

# Multi PCSM

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**Easy maintenance.**

**Integrated MV solution in the same enclosure.**

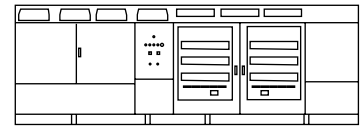
**Up to 4 independent DC inputs.**

**Advanced grid support.**

**Compatible with all battery technologies.**



# Freemaq Multi PCSM



## COMMON FEATURES

AC	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (CosPhi) <sup>[1]</sup>	0.5 leading ... 0.5 lagging
	Reactive Power Compensation	Four quadrant operation
	Overload Capability <sup>[6]</sup>	166% - 100 ms / 150% - 5 s / 120% - 8 s / 110% - 15 s
DC	Maximum DC Voltage	1500V
	DC Voltage Ripple	< 3%
	Max. DC Short Circuit Current per Input (kA)	500 kA with a time constant of 1 ms
CABINET	Battery Technology	All type of batteries (BMS required)
	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.5
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.3
	Weight (lbs)	30865
	Weight (kg)	14000
ENVIRONMENT	Type of Ventilation	Forced air cooling
	Degree of Protection	NEMA 3R
	Operating Temperature Range <sup>[2]</sup>	From -25°C to +60°C, >40°C power derating
	Operating Relative Humidity Range	From 4% to 100% non-condensing
	Storage Temperature Range	From -40°C to +60°C
CONTROL INTERFACE	Max. Altitude (above sea level) <sup>[3]</sup>	2000m
	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional. Third party SCADA systems supported.
PROTECTIONS	Keyed ON/OFF Switch	Standard
	Ground Fault Protection	Insulation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	38 kV MV switchgear (20 or 25 kA)
	General DC Protection & Disconn. <sup>[4]</sup>	High-speed fuses, Motorized DC disconnect switches
CERTIFICATIONS & STANDARDS	Overvoltage Protection	Type II for AC and Type I+II for DC
	Safety	UL 1741 / CSA 22.2 No.1071-16
	Installation	NEC 2023
	Utility Interconnect <sup>[5]</sup>	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547:2020

## REFERENCES

	FP4200M2	FP4201M2	FP4204M2	FP4200M4	FP4201M4	FP4204M4
AC	AC Output Power (kVA/kW) @40°C <sup>[6]</sup>					
	4200					
	AC Output Power (kVA/kW) @50°C <sup>[6]</sup>					
3900						
DC	Operating Grid Voltage (kV)					
	34.5 kV ±10%	13.8 kV ±10%	12.47 kV ±10%	34.5 kV ±10%	13.8 kV ±10%	12.47 kV ±10%
	DC Voltage Range <sup>[7]</sup>					
934V - 1500V						
EFFICIENCY	Max. DC Continuous Current per Input (A)					
	2295			1148		
EFFICIENCY	Number of Separate DC Inputs					
	2			4		
EFFICIENCY	Efficiency (Max) (η)					
	98.00% including MV transformer					
EFFICIENCY	CEC (η)					
	97.53% including MV transformer					

## REFERENCES

	FP4105M2	FP4105M4
AC	AC Output Power (kVA/kW) @40°C <sup>[6]</sup>	
	4105	
	AC Output Power (kVA/kW) @50°C <sup>[6]</sup>	
3810		
DC	Operating Grid Voltage (kV)	
	34.5kV ±10%	34.5kV ±10%
	DC Voltage Range <sup>[7]</sup>	
913V - 1500V		
EFFICIENCY	Max. DC Continuous Current per Input (A)	
	2295	1148
EFFICIENCY	Number of Separate DC Inputs	
	2	4
EFFICIENCY	Efficiency (Max) (η)	
	97.93% including MV transformer	
EFFICIENCY	CEC (η)	
	97.50% including MV transformer	

## REFERENCES

	FP4010M2	FP4010M4
AC	AC Output Power (kVA/kW) @40°C <sup>[6]</sup>	
	4010	
	AC Output Power (kVA/kW) @50°C <sup>[6]</sup>	
3720		
DC	Operating Grid Voltage (kV)	
	34.5kV ±10%	
	DC Voltage Range <sup>[7]</sup>	
891V - 1500V		
EFFICIENCY	Max. DC Continuous Current per Input (A)	
	2295	1148
EFFICIENCY	Number of Separate DC Inputs	
	2	4
EFFICIENCY	Efficiency (Max) (η)	
	97.91% including MV transformer	
EFFICIENCY	CEC (η)	
	97.49% including MV transformer	

## NOTES

- [1] Consult P-Q charts available:  $Q(kVA) = \sqrt{(S(kVA))^2 - P(kW)^2}$ .
- [2] Optional available for temperatures below to -25 °C.
- [3] Consult Power Electronics for altitudes above 1000m.
- [4] Battery short circuit disconnection must be done on the battery side.
- [5] Consult Power Electronics for other applicable standards / grid codes.
- [6] Values at 1.00-Vac nom and CosPhi=1. Consult Power Electronics for derating curves and overload capability in grid forming mode.
- [7] 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.
- [8] Available from January 2027.