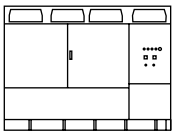
Multi PCSK

V_01

Modularity.
Easy maintenance.
Up to 4 independent DC inputs.
Advanced grid support.
Compatible with all battery technologies.

Freemaq Multi PCSK



COMMON FEATURES MULTI PCSK		FRAME 2	FRAME 3	FRAME 4	
AC	Max. AC Output Current (A) @40°C	1837	2756	3674	
	Operating Grid Frequency (Hz)	50/60Hz			
	Current Harmonic Distortion (THDi)	< 3% per IEEE519			
	Power Factor (cosine phi) [1]	0.5 leading ... 0.5 lagging			
	Reactive Power Compensation	Four quadrant operation			
DC	DC Voltage Ripple	< 3%			
	Max. DC Continuous Current per Input (A)	1148	1148	2295	1148
	Max. DC Short Circuit Current per Input (kA)	250 kA with a time constant of 3ms			
	Battery Technology	All type of batteries (BMS required)			
	Number of Separate DC Inputs	2	3	2	4
CABINET	Dimensions [WxDxH] (ft)	9.8 x 6.5 x 7.2			
	Dimensions [WxDxH] (m)	3.0 x 2.0 x 2.2			
	Weight (lbs)	11465	11795	12125	
	Weight (kg)	5200	5350	5500	
	Type of Ventilation	Forced air cooling			
ENVIRONMENT	Degree of Protection	NEMA 3R / IP55			
	Operating Temperature Range [2]	From -25°C to +60°C, >50°C power derating			
	Operating Relative Humidity Range	From 4% to 100% non-condensing			
	Storage Temperature Range	From -15°C to +40°C			
	Max. Altitude (above sea level)	2000m / >2000m power derating (Max. 4000m)			
CONTROL INTERFACE	Communication Protocol	Modbus TCP			
	Power Plant Controller	Optional. Third party SCADA systems supported			
	Keyed ON/OFF Switch	Standard			
PROTECTIONS	Ground Fault Protection	Insulation monitoring device			
	Humidity Control	Active heating			
	General AC Protection & Disconn	Circuit breaker			
	General DC Protection & Disconn	DC switch-disconnectors [3]			
	Overvoltage Protection	Type II for AC and Type I+II for DC			
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2			
	Installation	NEC 2020			
	Utility Interconnect [4]	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014			

NOTES

[1] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[2] Optional available for temperatures down to -35°C.
[3] Battery short circuit disconnection has to be done on the battery side.
[4] Consult Power Electronics for other applicable standards/grid codes.

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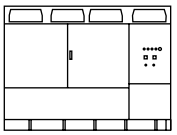

