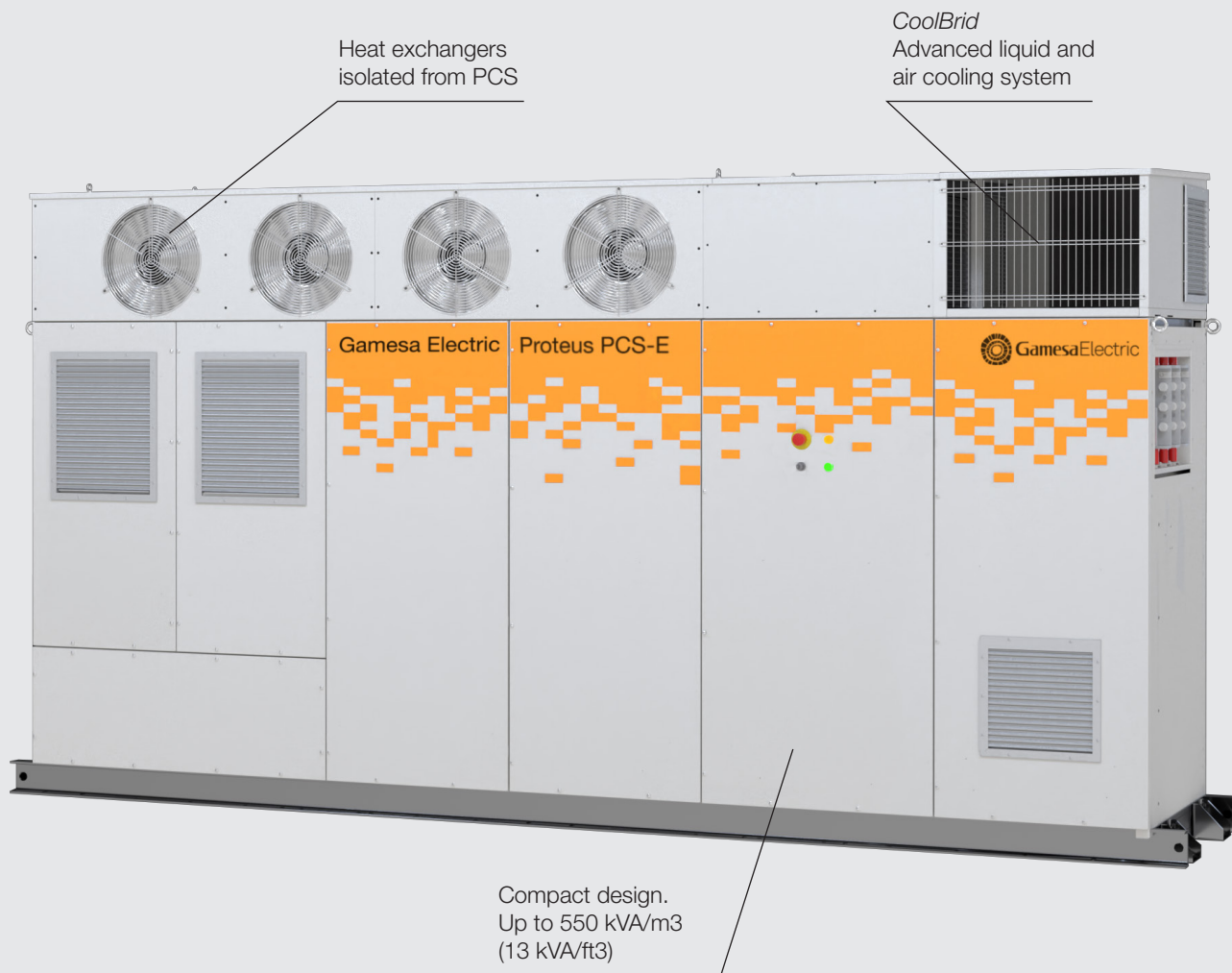
High DC
short-circuit
capacity

High
power
capability up
to 1500Vdc

THDi <1.0%

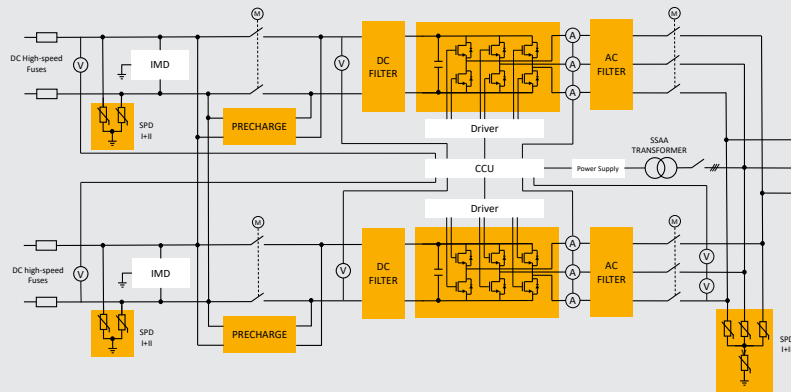
High
efficiency

Outdoor
solution

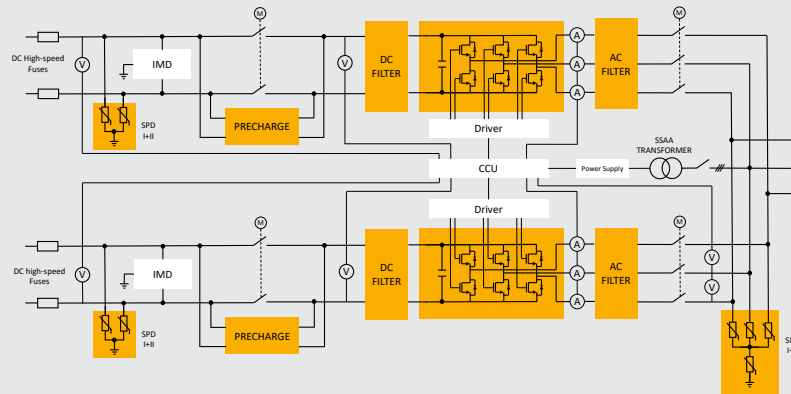


Proteus PCS-E Inverters combine reliability and robustness, efficiency, compactness and high power capability at 1500Vdc, all for a minimum LCoS

Different product configurations available to optimize performance in demanding environments as well as different voltage levels to fit customers' needs.



SINGLE BUS CONFIGURATION



DOUBLE BUS CONFIGURATION
Capacity to manage two independent batteries

Gamesa Electric

Proteus PCS-E 1500V Battery Inverters

 High Round Trip Efficiency (RTE)	High efficiency that allows to improve the overall system RTE and LCoS.	Smart liquid/air cooling system that allows critical components to work at temperature level far below their limits, guaranteeing longer product lifespan and lower thermal losses	Low power derating
 Grid connection	Four quadrant operation for full active and reactive power support to comply with the most demanding grid codes	Weak grid and micro-grid configuration with a seamless transition and black start capability	High power capacity at 1500Vdc Wide operating temperature range
 Battery oriented	Safety centered design with high speed control and monitoring.	Double power module topology for two independent battery connections allowing for much higher DC short-circuit currents and increased system availability	Fast frequency response Synthetic inertia Grid forming in parallel operation with the grid Battery agnostic design to accommodate different battery technologies up to 1500Vdc, including: li-ion, lead-acid, flow and others

Proteus PCS-E Battery Inverters					
	Gamesa Electric	Gamesa Electric	Gamesa Electric	Gamesa Electric	Gamesa Electric
	Proteus PCS 4180E	Proteus PCS 4360E	Proteus PCS 4600E	Proteus PCS 4910E ⁽¹⁾	Proteus PCS 5150E ⁽¹⁾
DC Input					
DC Minimum Voltage for grid tied mode ⁽¹⁾	976 V	1018 V	1075 V	1146 V	1202 V
DC Maximum Voltage	1500 V				
Number of Independent Power Modules per PCS	2, not galvanically isolated				
Max. DC Current	2 x 2227 A				
