



# Energy Series

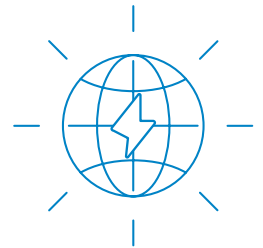
SCALABLE ALL-IN-ONE 2- to 4-HOUR STORAGE SOLUTION

## Flexible, Scaleable and Safe

The AiON-ESS Energy Series all-in-one integrated system is a flexible, modular AC energy storage solution for 2- to 4-hour applications. It incorporates our fourth-generation string inverters, together with Tier-1 energy-focused batteries in a single, scaleable enclosure, enabling configurations of any size for almost any application. The fully integrated, containerized system reduces upfront capital outlay and saves on site installation work.



The Energy Series all-in-one system is built from paralleled AC string inverters installed inside an air-cooled section of the container, together with an isolated HVAC-cooled DC battery compartment. DC battery strings are aggregated in small groups to keep the DC bus voltage at lower, safer levels for the end customer. The system can operate from 200 VDC up to 1350 VDC, making it compatible with most current and future energy storage technologies.



## Features and Benefits

- + **Modular Architecture** – The enclosure design houses battery racks, power conversion systems, and controls in separate compartments, each with its own protection system for maximum safety and reliability. Thanks to field-replaceable kilowatt-sized string inverters, units can be replaced in minutes.
- + **Thermal Management** – Each system includes superior thermal management, including properly sized HVAC systems and sufficient ducting to handle expected battery and external heat loads, as well as protect from moisture intrusion.
- + **Designed for Safety** – The equipment environment includes features to ensure the safety of technicians, first responders, and other on-site personnel, including warning lights, software lockouts, safe working spaces, and fire suppression systems.
- + **Fleet Controller** – Each Energy Series system includes an energy management system (EMS) for intelligent control of energy storage and renewable energy assets. It can also easily interface with existing EMS and supports all possible operating modes from basic P/Q adjustments to fully automated energy management control.
- + **Augmentation** – Our all-in-one systems can be simply augmented by adding new enclosures over time. The new enclosures are shipped with batteries, but typically no new string inverters. String inverters are shifted on-site from existing to new enclosures. This reduces augmentation time and maintains project power capacity.



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## SPECIFICATIONS

### System Level Specification<sup>1</sup>

Power Rating	Nameplate (MVA)	.56 to 1.12	Total Inverter Nameplate Power
	Rated <sup>2</sup> (MW)	.50 to 1.00	System Useable Power at POI at 1 PF
Energy Rating	Rated AC Energy (MWh)	2.57: SK M003A 2.31: Samsung E4D	AC energy at inverter terminals when continuously discharged at maximum Rated Power at BOL
Battery Type		Li-ion	Tier 1 NMC
Point of Interconnection <sup>3</sup> (POI)	Voltage (kV)	0.6	Output of PCS
	Frequency (Hz)	60	

### Physical Specification

AiON-ESS Container <sup>6</sup>	Quantity	1	Number of AiON-ESS containers
	Typical Dimensions LxW (ft)	24x7	per AiON-ESS
	NEMA Rating	3R	
	Min HVAC (tons)	4	per AiON-ESS

### Environmental Assumptions<sup>4</sup>

Ambient Temperature	Operating (°C)	-5 to 55	Warm up cycle required below -5°C
	Storage (°C)	-5 to 55	Battery storage requirement is 5°C to 28°C maximum humidity 75%
Ambient Relative Humidity	Exterior to AiON-ESS (%)	0 to 100	
	Interior to AiON-ESS (%)	5 to 85	Non-condensing
Maximum Altitude <sup>5</sup>	Above Sea Level (ft)	3280	

1. Specification is design estimate and may be adjusted upon final system design. Values in the table are preliminary design estimates only and are not guaranteed unless otherwise noted.

2. Power de-rating applies above 40°C, 2% per °C. Rated Power at 40°C.

3. POI is defined at the high side terminals of the PCS. Scope is defined in the DOR. Values in table assume 0% collector system losses and 0% transformer losses.

4. AiON-ESSs are assumed to be installed in non-hazardous, non-corrosive environments unless otherwise noted.

5. Power de-rating of 1% per 328 ft above 3280 ft above sea level.

6. Designed to UL9540

## Service and Support

LS Energy Solutions provides extensive post-sales support and service, including commissioning assistance, training, preventative maintenance service, spare part and warranty support, and remote diagnostics and troubleshooting.

## About Us

LS Energy Solutions, an LS Group company, is a leading provider of grid-connected energy storage solutions. The company brings over a decade of experience innovating energy storage and related technologies, from the first grid-connected lithium-ion storage system and to now having over 950 MW deployed across 250 projects. The company offers a flexible range of battery and power electronics systems for both front-of and behind-the-meter applications, supported by an advanced global manufacturing and testing infrastructure. LS Energy Solutions is a convenient and competitive one-stop supplier for energy storage, from advanced inverters and associated components to fully integrated all-in-one systems. For more information visit [www.ls-es.com](http://www.ls-es.com).

