

Application Notes: Energy Storage

Case Study: OXIS Solar Centre for Autonomous Research

The OXIS Solar Centre for Autonomous Research near Oxford features a solar power generation system fully-integrated with an OXIS 3 kWh Li-S battery. The PV system consists of an array of 16 PV panels providing a total rated power of 3.8 kW[peak]. This is a typical size for a domestic or small commercial installation in the UK.

The PV panels feed in to the popular and widely-used SMA SunnyBoy Inverter which generates a 240V, 50Hz "mains" output. In turn, this supplies power to both the building (e.g. lighting, heating), and an SMA Sunny Island Battery charger/inverter.

The OXIS Li-S battery, connected to the Sunny Island, stores the PV energy generated during daylight for use after dark. A total of four batteries can be stacked and connected in parallel to provide a total capacity of 12kWh, suitable for most domestic installations in Europe.

Case Study: Containerised Energy Storage System

For larger systems, where a more complex arrangement is needed, OXIS has developed a 19" Rack Mount Battery (RMB). Weighing 25 kg, the 3 kWh 48V RMB is a 3U unit that can be used individually or scaled to large MWh solutions.

The advanced Battery Management System provides the measurement and safe control of cells, ensuring that they are closely matched and balanced during charging.

The RMB is designed to install easily into 19" racking, allowing multiple batteries to be connected in series within the same cabinet, thus providing the voltage required in such systems. Multiple cabinets are connected in parallel to provide MWh of storage.



Energy Storage has become a rapidly growing market, driven by an increasing share of renewable energy generation. This changing mix of energy production has created new problems to ensure grid supply while minimising electricity bills. Energy Storage provides an effective solution for grid stabilisation, power generation management and residential storage. Industry and consumers want a cost effective solution that is safe, easy to install with minimal maintenance.

OXIS Li-S technology offers the perfect solution to these problems:

- **Safety** - inherently safe, due to the lithium sulfide passivation layer and its non-flammable electrolyte; can easily handle abuse conditions including nail penetration, short circuit and overcharge with no adverse reaction.
- **Cost Competitive** - lower cost of materials within the cells and the highest energy density.
- **Cycle life** - achieved an excellent cycle life and improving regularly (see latest data sheets), aiming to achieve 2,500 cycles and beyond.
- **Lightweight** - lighter than any other cell for energy storage on the market = ease of installation, reducing costs.

