ANBTS7580(F) Series Electrochemical Impedance Analyzer



Product Overview /

The ANBTS7580(F) Electrochemical Impedance Analyzer enables impedance measurement and analysis of lithium batteries, featuring "wide frequency range, high testing speed, high precision, and multi-function". It is used for parameter measurement and analysis of lithium batteries.

Product Features /

- Wide frequency range: 1mHz - 300kHz
- High testing speed: Fastest measuring speed of 2ms
- High precision: Basic accuracy ±0.05%
- Multi-function: Sweeping measurement, Cole-Cole analysis, and equivalent circuit analysis

Product Application /

- Battery internal resistance measurement, battery model analysis, conductivity and dielectric constant analysis of battery materials

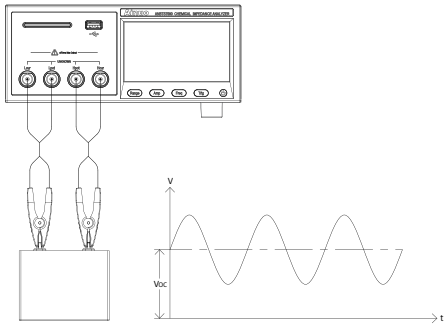
Electrochemical Measurement Applications /

- Battery internal resistance measurement (battery voltage below 5V, internal resistance above 1mΩ)

① Automatically measure the battery open-circuit voltage (Voc);

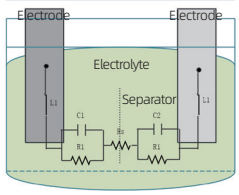
② Output a DC bias to set the battery to no-load state;

③ Superimpose an AC test signal and measure the impedance under no-load condition.

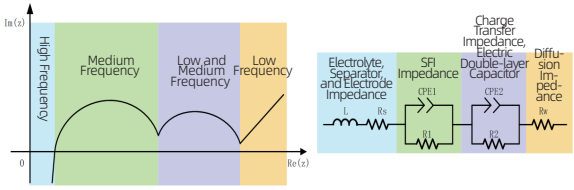


Sweep Frequency Analysis of Electrochemical Materials and EDLC (Electric Double-Layer Capacitor)

L1: Inductance of electrode and leads
C1: CPE1, electric double-layer capacitor
C2: CPE2, electric double-layer capacitor
R1: Charge transfer resistance
R2: Charge transfer resistance
Rs: Rsol, solution resistance between electrodes
If the parameter values of the above equivalent circuit components can be measured, the characteristics of the electrode, separator, and electrolyte can be thoroughly understood.



- Conduct targeted analysis using electrochemical impedance spectroscopy and the corresponding equivalent circuit:



