Solar

Solar inverters

Unlimited Energy

POWER ELECTRONICS

Energy for
the earth.

We are the heart of photovoltaic plants

We handle everything in-house: from design and manufacture to testing.

+25 International delegations

90 GW

OF AC INSTALLED POWER

+13 K

SOLAR INVERTERS SOLD

+2800

SOLAR PROJECTS AROUND THE WORLD

Our vertical integration gives us the flexibility and specialization to adapt our products according to market and customer requirements while still ensuring short delivery times.

Simplicity

Our turnkey solutions simplify installation and maintenance tasks, aiming for operational efficiency and maximization of resources. This ingenious perspective facilitates project implementation and brings about a significant cost reduction in each phase, solidifying our unwavering commitment to the optimization and economic success of every customer.

Automation

In order to meet changing demands without compromising quality results, we have opted for the automation of production processes. This translates into greater consistency, speed and scalability.

Stability

Our stations not only stand out for their efficiency in converting solar energy into useful and sustainable forms but also play a crucial role in providing exceptional stability to the electrical system. This ensures a constant and reliable supply of energy, significantly contributing to the sustainability and resilience of the energy infrastructure.

Quality

We always pursue excellence in all our processes through quality. For this reason, we have control points in the different production phases and implement improvements that position our solutions as a benchmark in the energy market.

HEM

Our turn-key solution simplifies the task of designing the installation, and reduces connection costs.

HEM

Just all-in-one

Easy maintenance. The advantages of a central inverter with the modularity of the string inverters. Designed to be easily replaceable on the field with a safe, reliable, and fast Plug&Play assembly system. Includes 4 FRUs (Field Replaceable Units).

Bus Plus. Combine solar and storage. The Bus Plus feature allows the connection of up to four Freemaq DC/DC converters. It is the most cost-competitive solution for solar-plus-storage retrofits.

ECON MODE. Removes no-load losses. Disconnecting the power station from the grid and taking the medium-voltage transformer out of the circuit, the continuous energy cost of no-load losses is eliminated.

Grid support. Capable of operating on any power system. Offering grid support functionalities to comply with the most restrictive grid codes.

Active heating. The active heating function is included by default and is automatically activated to avoid internal condensation at very low temperatures when the inverter is not actively exporting power. It also can shift to reactive power compensation mode.

Multilevel topology. The 3 level IGBT topology reduces power stage losses, increases inverter efficiency, and minimizes total harmonic distortion. High efficiency to deliver the lowest levelized cost of energy (LCOE).

Integrated MV solution in the same enclosure. The solar turn-key solution that simplifies the installation design.

iCOOL 4, the most innovativecooling system. Our own air ventilation system provides a constant flow of clean air inside the equipment, without the need of liquid cooling.

DC-coupled storage system from 1200 kW to 4800 kW

Can reach up to a nominal power of 4.2 MVA

Maximum power up to 1500 Vdc

HEMK

Offers the advantages
of central and string inverters.
Full front access simplifies
maintenance tasks.

HEMK

High power on a compact unit

Easy maintenance. The advantages of a central inverter with the modularity of the string inverters. Designed to be easily replaceable on the field with a safe, reliable, and fast Plug&Play assembly system. Includes up to 4 FRUs (Field Replaceable Units).

Bus Plus. Combines solar energy and storage. The Bus Plus feature allows the connection of up to four Freemaq DC/DC converters. Its the most cost-competitive solution for solar-plus-storage retrofits.

Active heating. The active heating function is included by default and is automatically activated to avoid internal condensation at very low temperatures when the inverter is not actively exporting power. It also can shift to reactive power compensation mode.

Grid support. Capable of operating on any power system. Offering grid support functionalities to comply with the most restrictive grid codes.

Multilevel topology. The 3 level IGBT topology reduces power stage losses, increases inverter efficiency, and minimizes total harmonic distortion. High efficiency to deliver the lowest levelized cost of energy (LCOE).

DC-coupled storage system from 1200 kW to 4800 kW

Can reach up to a nominal power of 4.4 MVA

6 different AC voltages

Maximum power up to 1500 Vdc

DC/DC

Maximize the benefits of solar+storage plants with our DC/DC converter. Easy to fit in any place and compatible with all battery technologies.

Freemaq DC/DC

Storage for solar plants

Re-designed to maximize the benefits of large-scale solar plants with a solar-plus-storage approach.	Functions: energy shifting, ramp control rate, frequency response, clipping energy recovery.	Its unique modular design provides the flexibility needed to design your project, choosing the amount of storage power to be dispatched, according to the specific grid requierements.

The most efficient bidirectional DC/DC converter.

Modular Outdoor Solution

Nominal power of 1200 kW

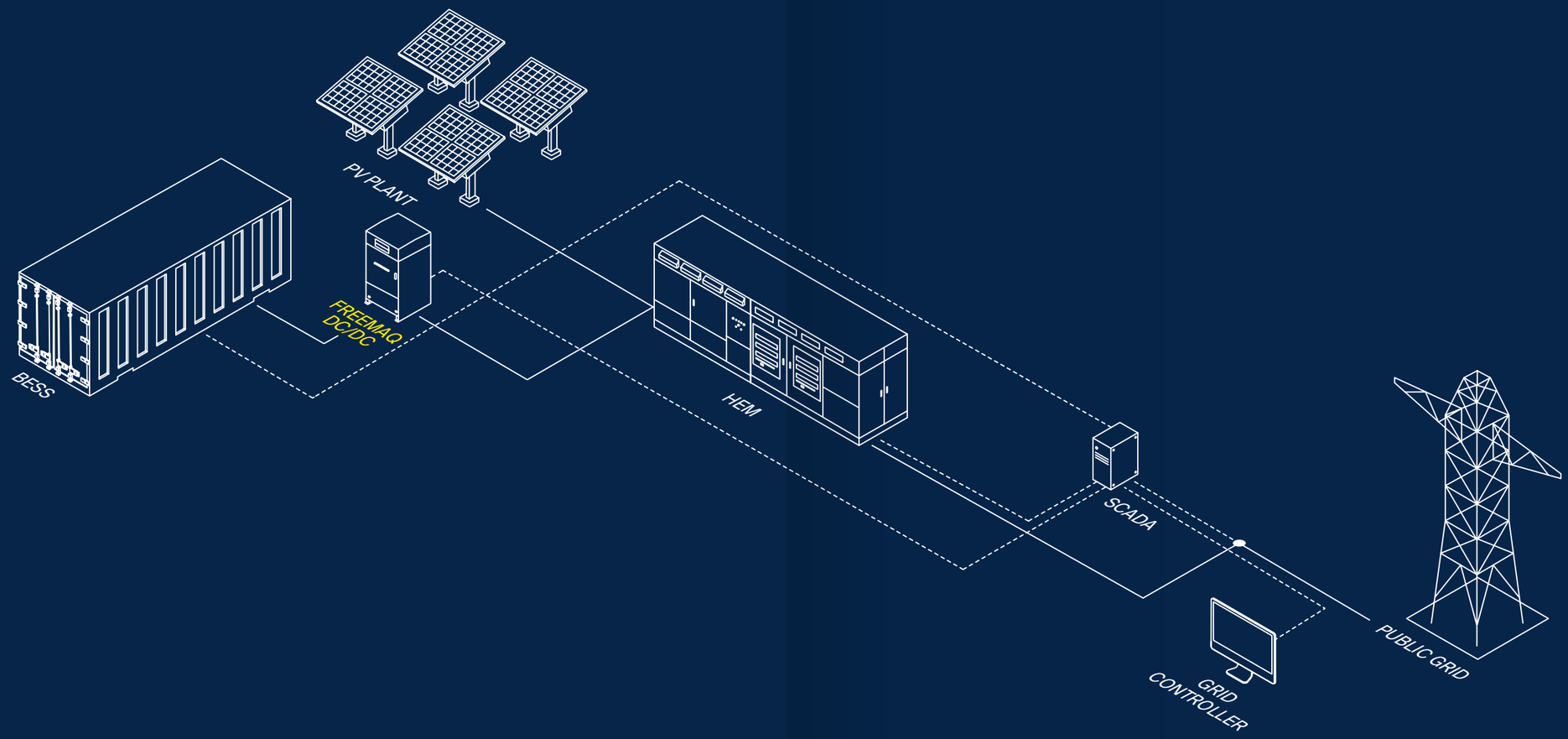
Up to 1500 Vdc

Maximize the benefits of solar plants with our Freemaq DC/DC. How?

