

CS120 potentiostat contains a fast digital function generator, high-speed data acquisition circuitry, a potentiostat. With high performance in stability and accuracy with advanced hardware and well-functioned software, it is a research platform for corrosion, batteries, electrochemical analysis, sensor, life science and environmental chemistry etc.



SPECIFICATIONS

Support 2-, 3- or 4-electrode system
Potential control range: $\pm 10\text{V}$
Current control range: $\pm 2\text{A}$
Potential control accuracy: $0.1\% \times \text{full range} \pm 1\text{mV}$
Current control accuracy: $0.1\% \times \text{full range}$
Potential resolution: $10\mu\text{V} (>100\text{Hz})$, $3\mu\text{V} (<10\text{Hz})$
Current sensitivity: 1 pA
Potentiostat rise time: $<1\mu\text{s} (<10\text{mA})$, $<10\mu\text{s} (<2\text{A})$
Reference electrode input impedance: $10^{12}\Omega || 20\text{pF}$
Current range: $2\text{nA} \sim 2\text{A}$, 10 ranges
Compliance voltage: $\pm 21\text{V}$
Maximum current output: 2.0A
CV and LSV scan rate: $0.001\text{mV} \sim 10,000\text{V/s}$
Current increment during scan: $1\text{mA} @ 1\text{A/ms}$
Potential increment during scan: $0.076\text{mV} @ 1\text{V/ms}$
AD data acquisition: $16\text{bit} @ 1\text{ MHz}$, $20\text{bit} @ 1\text{ kHz}$
DA Resolution: 16bit , setup time: $1\mu\text{s}$
Minimum potential increment in CV: 0.075mV
Low-pass filters: covering 8-decade
Potential and current range: automatic
Communications Interface: isolated Universal Serial Bus (USB)
Operating System: Windows 2000/XP/ Win7/Win8/Win10

Electrochemical technique of Model CS120

Stable polarization

Open Circuit Potential (OCP), Potentiostatic (I-T measurement), Potentiodynamic (Tafel plot),

Transient polarization

Multi-Potential Steps, Potential Stair-Step (VSTEP)

Voltammetry

Cyclic Voltammetry (CV), Linear Sweep Voltammetry (LSV)

Standard supply list

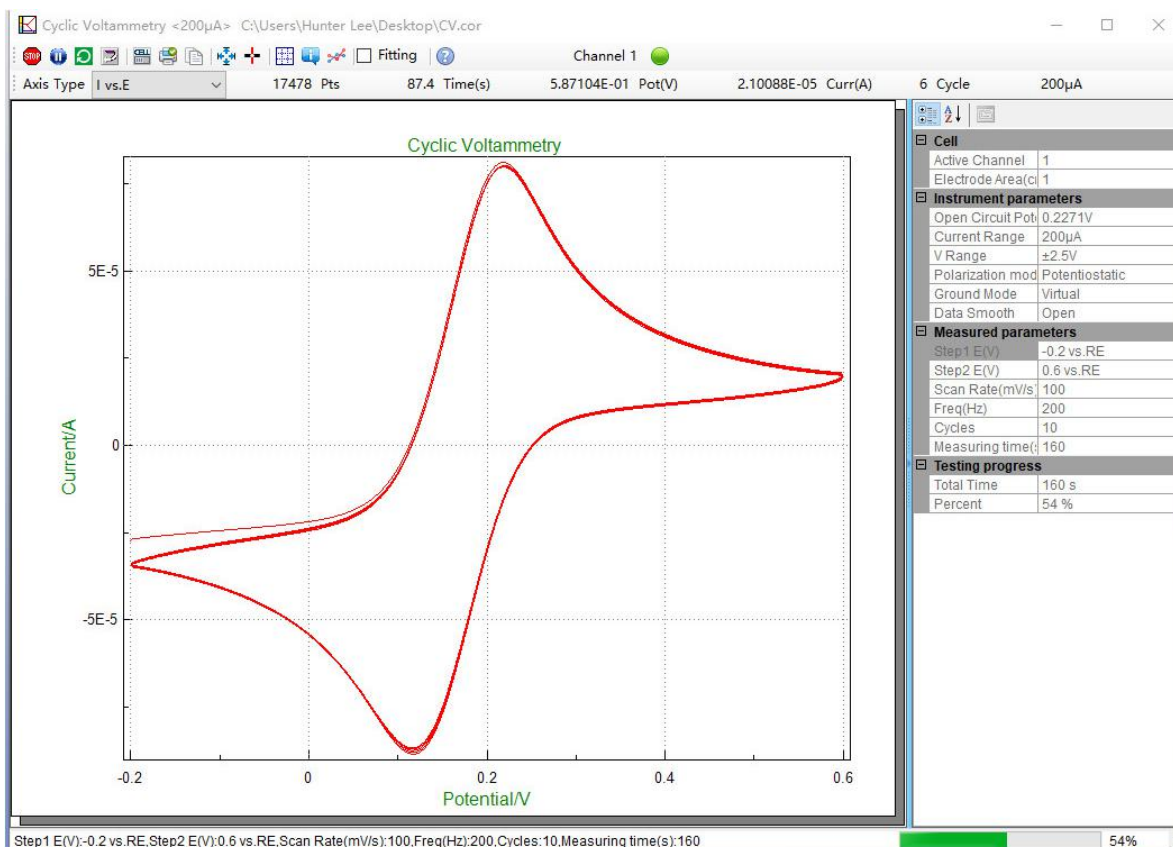
Instrument host CS120 x1
CS studio software x1
Power cable x1
USB cable x1
Cell cable x2
Dummy cell($1\text{k}\Omega || 100\mu\text{F}$) x1
Manual x1