Number of Fused DC Inputs per Power Module/Total ⁽²⁾	Up to 3+ & 3- / 6+ & 6-				
Max. DC short-circuit withstanding capability	2 x 250kA, 3ms Double DC bus configuration 1 x 250kA, 3ms Single DC bus configuration				
AC Output					
Number of Phases	Three-phase w/o neutral point				
Nominal AC Power Total @25°C [77°F], 1500VDC	4446 kVA	4639 kVA	4897 kVA	5219 kVA	5477 kVA
Nominal AC Power Total @40°C [104°F], 1500VDC	4183 kVA	4365 kVA	4607 kVA	4910 kVA	5153 kVA
Nominal AC Power Total @40°C [104°F], 1300VDC	4494 kVA	4689 kVA	4950 kVA	5275 kVA	5535 kVA
Nominal AC Voltage ⁽²⁾	690 Vrms	720 Vrms	760 Vrms	810 Vrms	850 Vrms
Nominal Voltage Allowance Range ⁽²⁾	+/-15%				
Frequency Range ⁽²⁾	46.5-53 Hz // 56-63.5 Hz				
THD of AC Current	<1.0% @Sn				
Power Factor Range ⁽³⁾	0 (lagging) - 1 - 0 (leading)				
Performance					
Max. Efficiency	98.57%				
Stand-by Power Consumption	< 200 W				
General Data					
Temperature Range - Operation	-20°C / +60°C [-4°F / +140°F]				
Maximum Altitude	< 2,000 m [6,561 ft] (w/o derating)				
Cooling System	Liquid & forced air				
Relative Humidity	4% – 100% (w/o condensation)				
Protection Class	IP55 class 1, NEMA3R				
Dimensions (W/H/D)	4,325 x 2,255 x 1,022 mm [170.3" x 88.5" x 40.2"]				
Weight	4,535 kg [10,000 lb]				
AC Protections					
AC Side Disconnection & Short-circuit Current Protection	Two motorized AC circuit breakers - one per each power module				
AC Overvoltage Protection	Type 1 + 2 SPD				
Anti-islanding	Included (SW)				
Grid Voltage Fluctuations (LVRT, HVRT) ⁽²⁾	Included (SW)				
Frequency Failure	Included (SW)				
DC Protections					
DC Disconnections	Two motorized DC switches (on-load) - one per each power module				
DC Short-circuit Protection	DC fast fuses (optional)				
DC Over-voltage Protection	Type 1 + 2 SPD				
Reverse Polarity Detection	Included				
DC Ground Fault and Insulation Detection	Included				
Other Protections					
Over-temperature Protection	Included				
Emergency Push Button	Included				
Communications					
Control ⁽²⁾	Modbus TCP/IP				
Monitoring ⁽²⁾	Modbus TCP/IP				
Webserver	Included				
Optional					
Low Temperature Kit to up to -30°C [-22°F]					
Factory-fitted DC fuses					
Factory-fitted joint DC inputs					
Enhanced corrosion protection					

