Energy for the future

Redback Technologies has a vision to enable every household and business to be entirely powered by low cost renewable energy all day, every day. The Redback Three Phase Smart Hybrid System is the platform which facilitates energy users to participate in the network of the future through clean, efficient and smart energy management. Redback Technologies, helping the world switch on renewable energy today for a cleaner tomorrow.

For more information visit redbacktech.com
### Specifications

**Inverter & Balance of System**
- Sold as a component of the Smart Three Phase Hybrid System

**Solar array**
- Number of MPP inputs: 2
- Strings per MPP input: 1/2
- Maximum DC open circuit voltage: 600V DC
- MPP operating range: 200 - 550V
- Starting voltage: 180V DC
- Maximum input current (for each solar array input): 12.5/22A
- Maximum short current (for each solar array input): 15.2/27.6A
- Solar array switch rating: 1100V DC
- Input connectors: MC4
- Residual current and insulation monitoring: Integrated

**Utility interface**
- Nominal AC voltage: 400V, 50Hz
- Continuous AC power rating: 10kVA AC (derate over 45°C ambient)
- Maximum AC power to utility grid: 11kVA AC (60s)
- Maximum AC current to utility grid: 16.5A
- Maximum AC current from utility grid: 22.7A
- Nominal AC output range: 400/380V AC 50Hz
- Current THD: Less than 3%
- Power factor: 0.8 leading to 0.8 lagging (adjustable)
- AC overvoltage category: Category III
- Anti-islanding and AC overcurrent protection: Integrated
- Inverter topology: Transformerless

**Battery interface**
- DC voltage: 180-600V DC
- Battery compatibility: PylonTech H48030, PylonTech H48074
- Maximum charging and discharge power (from battery): 10kW DC* (Dependant on number of batteries installed)
- Maximum charging current: 25A DC
- Maximum discharging current: 25A DC
- Battery charging method: Self-adaption to BMS
- Battery disconnect: 2 pole DC isolator 32A DC per pole

**Energy flow**
- PV arrays → Utility grid → Battery → AC loads → Backup loads

**Control interfaces**
- Signal relay outputs: 4 (requires optional relay kit)
- DRM modes: 0
- Remote firmware updates: Supported
- Relays: Optional RK-1 available

**Backup loads output**
- Nominal AC voltage/frequency: 400/380, 3L/N/PE
- Continuous AC power rating: 10kVA AC (derate over 45°C ambient)
- Maximum AC power rating: 16.5kVA AC (60s)
- Maximum AC current: 16.5A
- Voltage THD: Less than 3.0%
- Back-up circuit AC isolator: 25A MCB
- Manual back-up load AC bypass switch: Integrated

**Efficiency**
- Maximum efficiency (to utility grid): 97.6%
- European averaged efficiency: 96.8%
- Maximum power point tracking efficiency: 99.9%
- Efficiency (powering loads from battery): 97.5% typical
- Standby losses: Less than 8W AC

**General data**
- Dimensions (W x H x D): 518 mm x 834 mm x 352 mm
- Mounting and weight: Frame 4.5kg, Inverter 27.5kg, BoS 12.5kg
- Ambient temperature range: -35 to 60°C derate above 45°C
- Relative humidity: 0 to 95%
- DC overcurrent category: Category II
- Moisture location category: 4K4H
- Environmental protection rating: IP66*
  (*expected rating with certificate to be provided)
- Cooling: Natural convection
- Noise emissions: Less than 30dB
- Warranty: 5 years

**User Interface**
- Front panel display: Coded, coloured LEDs
- Communications: Bluetooth for onboarding, Wi-Fi or ethernet for phone and web monitoring
- Remote access: Web Portal and android/iOS application
- Power/energy monitoring: Includes 1 x utility grade 3 Phase (class 1) meter

---

**Dimensions**

<table>
<thead>
<tr>
<th>Width</th>
<th>Height</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>518mm</td>
<td>834mm</td>
<td>352mm</td>
</tr>
</tbody>
</table>

Grid regulation compliance: AS4777.2:2015, AS5033 AMD 2
Smart Hybrid Battery Enclosure BE14000-HV

