TMEIC
We drive industry

Energy Storage Solutions

Your Total System Partner

WWW.TMEIC.COM

JAPAN | NORTH AMERICA | SOUTH AMERICA | EUROPE | SOUTHEAST ASIA | INDIA | CHINA | MIDDLE EAST | AUSTRALIA

ENERGY STORAGE SOLUTIONS

Safety Standards and Certifications

UL1741
- Safety and test standard for grid connected equipment

IEEE 1547
- Performance requirements for inverter interconnection

UL 9540/A
- Fire propagation and explosion safety

UL 1973
- Safe and Reliable Operations

NFPA 855
- Design, construction, installation, commissioning, operation, maintenance, and decommissioning standard

NFPA 68
- Explosion protection by deflagration venting

NFPA 69
- Prevention and control of explosions of flammable gases

NFPA 70
- Safe electrical design, installation

IEC 62619
- Safe operation of secondary lithium cells

UN 38.3
- Transportation Safety

Energy Storage System Solutions

ESS Design Optimization

As a bankable Tier 1 supplier, our expertise extends across the USA and the globe, with a track record of over 24GW+ renewable systems in USA, 45GW+ worldwide. Our comprehensive system supply and ESS optimization services prove our commitment to excellence. We offer a complete equipment supply of all the major equipment for any ESS plant. Supporting any system design for Day0 (CAPEX) and Augmentation strategies, TMEIC acts as a partner to optimize our clients' LCOE.

TMEIC is a complete system supplier of the power conversion system (PCS): inverter, MV transformer, auxiliary transformer, battery container, and EMS/PPC. Not only are we the system integrator, but also the manufacturer of the PCS and plant control system.

Our advantageous modular and flexible design will be tailored for any 2-4hr plant, ensuring adaptability and efficiency. Safety is paramount, with each inverter DC input boasting a 100kA SCC rating. Each battery container is connected 1:1 to an individual battery inverter, thus maximizing the battery container voltage and full usable energy.

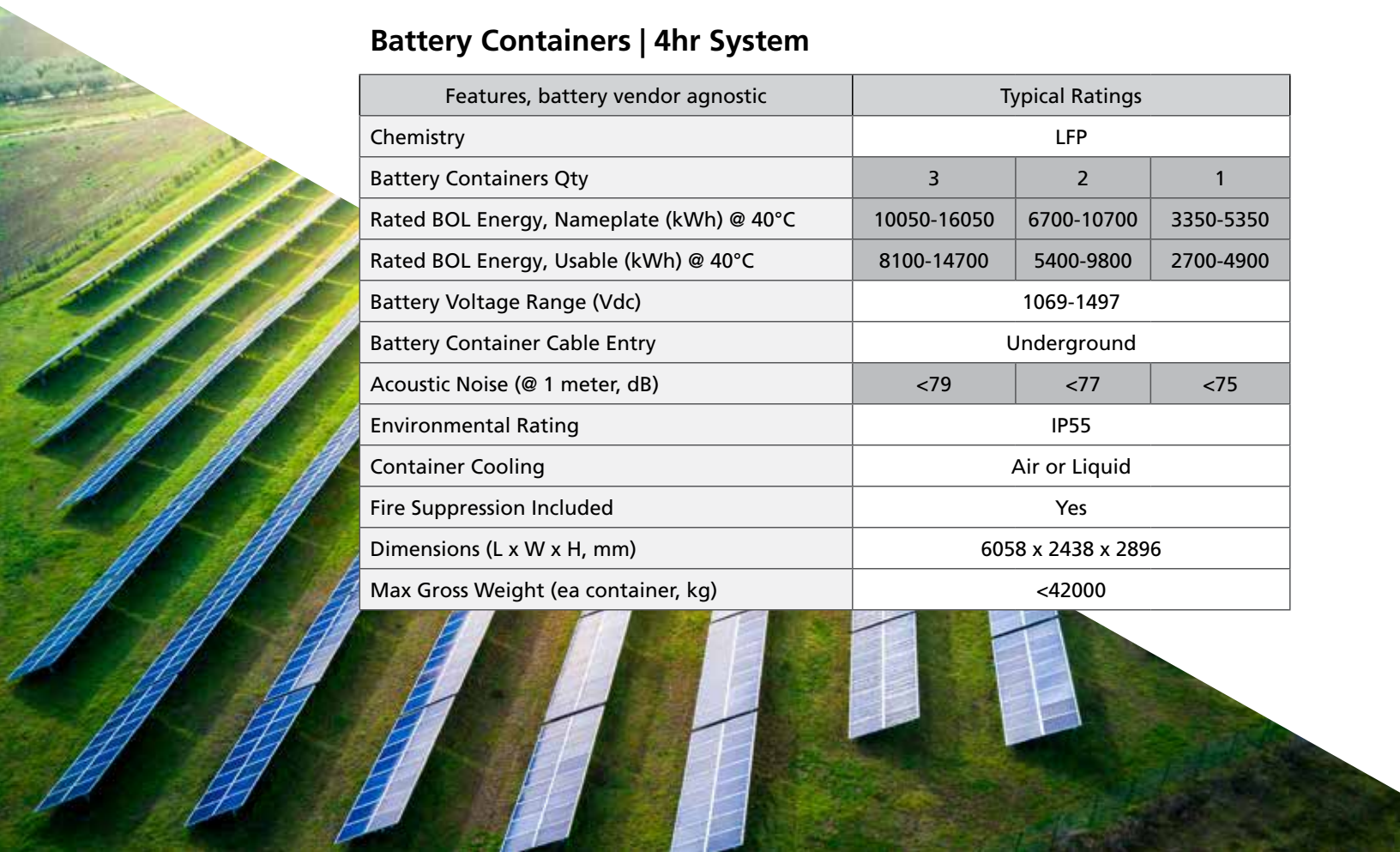
TMEIC is industry-known for supporting our clients' Interconnection Applications (IA's) and plant modeling; our extensive utility experience and in-depth knowledge of requirements and ISO/RTO procedures provide a comprehensive experience from RFQ to commissioning and throughout the life of the system.