⁽¹⁾ At nominal AC voltage. Consult Gamesa Electric for other options

⁽²⁾ Consult Gamesa Electric for a specific configuration

⁽³⁾ Consult P-Q chart

⁽⁴⁾ Consult Gamesa Electric for more details

⁽⁵⁾ Consult Gamesa Electric on the application for this model

Standards/Directives ⁽⁴⁾					
IEC 62109-1	IEC 62116	CSA C22.2 No 107.1	Ambiente e ação climática 73/2020	NEMA 250-2014	UTE C15-400
IEC 62109-2	IEC 61683	CEI 0-16; V2 2021-06	CEA 2019	NFPA 70:2020	EirGrid V10:2020
IEC 61000-6-2	IEC 60529	Allegato A.79	Rule 14, Rule 21	IEC 62477-1:2022	
IEEE 1547	NTS 631 v1.1 SENP, v2.1 SEPE	ENA G99	PRC 024-2	VDE-AR-N 4110 4120 4130 2018	
EN 55011 / CISPR11:2019	UL 1741-SB	UNE-EN 50541- 2:2014	CEC 2015	Arrêté du 9 juin 2020	

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	Proteus PCS 2420E	Proteus PCS 2910E	Proteus PCS 3150E	Proteus PCS 3630E	Proteus PCS 3810E	Proteus PCS 4000E
DC Input						
DC Minimum Voltage for grid tied mode ⁽¹⁾	566 V	679 V	736 V	849 V	891 V	934 V
DC Maximum Voltage	1238 V	1310 V	1347 V	1418 V	1445 V	1473 V
Number of Independent Power Modules per PCS	2, not galvanically isolated					
Max. DC Current	2 x 2227 A					
Number of Fused DC Inputs per Power Module/Total ⁽²⁾	Up to 3+ & 3- / 6+ & 6-					
Max. DC short-circuit withstanding capability	2 x 250kA, 3ms Double DC bus configuration 1 x 250kA, 3ms Single DC bus configuration					
AC Output						
Number of Phases	Three-phase w/o neutral point					
Nominal AC Power Total @25°C [77°F], Max. Vdc	2577 kVA	3093 kVA	3351 kVA	3866 kVA	4059 kVA	4250 kVA
Nominal AC Power Total @40°C [104°F], Max. Vdc	2425 kVA	2910 kVA	3152 kVA	3637 kVA	3819 kVA	4000 kVA
Nominal AC Power Total @40°C [104°F], 1300VDC	N/A	3126 kVA	3387 kVA	3908 kVA	4103 kVA	4298 kVA
Nominal AC Voltage ⁽²⁾	400 Vrms	480 Vrms	520 Vrms	600 Vrms	630 Vrms	660 Vrms
Nominal Voltage Allowance Range ⁽²⁾	+/-15%					
Frequency Range ⁽²⁾	46.5-53 Hz / 56-63.5 Hz					
THD of AC Current	<1.0% @Sn					
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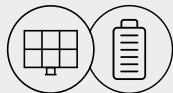
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GamesaElectric