1 With the DC-coupled energy storage system, the excess energy from the PV plant can be stored in the Battery Energy Storage System (BESS) and then delivered when needed.

2 DC/DC makes it possible to deliver the stored energy in periods of low PV power availability, achieving a grater overall efficiency of the PV plant.

This stored energy can be exported to the utility grid when the price per kWh is higher, optimizing the revenue.



Easy to integrate

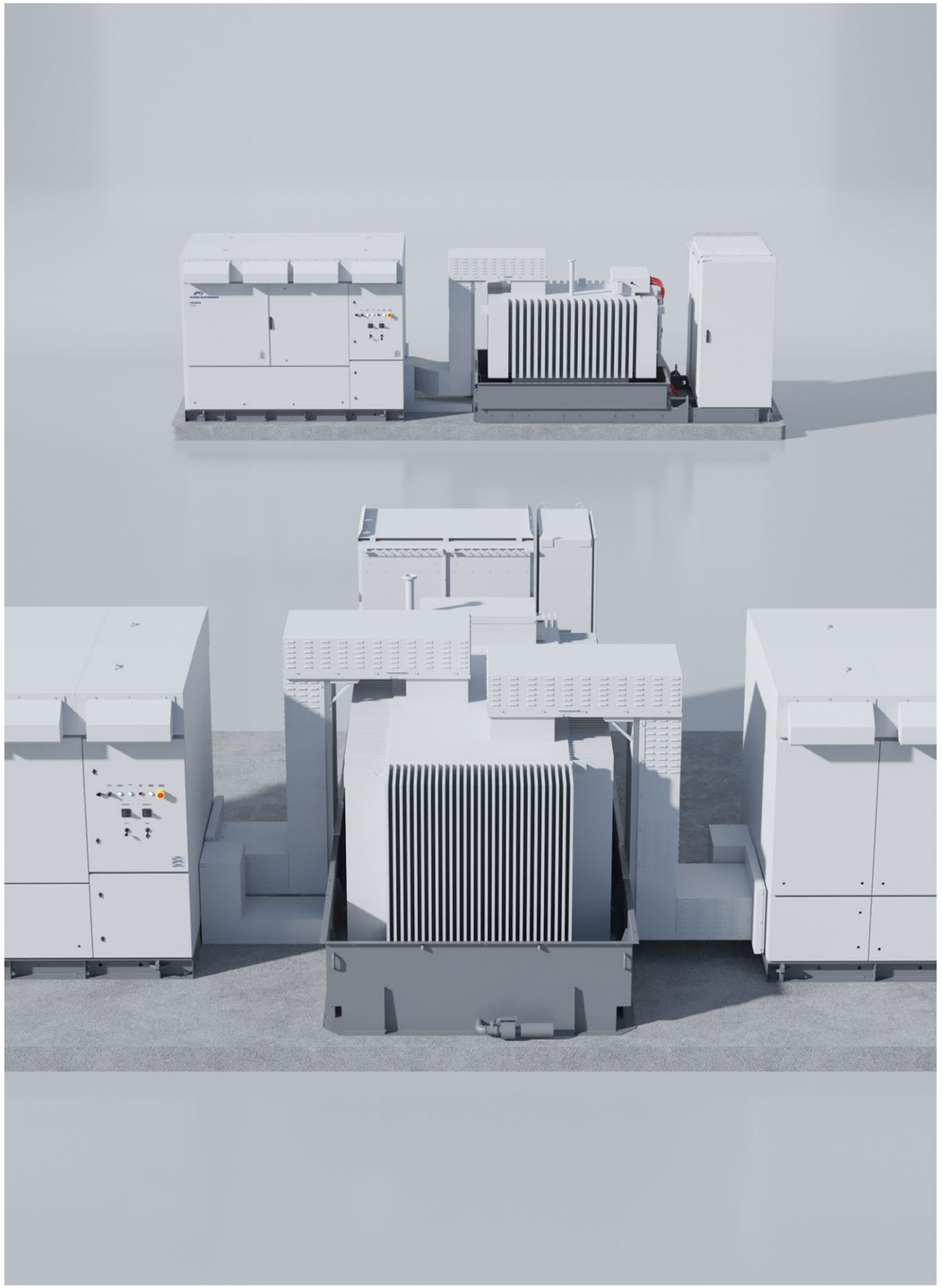
MV Skid & Twin Skid

Combine the HEMK with our MV stations. Utility scale solar stations. From low to medium voltage.

MV Skid Compact & Twin Skid Compact

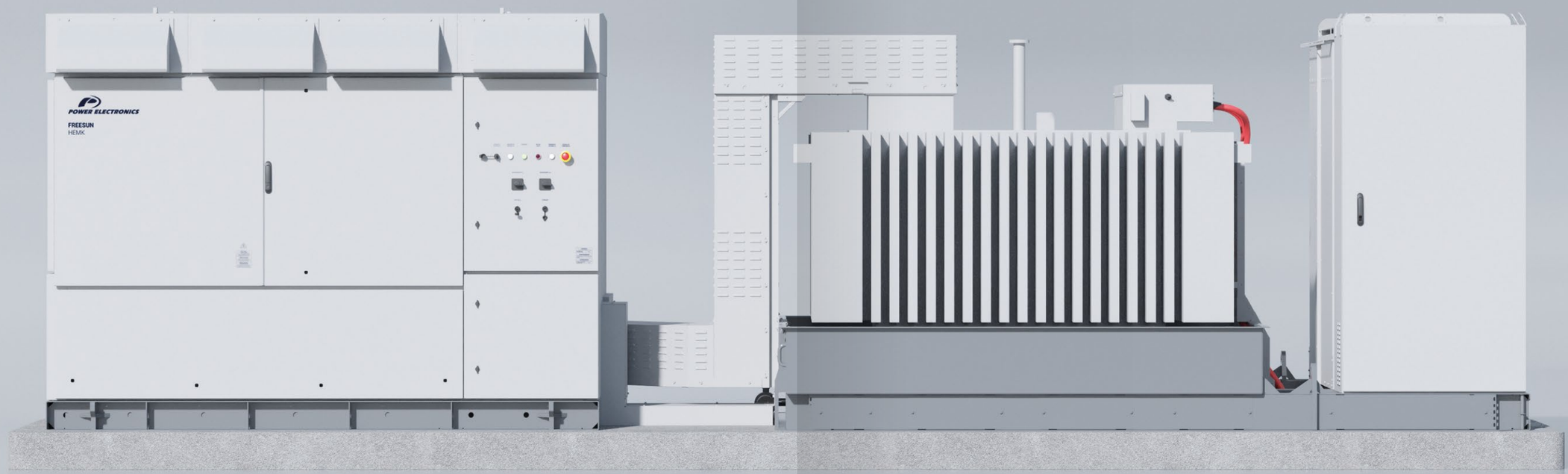
Our MV Stations make the commissioning easier

Turn-key solution. The SKID family facilitates the project design and reduces the installation costs.	**The fastest connection with any HEMK.**	**Simplify your commissioning.** All the medium voltage equipment is already integrated.



Easy and fast connection

MV Skid Compact



From 6.6 kV to 34.5 kV in the high voltage range

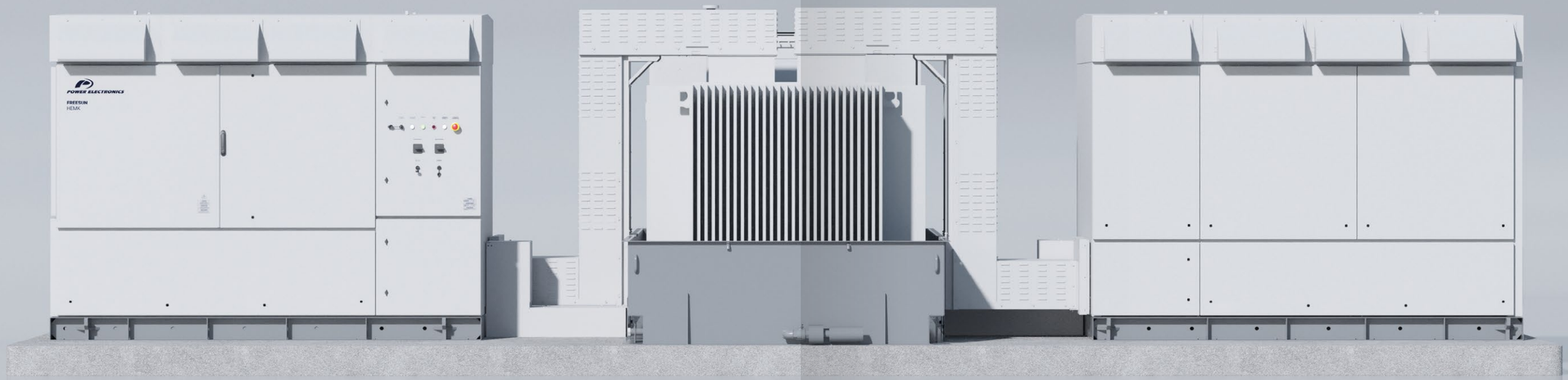
Power outputs from 1910 kVA to 4390 kVA

600 V - 690 V in the low voltage range

Choose the distribution that fits better on your solar plant for one HEMK

For the largest solar plants

Twin Skid Compact



From 11 kV to 34.5 kV in the high voltage range

Power outputs from 3820 kVA to 8780 kVA

600 V - 690 V in the low voltage range

PPC PRO

Flexible PLC technology:
real-time control and monitoring
for advanced utility-scale
applications.

