DC/DC Converter

Advanced hybrid architecture enabling grid-forming operation.
Future-proof architecture ready for evolving grid codes.
Scalable modular design.

Freesun DC/DC

REFERENCES		FD1200R
DC INPUT & OUTPUT	DC Rated Power (kW) @ 30 °C	1200
	DC Rated Power (kW) @ 40 °C	1120
	DC Rated Power (kW) @ 50 °C	1040
	Max. DC Output Current (A) @ 30 °C	1200
	Max. DC Output Current (A) @ 40 °C	1120
	Max. DC Output Current (A) @ 50 °C	1040
	DC PV Voltage Range (Vdc) [1]	850 - 1500
	DC ESS Voltage Range (Vdc) [1]	850 - 1500
	Maximum DC PV Input Voltage (Vdc)	1500
	DC Voltage Ripple	<3%
	Max. DC Short Circuit Current ESS (kA)	500 kA with a time constant of 1 ms
	Max. DC Short Circuit Current PV (kA)	3
EFFICIENCY	Efficiency (Max)	99.18%
CABINET	Dimensions [WxDxH] (ft)	3.94 x 5.90 x 7.56
	Dimensions [WxDxH] (m)	1.20 x 1.80 x 2.30
	Cooling	Forced air
	Enclosure Protection Degree	NEMA 3R / IP54
CONNECTIONS	Number of PV connections	5 negative / 5 positive
	Number of Connections from Inverter (BESS)	3 positive / 3 negative
ENVIRONMENT	Operating Temperature Range [2]	From -25 °C to +60 °C, >30 °C power derating
	Relative Humidity	From 4% to 100% non-condensing
	Max. Altitude (above sea level)	4000 m (> 2000 m power derating)
CONTROL INTERFACE	Interfaces	Emergency stop pushbutton and indicator lights
	Communications Protocol	Modbus TCP
PROTECTIONS	PV Side	PV fuses and motorized DC disconnect switch
	Inverter Side	Ultra-fast fuses and motorized DC disconnect switch
CERTIFICATIONS	Safety	UL1741, IEC 62109-1&2

NOTES

[1] Consult Power Electronics for derating curves.
[2] Consult Power Electronics for temperatures below -25 °C.

POWER ELECTRONICS

Freemaq DC/DC

REFERENCES		FD1200
DC INPUT & OUTPUT	DC Rated Power (kW) @ 30 °C	1200
	DC Rated Power (kW) @ 40 °C	1120
	DC Rated Power (kW) @ 50 °C	1040
	Max. DC Output Current (A) @ 30 °C	1200
	Max. DC Output Current (A) @ 40 °C	1120
	Max. DC Output Current (A) @ 50 °C	1040
	DC Coupling Bus Voltage Range (Vdc) [1]	720 - 1500
	DC ESS Voltage Range (Vdc) [1]	850 - 1500
	Maximum DC PV Input Voltage (Vdc)	1500
	DC Voltage Ripple	<3%
	Max. DC Short Circuit Current ESS (kA)	500 kA with a time constant of 1 ms
	Max. DC Short Circuit Current PV (kA)	14
	Battery Technology	Compatible with all battery technologies
EFFICIENCY	Efficiency (Max)	99.18%
CABINET	Dimensions [WxDxH] (ft)	3.94 x 5.90 x 7.56
	Dimensions [WxDxH] (m)	1.20 x 1.80 x 2.30
	Cooling	Forced air
	Enclosure Protection Degree	NEMA 3R / IP54
CONNECTIONS	Number of PV connections	4 negative / 4 positive
ENVIRONMENT	Operating Temperature Range [2]	From -25 °C to +60 °C, >30 °C power derating
	Relative Humidity	From 4% to 100% non-condensing
	Max. Altitude (above sea level)	4000 m (> 2000 m power derating)
CONTROL INTERFACE	Interfaces	Emergency stop pushbutton and indicator lights
	Communications Protocol	Modbus TCP
PROTECTIONS	Inverter side [3]	Motorized DC disconnect switch
	BESS side [4]	Motorized DC disconnect switch and ultra-fast fuses
CERTIFICATIONS	Safety	UL1741, IEC 62109-1

NOTES

[1] Consult Power Electronics for derating curves.
[2] Consult Power Electronics for temperatures below -25 °C.
[3] In case of augmentation application, ultra-fast fuses are included on the inverter side.
[4] Battery short circuit disconnection must be done on the battery side.

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