Shaping New Energy



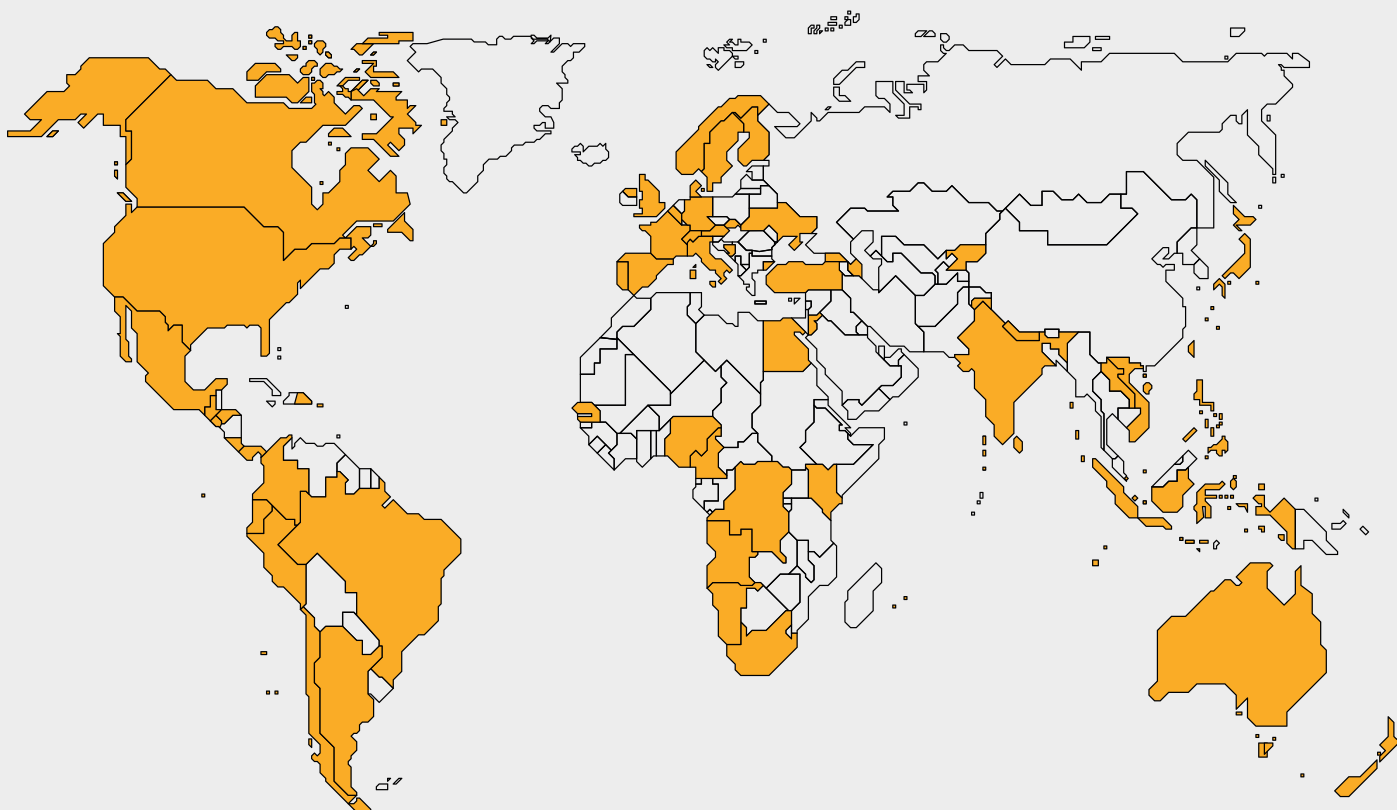
~10 GW SOLAR &
STORAGE ENERGY



+62 GW
WIND POWER



+60
COUNTRIES



Worldwide presence

Albania
Angola
Argentina
Australia
Austria
Azerbaijan
Belgium
Bosnia and
Herzegovina

Brazil
Bulgaria
Cameroun
Canada
Chile
Colombia
Costa Rica
D.R. Congo
Denmark

Denmark (Faroe
Islands)
Dominican Rep.
Ecuador
Egypt
El Salvador
Finland
France
Georgia

Germany
Guatemala
Honduras
India
Indonesia
Italy
Japan
Jordan
Kenya

Kyrgyzstan
Laos
Mexico
Namibia
Nepal
New Zealand
Nigeria
Norway
Panama

Peru
Philippines
Portugal
Rwanda
Senegal
Slovakia
South Africa
Spain
Sri Lanka

Sweden
Switzerland
Taiwan
Turkey
Ukraine
UK
USA
Vietnam



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April 2025