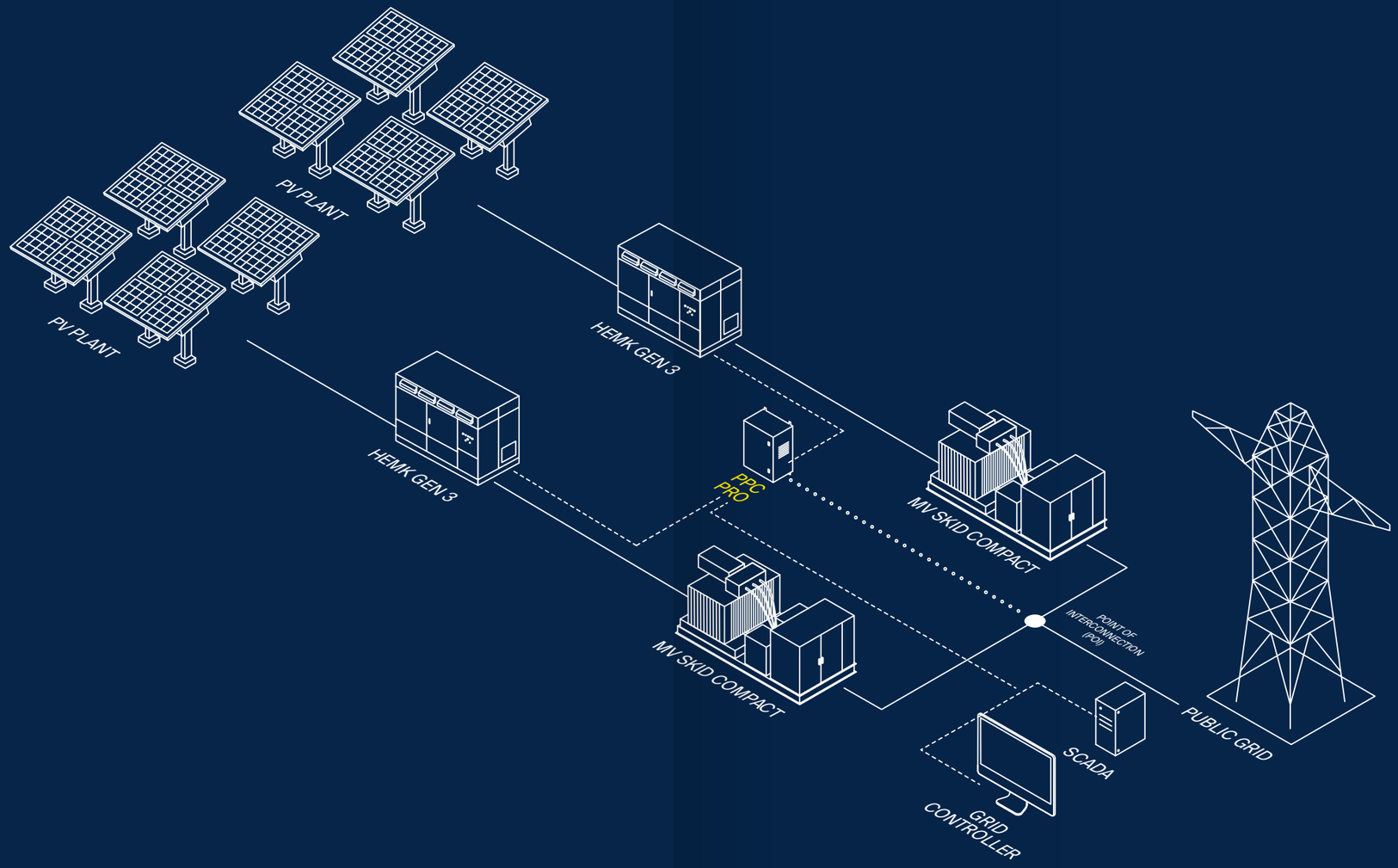
The PPC PRO is an advanced control solution for any application, including utility scale PV and Hybrid Plants; self-consumption applications and zero grid injection systems.

Main governor of the most complex power plants by monitoring the point of interconnection (POI) and controlling the power generation.

Equipped with the latest PLC technology and implementing sophisticated communication system and regulation algorithms to comply with the most demanding grid codes.