**Fan**
Dual variable speed fans controlled by charge/discharge rate.

**Front panels**
Powder coated, durable and die cast aluminium covers.

**Outdoor rated**
IP54 rating for inside or outside install.

**Prewired**
For safe and fast installation.

**Capacity**
Expandable 9.6 - 28.4kWh.

For more information visit redbacktech.com
### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Battery enclosure</strong></td>
<td>Sold as a component of the Smart Three Phase Hybrid System</td>
</tr>
<tr>
<td>Number of battery units</td>
<td>4 x 19&quot; rack mountable battery packs</td>
</tr>
<tr>
<td>Storage capacity</td>
<td>Expandable from 9.6kWh up to 28.4kWh with expansion pack</td>
</tr>
<tr>
<td>Battery compatibility</td>
<td>9.6kWh - 4 x PylonTech H48050 2.4kWh or 14.2kWh - 4 x PylonTech H48074 3.55kWh batteries</td>
</tr>
<tr>
<td>Battery voltage</td>
<td>48V DC nominal per battery therefore 192V - 240V max</td>
</tr>
<tr>
<td>Battery chemistry</td>
<td>Lithium-ion Phosphate</td>
</tr>
<tr>
<td>Battery breaker</td>
<td>Included</td>
</tr>
<tr>
<td>Battery management system</td>
<td>Included with ST1000D</td>
</tr>
<tr>
<td>Access type</td>
<td>Removable front panels</td>
</tr>
<tr>
<td><strong>Cable specification</strong></td>
<td></td>
</tr>
<tr>
<td>Battery cable rating</td>
<td>25A</td>
</tr>
<tr>
<td>Battery cable type</td>
<td>8 AWG (8.36mm²)</td>
</tr>
<tr>
<td>Battery cable termination (battery enclosure)</td>
<td>Surlok Amphenol connector</td>
</tr>
<tr>
<td>Battery cable termination (inverter)</td>
<td>Surlok Amphenol connector</td>
</tr>
<tr>
<td><strong>Ventilation specification</strong></td>
<td></td>
</tr>
<tr>
<td>Ventilation type</td>
<td>Passive and active cooling</td>
</tr>
<tr>
<td>Ventilation control</td>
<td>Smart temperature control</td>
</tr>
<tr>
<td>Number of fans</td>
<td>2</td>
</tr>
<tr>
<td>Fan power</td>
<td>12V DC / 0.13A per fan</td>
</tr>
<tr>
<td>Fan activation temperature</td>
<td>Variable depending on charge/discharge</td>
</tr>
<tr>
<td>Incoming ventilation aperture</td>
<td>288cm³ with washable filter</td>
</tr>
<tr>
<td>Outgoing ventilation aperture</td>
<td>288cm³ with washable filter</td>
</tr>
<tr>
<td>Passive airflow rate</td>
<td>30cm³/min</td>
</tr>
<tr>
<td>Active airflow rate</td>
<td>320cm³/min</td>
</tr>
<tr>
<td><strong>General Data</strong></td>
<td></td>
</tr>
<tr>
<td>External dimension (W x H x D)</td>
<td>W 518mm x H 1122mm x D 352mm (with feet)</td>
</tr>
<tr>
<td>Mounting and weight - empty</td>
<td>32kg rear fixing</td>
</tr>
<tr>
<td>Mounting and weight - with batteries</td>
<td>128&quot; - 160kg**</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td>Based on battery specification</td>
</tr>
<tr>
<td>Environmental protection rating</td>
<td>IP54 - protected from rain, splashing and spraying</td>
</tr>
<tr>
<td>Noise emissions</td>
<td>Less than 25dB</td>
</tr>
<tr>
<td>Warranty</td>
<td>5 Years</td>
</tr>
<tr>
<td>Construction</td>
<td>Powder coated steel chassis</td>
</tr>
<tr>
<td>Finish</td>
<td>Sealed, powder coated front covers and chassis</td>
</tr>
<tr>
<td>Supply</td>
<td>Ships pre-assembled (excluding batteries)</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Externally serviceable dust filters</td>
</tr>
</tbody>
</table>

---

**Diagram:**

- PV arrays
- Utility grid
- AC loads
- Battery
- Backup loads

**Dimensions:**

- Width 518mm
- Height 1122mm
- Depth 352mm

---

*DATA SHEET | Smart Hybrid Battery Enclosure (BE14000-HV) Effective February 2020*