690 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP2195K2**	**FP3290K3**	**FP4390K2**	**FP4390K4**
AC	AC Output Power (kVA/kW) @40°C [1]	2195	3290	4390	
	AC Output Power (kVA/kW) @50°C [1]	2035	3055	4075	
	Operating Grid Voltage (VAC)		690V ±10%		
DC	DC Voltage Range [2]		976V - 1500V		
	Maximum DC Voltage		1500V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.84%	98.87%	98.93%	
	Euroeta (η) (preliminary)	98.45%	98.48%	98.65%	
660 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP2101K2**	**FP3151K3**	**FP4200K2**	**FP4200K4**
AC	AC Output Power (kVA/kW) @40°C [1]	2100	3150	4200	
	AC Output Power (kVA/kW) @50°C [1]	1950	2925	3900	
	Operating Grid Voltage (VAC)		660V ±10%		
DC	DC Voltage Range [2]		934V - 1500V		
	Maximum DC Voltage		1500V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.81%	98.84%	98.90%	
	Euroeta (η) (preliminary)	98.45%	98.48%	98.65%	
645 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP2055K2**	**FP3080K3**	**FP4105K2**	**FP4105K4**
AC	AC Output Power (kVA/kW) @40°C [1]	2055	3080	4105	
	AC Output Power (kVA/kW) @50°C [1]	1905	2855	3810	
	Operating Grid Voltage (VAC)		645V ±10%		
DC	DC Voltage Range [2]		913V - 1500V		
	Maximum DC Voltage		1500V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.78%	98.87%	98.87%	
	Euroeta (η) (preliminary)	98.40%	98.60%	98.60%	
630 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP2005K2**	**FP3005K3**	**FP4010K2**	**FP4010K4**
AC	AC Output Power (kVA/kW) @40°C [1]	2005	3005	4010	
	AC Output Power (kVA/kW) @50°C [1]	1860	2790	3720	
	Operating Grid Voltage (VAC)		630V ±10%		
DC	DC Voltage Range [2]		891V - 1500V		
	Maximum DC Voltage		1500V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.76%	98.79%	98.85%	
	Euroeta (η) (preliminary)	98.39%	98.42%	98.59%	
615 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP1955K2**	**FP2935K3**	**FP3915K2**	**FP3915K4**
AC	AC Output Power (kVA/kW) @40°C [1]	1955	2935	3915	
	AC Output Power (kVA/kW) @50°C [1]	1815	2725	3635	
	Operating Grid Voltage (VAC)		615V ±10%		
DC	DC Voltage Range [2]		870V - 1500V		
	Maximum DC Voltage		1500V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.76%	98.79%	98.84%	
	Euroeta (η) (preliminary)	98.38%	98.41%	98.57%	

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
The maximum AC output power must be limited to meet the P-Q capability requirement at the inverter level of some grid codes.
[2] Consult Power Electronics for derating curves.

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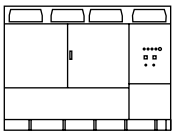

600 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP1910K2**	**FP2865K3**	**FP3820K2**	**FP3820K4**
AC	AC Output Power (kVA/kW) @40°C [1]	1910	2865	3820	
	AC Output Power (kVA/kW) @50°C [1]	1775	2660	3545	
	Operating Grid Voltage (VAC)		600V ±10%		
DC	DC Voltage Range [2]		849V - 1500V		
	Maximum DC Voltage		1500V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.76%	98.78%	98.94%	
	Euroeta (η) (preliminary)	98.37%	98.39%	98.56%	
530 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP1685K2**	**FP2530K3**	**FP3370K2**	**FP3370K4**
AC	AC Output Power (kVA/kW) @40°C [1]	1685	2530	3370	
	AC Output Power (kVA/kW) @50°C [1]	1565	2350	3130	
	Operating Grid Voltage (VAC)		530V ±10%		
DC	DC Voltage Range [2]		750V - 1300V		
	Maximum DC Voltage		1300V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.76%	98.78%	98.94%	
	Euroeta (η) (preliminary)	98.37%	98.39%	98.56%	
500 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP1590K2**	**FP2385K3**	**FP3180K2**	**FP3180K4**
AC	AC Output Power (kVA/kW) @40°C [1]	1590	2385	3180	
	AC Output Power (kVA/kW) @50°C [1]	1475	2215	2955	
	Operating Grid Voltage (VAC)		500V ±10%		
DC	DC Voltage Range [2]		708V - 1250V		
	Maximum DC Voltage		1250V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.76%	98.78%	98.94%	
	Euroeta (η) (preliminary)	98.37%	98.39%	98.56%	
480 V		**FRAME 2**	**FRAME 3**	**FRAME 4**	
REFERENCES		**FP1525K2**	**FP2290K3**	**FP3055K2**	**FP3055K4**
AC	AC Output Power (kVA/kW) @40°C [1]	1525	2290	3055	
	AC Output Power (kVA/kW) @50°C [1]	1415	2125	2840	
	Operating Grid Voltage (VAC)		480V ±10%		
DC	DC Voltage Range [2]		679V - 1200V		
	Maximum DC Voltage		1200V		
	Number of Separate DC Inputs	2	3	2	4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	98.76%	98.78%	98.84%	
	Euroeta (η) (preliminary)	98.37%	98.39%	98.56%	

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for and derating curves.
[2] Consult Power Electronics for derating curves.

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