Basic Product Information

• Designed for High Voltage batteries (e.g. Tesla Powerwall).

• AC Coupled solution, suitable for:
  1. Retrofit (SMA or 3rd party PV system), including the 1.5 million existing Australian residential PV systems
  2. New installation (SMA or 3rd party PV system)
  3. Storage without PV plant

• Connects easily to the SMA Energy Management System.

• Sunny Boy Storage allows customers to choose their battery:
  o Brand
  o Size/Capacity
  o Technology (e.g. Li-ion, etc)

• Australia identified by SMA as initial market for product.

• First units due off the Production Line March 2016, arriving in Australia in Q2.
SUNNY BOY STORAGE
Cost-effective, flexible and simple

Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery integration</td>
<td>AC-Coupled</td>
</tr>
<tr>
<td>Inverter Type</td>
<td>Battery inverter only</td>
</tr>
<tr>
<td>Topology</td>
<td>Transformerless</td>
</tr>
<tr>
<td>Grid Connection</td>
<td>Single Phase</td>
</tr>
<tr>
<td>Power (ch./disch.)</td>
<td>2.5 kW</td>
</tr>
<tr>
<td>DC-Voltage (Batt.)</td>
<td>120 V – 500 V_{DC}</td>
</tr>
<tr>
<td>DC-Current/Max</td>
<td>10 A / 18 A</td>
</tr>
<tr>
<td>Efficiency (max.)</td>
<td>97% (Batt. → Grid)</td>
</tr>
<tr>
<td>Weight (approx)</td>
<td>9kg</td>
</tr>
<tr>
<td>Dimensions (W/H/D)</td>
<td>~460 x 360 x 120mm</td>
</tr>
</tbody>
</table>

Advantages:

> **Flexibility due to AC-coupling**
  > New installations, Retrofit, Battery only
  > Flexible PV-design
  > Free choice from several Batteries (e.g. TESLA, etc.)

> **Cost-effective and efficient**
  > Based on SMA’s proven String-technology
  > Best-price battery-inverter
  > Efficiency up to 97%

> **Quick and easy to install**
  > Integrated Wireless and Web Server, for commissioning via Smart Phone
  > Direct integration into Sunny Portal/Sunny Places via Webconnect (WiFi or Ethernet)
SUNNY BOY STORAGE

Basic Single Line Diagram (preliminary)
**Australian Information Release**

**SUNNY BOY STORAGE**

Basic Generic System

- **Existing Solar PV System (SMA or other brand)**
  - **Sunny Portal**
  - **Internet**
  - **SMA**
  - **Sunny Home Manager (Optional)**
  - **SMA Energy Meter**
  - **2nd SMA Energy Meter (Optional)**
  - **Backup**
  - **Loads**
  - **Grid**
  - **Sunny Boy Storage**
  - **CAN**
  - **Ethernet**
  - **HV Battery**

*Backup as retrofit kit (Q4/2016)*
**SUNNY BOY STORAGE**

Basic SMA System

### System components
- SMA 1ph or 3ph. PV-Inv. incl. Webconnect
- SMA Energy Meter
- Sunny Boy Storage

### Functions
- Control to the grid connection Point via SMA Energy Meter
- Export limitation between 0-100% of rated power
- Visualization Sunny Portal
- Modbus third-party interface
- CAN-BUS battery interface
**SUNNY BOY STORAGE**

Full Function SMA System

**System components**

- SMA 1ph or 3ph. PV-Inv. incl. Webconnect
- SMA Energy Meter
- Sunny Boy Storage
- Sunny Home Manager (FM 1.30)

**Functions**

- Control to the grid connection Point via SMA Energy Meter
- Export limitation between 0-100% of rated power
- Visualization Sunny Portal
- Modbus third-party interface
- CAN-BUS battery interface
- With Sunny Home Manager
  - Charge battery from grid time-window
  - Weather forecast based charging
SUNNY BOY STORAGE

Full Function SMA System with Battery Backup (* via retrofit kit, exp. Q4 2016)

**System components**

- SMA 1ph PV-Inv. incl. Webconnect
- SMA Energy Meter
- Sunny Boy Storage
- Sunny Home Manager (FM 1.30)

**Functions**

- Control to the grid connection Point via SMA Energy Meter
- Export limitation between 0-100% of rated power
- Visualization Sunny Portal
- Modbus third-party interface
- CAN-BUS battery interface
- With Sunny Home Manager
  - Charge battery from grid time-window
  - Weather forecast based charging
- Battery Backup
## Monitoring Visualisation in Sunny Portal Information
(with Sunny Boy Storage & SMA Energy Meter)

<table>
<thead>
<tr>
<th></th>
<th>Retrofit 3rd Party</th>
<th>New Installation 3rd Party</th>
<th>Storage without PV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PV System</strong></td>
<td>SMA</td>
<td>SMA</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Battery Charge / Grid Export</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Battery Discharge / Grid Import</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Battery State of Charge</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>PV System Generation</strong></td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Total PV + Battery Self-Consumption</strong></td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td><strong>PV System Errors &amp; Events</strong></td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Battery System Errors &amp; Events</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

- For SMA inverters with Webconnect capability
- Visualisation of 3rd party inverter possible only with second SMA Energy Meter and Sunny Home Manager

**Australian Information Release**