

Q3100

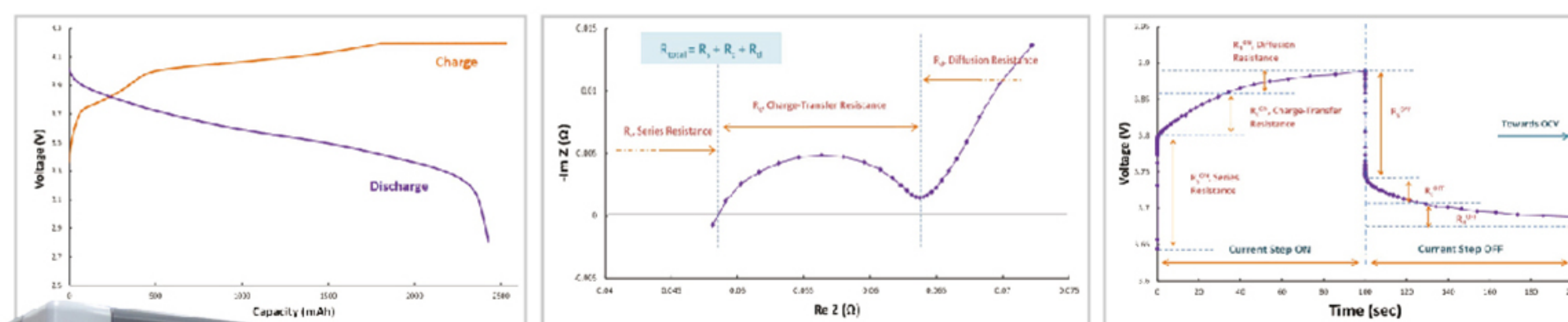
Electrical, Optical & Thermal
Imaging & Test Systems

Battery Parameter Test System

This is a brand-new and all-in-one battery test system including advanced measurement tools such as Transient Response Analysis (TRA) and Frequency Response Analysis (FRA), based on general test framework of rechargeable battery such as charge/discharge and cycle tests. The Suequence Builder is a powerful tool for efficient design and management of test procedures. The Metadata Compiler is a smart tool for automatic extraction of test parameters and big data analysis.

Charge/Discharge + TRA + FRA + DCR/ACR

Sequence + Metadata + Big Data



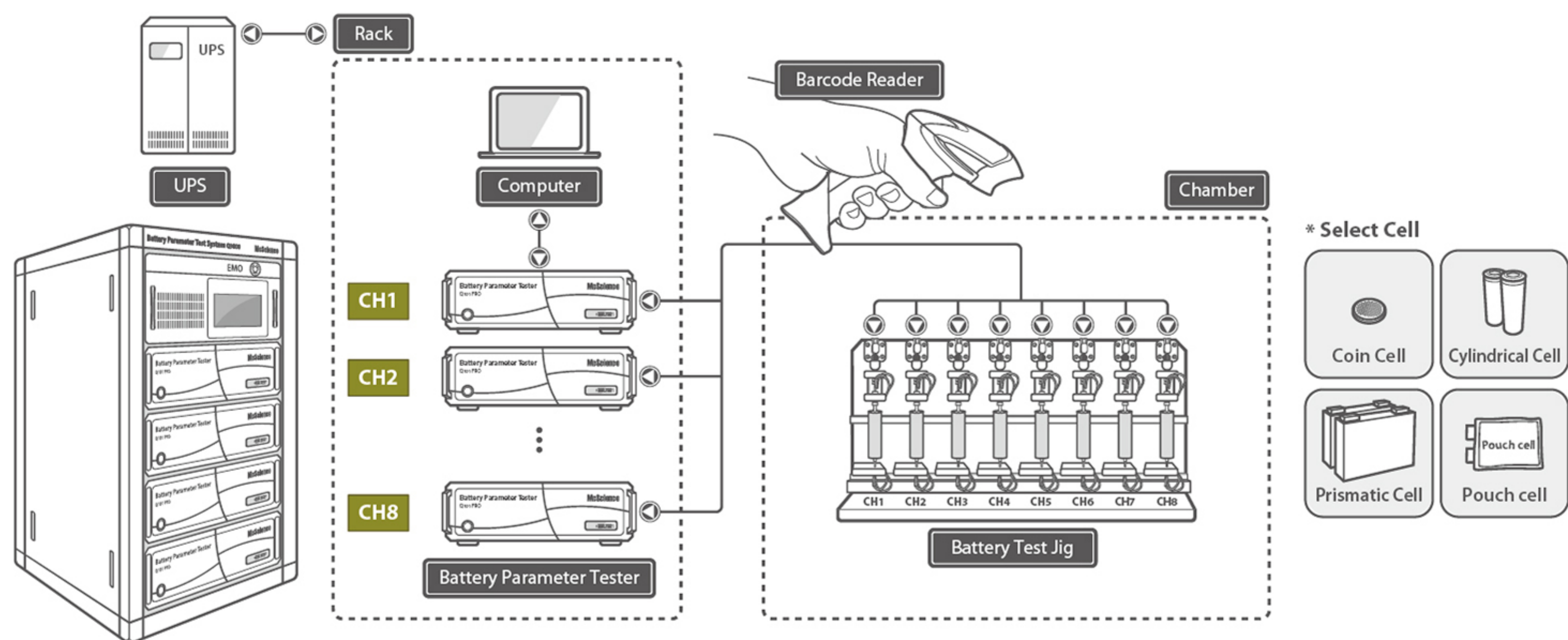
Charge/Discharge & Cycle Test
High Precision OCV Measurement
AC/DC Internal Resistance
FRA/TRA
Sequence Builder
Meta Data Compiler
Big Data Manager