Technical Specifications /

Product Model		ANBTS7580(F)
Basic Specifications	Test Mode	1) LCR mode: Single-condition measurement 2) Analyzer mode: Frequency sweeping, level sweeping, temperature characteristics, equivalent circuit analysis(measurement points: 2-801) 3) Continuous measurement mode: Continuous measurement of saved conditions
	Measurement Parameters	Z (impedance), Y (admittance), θ (phase angle), Rs (ESR) (equivalent series resistance), Rp (equivalent parallel resistance), Rdc (DC resistance), X (reactance), G (conductance), B (susceptance), Cs (equivalent series capacitance), Cp (equivalent parallel capacitance), Ls (equivalent series inductance), Lp (equivalent parallel inductance), D(tanδ) (dissipation factor), Q (quality factor), T (temperature), σ (conductivity), ε (dielectric constant)
	Impedance Measurement Range	10mΩ-200MΩ (inductance 5.5nH - 30GH, capacitance 1pF - 15kF) 100mΩ, 1Ω, 10Ω, 100Ω, 1kΩ, 10kΩ, 100kΩ, 1MΩ, 10MΩ, 100MΩ (10 ranges) 100mΩ, 1Ω, 10Ω can be set to low-Z high-precision mode
	Display Range	Z: 0.00m~9.99999GΩ Y: 0.000n~9.99999GS θ: ±0.000°~999.999° Rs、Rp、Rdc、X: ±0.00m~9.99999GΩ G、B: 0.000n~9.99999GS Cs、Cp: ±0.0000p~9.99999GF Ls、Lp: ±0.00000μ~9.99999GH D: ±0.00000~9.99999 Q: ±0.00~9999.99 T: -10.0~+99.9℃ σ: ±0.00000~999.999G ε: ±0.00000~999.999G
	Measurement Method	AC four-terminal
	Impedance Test Accuracy	Basic accuracy Z: 0.05%rdg θ: 0.03°
	Measuring Speed	FAST / MED / SLOW / SLOW2
	Measurement Time	Fastest 2ms (1kHz, FAST, delay and compensation OFF)
Signal Source Specifications	Signal Source Frequency	1mHz~300kHz
	Frequency Resolution	1mHz - 99.999Hz 1mHz step; 100.00Hz - 999.99Hz 10mHz steps; 1.0000kHz - 9.9999kHz 100mHz steps; 10.000kHz - 99.999kHz 1Hz step; 100.00kHz - 300.00kHz 10Hz steps;
	Signal Source Level	V mode, CV mode: Setting resolution 1mV Signal level Conventional mode: 5mV - 5Vrms, maximum 50mA Setting accuracy ±10% of setting ±10mV Low-Z high-precision mode: 5mV - 3Vrms, maximum 100mA
		CC mode: Setting resolution 10μA Signal level Conventional mode: 10μA - 50mArms, maximum 5V Setting accuracy ±10% of setting ±10μA Low-Z high-precision mode: 10μA - 100mArms, maximum 3V
	Signal Source Dc Bias	Conventional mode: -5V - 5V, 10mV resolution; Low-Z high-precision mode: -3 - 3V, 10mV resolution
	Output Impedance	Regular mode: 100Ω; Low-Z high-precision mode: 10Ω
Other Functions	Monitoring Accuracy	Monitoring voltage: Monitoring range 0.000V~5.000V Monitoring current: Monitoring range 0.000mA~100.0mA Monitoring accuracy ±10%rdg ± 10mV Monitoring accuracy ±10%rdg ± 10μA
	DCR (DC Resistance) Measurement	Measurement signal level: 2V fixed; Temperature compensation available
	Temperature Measurement	Range: -10°C - 60°C; Accuracy: ±0.5%rdg ± 1°C
	Compensation	Open-circuit compensation, short-circuit compensation, load compensation; Cable length compensation: 0m, 1m, 2m, 4m
	Contact Check	Detects contact between H_{CUR} - H_{POT} and L_{CUR} - C_{POT} Five sensitivity thresholds can be adjusted: 10Ω, 50Ω, 100Ω, 500Ω, 1000Ω
	Trigger	External trigger, internal trigger
	Trigger Synchronization Output Function	Measurement signal output only during signal measurement
	Battery Measurement Function	Only measure the internal impedance of batteries with a voltage below 5V 1) Fixed to external trigger mode 2) Fixed to low-Z high-precision mode 3) Range: 100mΩ - 10Ω 4) Signal level range: 0.101V~1.250Vrms (V); 0.005V~1.250Vms (CV); 2.00mA~50.00mArms (CC) 5) Contact check function disabled 6) Synchronized output function enabled 7) DC resistance measurement not available
	Residual Charge Protection Function	$V=\sqrt{10/C}$ (V = maximum 400V)
	Average Function	1~256
	Panel Loading / Save	LCR mode: Up to 60 groups Analyzer mode: Up to 2 groups Compensation values only: Up to 128 groups
	Storage Function	Can save 32,000 sets of data
	Interface	EXT I/O, USB (Hi-Speed), U-disk, RS-232C, GPIB, LAN port
Dimension (W*H*D mm)		213*88*300

* For the detailed parameter specifications table, please contact your regional sales representative.