Regardless of where you are

PPC PRO

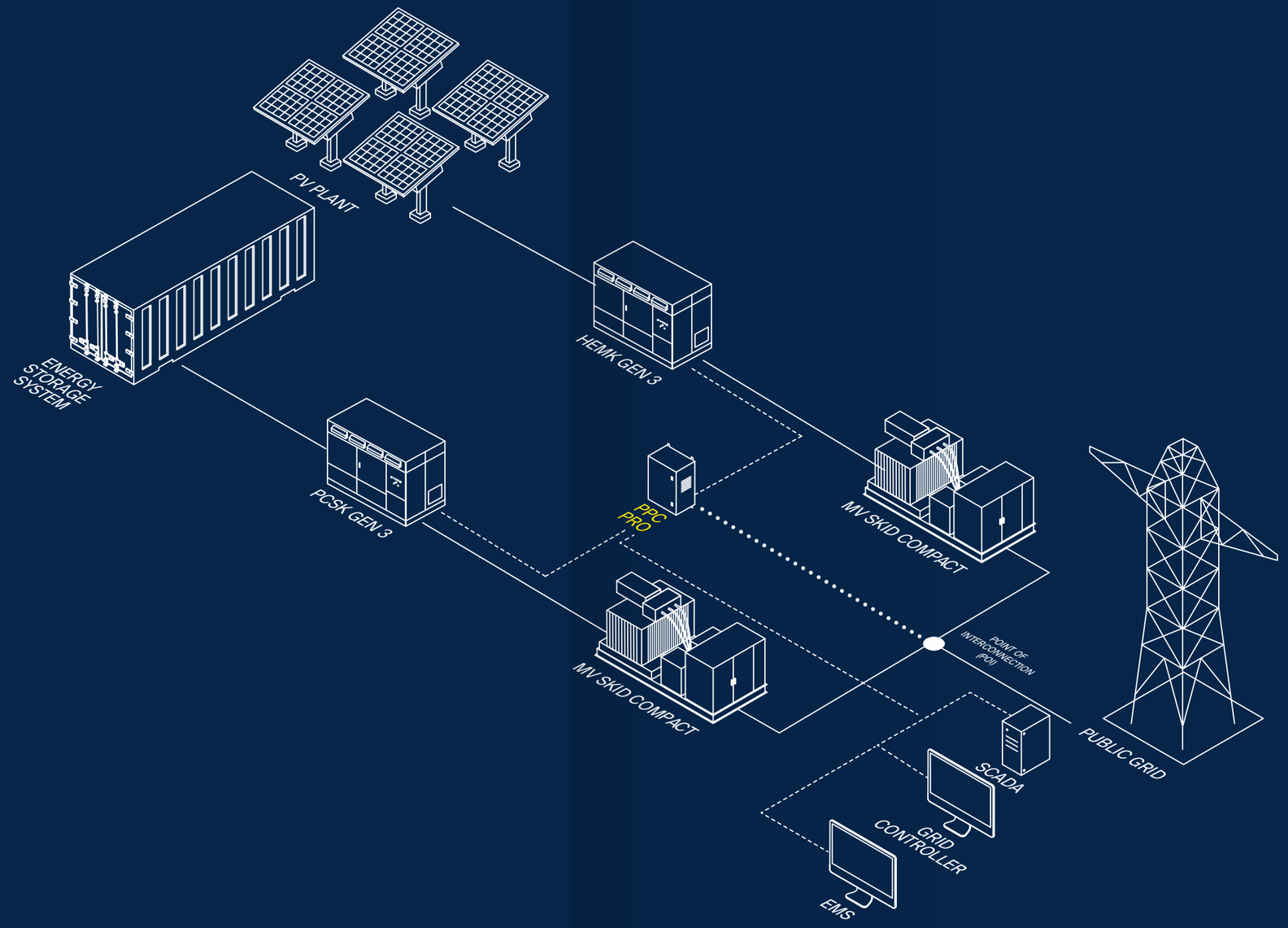


PV plant

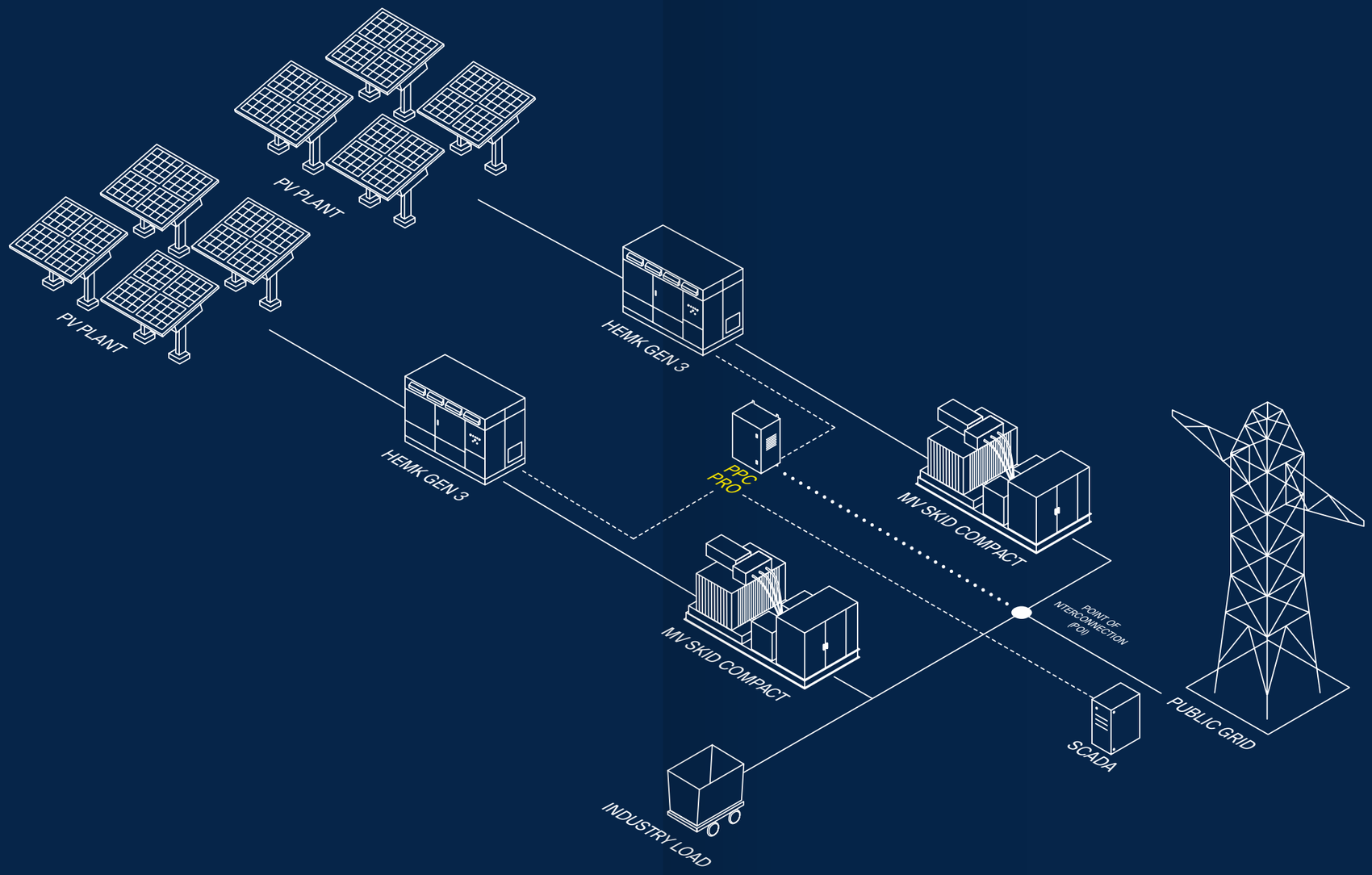
Advanced and reliable functionalities. PPC PRO is used to manage PV plants in order to comply with all the utility and customer requirements, thanks to its fast and flexible control algorithms.

Smart Q distribution. This algorithm allows to distribute the reactive power between the inverters depending on the available active power, maximizing the energy production.

O&M diagnosis functions. Reports warning / fault messages and enables user management, real-time data monitoring, etc



Hybrid plant



Maximize the efficiency of the system. Reduction of the electricity cost due to the energy consumption reduction from the grid.

The best solution for self-consumption applications. Advanced, reliable and precise algorithms designed to match energy production and consumption.

Self-Consumption plant

Datasheets

Find all the specifications of our products just here.

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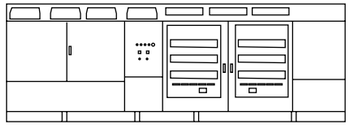

REFERENCES		FS4200M	FS4201M
AC	AC Output Power (kVA/kW) @40°C [1]	4200	
	AC Output Power (kVA/kW) @50°C [1]	3900	
	Operating Grid Voltage (kV) [2]	34.5kV ±10%	13.8kV ±10%
	Operating Grid Frequency (Hz)	60Hz	
	Current Harmonic Distortion (THDi)	< 3% per IEEE519	
	Power Factor (cosine phi) [3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night	
DC	DC Voltage Range [4]	934V - 1500V	
	Maximum DC Voltage	1500V	
	Number of Inputs	Up to 40	
	Max. DC Continuous Current (A) [5]	4590	
	Max. DC Short Circuit Current (A) [5]	6940	
	Number of Freemaq DC/DC [5]	Up to 4	
EFFICIENCY	Efficiency (Max) (φ)	98.00% including MV transformer	
	CEC (η)	97.53% including MV transformer	
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2	
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2	
	Weight (lbs)	30865	
	Weight (kg)	14000	
	Type of Ventilation	Forced air cooling	
	Degree of Protection	NEMA 3R	
ENVIROMENT	Operating Temperature Range [6]	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) [7]	2000m	
CONTROL INTERFACE	Communication Protocol	Modbus TCP	
	Power Plant Controller	Optional	
	Keyed ON/OFF Switch	Standard	
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device	
	Humidity Control	Active heating	
	General AC Protection & Disconn.	38 kV MV switchgear (20 or 25 kA)	
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors	
	Overvoltage Protection	Type 2 protection for AC and DC	
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16	
	Installation	NEC 2020	
	Utility Interconnect [8]	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1:2020	

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[4] 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.
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35°C.
[7] Consult Power Electronics for altitudes above 1000m.
[8] Consult Power Electronics for other applicable standards / grid codes.

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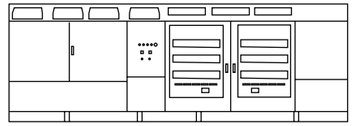

REFERENCES		FS4200MH	FS4202MH
AC	AC Output Power (kVA/kW) @40°C [1]	4200	
	AC Output Power (kVA/kW) @50°C [1]	3900	
	Operating Grid Voltage (kV) [2]	34.5kV ±10%	33 kV ±10%
	Operating Grid Frequency (Hz)	60Hz	50Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519	
	Power Factor (cosine phi) [3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night	
DC	DC Voltage Range [4]	934V - 1500V	
	Maximum DC Voltage	1500V	
	Number of Inputs	Up to 40	
	Max. DC Continuous Current (A) [5]	4590	
	Max. DC Short Circuit Current (A) [5]	6940	
	Number of Freemaq DC/DC [5]	Up to 4	
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.8% including MV transformer	
	Euroeta (η) (preliminary)	97.51% including MV transformer	
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2	
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2	
	Weight (lbs)	30865	
	Weight (kg)	14000	
	Type of Ventilation	Forced air cooling	
	Degree of Protection	IP55	
ENVIROMENT	Operating Temperature Range [6]	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) [7]	2000m	
CONTROL INTERFACE	Communication Protocol	Modbus TCP	
	Power Plant Controller	Optional	
	Keyed ON/OFF Switch	Standard	
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device	
	Humidity Control	Active heating	
	General AC Protection & Disconn.	MV switchgear (2L+V)	
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors	
	Overvoltage Protection	Type 2 protection for AC and DC	
CERTIFICATIONS & STANDARDS	Safety	IEC 62109-1 / IEC 62109-2	

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[4] 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.
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35°C.
[7] Consult Power Electronics for altitudes above 1000m.

