PCSM

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Easy maintenance.
Integrated MV solution in the same enclosure.
Advanced grid support.
Compatible with all battery technologies.

Freemaq PCSM
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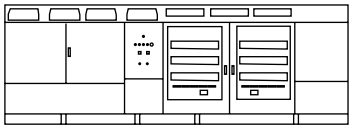

Preliminary

REFERENCES		FP5020MU	FP5020MH	FP5021MH	FP5022MH
AC	AC Output Power (kVA/kW) @35 °C [1]	5020			
	AC Output Power (kVA/kW) @40 °C [1]	4800			
	AC Output Power (kVA/kW) @50 °C [1]	4360			
	Operating Grid Voltage (kV)	34.5 kV ±10%		33 kV ±10%	30 kV ±10%
	Operating Grid Frequency (Hz)	60 Hz		50 Hz	50 Hz
	Current Harmonic Distortion (THDi)	<3% per IEEE 519			
	Power Factor (CosPhi) [2]	0.5 leading ... 0.5 lagging			
DC	DC Voltage Range Full Power [3]	976 V – 1500 V			
	Maximum DC Voltage	1500 V			
	DC Voltage Ripple	<3%			
	Max. DC Continuous Current (A)	5248			
	Max. DC Short Circuit Current (kA)	500 kA with a time constant of 1 ms			
	Battery Technology	All type of batteries (BMS required)			
EFFICIENCY & AUX. SUPPLY	Efficiency (Max) (η)	98.00% including MV transformer			
	CEC (η)	97.53% including MV transformer			
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.7			
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.3			
	Weight (lbs)	30865			
	Weight (kg)	14000			
	Type of Ventilation	Forced air cooling			
ENVIRONMENT	Degree of Protection	NEMA 3R	IP55		
	Operating Temperature Range [4]	From -25 °C to +60 °C, >35 °C power derating			
	Operating Relative Humidity Range	From 4% to 100% non-condensing			
	Storage Temperature Range	From -40 °C to +60 °C			
	Max. Altitude (above sea level) [5]	1000 m			
CONTROL INTERFACE	Communication Protocol	Modbus TCP			
	Power Plant Controller	Optional			
	Keyed ON/OFF Switch	Standard			
PROTECTIONS	Ground Fault Protection	Insulation monitoring device			
	Humidity Control	Active heating			
	General AC Protection & Disconnection	38 kV MV switchgear (V)	36 kV MV switchgear (2L+V)		
	General DC Protection & Disconnection	High-speed fuses, Motorized DC disconnect switches [6]			
	Overvoltage Protection	Type 2 for AC and Type 1+2 for DC			
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2 / IEC 62477-1 / IEC 62477-2			
	Installation	NEC 2023			
	Utility Interconnect [7]	UL 1741 SA & SB / IEEE 1547.1 / IEC 62116 / / G99 / VDE 4110-4120-4130 / CEI 0-16 / NTS 2.1 / EN 50549			

NOTES

[1] Values at 1.00·Vac nom and CosPhi=1.
Consult Power Electronics for derating curves and overload capability in grid forming mode.
[2] Consult P-Q charts available: $Q(kVAr)=\sqrt{(S(kVA)^2-P(kW)^2)}$.
[3] Consult Power Electronics for derating curves. In the event of overvoltage in the grid, the minimum DC voltage will vary proportionally with the AC voltage.
[4] Optional available for temperatures down to -35 °C.
[5] Consult Power Electronics for altitudes above 1000 m.
[6] Battery short circuit disconnection must be done on the battery side.
[7] Consult Power Electronics for other applicable standards / grid codes.

POWER ELECTRONICS