

# zeroCO<sub>2</sub> - XL System

Bidirectional electricity conversion system which includes management and accumulation from diversified sources.

## Solution:

zeroCO<sub>2</sub> - XL System is a power management and conversion system designed for large quantities energy storage.

Thanks to its modularity, it is able to easily scale from a few kW to several MW of managed active power, according to customer needs.

The modules are housed inside a 19" rack which is supplied assembled, wired and factory tested for easy installation.

- From one to four PCS modules for active power management;
- Modular power from 60 kW to 240 kW for each rack;
- EMS, Energy Management System for intelligent energy management;
- Retrofit installation capabilities for large systems;
- Three-phase AC input, compatible with any type of renewable or non-renewable source system;
- Self-use, peak-shaving and energy trading working modes;
- AC side circuit breaker included;
- DC side circuit breaker included;



EMS



PCS



MBMS



zeroCO<sub>2</sub> - XL System

## Rack Dimensions:

Width: 700 mm

Height: 1683 mm

Depth: 776 mm



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# zeroCO<sub>2</sub> - XL System

MODEL	60K	120K	180K	240K
Order Code	90110005	90110010	90110015	90110020
Dimensions [WxHxD, mm]	700 x 1683 x 776			
Weight [kg]	181	214	252	285
Sound power [dB]	<70	<71	<73	<74
PCS technology	Trasformerless			
zeroCO <sub>2</sub> - BESS 125K minimum number	1	2	3	4
<b>Energy Management System parameters</b>				
Power supply [V - Hz]	230 - 50			
Self-consumption power [W]	150			
Standby power [W]	<5			
<b>AC parameters</b>				
Maximum power [kW]	60	120	180	240
Maximum apparent power [kVA]	60	120	180	240
AC input type	5 Wire (3Ph + N + PE)			
Number and maximum connection cable section per phase [mm <sup>2</sup> ]	1 x 120		2 x 120	
Voltage range [V]	400 (±10%)			
Rated electric current [A]	±89	±178	±267	±356
Maximum electric current [A]	±100	±200	±300	±400
Rated voltage and frequency [V-Hz]	400 - 50/60			
Power factor	0,8 ~ 1 (leading / lagging)			
Current DC component [%]	≤ 0,5			
Harmonic content THDi [%]	≤ 3			
AC and DC start function	Si			
Current switching time [ms]	≤ 10			
Conversion efficiency [%]	≥ 97			
Standby power consumption [W]	<25	<50	<75	<100
Permissible short-circuit current of short duration (I <sub>cw</sub> ) [kA]	6 (1")			
<b>DC parameters</b>				
Maximum power [kW]	60	120	180	240
Voltage range [V]	680 - 1000			
Rated electric current [A]	±72	±144	±216	±288
Maximum electric current [A]	±88	±176	±264	±352
<b>Communication</b>				
Communication interfaces	RS485, LAN, WAN			
<b>Safety</b>				
IP protection rating	IP20			
Voltage resistance: input and output - PE [V DC]	3535			
Voltage resistance: input and output - CAN [V DC]	2828			
Surge: Input & Output - PE [kV]	6			
EMC Features	Low Voltage Directive 2014/35/EC - Electromagnetic compatibility 2014/30/EC			
MTBF (Average Time Expected Between Failures) [h]	100000			
Compliance with connection standards	CEI 0-21, CEI 0-16, VDE ARN 4105			
Warranty [years]	2			

The information in this brochure are not binding. Energy S.p.A. reserves the right to make changes at any time without notice.

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# zeroCO<sub>2</sub> - BESS 125K

## Rack with BMS and storage batteries

### Solution:

zeroCO<sub>2</sub> - BESS 125K is an energy storage system based on high voltage Li-ion (LFP) lithium batteries, to be combined with the zeroCO<sub>2</sub> - XL System.

Each rack can hold up to 26 Pylontech model H32148-C battery modules, for a nominal storage capacity of 125 kWh.

The battery modules are connected in series inside the rack and managed by a BMS controller which monitors their state of charge and safety.

- Battery technology: high voltage Li-ion (LFP);
- Nominal storage capacity of 125 kWh;
- Integrated BMS controller for battery string management;
- Integrated DC protection;
- DC circuit breaker switch included;
- UN 38.3 certification for the transport of lithium batteries;
- Possibility of parallelization of several racks to increase the storage capacity;



zeroCO<sub>2</sub> - BESS 125K



SC1000-200J-C



H32148-C

### Rack Dimensions:

Width: 1200 mm

Height: 1683 mm

Depth: 776 mm



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# zeroCO<sub>2</sub> - BESS 125K

MODEL	zeroCO <sub>2</sub> - BESS 125K
Order Code	90110030
Dimensions [WxHxD, mm]	1200 x 1683 x 776
Weight [kg]	1500
Cell technology	Li-ion (LFP)
Battery module model	H32148-C
BMS Controller Name	SC1000-200J-C
Charge / discharge test current [A] (4)	29.6
Rated charge/discharge current [A]	74
Max charge/discharge current [A]	148
Rated module voltage [V]	32
Nominal module capacity [kWh/Ah]	4.74 / 148
Efficiency [%]	95
<b>DC parameters</b>	
System rated voltage [V]	832
System charge/discharge voltage range [V]	754 ~ 936
Nominal capacity [kWh/Ah]	123 / 148
DOD discharge depth [%]	90% (8 - 98% SOC)
Usable capacity [kWh/Ah]	111 / 133
Battery modules quantity [n]	24 ~ 26
<b>Communication</b>	
Communication interfaces	CAN, LAN, Modbus RTU, TCP/IP
<b>Ambient conditions</b>	
Working temperature range [°C]	0 ~ 50
Working humidity range [RH%]	0 ~ 95 (without condensation)
Storage temperature range [°C]	-20 ~ 60
Storage humidity range [RH%]	0 ~ 95 (without condensation)
Cooling	Natural cooling
Altitude [m]	<3000
<b>Safety</b>	
IP protection rating	IP20
Operational life [years]	15+
Dangerous goods transport certificate	UN38.3

(\*) Current value used to determine the capacity of the battery during test.

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