Green Energy
Smart Storage Solutions

Energy Storage System
TMEIC is a global leader in providing innovative high quality power electronics for renewable industry. With the increasing demand for grid-capable energy storage solutions, we are leveraging our experience with lithium ion and NAS battery systems to meet the needs of developers and utilities around the world.

Features

**Higher Power, High Capacity, High Efficiency**
- Industry high efficiency PCS 98.5% (bidirectional efficiency)
- Supports configuration to 200 MWh

**Safety & Reliability**
- Bidirectional power flow protection control based on battery cell real-time data
- Life longevity based on bidirectional power flow control designing to battery charge/discharge characteristics

**Comprehensive System Function**
- Complete Monitoring System for BESS
- COM Interface with EMS (TCP/IP, FL-NET)

**Grid Protection Function**
- Grid connection / protection function, Anti-islanding
- Off-grid Mode

**Various Applications**
- Peak-cut, Peak shift, PV integration, Generator integration
- Back-up power during blackout

**Container Box Package**

**Basic Configuration** - PCS, FBCS, Storage Battery Boards, Standard Equip. (Panel Board, Relay Terminal Boards, Outer Interface)
Dimensions: - 20 ft: 6,058 W×2,438 H x2,896 D (mm)
- 40 ft: 12,192 mm × 2,438mm × 2,896 (mm)
Monitoring/Operation

It is possible to monitor condition of all battery cells and operate discharge and charge of all batteries at center or field.

Peak-Cut

Reduce energy costs
Supplies energy at peak (discharge), and stores energy (charge) during off-peak, reducing the energy cost.

Counter plan for electrical power usage restriction
Improvement of factory-operating ratio by peak-cut is possible even in the case of being forced to stop the operation for electrical power usage restriction.

Backup power during power blackouts
Effectively use PV power by stabilizing the unstable PV output during blackouts

Decrease the power cost by leveling the unstable PV control depending on power demand.

Backup power for starting gas turbines

- During a power outage, a compressor cannot start a gas turbine because the gas compressor loses power. TMEIC’s Battery Control System can supply the energy to start gas turbines.
- Improve generator efficiency by protecting the inverse load flow, decreasing power cost

Starting gas turbine during blackout

Improving generator efficiency

Large cost reduction by improving generator efficiency
Protects the inverse load flow
**Storage Battery System Configuration Example**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>100 kWh System</th>
<th>250 kWh System</th>
<th>500 kWh System</th>
<th>1.0 MWh System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity</td>
<td>100 kWh</td>
<td>250 kWh</td>
<td>500 kWh</td>
<td>1.0 MWh</td>
</tr>
<tr>
<td>Maximum Output</td>
<td>300 kW</td>
<td>750 kW</td>
<td>1.5 MW</td>
<td>3.0 MW</td>
</tr>
<tr>
<td>Phase</td>
<td>Three-phase, Three-wire system</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated Voltage</td>
<td>AC300 V ±5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated AC Frequency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficiency</td>
<td>Max. 98.5%, 97.5% @ 50% Load</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCS Board Configuration</td>
<td>1 Board</td>
<td>1~2 Boards</td>
<td>1~3 Boards</td>
<td>1~8 Boards</td>
</tr>
<tr>
<td>FBCS Board Configuration</td>
<td>1 Board</td>
<td>1~2 Boards</td>
<td>1~3 Boards</td>
<td>1~8 Boards</td>
</tr>
<tr>
<td>Storage Battery Configuration</td>
<td>2 Boards</td>
<td>5 Boards</td>
<td>10 Boards</td>
<td>20 Boards</td>
</tr>
</tbody>
</table>

**External Dimensions**

- PCS Board (WxHxD): 2016 mm x 1900 mm x 748 mm
- FBCS Board: 1400 mm x 1900 mm x 730 mm
- Storage Battery Board: 1400 mm x 1900 mm x 730 mm

**Weight**

- PCS Board: 1500 kg; FBCS Board: 500 kg; Storage Battery Board: 1200 kg

**Notes:** Storage battery configuration depends on output demanded by the user. Alternate configurations up to 200MWh are available.

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**Battery Inverter (PCS) 500 kW**

**Characteristics**
- 3-level Circuit
- Max. Efficiency 98.5%
- Small footprint
- Parallel configuration
- Off-grid operation

**Operating Range**

![Operational range diagram](image)

**Specifications**

**Electrical**

- Rated Power: Active Power ±500 kW, Reactive Power ±360 kvar
- DC Voltage: 450 V~800 V
- AC Voltage: 300 V ±5%
- AC Frequency: 50/60 Hz ±3%
- Efficiency: Max. 98.5%, 97.5% @ 50% Load
- Ex. COM: Ethernet/RS485
- Compliance: IEC (Harmonics IEEE519)

**Environmental Conditions**

- Installation: Indoor/Container
- Temperature: -5°C ~ 40°C
- Humidity: 15% ~ 85% (Non-condensing)
- Elevation: Under 1000 m

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**Layout**

![Layout image](image)

About: 1500 kg