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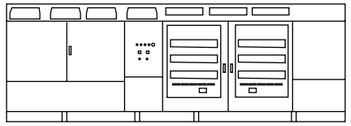

REFERENCES		FS4105M
AC	AC Output Power (kVA/kW) @40°C [1]	4105
	AC Output Power (kVA/kW) @50°C [1]	3810
	Operating Grid Voltage (kV) [2]	34.5kV ±10%
	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (cosine phi) [3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night
DC	DC Voltage Range [4]	913V - 1500V
	Maximum DC Voltage	1500V
	Number of Inputs	Up to 40
	Max. DC Continuous Current (A) [5]	4590
	Max. DC Short Circuit Current (A) [5]	6940
	Number of Freemaq DC/DC [5]	Up to 4
EFFICIENCY	Efficiency (Max) (η)	97.93% including MV transformer
	CEC (η)	97.50% including MV transformer
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2
	Weight (lbs)	30865
	Weight (kg)	14000
	Type of Ventilation	Forced air cooling
	Degree of Protection	NEMA 3R
ENVIROMENT	Operating Temperature Range [6]	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) [7]	2000m
CONTROL INTERFACE	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional
	Keyed ON/OFF Switch	Standard
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	38 kV MV switchgear (20 or 25 kA)
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors
	Overvoltage Protection	Type 2 protection for AC and DC
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16
	Installation	NEC 2020
	Utility Interconnect [8]	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1:2020

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[4] 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.
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35°C.
[7] Consult Power Electronics for altitudes above 1000m.
[8] Consult Power Electronics for other applicable standards / grid codes.

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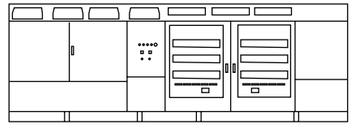

REFERENCES		FS4105MH
AC	AC Output Power (kVA/kW) @40°C [1]	4105
	AC Output Power (kVA/kW) @50°C [1]	3810
	Operating Grid Voltage (kV) [2]	34.5kV ±10%
	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (cosine phi) [3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night
DC	DC Voltage Range [4]	913V - 1500V
	Maximum DC Voltage	1500V
	Number of Inputs	Up to 40
	Max. DC Continuous Current (A) [5]	4590
	Max. DC Short Circuit Current (A) [5]	6940
	Number of Freemaq DC/DC [5]	Up to 4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.76% including MV transformer
	Euroeta (η) (preliminary)	97.50% including MV transformer
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2
	Weight (lbs)	30865
	Weight (kg)	14000
	Type of Ventilation	Forced air cooling
	Degree of Protection	IP55
ENVIROMENT	Operating Temperature Range [6]	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) [7]	2000m
CONTROL INTERFACE	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional
	Keyed ON/OFF Switch	Standard
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	MV switchgear (2L+V)
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors
	Overvoltage Protection	Type 2 protection for AC and DC
CERTIFICATIONS & STANDARDS	Safety	IEC 62109-1 / IEC 62109-2

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[4] 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.
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35°C.
[7] Consult Power Electronics for altitudes above 1000m.

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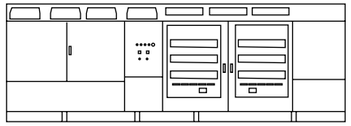

REFERENCES		FS4010M
AC	AC Output Power (kVA/kW) @40°C [1]	4010
	AC Output Power (kVA/kW) @50°C [1]	3720
	Operating Grid Voltage (kV) [2]	34.5kV ±10%
	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (cosine phi) [3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night
DC	DC Voltage Range [4]	891V - 1500V
	Maximum DC Voltage	1500V
	Number of Inputs	Up to 40
	Max. DC Continuous Current (A) [5]	4590
	Max. DC Short Circuit Current (A) [5]	6940
	Number of Freemaq DC/DC [5]	Up to 4
EFFICIENCY	Efficiency (Max) (η)	97.91% including MV transformer
	CEC (η)	97.49% including MV transformer
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2
	Weight (lbs)	30865
	Weight (kg)	14000
	Type of Ventilation	Forced air cooling
	Degree of Protection	NEMA 3R
ENVIROMENT	Operating Temperature Range [6]	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) [7]	2000m
CONTROL INTERFACE	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional
	Keyed ON/OFF Switch	Standard
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	38 kV MV switchgear (20 or 25 kA)
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors
	Overvoltage Protection	Type 2 protection for AC and DC
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16
	Installation	NEC 2020
	Utility Interconnect [8]	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1:2020

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[4] 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.
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35°C.
[7] Consult Power Electronics for altitudes above 1000m.
[8] Consult Power Electronics for other applicable standards / grid codes.

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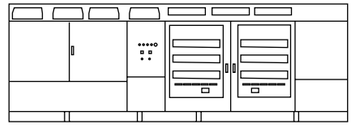
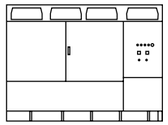


REFERENCES		FS4010MH
AC	AC Output Power (kVA/kW) @40°C [1]	4010
	AC Output Power (kVA/kW) @50°C [1]	3720
	Operating Grid Voltage (kV) [2]	34.5kV ±10%
	Operating Grid Frequency (Hz)	60Hz
	Current Harmonic Distortion (THDi)	< 3% per IEEE519
	Power Factor (cosine phi) [3]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night
DC	DC Voltage Range [4]	891V - 1500V
	Maximum DC Voltage	1500V
	Number of Inputs	Up to 40
	Max. DC Continuous Current (A) [5]	4590
	Max. DC Short Circuit Current (A) [5]	6940
	Number of Freemaq DC/DC [5]	Up to 4
EFFICIENCY	Efficiency (Max) (η) (preliminary)	97.75% including MV transformer
	Euroeta (η) (preliminary)	97.48% including MV transformer
CABINET	Dimensions [WxDxH] (ft)	21.3 x 6.5 x 7.2
	Dimensions [WxDxH] (m)	6.5 x 2.0 x 2.2
	Weight (lbs)	30865
	Weight (kg)	14000
	Type of Ventilation	Forced air cooling
	Degree of Protection	IP55
ENVIROMENT	Operating Temperature Range [6]	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) [7]	2000m
CONTROL INTERFACE	Communication Protocol	Modbus TCP
	Power Plant Controller	Optional
	Keyed ON/OFF Switch	Standard
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device
	Humidity Control	Active heating
	General AC Protection & Disconn.	MV switchgear (2L+V)
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors
	Overvoltage Protection	Type 2 protection for AC and DC
CERTIFICATIONS & STANDARDS	Safety	IEC 62109-1 / IEC 62109-2

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult Power Electronics for other configurations.
[3] Consult P-Q charts available: Q(kVAr)=√(S(kVA)2-P(kW)2).
[4] 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.
[5] Consult Power Electronics for Freemaq DC/DC connection configurations.
[6] Optional available for temperatures down to -35°C.
[7] Consult Power Electronics for altitudes above 1000m.

Freesun HEMK
690V

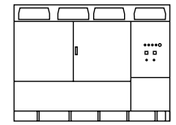


690V		FRAME 2	FRAME 3	FRAME 4
REFERENCES		**FS2195K**	**FS3290K**	**FS4390K**
AC	AC Output Power (kVA/kW) @40°C [1]	2195	3290	4390
	AC Output Power (kVA/kW) @50°C [1]	2035	3055	4075
	Max. AC Output Current (A) @40°C	1837	2756	3674
	Operating Grid Voltage (VAC)	690V ±10%		
	Operating Grid Frequency (Hz)	50/60Hz		
	Current Harmonic Distortion (THDi)	< 3% per IEEE519		
	Power Factor (cosine phi) [2]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night		
DC	DC Voltage Range [3]	976V - 1500V		
	Maximum DC Voltage	1500V		
	Number of Inputs	Up to 20	Up to 30	Up to 40
	Max. DC Continuous Current (A) [4]	2295	3443	4590
	Max. DC Short Circuit Current (A) [4]	3470	5205	6940
	Number of Freemaq DC/DC [4]	Up to 4		
EFFICIENCY	Efficiency (Max) (η) [5]	98.94%		
	Euroeta (η) [5]	98.51%		
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		
ENVIROMENT	Degree of Protection	NEMA 3R / IP55		
	Operating Temperature Range [6]	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		
	Keyed ON/OFF Switch	Standard		
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device		
	Humidity Control	Active heating		
	General AC Protection & Disconn.	Circuit breaker		
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors		
	Overvoltage Protection	Type 2 protection for AC and DC		
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2		
	Installation	NEC 2020 / IEC		
	Utility Interconnect	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014		

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult P-Q charts available: Q(kVAr)=√(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] Consult Power Electronics for Freemaq DC/DC connection configurations.
[5] Consult Power Electronics for Frame 2 and Frame 3 efficiencies.
[6] Optional available for temperatures down to -35°C.

