TERMA BATTERY CELL TESTER

COMPACT SOLUTIONS FOR HIGH-EFFICIENCY BATTERY TESTING

TERMA

ALLIES IN INNOVATION

Terma Battery Cell Tester is designed to elevate your battery development, offering ultra-high performance in a surprisingly compact design. If you're looking to set new benchmarks, this tester delivers the highest energy density and supports up to 300A channels while fitting neatly into your lab space. For added flexibility, depending on testing requirements you can also choose between 12.5A and 300A channels.

Each channel is equipped with advanced features such as DCIR measurement, self-calibration, and built-in snapshot, so you no longer need extra devices cluttering your workspace. By maximizing efficiency, you can focus on what matters most: pushing your project forward.

If top-tier testing capabilities, innovative built-in functionalities, and space-saving design are your priorities, the Terma Battery Cell Tester is your ideal solution.

95%
Regenerative Efficiency. Circulate energy back into your operations during discharge and minimize air conditioning needs.

12.5A and 300A
output ranges to cover all your testing needs, from small cylindrical- up to large prismatic- and pouch-cells.

Up to 2-3 times
More Channels. Accommodate significantly more channels than traditional systems and boost your productivity.

Up to 75%
Smaller Footprint. Preserve lab space with a battery tester setup with significantly smaller footprint compared to traditional systems.

Modular Flexibility
Tailor your setup with our modular configuration. Choose from three feature levels: Basic, Standard and Premium to fit your testing needs and maintain high adaptability and cost-efficiency.

Parallelization and extended voltage range
For a scalable and future-proof testing setup. Modular Configuration with parallelization capabilities enabling scalability and flexibility in testing setups.

Key & Advanced Features

Explore our Battery Cell Tester's features to see how it can transform your battery performance and reliability.

Operational Efficiency and Cost-Saving

- Modular Design: Adapts easily to changing testing needs with scalable configurations.
- Regenerative Power Supply 95% Overall Efficiency: Recycles energy back into the system, significantly reducing waste and operational costs.
- Automated Dynamic Test Profiles: Streamlines testing with customizable, pre-programmed profiles.
- Reduced footprint: By increasing switching speeds, we reduce the size of components and minimize the overall footprint.

Testing Capabilities and Flexibility

- Built-in DCIR: Directly measures the internal resistance of cells, essential for assessing battery health and performance. We guarantee a minimum pulse of 2msec.
- Built-in EIS: Offers Electrochemical Impedance Spectroscopy for a more detailed battery behavior analysis.
- Built-in Snapshot: oscilloscope like feature that continuously monitors electrical signals within the battery cells to get the information of fast events.
- Built-In Extra IOs per Channel: Provides additional inputs and outputs for enhanced testing flexibility.
- Built-In Graphical User Interface (GUI): Enables intuitive setup and monitoring of tests.

Precision and Accuracy

- Self-Calibration Capability: Enables self-calibration of the voltage measurement mechanism by utilizing a precision voltage reference in the device, reducing the need for external calibration services.

Integrated Software, Cybersecurity, and Remote Access

- Automation software: The software is fully integrated, enabling seamless data handling and visualization.
- Built-in Cyber-Security: Protects system integrity and data security with advanced, integrated safeguards.
- Built-In Remote Access Control: Offers convenient control and monitoring from anywhere.

Terma Battery Cell Tester performance and feature levels

Basic
- Covers all cycling testing scenarios
- High voltage and current accuracy
- EtherCAT and Ethernet
- Basic Snapshot per channel included

Standard
All Basic features plus:
- 0.03% current accuracy with thermal compensation
- Minimum output voltage reduced to 650mV
- RS485 interface

Premium
All Standards features plus:
- 0.01% current accuracy
- Minimum output voltage reduced to 250mV
- Snapshot per channel included
- Built in self-calibration, increasing the lifetime of the accuracy
- Cybersecurity

