

IMERGY ESP5™ SERIES

5 kW, 15-30 kWh

Cost-effective energy storage for small-scale stationary applications. The Energy Storage Platform (ESP) enables dramatic improvements in the operating cost and reliability of electricity for telecommunications, microgrids and other critical applications.

COMPELLING ECONOMICS

In areas where the electric grid is unreliable and diesel generators are widely used to provide power, the ESP5's rapid charging and high energy capacity can cut diesel generator runtime by up to 100% and energy costs up to 70% over existing solutions. The full capacity coupled with high temperature capabilities (55°C) without derating means the ESP5 provides the lowest Levelized Cost of Energy (LCOE) of all storage solutions. The ESP can also provide autonomous control of local power generation, based on grid availability and ambient temperature. Additionally, the ESP5 is designed for applications in rural electrification schemes combined with PV and wind turbines. The ESP5 can be paralleled up to 15 kW/90 kWh capability.

Long-Lasting Capital Asset

The ESP5's advanced technology and robust design, combined with the system's warranty, significantly reduces adoption risk. Unlike typical short-lived rechargeable batteries that need replacing every few years, the ESP5 is an attractive investment as a long-lasting capital asset.

Unlimited Charge and Discharge Cycles

Because the ESP5 stores energy in liquids and eliminates the solid-state interactions in conventional rechargeable batteries, Imergy's ESP technology enables unlimited cycles at 100% Depth of Discharge (DOD) over its service life. Unlike other technologies, all the energy stored is usable with no recommended reduced operating performance, over the whole temperature range.



Ideal for Critical Applications

Rapid charging, deep discharge tolerance to any state of charge and high capacity facilitate 24-hour power availability for mission-critical applications such as wireless telecom installations and transportation infrastructures. The ESP5 is also a perfect complement to renewable technology systems, including solar arrays, wind turbines, and fuel cell generators. The system architecture allows power and capacity to be specified separately, enabling tailoring of the ESP5 to site-specific requirements.

Robust Design

Imergy's ESP5 is safe and sustainably designed. The system is non-flammable and non-combustible and contains no diesel fuel or other commonly targeted components for theft.

Remote Monitoring, Advanced Management and Maintenance

Monitoring and maintenance go hand-in-hand with the ESP5 built-in performance monitoring and condition-based maintenance system, providing real-time data acquisition through the integrated Supervisory Control and Data Acquisition (SCADA) system. It provides isolated digital inputs/outputs and a integrated Ethernet/RS485 port for PC connection. The ICS sends the sensor data and the ESP5 data to remote servers through a cellular gateway.

Imergy ESP5™ Series System Specifications

Output Power	5 kW
Energy Capacity	15/20/25/30 kWh
Cycle Life	Unlimited or 10 years
Discharge : Charge Ratio	Up to 3 : 1
Ambient Temperature Range	-20°C to +55°C / -4°F to +131°F
Charge Voltage Range	Up to 58 VDC
Output Voltage Range	Nominal 48 VDC
Duty Cycle	Continuous
DC Efficiency	70-75%
Monitoring	Five-band: UMTS/HSPA 850/800, 900, 1900, 2100 MHz Quad-band: GSM/GPRS/EDGE 850/900/1800/1900 MHz SMS messaging Ethernet/RS485/RS232

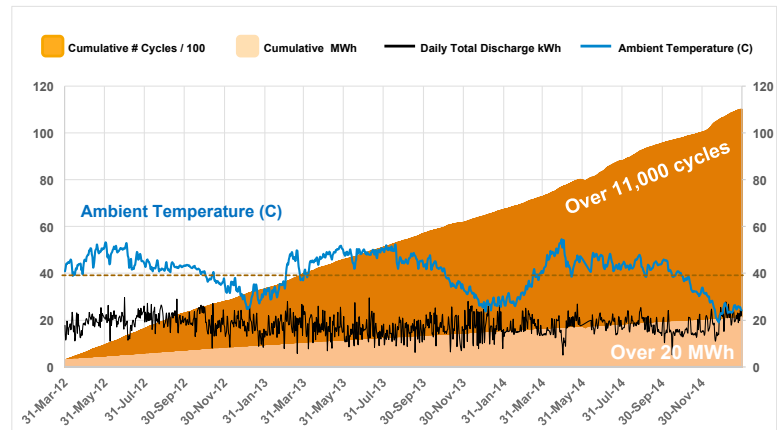
Physical Dimensions

Footprint	2.9 m ² / 31.2 sq ft
Dimensions (W x D x H)	2.15 x 1.33 x 2.08 m / 7.1 x 4.4 x 6.8 ft
Shipping Weight (dry)	~890 kg / 1962 lbs
Weight	~3100 kg / 6834 lbs
Certification	IP54

ESP Temperature and Cycling Performance

Field Data collected over 3 years at high temperatures

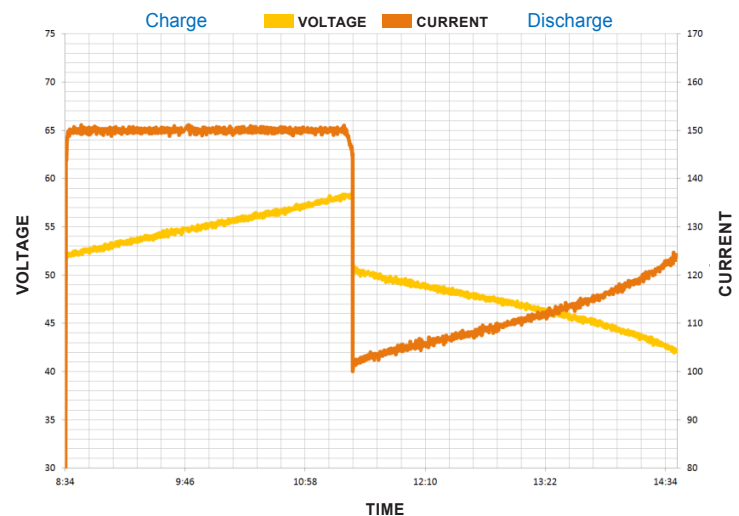
- High temperature tolerance exceeding 50° C / 122 F
- Over 11,000 cycles; full and partial
- Stable output ~20 kWh/day
- Over 20 MWh delivered over 3 years



ESP Charge/Discharge Curve

Typical charge/discharge characteristics of ESP capacity over 0-100/Depth of Discharge (DOD)

- Charged at constant current mode
- The Discharge-to-Charge Ratio (DCR) is greater than one at rated power
- At lower loads, the DCR would increase proportionally
- The discharge current varies to provide constant output power



Product specifications are subject to change without notice.