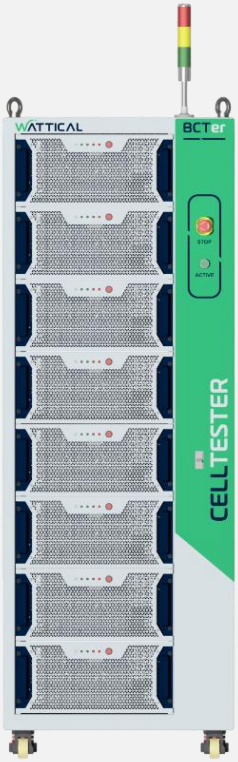
BCTer - Regenerative Battery Cell Tester

The Wattical BCTer (Battery Cell Tester with energy recovery) offers the ability to precisely analyse battery technologies such as lead-acid, Li-ion and their derivatives as well as next-generation battery systems. Using advanced microprocessor-controlled controllers, they adapt to evolving battery testing needs, supporting nearly any test standard. With an AC/DC converter on the mains-side (AFE) and a DC/DC converter on the battery side, our cell tester ensures efficient, eco-friendly operation through regenerative hardware design



Generally, the product configuration can be reflected by the product name and the optional features. The product line of Battery Cell Tester Naming consists of several components as follows:

- BCTer-<Series>-<Voltage>-<Current>-<NumberOfChannels>
  - Series
    - B - Basic (Standard)
    - N - Negative (Enhanced), Negative Voltage
  - Optional Features[Note 1]
    - A - Accuracy: 0.02% Full Scale
    - F - Fast: 3ms Response Time

General Parameter

Protection Rating	IP21
Operating Temperature	0°C to 40°C
Operating Humidity	<90% Relative Humidity (non-condensing)
Noise Level	≤75dB
Cooling Method	Forced Air Cooling

Mains-AC Parameter	
Mains Connection	Three-Phase five-wire supply: 3~ N PE
Input AC Voltage	+360V to +440V
Input Frequency	43 to 67Hz
Energy Feedback	Yes
Regenerative Efficiency	70% (Typical)
Power Factor	≥0.99
Total Harmonic Distortion (THD)	≤5%
DC Parameter	
Voltage Range [Basic Series]	+1V to +6V (equipment terminal voltage)
Voltage Range [Enhanced Series]	-6V to +6V (equipment terminal voltage) -8V to +8V (equipment terminal voltage) -10V to +10V (equipment terminal voltage)
Voltage Accuracy	±0.05% Full Scale ±0.02% Full Scale (Accuracy Option)
Voltage Resolution	16bit (0,0032% of max voltage)
Current Range per Channel	±100A to ±1200A (per Configuration)
Current Accuracy	±0.05% Full Scale ±0.02% Full Scale (Accuracy Option)
Current Resolution	16bit (0,0032% of max current)
Channel Parallel	Supported. No degradation in Data Integrity and Communication Speed
Current Response Time	≤5ms (10% to 90% Full Scale) ≤3ms (10% to 90% Full Scale) (Fast Option)
Current Switching Time	≤10ms (-90% to 90% Full Scale) ≤5ms (-90% to 90% Full Scale) (Fast Option)
Minimum Pulse Width	20ms 10ms (Fast Option)
Current Measuring Ranges	Up to 3
Testing Parameter	
Charge/Discharge Mode	Constant Current, Constant Voltage, Constant Current to Constant Voltage, Constant Power, Constant Resistance, Constant Current Pulse, Constant Current Ramp, Road Profile, Matrix, DCIR, Capacity etc.
Data Record Rate	333Hz (3ms), support 1000Hz(1ms) in some cases Note 2
Data Record Condition	Time (Δt), Voltage (ΔV), Current (ΔI), etc.
External Interface	CAN FD, RS-485 (AUX-Channels, Temperature-Sensors, Climate-Chambers, Chiller, Pressure-Sensors, etc.)
Communication Method	Ethernet (RJ-45)

Note 1:More features customization supported, e.g. 1ms Rising Time,18bit Resolution, Smaller Current Range, Ripple etc.
Note 2:1ms in some cases depended by Controller Buffer Limit