Freesun HEMK
660V

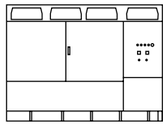


660V		FRAME 2	FRAME 3	FRAME 4
REFERENCES		**FS2101K**	**FS3151K**	**FS4200K**
AC	AC Output Power (kVA/kW) @40°C [1]	2100	3150	4200
	AC Output Power (kVA/kW) @50°C [1]	1950	2925	3900
	Max. AC Output Current (A) @40°C	1837	2756	3674
	Operating Grid Voltage (VAC)	660V ±10%		
	Operating Grid Frequency (Hz)	50/60Hz		
	Current Harmonic Distortion (THDi)	< 3% per IEEE519		
	Power Factor (cosine phi) [2]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night		
DC	DC Voltage Range [3]	934V - 1500V		
	Maximum DC Voltage	1500V		
	Number of Inputs	Up to 20	Up to 30	Up to 40
	Max. DC Continuous Current (A) [4]	2295	3443	4590
	Max. DC Short Circuit Current (A) [4]	3470	5205	6940
	Number of Freemaq DC/DC [4]	Up to 4		
EFFICIENCY	Efficiency (Max) (η) [5]	98.95%		
	Euroeta (η) [5]	98.53%		
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		
ENVIROMENT	Degree of Protection	NEMA 3R / IP55		
	Operating Temperature Range [6]	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		
	Keyed ON/OFF Switch	Standard		
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device		
	Humidity Control	Active heating		
	General AC Protection & Disconn.	Circuit breaker		
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors		
	Overvoltage Protection	Type 2 protection for AC and DC		
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2		
	Installation	NEC 2020 / IEC		
	Utility Interconnect	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014		

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult P-Q charts available: Q(kVAr)=√(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] Consult Power Electronics for Freemaq DC/DC connection configurations.
[5] Consult Power Electronics for Frame 2 and Frame 3 efficiencies.
[6] Optional available for temperatures down to -35°C.

Freesun HEMK
645V

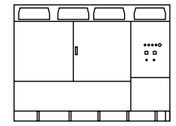


645V		FRAME 2	FRAME 3	FRAME 4
REFERENCES		**FS2055K**	**FS3080K**	**FS4105K**
AC	AC Output Power (kVA/kW) @40°C [1]	2055	3080	4105
	AC Output Power (kVA/kW) @50°C [1]	1905	2855	3810
	Max. AC Output Current (A) @40°C	1837	2756	3674
	Operating Grid Voltage (VAC)	645V ±10%		
	Operating Grid Frequency (Hz)	50/60Hz		
	Current Harmonic Distortion (THDi)	< 3% per IEEE519		
	Power Factor (cosine phi) [2]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night		
DC	DC Voltage Range [3]	913V - 1500V		
	Maximum DC Voltage	1500V		
	Number of Inputs	Up to 20	Up to 30	Up to 40
	Max. DC Continuous Current (A) [4]	2295	3443	4590
	Max. DC Short Circuit Current (A) [4]	3470	5205	6940
	Number of Freemaq DC/DC [4]	Up to 4		
EFFICIENCY	Efficiency (Max) (η) [5]	98.81%		
	Euroeta (η) [5]	98.41%		
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		
ENVIROMENT	Degree of Protection	NEMA 3R / IP55		
	Operating Temperature Range [6]	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		
	Keyed ON/OFF Switch	Standard		
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device		
	Humidity Control	Active heating		
	General AC Protection & Disconn.	Circuit breaker		
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors		
	Overvoltage Protection	Type 2 protection for AC and DC		
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2		
	Installation	NEC 2020 / IEC		
	Utility Interconnect	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014		

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult P-Q charts available: Q(kVAr)=√(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] Consult Power Electronics for Freemaq DC/DC connection configurations.
[5] Consult Power Electronics for Frame 2 and Frame 3 efficiencies.
[6] Optional available for temperatures down to -35°C.

Freesun HEMK
630V

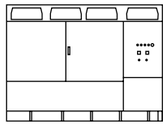


630V		FRAME 2	FRAME 3	FRAME 4
REFERENCES		**FS2005K**	**FS3005K**	**FS4010K**
AC	AC Output Power (kVA/kW) @40°C [1]	2005	3005	4010
	AC Output Power (kVA/kW) @50°C [1]	1860	2790	3720
	Max. AC Output Current (A) @40°C	1837	2756	3674
	Operating Grid Voltage (VAC)	630V ±10%		
	Operating Grid Frequency (Hz)	50/60Hz		
	Current Harmonic Distortion (THDi)	< 3% per IEEE519		
	Power Factor (cosine phi) [2]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night		
DC	DC Voltage Range [3]	891V - 1500V		
	Maximum DC Voltage	1500V		
	Number of Inputs	Up to 20	Up to 30	Up to 40
	Max. DC Continuous Current (A) [4]	2295	3443	4590
	Max. DC Short Circuit Current (A) [4]	3470	5205	6940
	Number of Freemaq DC/DC [4]	Up to 4		
EFFICIENCY	Efficiency (Max) (η) [5]	98.88%		
	Euroeta (η) [5]	98.45%		
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		
ENVIROMENT	Degree of Protection	NEMA 3R / IP55		
	Operating Temperature Range [6]	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		
	Keyed ON/OFF Switch	Standard		
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device		
	Humidity Control	Active heating		
	General AC Protection & Disconn.	Circuit breaker		
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors		
	Overvoltage Protection	Type 2 protection for AC and DC		
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2		
	Installation	NEC 2020 / IEC		
	Utility Interconnect	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014		

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult P-Q charts available: Q(kVAr)=√(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] Consult Power Electronics for Freemaq DC/DC connection configurations.
[5] Consult Power Electronics for Frame 2 and Frame 3 efficiencies.
[6] Optional available for temperatures down to -35°C.

Freesun HEMK
615V

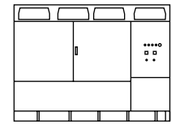


615V		FRAME 2	FRAME 3	FRAME 4
REFERENCES		**FS1955K**	**FS2935K**	**FS3915K**
AC	AC Output Power (kVA/kW) @40°C [1]	1955	2935	3915
	AC Output Power (kVA/kW) @50°C [1]	1815	2725	3635
	Max. AC Output Current (A) @40°C	1837	2756	3674
	Operating Grid Voltage (VAC)	615V ±10%		
	Operating Grid Frequency (Hz)	50/60Hz		
	Current Harmonic Distortion (THDi)	< 3% per IEEE519		
	Power Factor (cosine phi) [2]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night		
DC	DC Voltage Range [3]	870V - 1500V		
	Maximum DC Voltage	1500V		
	Number of Inputs	Up to 20	Up to 30	Up to 40
	Max. DC Continuous Current (A) [4]	2295	3443	4590
	Max. DC Short Circuit Current (A) [4]	3470	5205	6940
	Number of Freemaq DC/DC [4]	Up to 4		
EFFICIENCY	Efficiency (Max) (η) [5]	98.77%		
	Euroeta (η) [5]	98.37%		
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		
ENVIROMENT	Degree of Protection	NEMA 3R / IP55		
	Operating Temperature Range [6]	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		
	Keyed ON/OFF Switch	Standard		
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device		
	Humidity Control	Active heating		
	General AC Protection & Disconn.	Circuit breaker		
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors		
	Overvoltage Protection	Type 2 protection for AC and DC		
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2		
	Installation	NEC 2020 / IEC		
	Utility Interconnect	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014		

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult P-Q charts available: Q(kVAr)=√(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] Consult Power Electronics for Freemaq DC/DC connection configurations.
[5] Consult Power Electronics for Frame 2 and Frame 3 efficiencies.
[6] Optional available for temperatures down to -35°C.