TMEiC

TMEIC's role in the Energy Storage Marketplace

Full system equipment supply

- 500kW – 50MW+ project sizes; Industrial size to Utility-Scale
- PCS inverter + EMS/PPC + Battery design and supply from one partner
- Optimization of any ESS plant design
  - Day0 plan and augmentation strategies
  - Ideally suited for 2-4hr systems
- Each modular inverter connected to a battery container
  - Avoids over/under-sizing inherent with a monolithic inverter
  - Better DC battery voltage optimization and short-circuit consideration
- Safe LFP chemistry, thermal management, fire suppression
- TMEIC's batteries are lab-verified as part of vendor approval
- PCS + Batteries comply with all industry UL, NFPA, & IEEE standards
- TMEIC's industrial-grade EMS/PPC designed and developed in Roanoke, VA



Battery Containers | 4hr System

Features, battery vendor agnostic	Typical Ratings		
Chemistry	LFP		
Battery Containers Qty	3	2	1
Rated BOL Energy, Nameplate (kWh) @ 40°C	10050-16050	6700-10700	3350-5350
Rated BOL Energy, Usable (kWh) @ 40°C	8100-14700	5400-9800	2700-4900
Battery Voltage Range (Vdc)	1069-1497		
Battery Container Cable Entry	Underground		
Acoustic Noise (@ 1 meter, dB)	<79	<77	<75
Environmental Rating	IP55		
Container Cooling	Air or Liquid		
Fire Suppression Included	Yes		
Dimensions (L x W x H, mm)	6058 x 2438 x 2896		
Max Gross Weight (ea container, kg)	<42000		

Shogun ESS Solution | PCS Inverters

Feature	Shogun-3	Shogun-2	Shogun-1
Shogun Inverter Qty	3	2	1
Rated Output Power kVA @40°C	3900	2600	1300
Battery Voltage Range for Rated Power (Vdc)	1000-1500		
Independent Battery Input Qty	3	2	1
Rated Combined DC Current Input (A)	3981	2654	1327
Power Factor Capability	± 0.8		
Max Efficiency	98.5%		
DC Maximum Input DC Short Circuit Current Withstanding (per input, kA)	100		
AC Maximum AC Short-circuit Current Withstanding (per input, kA)	85		
Communication	Sunspec Modbus		
Battery Compatibility	All major battery technologies		
Auxiliary Power Package (kVA)	35-250		
Battery Cable Entry to Inverter Station	Underground		
MV Transformer Cable Entry (high side)	Underground		
Inverter to MV Transformer Connection	Above ground via Flex Bus		
MV Transformer Output Voltage Range (kV)	7 to 35; 45*		
MV Transformer Types	ONAN, ONAF, KNAN, KNAF		
Environmental Rating	IP55		
Acoustic Noise (@ 1 meter, dB)	<80	<78	<76
Dimensions (L x W x H, mm)	6058 x 2438 x 2591		
Max Gross Weight (kg)	<1100	<9500	<8000
Pre-integrated Inverter + MV Transformer on Skid	Option available		

