Engineering Excellence in Testing Applications

UNICO BATTERY CELL TESTERS
BAT100 SERIES

Ultra High Performance and Compact Cell Testing for R&D

UNICO's R&D Cell Tester is a ultra-high performance cell testing solution in an incredibly small package. It leads the industry with the highest energy density in the smallest footprint with up to (64) 300A channels in a single system. Built-in advanced features on each channel like EIS, DCIR, self-calibration, and waveform capture allows you to perform all your R&D testing without additional devices, saving significant space in your lab. If high performance testing with built-in advance functionality and a small footprint is your need, this is the solution.

HIGHEST PERFORMANCE, SMALLEST FOOTPRINT 75% SMALLER THAN COMPARABLE SYSTEMS

MODULAR CELL TEST SYSTEM

CELL TEST PLATFORM YOU CAN GROW WITH

Key Features:

- Modular Design
- Regenerative
- Up to 95% Efficiency
- Built-In Automation
- Open API for 3rd Party Automation
- Cybersecurity Package
- Built-in 4 Temperature Measurement per Channel
- Parallel Operation
- Built-in Oscilloscope Feature per Channel
- EIS Available per Channel
- Built-in DCIR
- Built-in Self-Calibration
- Built-in extra Analog in per Channel
- Built-in extra Analog out per Channel

SNAPSHOT CAPABILITIES

Basic Snapshot (Oscilloscope feature) per channel included

- Voltage and current measurement per channel
- Up to 4096 (12.5A channels) or 8192 (300A channels) samples per snapshot per signal
- Fix sampling rate of 10kHz
- Voltage and current setpoints for triggering snapshot

*Available in Q2 2025

Full Snapshot (Oscilloscope feature) per channel included

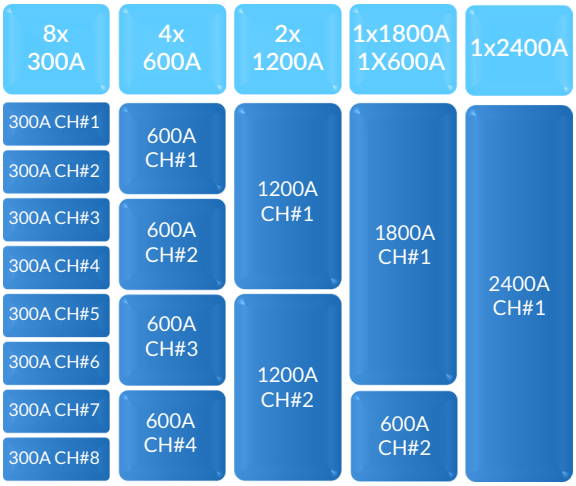
- Voltage, current, temperature, analog-in and analog-out measurement per channel*
- Up to 4096 (12.5A channels) or 8192 (300A channels) samples per snapshot per signal
- Configurable sampling rate from 100Hz up to 100kHz
- Voltage, current, temperature, analog -in and analog out setpoints for triggering snapshot*

FOR HIGHER CURRENT TESTS, CHANNELS CAN BE USED IN PARALLEL

Available Versions

Parameter	Low	High
Voltage Range	0 - 10V	0 - 10V
Current Range	±12.5A	±300A
Power Per Channel	125W	1800W
Channels Per Device	64	8
Channels Per Cabinet	**512**	**64**
		

300A Channel Example



THREE PERFORMANCE AND FEATURE LEVELS AVAILABLE - CAN BE UPGRADED ANYTIME

Description		Basic	Standard	Premium
Max. Voltage Per Channel		10VDC *	10VDC *	10VDC *
Voltage Accuracy		1mV	1mV	1mV
Current Accuracy		0.05% FS	0.03% FS	0.01% FS
	300A Channels	300mA	180mA	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
Ether Net		Yes	Yes	Yes
Cards Parallelization		Yes **	Yes **	Yes **
CC, CV, CP Modes		Yes	Yes	Yes
Remote Voltage Sense		Yes	Yes	Yes
Dynamic Profiles Mode		Yes	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
	12.5A Channels		32	64
RS485 (Full Duplex) Per Device	300A Channels	-	4	8
	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 (Available Q1/2025)	300A Channels	No	No	Yes
	12.5A Channels			

Basic

- Covers all cycling testing scenarios
- High voltage and current accuracy
- EtherCAT and EtherNET
- Basic Snapshot (Oscilloscope feature) per channel included

Standard

All Basic features plus:

- 0.03% current accuracy
- Minimum output voltage reduced to 650mV
- RS485 interface

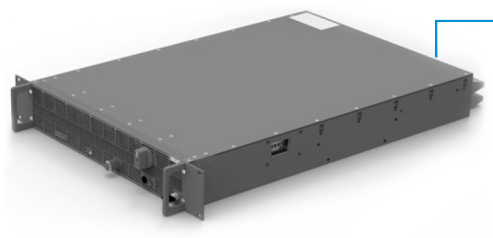
Premium

All Standards features plus:

- 0.01% current accuracy
- Minimum output voltage reduced to 250mV
- Full Snapshot (Oscilloscope feature) per channel included
- Built in self-calibration, increasing the lifetime of the accuracy
- Cybersecurity

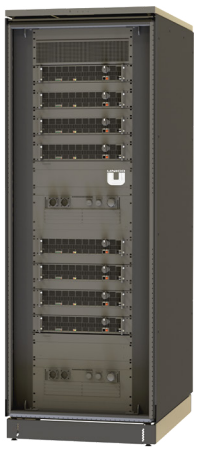
*30VDC available for new systems coming in Q3 2025

**only same type of channels in the same device



Single Device

Small cabinet



Large Cabinet

DETAILED SPECIFICATIONS

Static Performance		300A	12.5A
Maximum Number of Channels Per Rack	Large Cabinet	64	512
	Small Cabinet	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		0-10V	0-10V
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)	
Waveform Measurement (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			
Isolation AC Input		3.8 kV AC Input to Chassis / 3.8 kV AC to DC Output	
Isolation UUT Input		600VDC isolation channel-to-channel 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. 2.5kV Channel-to-Chassis for all 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(WxDxH) Full Rack	Larger Cabinet	32 x 48 x 87" / 2200 x 800 x 1200 mm	
	Small Cabinet	32 x 48 x 55" / 1400 x 800 x 1200 mm	
Rack Weight	Larger Cabinet	3086 lbs / 1400 kg per full rack	
	Small Cabinet	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	

UNICO™

Specifications are subject to change without notice

unicollc www.unicous.com

Scan to Visit Our Website