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System Configuration



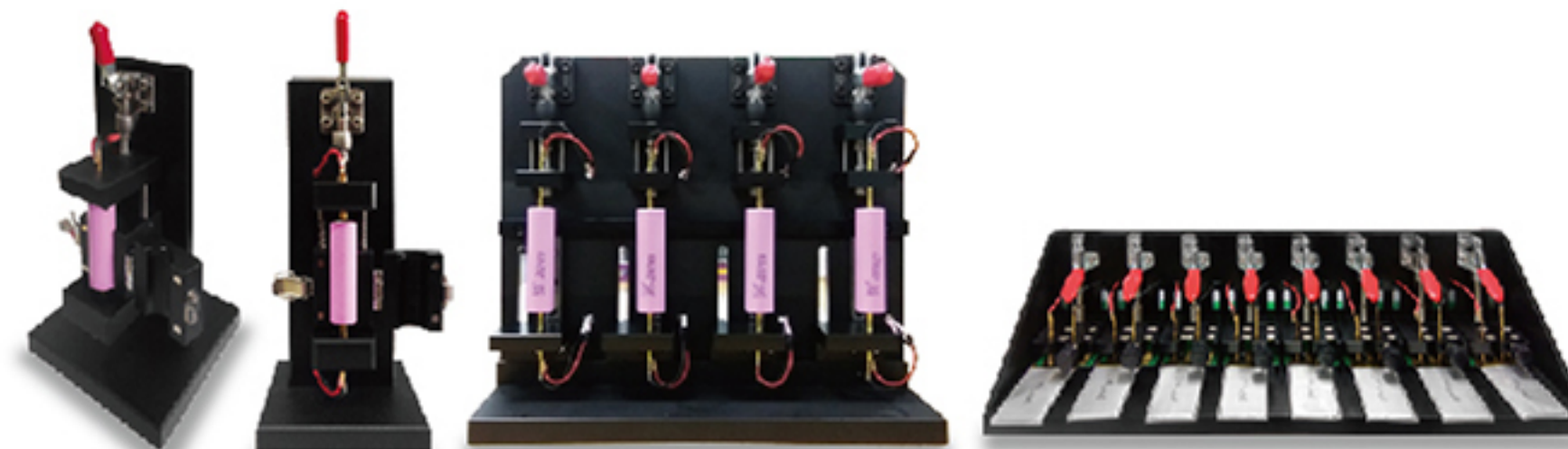
System Components



<System Frame>



<Battery Parameter Tester>



<DeJign Battery Test Jig>



<Battery Cycle Test S/W>

System Specification

Hardware

Channel		8Channel
Configuration		1Ch per 1subrack
Size(mm)		(W)900 x (D)1,000 x (H)1,400
Weight		< 300kg
Power		220V/10A/Ø1
Communication		Ethernet
Connection		4 wire Kelvin Cable
Cycle	Control	CC/CV, CC, CP, CR, Pattern
	Voltage	Setting range (resolution) ±5.5V(550μV)
		Reading range (resolution) ±5.5V(550μV) ±50mV + DC canceling (5μV) ±10mV + DC canceling (1μV)
		Reading resolution 550μV, 5μV, 1μV
	Accuracy	±0.1% of F.S.

Cycle	Current	-5A ~ +5A / -500mA ~ +500mA / -50mA ~ +50mA / -5mA ~ +5mA /
	Temperature	Thermocouple K-type (±1℃@-20℃~+85℃, ±2℃@-200℃~+700℃)
	Storage time interval	Minimum 100ms
	Measurement items	OCV, DCR, ACR, FRA, TRA
TRA	Rise/Fall time	<200μs @ Li-ion 5Ah load, 0->5A (10 ~ 90%)
	Time resolution	1μs
	Sampling time	100μs ~ 10s
FRA	Voltage accuracy	±0.1%
	Output	Current control
	Frequency	1μHz ~ 10KHz
	Resolution	1μHz @ <1Hz, 100mHz @ ≥1Hz
	Accuracy	±0.5%

Software

Function	Charge/Discharge Mode Measurement Mode
Operation Mode	(Set Parameter) Charge/Discharge Mode, End Condition, Safety Condition, Save Condition (Measure Parameter) Charge/Discharge Characteristics, OCV, ACR, DCR, FRA, TRA
Measurement Mode	(FRA) Nyquist Plot, Bode Plot (TRA) Time vs. Voltage, Time vs. Current, TRA Resistance (ACR) Real Z at 1kHz, Option (1μHz ~ 10KHz) (DCR) $R_{DC} = (V1 - V2) / (I1 - I2)$, KS C IEC 61960-2 (OCV) Voltage Monitoring
Sequence Line	Max. 200 Line
Data File Format	Excel Compatible CSV Format (2 Type) - Charge/Discharge Data File - Measurement Data File
Charge/Discharge Mode	CC/CV, CC, CP, CR
End Condition	Time, Voltage, Current, Temperature, Capacity , Energy, Power, Delta T, Delta V
Safety Condition	Max./Min. Voltage, Max./Min. Current, Max./Min. Capacity , Max./Min. Temperature
Save Condition	Delta Time, Delta Current, Delta Voltage, Delta Temperature