Freesun HEMK
600V

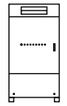


600V		FRAME 2	FRAME 3	FRAME 4
REFERENCES		**FS1910K**	**FS2865K**	**FS3820K**
AC	AC Output Power (kVA/kW) @40°C [1]	1910	2865	3820
	AC Output Power (kVA/kW) @50°C [1]	1775	2660	3545
	Max. AC Output Current (A) @40°C	1837	2756	3674
	Operating Grid Voltage (VAC)	600V ±10%		
	Operating Grid Frequency (Hz)	50/60Hz		
	Current Harmonic Distortion (THDi)	< 3% per IEEE519		
	Power Factor (cosine phi) [2]	0.5 leading ... 0.5 lagging adjustable / Reactive power injection at night		
DC	DC Voltage Range [3]	849V - 1500V		
	Maximum DC Voltage	1500V		
	Number of Inputs	Up to 20	Up to 30	Up to 40
	Max. DC Continuous Current (A) [4]	2295	3443	4590
	Max. DC Short Circuit Current (A) [4]	3470	5205	6940
	Number of Freemaq DC/DC [4]	Up to 4		
EFFICIENCY	Efficiency (Max) (η) [5]	98.78%		
	Euroeta (η) [5]	98.35%		
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		
ENVIROMENT	Degree of Protection	NEMA 3R / IP55		
	Operating Temperature Range [6]	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		
	Keyed ON/OFF Switch	Standard		
PROTECTIONS	Ground Fault Protection	GFDI and isolation monitoring device		
	Humidity Control	Active heating		
	General AC Protection & Disconn.	Circuit breaker		
	General DC Protection & Disconn.	Fuses, DC switch-disconnectors		
	Overvoltage Protection	Type 2 protection for AC and DC		
CERTIFICATIONS & STANDARDS	Safety	UL 1741 / CSA 22.2 No.107.1-16 / IEC 62109-1 / IEC 62109-2		
	Installation	NEC 2020 / IEC		
	Utility Interconnect	UL 1741 SA & SB / RULE 21 / RULE 14H / IEEE 1547.1 2020 / IEC 62116:2014		

NOTES

[1] Values at 1.00·Vac nom and cosφ=1. Consult Power Electronics for derating curves.
[2] Consult P-Q charts available: Q(kVAr)=√(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] Consult Power Electronics for Freemaq DC/DC connection configurations.
[5] Consult Power Electronics for Frame 2 and Frame 3 efficiencies.
[6] Optional available for temperatures down to -35°C.

DC/DC

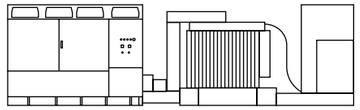


REFERENCES		FD1200
DC INPUT & OUTPUT	DC Rated Power (kW) @ 30 °C	1200
	DC Rated Power (kW) @ 40 °C	1120
	DC Rated Power (kW) @ 50 °C	1040
	Max. DC Output Current (A) @ 30 °C	1200
	Max. DC Output Current (A) @ 40 °C	1120
	Max. DC Output Current (A) @ 50 °C	1040
	DC PV Voltage Range (Vdc) [1]	850 - 1500
	DC ESS Voltage Range (Vdc) [1]	850 - 1500
	Maximum DC PV Input Voltage (Vdc)	1500
	DC Voltage Ripple	< 3%
	Battery Technology	Compatible with all battery technologies
EFFICIENCY	Efficiency (Max)	98.9% (preliminary)
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]	-25°C to +60°C, >50°C / Active 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]	DC switch-disconnector
	BESS side [4]	DC switch-disconnector and ultra-fast fuses
CERTIFICATIONS	Safety	UL1741, IEC 62109

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.

MV Skid Compact

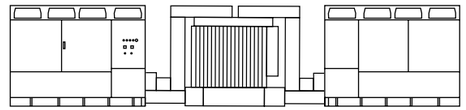


RATINGS	Power range @ 40 °C	1910 kVA - 4390 kVA
	Power range @ 50 °C	1775 kVA - 4075 kVA
MEDIUM VOLTAGE EQUIPMENT	MV voltage range	6.6 kV / 11 kV / 13.2 kV / 13.8 kV / 15 kV / 20 kV / 22 kV / 23 kV / 25 kV / 30 kV / 33 kV / 34.5 kV
	LV voltage range	600 V /615 V /630 V / 645 V / 660 V / 690 V
	Transformer cooling	ONAN
	Transformer vector group	Dy11
	Transformer protection	Protection relay for pressure, temperature (two levels) and gassing
		Monitoring of dielectric level decrease
		PT100 optional
	Transformer index of protection	IP54
	Transformer losses	IEC standard or IEC Tier-2
	Oil retention tank	Galvanized steel. Integrated with hydrocarbon filter. Optional
	Switchgear configuration	Double feeder (2L)
	Switchgear protection	Circuit breaker (V)
	Switchgear short circuit rating [1]	16 kA 1 s (optionally 20 kA or 25 kA)
	Switchgear IAC [1]	A FLR 16 kA 1 s
CONNECTIONS	LV-MV connections	Close coupled solution (plug & play)
	LV protection	Motorized circuit breaker included in the inverter
	HV AC wiring	MV bridge between transformer and protection switchgear prewired
ENVIRONMENT	Ambient temperature range [2]	-25 °C... +50 °C (T > 50 °C power derating)
	Maximum altitude (above sea level) [1]	Up to 1000 m
	Relative humidity	4% to 95% non condensing
AUXILIARY SERVICES	User cabinet	Integrated in the inverter (by default). Optionally, LV cabinet in the skid
	UPS system [1]	1 kVA/1 kW (12 minutes). Optional
OTHER EQUIPMENT	Safety mechanism	Interlocking system
	Fire suppression system	Transformer oil tank retention accessory. Optional
STANDARDS	Compliance	IEC 62271-212, IEC 62271-200, IEC 60076, IEC 61439-1

NOTES

[1] Consult with Power Electronics for other options.
[2] For lower temperatures, consult with Power Electronics.

Twin Skid Compact



RATINGS	Power range @ 40 °C	3820 kVA - 8780 kVA
	Power range @ 50 °C	3550 kVA - 8150 KVA
MEDIUM VOLTAGE EQUIPMENT	MV voltage range	11 kV / 13.2 kV/ 13.8 kV/ 15 kV / 20 kV / 22 kV / 23 kV / 25 kV / 30 kV / 33 kV / 34.5 kV
	LV voltage range	600 V /615 V /630 V / 645 V / 660 V / 690 V
	Transformer cooling	ONAN
	Transformer vector group	Dy11y11
	Transformer protection	Protection relay for pressure, temperature (two levels) and gassing.
		Monitoring of dielectric level decrease
		PT100 optional
	Transformer index of protection	IP54
	Transformer losses	IEC standard or IEC Tier-2
	Oil retention tank	Galvanized steel. Integrated with hydrocarbon filter. Optional
	Switchgear configuration	Double feeder (2L)
	Switchgear protection	Circuit breaker (V)
	Switchgear short circuit rating [1]	16 kA 1 s (optionally 20 kA or 25 kA)
	Switchgear IAC [1]	A FLR 16 kA 1 s
CONNECTIONS	LV-MV connections	Close coupled solution (plug & play)
	LV protection	Motorized circuit breaker included in the inverter
	HV AC wiring	MV bridge between transformer and protection switchgear prewired
ENVIRONMENT	Ambient temperature range [2]	-25 °C... +50 °C (T > 50 °C power derating)
	Maximum altitude (above sea level) [1]	Up to 1000 m
	Relative humidity	4% to 95% non condensing
AUXILIARY SERVICES	User cabinet	Integrated in the inverter (by default). Optionally, LV cabinet in the skid
	UPS system [1]	1 kVA/1 kW (12 minutes). Optional
OTHER EQUIPMENT	Safety mechanism	Interlocking system
	Fire suppression system	Transformer oil tank retention accessory. Optional
STANDARDS	Compliance	IEC 62271-212, IEC 62271-200, IEC 60076, IEC 61439-1

NOTES

[1] Consult with Power Electronics for other options.
[2] For lower temperatures, consult with Power Electronics.