*up to 45kV class possible, please consult TMEIC

EMS/PPC Controls

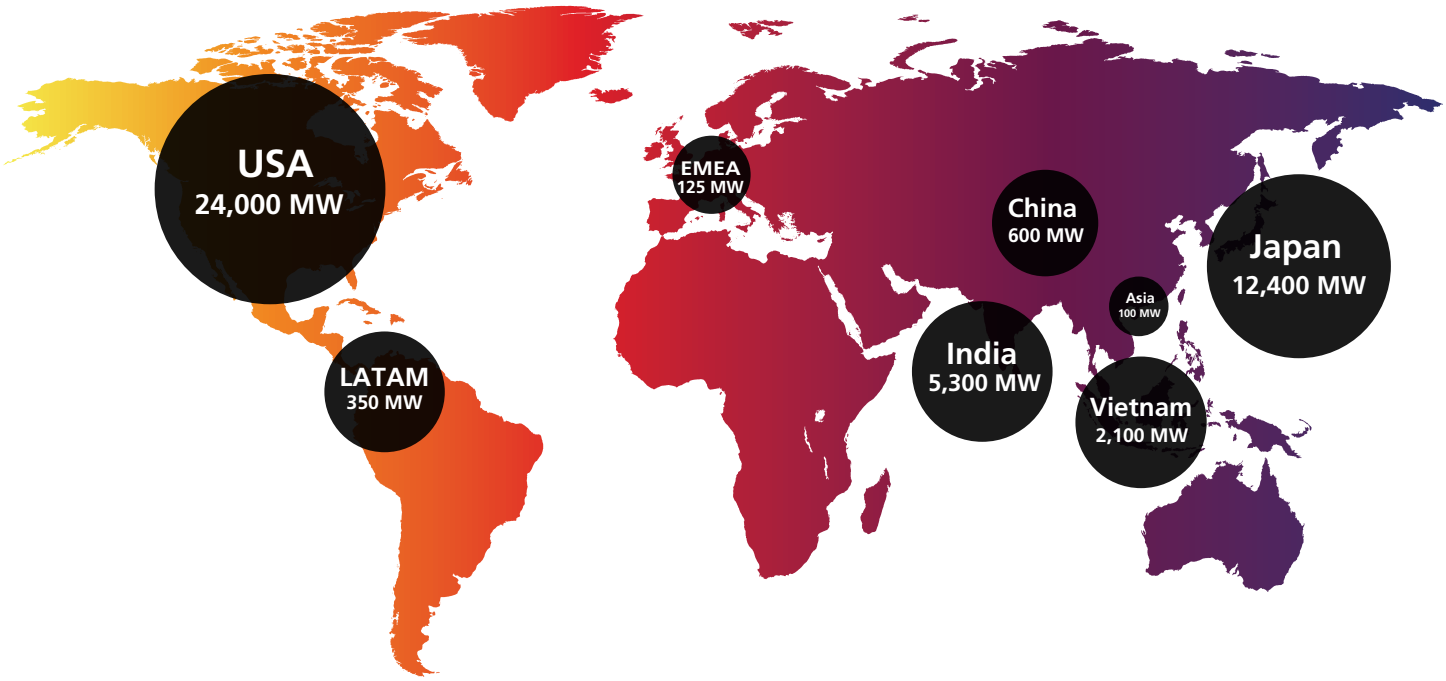
Applications for Energy Shifting, Peak Shaving, Arbitrage, and grid-support

- Inverter operation on/off & production
- Slew Rate
- Ramp Rate
- Power Limit
- Nighttime Power
- Frequency
- Voltage, Power Factor & Var Production

Over 1.8GWh of BESS installed Globally

Over 45GW of Renewable Systems installed Globally

With decades of experience in power electronics across various industries, we take immense pride in being your trusted total system solution provider for energy storage. TMEIC drives industry forward by offering a total ESS system solution. Our expertise shines in our client partnerships, industry experience, ESS design optimization, total system supply, our promise to deliver. With an unwavering commitment to excellence, we are dedicated to delivering innovative and tailored energy storage solutions that set new benchmarks for performance and efficiency in the industry, making us your partner of choice in powering the future.



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TMEIC Corporation Americas

Headquarters
1325 Electric Road, Suite 200
Roanoke, VA, 24018, U.S.A.

Mailing
2060 Cook Drive
Salem, VA, 24153, U.S.A.

Houston
15810 Park Ten Place, Suite 370,
Houston, TX, 77084, U.S.A.

Manufacturing
25390 Clay Road
Katy, TX, 77439, U.S.A.

Customer Support and Service

+1 877-280-1835
Intl: +1 540-283-2010
www.tmeic.com/customer-support

WWW.TMEIC.COM

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