

CS300X Multi-channel potentiostat/galvanostat

CS multi-channel potentiostat/galvanostat is developed from the ordinary single-channel CS350 potentiostat. The specifications of each channel are identical, current control range $\pm 200\text{mA}$, potential control range is $\pm 10\text{V}$. It can achieve simultaneous measurements for up to 8 channels. You can choose to use just one or some of the channels. Multi-channel potentiostat brings convenience to the users who has various samples and makes the measurement more efficient.



Model	CS3002	CS3003	CS3004	CS3005	CS3006	CS3007	CS3008
No. of channels	2	3	4	5	6	7	8

SPECIFICATIONS

Number of channels: 2~8 channels	
Channel insulation resistance: $>100\text{M}\Omega$	Communication: network interface
Constant potential control range: $\pm 10\text{V}$	Constant current control range: $\pm 200\text{mA}$
Potential accuracy: $0.1\% \times \text{full range} \pm 1\text{mV}$	Current accuracy: $0.1\% \times \text{full range}$
Potential resolution: $10\mu\text{V} (>100\text{Hz})$, $3\mu\text{V} (<10\text{Hz})$	Current resolution: $<10\text{pA}$
Potential rise time: $<1\mu\text{s} (<10\text{mA})$, $<10\mu\text{s} (<2\text{A})$	Current range: $200\text{mA} \sim 2\text{nA}$, nine ranges
Reference electrode input impedance: $10^{12}\Omega \parallel 20\text{pF}$	Maximum current output: 200mA
Compliance: $\pm 12\text{V}$	Current increment during scan: $1\text{mA} @ 1\text{A/ms}$
CV and LSV scan rate: $0.001\text{mV} \sim 10000\text{V/s}$	Potential increment during scan: $0.076\text{mV} @ 1\text{V/ms}$
CA and CC pulse width: $0.0001 \sim 65000\text{s}$	DPV and NPV pulse width: $0.0001 \sim 1000\text{s}$
SWV frequency: $0.001 \sim 100\text{KHz}$	CV minimum potential increment: 0.075mV
AD data acquisition: $16\text{bit} @ 1\text{MHz}$, $20\text{bit} @ 1\text{kHz}$	IMP frequency: $10\mu\text{Hz} \sim 1\text{MHz}$
DA resolution: 16bit , setup time: $1\mu\text{s}$	Current and potential range: automatic
Lower-pass filter: covering 8-decade	

Electrochemical Impedance Spectroscopy(EIS)

Signal generator	
Frequency range:10 μ Hz $\sim$ 1MHz	AC signal amplitude: 1mV $\sim$ 2500mV
Frequency accuracy:0.005%	Signal resolution: 0.1mV RMS
DDS output impedance: 50 Ω	DC Bias: -10V $\sim$ +10V
Wave distortion: <1%	Waveform: sine wave, triangular wave, square wave
Scan mode: Logarithmic/linear, increase/decrease	
Signal analyzer	
Maximum integral time:10 ⁶ cycles or 10 ⁵ s	Measurement delay:0 $\sim$ 10 ⁵ S
Minimum integral time:10ms or the longest time of a cycle	
DC offset	
Potential compensation range: -10V $\sim$ +10V	Current compensation range: -1A $\sim$ +1A
Bandwidth adjustment: automatic and manual, 8-decade frequency range	

Software / Techniques for each channel

Stable polarization: Open Circuit Potential(OCP), Potentiostatic(I-T Curve), Galvanostatic, Potentiodynamic (Tafel plot), Galvanodynamic

Transient polarization: Multi-Potential Steps, Multi-Current Steps, Potential Stair-Step (VSTEP), Galvanic Stair-Step (ISTEP)

Chrono Methods: Chronopotentiometry(CP), Chronoamperometry(CA),Chronocoulometry (CC)

Voltammetry: Cyclic Voltammetry(CV), Linear Sweep Voltammetry(LSV), Staircase Voltammetry(SCV), Differential Pulse Voltammetry(DPV), Normal Pulse Voltammetry(NPV), Square wave voltammetry(SWV), AC voltammetry(ACV),Differential Normal Pulse Voltammetry(DNPV), 2nd Harmonic A. C. Voltammetry(SHACV)

Voltammetry Stripping: Potentiostatic stripping, Linear stripping, Staircase stripping, Square wave stripping

Impedance: EIS vs Frequency (IMP), EIS vs Time (IMPT), EIS vs Potential (IMPE)

Corrosion test: Electrochemical Noise(EN), Zero Resistance Ammeter(ZRA), Electrochemical Potentiokinetic Reactivation(EPR)

Battery test: Battery charge and discharge, Galvanostatic charge and discharge(GCD)

Extensions: Data Logger, Waveform generator, Disc machine control