PPC PRO

MECHANICAL DATA	Material	Polyester
	Installation	Wall or rack mounted
	Flammability	Halogen-free, self-extinguishing enclosure material (UL94-5V)
	Cable entry	Bottom in & out
	Maintenance	Front
	Cooling	Forced ventilation
	Weight [1]	34 kg / 75 lbs
	Dimensions (H X W X D) [1]	640 X 850 X 360 (mm) / 25 x 33 x 14 (inches)
ELECTRICAL DATA	Maximum consumption	350 W
	AC Voltage input	230 Vac (IEC) [±10%], 120 Vac (UL) [±10%]
	DC Voltage input	120-290 Vdc
	Frequency input:	50/60 Hz
COMMUNICATIONS	Compatible inverters	HEM, HEMK, PCSM, PCSK, Freemaq Statcom
	Communication protocols	Modbus TCP/ ADS for inverter control / DNP3 with Grid Operators. [2]
	Communication Switch	6 RJ45 Ports + 2 FO Multi Mode SC connectors
ENVIRONMENTAL CONDITIONS	Temperature range	From -20 to +50°C
	Humidity	From 0 to 95 % (0 to 95 % non-condensing).
	Protection degree	IP 54 / NEMA 3R
	Pollution degree	Type III
	Maximum altitude	3000 m / 9840 ft
CERTIFICATIONS	Marking	CE
	Standards	UL 916
FUNCTIONALITIES [3]	Active power control	Open & closed loop active power control, frequency response (with /without reserve), ramp rate. Negative and positive active power setpoints, SoC Balancing (storage applications)
	Reactive power control	Reactive power control, power factor control, voltage control, Q(V) curve, cosphi(P) curve, ramp rate, statcom control, capacitor bank control, night mode, SQD.
	Diagnosis functions	Warning / fault messages real-time data monitoring, plant phasor operation diagrmas.
	Others	Internal measurement and compatibility with power analyzers, P/Q plant limitations, hot standby redundancy, controlled plant start, individual inverter control, line drop compensation, communication loss security process.
OTHERS	Web server	For local and remote monitoring / control.
	Customizable solution	Flexible solution based on a powerful modular and programmable controller

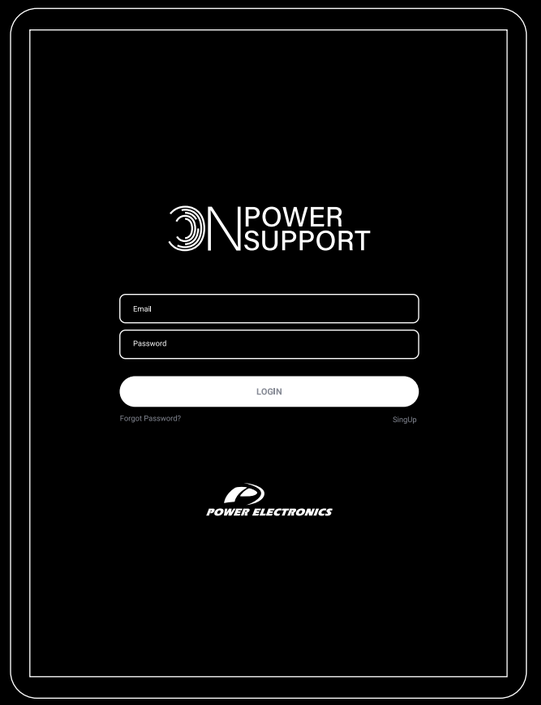
NOTES

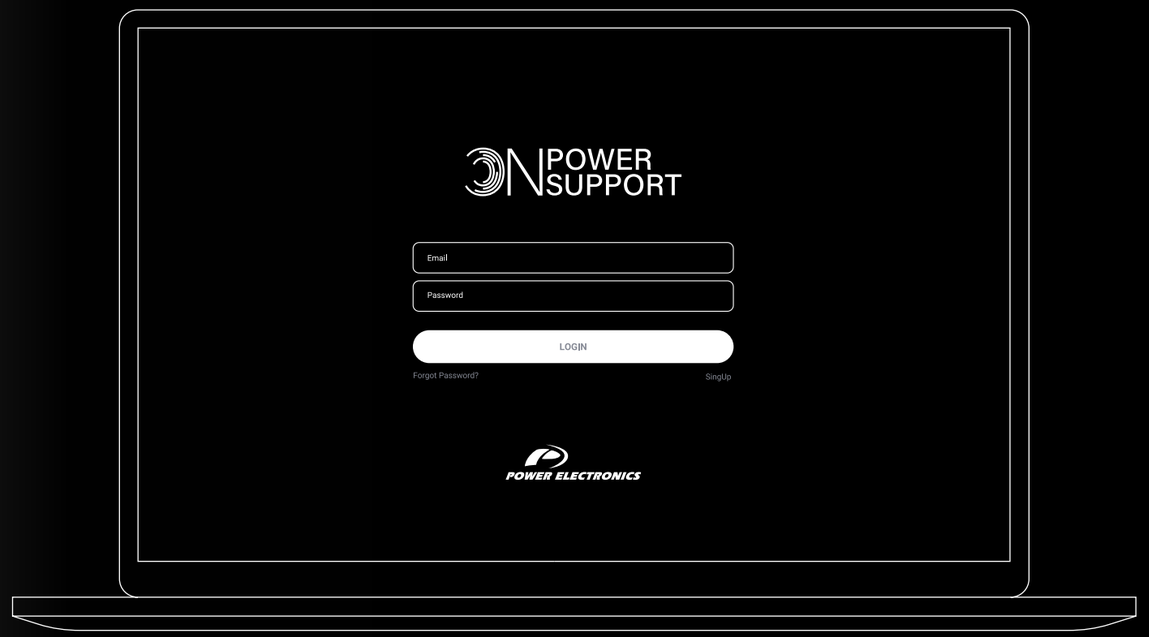
[1] Weight and dimensions may vary depending on the specific project.
[2] Consult with Power Electronics for further information.
[3] Consult Power Electronics for functionalities and availability.

Our secret. The key of our success for more than 35 years, our 24/7 after sales service, Power On Support.

Power ON Support

Download Power on Support from any device and get easily all the information about your equipment. Request assistance through the app and our team will be there in less than 48 hrs. Stay updated on your assistance details and check the history of your assistance records.





We take care of the legacy generations. Each new generation of **inverters** involves adapting the manufacturing lines to optimize the production of these new units. Power Electronics has optimized facilities for the production of previous generation units, where we manufacture ongoing subcomponents adapted to equipment that is no longer in production, allowing an extended life.

Long Term Service. We repair subcomponents or even manufacture equivalent units in our Dedicated Service Factory located near our Production Plant.Power Electronics has experience in repowering old photovoltaic plants, where we supply state-of-the-art equipment adapting its electrical characteristics to be compatible with the existing configuration, while providing all the advantages of the latest generation **inverters.**

We are here to help you

Vertical Integration throughout the entire process.

Vertical integration is one of our key values. We look after the entire value chain, from design to the on-site commissioning of the products, ensuring the accurate development of all the power electronics inside our **inverters.**

BEFORE COMMISSIONING	– Technical application & design requirement review. – Dedicated Project Management Support. – Hands on functional & safety product training.
DURING COMMISSIONING	– Dedicated commissioning teams. – Rigorous execution through site operation.
AFTER COMMISSIONING	– Support 24/7, 365 days a year. – Full warranty coverage with options for extension and full preventative maintenance packages. – Advanced remote monitoring, detailed performance reporting, and interactive portals for tracking metrics directly with Power Electronics.

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NOTES

WARRANTY
Power Electronics (the Seller) warrants that their Products are free of faults and defects for a period of 5 years, valid from the date of delivery to the Buyer. It shall be understood that a product is free of faults and defects when its condition and performance is in compliance with its specification.

The warranty shall not extend to any Products whose defects are due to (i) careless or improper use, (ii) failure to observe the Seller's instructions regarding the transport, installation, functioning, maintenance and the storage of the Products, (iii) repairs or modifications made by the Buyer or third party without prior written authorization of the Seller, (iv) negligence during the implementation of authorized repairs or modifications, (v) if serial numbers are modified or illegible, (vi) anomalies caused by, or connected to, the elements coupled directly by the Buyer or by the final customer, (vii) accidents or events that place the Product outside its storage and operational specification, viii) continued use of the Products after identification of a fault or defect.

The warranty excludes components that must be replaced periodically such as fuses, lamps & air filters or consumable materials subject to normal wear and tear.

The warranty excludes external parts that are not manufactured by the Seller under the brand of Power Electronics.

The Seller undertakes to replace or to repair, himself, at their discretion, any Product or its part that demonstrates a fault or defect, which is in conformance with the aforementioned terms of the warranty. Reasonable costs associated with the disassembly/ assembly, transport and customs of equipment will also be undertaken by the Seller except in cases of approved intervention by the Buyer and/or their representative where cost allocation has been previously agreed.

Power Electronics reserves the right to modify whole or part of the content of this brochure at any time and without prior notice.