

HARDWARE & SOFTWARE GUIDE

HES XXL					
ESS Power (kW)	ESS Capacity (kWh)	Voltage (V)	ESS Power (kW)	ESS Capacity (kWh)	Voltage (V)
1000	2037	600	1250	4481	600
1000	2445	600	1250	4889	600
1000	2852	600	1250	5296	600
1000	3259	600	1250	5703	600
1000	3667	600	1500	2852	690
1000	4074	600	1500	3259	690
1000	4481	600	1500	3667	690
1250	2445	600	1500	4074	690
1250	2852	600	1500	4481	690
1250	3259	600	1500	4889	690
1250	3667	600	1500	5296	690
1250	4074	600	1500	5703	690

SOCOMECS - TURNKEY ESS

- ▶ 3-year standard warranty on entire Energy Storage System
- ▶ Easy to assemble and factory tested to reduce on-site work and cost
- ▶ Fully integrated PCS and EMS
- ▶ Back-up and Resiliency control software (when applicable)

ETB SOFTWARE SERVICES

- ▶ ETB Controller perpetual license
- ▶ ETB Monitor Software Subscription (term to be defined)
- ▶ Optional add-on services available upon request

Socomec w/ ETB Controller

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Socomec Resiliency Costs

- ▶ Socomec required engineering services are priced and included based on islanding project application type:
 - BESS Only
 - BESS + PV
 - BESS + PV + Uncontrolled Generator
 - BESS + PV + Controlled Generator
- ▶ Socomec PMS Extension is required for islanding functionality (~\$2100)
- ▶ Developer is responsible for grid isolation equipment and associated electrical infrastructure hardware.

Resiliency Control Notes

- ▶ Generators
 - Uncontrolled generators must be behind an Automatic Transfer Switch (ATS). When the ESS is no longer Grid Forming during an outage, the generator powers loads.
 - Controlled generators require custom engineering and will be quoted specifically per project.
- ▶ Load Shedding
 - No load control is provided under the standard resiliency services options. Contact your Regional Account Manager to discuss options for load control.
- ▶ PV Curtailment
 - Socomec equipment does not directly curtail PV inverters. Curtailment only done through frequency shift. PV equipment must be compatible with this method of curtailment.
- ▶ Transition Speed
 - Switching on-grid to off-grid the site will experience up to 1.5s downtime.
 - Switching off-grid to on-grid
 - Seamless transition back to the grid requires CRE card (~\$2000).
 - Transition time without CRE Card is dependent on utility requirements, can be as little as 2-4s.

Additional Notes

- ▶ The unit is not rated as an Uninterruptible Power Supply (UPS), but the transition to islanding is about one second. Contact your Regional Account Manager with questions.
- ▶ Socomec is only integrated with SEL-751 islanding relay unless using CRE. With a CRE card, other relays can be used.
- ▶ All metering equipment must be Digiware products.

1. What are the lead times for the products?

- ▶ 4-6 months in general, with occasional exceptions when product is readily available.

2. Who manufactures the PCS & battery cells & where is it assembled?

- ▶ The converter is manufactured by Socomec in Italy.
- ▶ The lithium iron phosphate (LFP) batteries are manufactured by CATL in China.

3. What UL Certifications does the Socomec ESS have?

- ▶ The Socomec PCS included in the ESS system is UL 1741 SB certified, while the ESS system has received its UL 9540-2020 certification. Fire testing under the UL 9450A standard has been completed at the cabinet level for the CATL batteries.

4. Can the unit provide back-up power or resiliency capabilities?

- ▶ Yes. Developers can purchase the units with or without Islanding Mode pre-configured and set up to handle microgrid functionalities.

5. What are response & replacement times on breaks or malfunctions?

- ▶ Socomec boasts a 96% uptime guarantee. When a malfunction occurs under the terms of the warranty, and proper troubleshooting and triage determines a fix is needed, Socomec will have a technician to the site within 24-72 hours. The actual fix time will vary on the severity of the problem that occurs.

6. How long is the warranty & what does it cover?

- ▶ The warranty is a 3-year standard warranty on parts (PCS and battery). Warranty Extension, with Preventive Maintenance Plan is available for 5,10, and 15 years.

7. What is battery degradation?

- ▶ Battery degradation is variable and highly dependent on project specifics. For modeling purposes, Energy Toolbase applies an average annual degradation rate of 3%, which can be adjusted based on project specific ESS dispatch profiles.

8. Does the product come with HVAC &/or fire suppression?

- ▶ Yes, CATL batteries are liquid cooled with cabinets that contain an integrated aerosol fire suppression system. PCS units are forced air cooled.

9. What is the physical size of the unit(s)?

- ▶ HES XXL
 - C-Cab Converter Cabinet
 - 1000 x 1636 x 2281 mm & 3000 lbs
 - B-Cab Battery Cabinet
 - 1300 x 1300 x 2280 mm & 7827 lbs
 - M-Cab Master Cabinet
 - 894 x 1046 x 2000 mm & 611 lbs

10. What are the O&M costs? Is there an O&M requirement for the asset owner?

- ▶ Warranty Extension & Preventive Maintenance Plans are available for 5,10, and 15 years. The asset owner is responsible for the cleaning or replacement of air filters. Contact your Regional Account Manager for pricing.

11. Does Socomec &/or ETB provide commissioning support?

- ▶ Socomec provides commissioning support for every system. This is included in the pricing for every system. Energy Toolbase provides remote commissioning support for the EMS commissioning.

12. Can the unit be AC or DC coupled?

- ▶ AC Coupled.

13. Can the Socomec units be installed in marine environments?

- ▶ Installations within 500 meters are now supported. 500 meters – 2 km require Socomec approval. Contact your account manager for additional support.