		Basic		Standard		Premium	
Max. Voltage Per Channel		10VDC		10VDC		10VDC	
Voltage Accuracy		1mV		1mV		1mV	
Current Accuracy	300mA Channels	0.05% FS	300mA	0.03% FS	180mA	0.01% FS	60mA
	12.5A Channels		12.5mA		7.5mA		2.5mA
Voltage Resolution		150µV		150µV		150µV	
Current Resolution	300A Channels	4.5mA		4.5mA		4.5mA	
	12.5A Channels	300µA		300µA		300µA	
EtherCAT		Yes		Yes		Yes	
Ethernet		Yes		Yes		Yes	
Cards Parallelization		Yes*		Yes*		Yes*	
CC,CV, CP Modes		Yes		Yes		Yes	
Remote Voltage Sense		Yes		Yes		Yes	
Dynamic Profiles Mode		No		Yes		Yes	
Analog IN Per Device 300A Channels only		-		4		8	
Analog OUT Per Device 300A Channels only		-		4		8	
Thermistors Per Device	300A Channels	-		16		32	
Thermistors Per Device	12.5A Channels	-		32		64	
RS485 (Full Duplex) Per Device	300A Channels	-		4		8	
RS485 (Full Duplex) Per Device	12.5A Channels	-		8		16	
Relay Outputs Per Device 300A Channels Only		8		8		8	
Graphical User Interface and open API		Yes		Yes		Yes	
Snapshot/Oscilloscope Per Channel		Basic		Basic		Full	
Cyber Security Package		No		No		Yes	
Self-Calibration Per Channel		No		No		Yes	
DCIR Capability		Yes		Yes		Yes	
EIS Capability	300A Channels	No		No		Yes	
	12.5A Channels						

*only same type of channels in the same device

Detailed Specifications

Static Performance	300A	12.5A
Maximum Number of Channels Per Rack	32	256
Number of Possible Parallel Channels (parallel only possible with channels on same device)	8	8
Operation Modes	CC, CV, CP	CC, CV, CP
Max. Power per channel	1800W	125W
Current range	300A	12.5A
Voltage Range	10V	10V
Efficiency	up to 95%	up to 95%

Additional Specifications

Temperature	Accuracy	0.1°C
Data acquisition	EtherCAT	up to 1kHz
	Ethernet	up to 1kHz (bandwidth dependent)

Snapshot (Oscilloscope Function)

Digitizing Rate Range	100-100K Sample/Sec
Default Digitizing Rate	10k Sample/Sec
Memory	8192 samples (300A channels), 4096 samples (12.5A channels)

Dynamic Performance

Current Rise/Fall Time (10-90%)	< 1.8msec
Time from Minus to Maximum Current	< 2.0msec

Safety	300A	12.5A
Isolation AC Input	3.8 kV AC Input to Chassis / 3.8 kV AC to DC Output	1.0 kV AC Input to Chassis / 1.0 kV AC to DC Output
Isolation UUT Input	600VDC isolation channel-to-channel for 300A channels 2.5kV Channel-to-Chassis for 300A channels	150VDC isolation channel-to-channel for 12.5 channels in same channel group (channel groups are channels: 1-8, 9-16, 17-24, 25-32, 33-40, 41-48, 49-56, 57-64). 500VDC isolation between channels of different groups. 1.0 kV Channel-to-Chassis for 12A channels
Safety Interlocks	Emergency Stop, External User Input	
Internal Protection	Over- Current (OC) Under-Voltage (UV) Over-Voltage (OV) OverPower (OP) Over-Temperature	
Programmable Safety	Over/Under- Current (OC/UC) Over/Under-Voltage (OV/UV) Over/Under-Power (OP/UP) Over-Temperature	

Mechanical Specifications

Rack Size (LxWxH)*	1200x800x1400 mm
	1763 lbs / 800 kg per full rack
Cooling Method	Forced Airflow per device / Optional cooling for entire cabinet
Operating noise at 20°C ambient temperature	< 60dB

* without wheels

Operating in the aerospace, defense, and security sector, Terma supports customers and partners all over the world. With more than 1,900 committed employees globally, we develop and manufacture mission-critical products and solutions that meet rigorous customer requirements.

At Terma, we believe in the premise that creating customer value is not just about strong engineering and manufacturing skills. It is also about being able to apply these skills in the context of our customers' specific needs. Only through close collaboration and dialog can we deliver a level of partnership and integration unmatched in the industry.

Our business activities, products, and systems include: command and control systems; radar systems; self-protection systems for ships and aircraft; space technology; and advanced aerostructures for the aircraft industry.

Terma has decades of hands-on know-how in supporting and maintaining mission-critical systems in some of the world's most hostile areas. Terma Support & Services offers through-life support of all our products to maximize operational availability, enhance platform lifetime, and ensure the best possible cost of ownership.

Headquartered in Aarhus, Denmark, Terma has subsidiaries and operations across Europe, in the Middle East, in Asia Pacific as well as a wholly-owned U.S. subsidiary, Terma Inc., with offices in Washington D.C., Georgia and Texas.

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