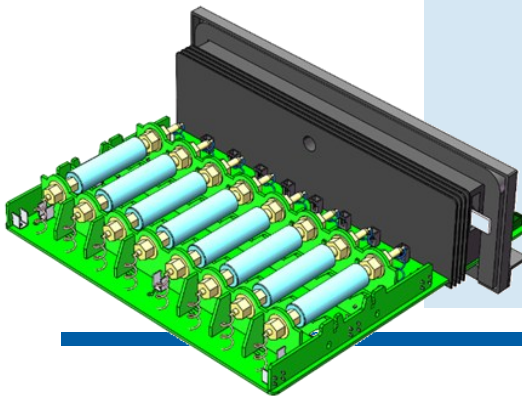# Parallel Differential Battery Testing

PDBT Benchtop Series

Key Features

- ✓ **High Precision and Resolution**: Offers industry-leading 24-bit resolution with 150ppm measurement accuracy for detailed and accurate data collection.

- ✓ **Fast Self-Discharge Measurement**: Reduces measurement time significantly by using a novel approach to self-discharge current measurement (SDCM) in a parallel setup.

- ✓ **Auto Equalization**: Ensures all cells start at the same voltage through automatic pre-charge/discharge before tests begin.

- ✓ **True Battery Paralleling**: Enables direct comparison by physically paralleling multiple batteries, allowing for more intuitive analysis of performance discrepancies.

- ✓ **Integrated Temperature Control**: Includes a built-in chamber for precise temperature management, ensuring stable testing conditions across all cells.

Redefining Battery Comparison

The Arbin Parallel Differential Battery Testing (PDBT) system introduces an innovative solution for advanced battery testing and comparison. Designed to parallel multiple batteries rather than channels, it enables more accurate and intuitive analysis of cell performance discrepancies.

The system improves test efficiency by applying uniform voltage to all cells, enhancing data precision and accelerating processes like Self-Discharge Current Measurement (SDCM). With versatile configurations, precision measurement, and integrated environmental control, PDBT caters to research and industrial needs for reliable and faster battery evaluations.

Standard Configuration

Voltage Range	0 to 5V
Current Range	5A/1A/10mA/1mA
Tray Option 1	Cylindrical (18650/21700)
Tray Option 2	Coin Cell

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System Information

System Characteristics

Channels per Module	8
Channels per Chassis	8
Current Ranges per Channel	4
Channel Parallel	Up to 40 A
Current Rise Time	<100 μs

Control & Measurement Specifications

Accuracy	±0.02% FSR
Precision	±0.015% FSR
Measurement Resolution	24 Bit
Control Resolution	16 Bit
Time Resolution	100 μs
Data Acquisition Rate	Up to 1 kHz

MZTC Chamber Specifications

Chamber Zone Qty	1 zone with 8 cell fixtures
Temperature Range	[Ambient-10℃] to 60℃
Temperature Uniformity	±1.5℃
Temperature Control Stability	±0.5℃

Chassis Specifications

Cooling	Air-cooled with built-in variable speed fans
Input Power	110V1P – 240V1P
Chassis Size	Width: 16" (407 mm) Depth: 17" (432 mm) Height: 16" (407 mm)

Application Focus

- Facility integration to interface with temperature chambers, test facilities, or other third party systems.

- Data Sampling and Logging: Powerful embedded controllers provide ultra-fast data sampling and logging.

- Comprehensive safety features for lithium-ion battery testing.

- Dynamic data acquisition based on changes in time, voltage, and current to capture more data when it's needed and maintain efficient file sizes.

- Cell-level Quality Control & Grading

- Faster Self-Discharge Current Measurement

- Validate formation procedure for Arbin's formation solution

Powerful Software Integration

Arbin's PDBT system, powered by our latest MITS software, optimizes the battery testing process by simplifying control of the testing process, and integrating the test station into a test facility.

- ⊘ Create and manage test schedules, monitor real-time testing, and analyze results.

- ⊘ Integration with third-party hardware and automation software.

- ⊘ Suitable for both laboratory and production environments.

- ⊘ Test data securely stored in a range of robust databased formats including MS SQL, PostgreSQL, or utilize Apache Kafka for additional flexibility.

User-Friendly Software

Results Database

Real-Time Monitoring
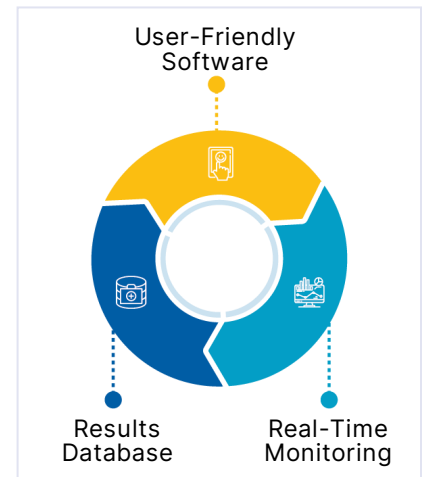
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