Service (the after-sale service is totally free)

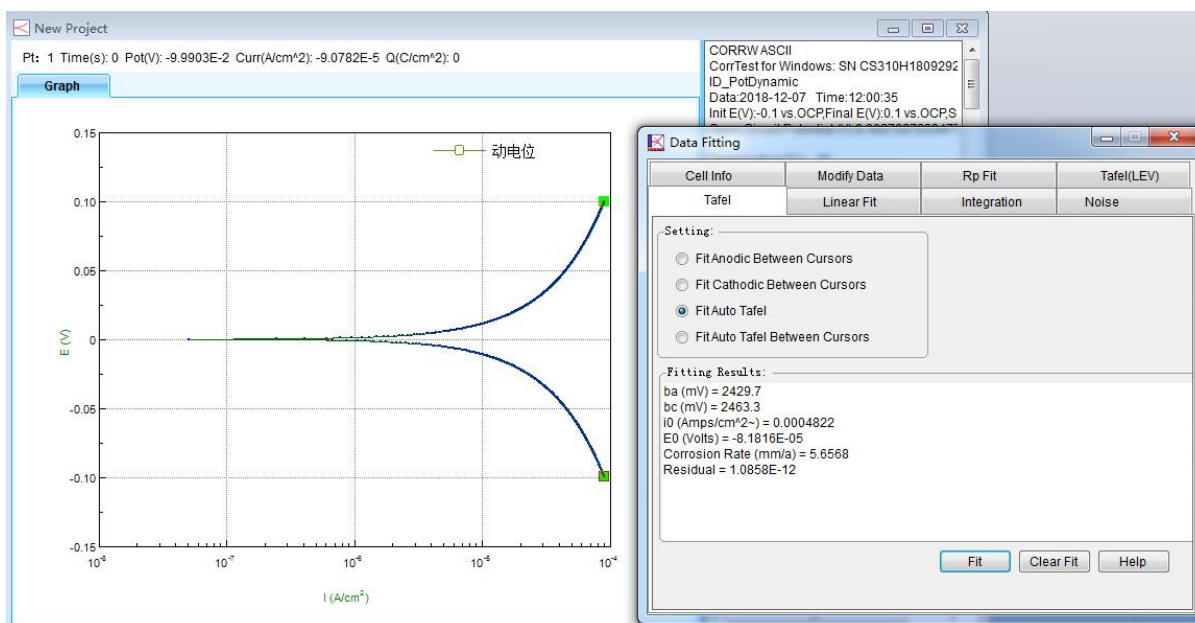
1. Warranty period: 5 years
2. Provide manual, software installation video, and training videos.
3. Provide repair service for free
4. Lifetime free software upgrading and technical service

SOFTWARE FEATURES

CS studio software provides users a versatile smoothing/differential/ integration kit, which can complete the calculation of peak height, peak area and peak potential of CV curve.



CS studio also provides powerful non-linear fitting on Butler-Volmer equation of polarization curve. It can calculate Tafel slope, corrosion current density, limitation current, polarization resistance, corrosion rate. It can also calculate the power spectrum density, noise resistance and noise spectrum resistance based on the electrochemical noise measurements.



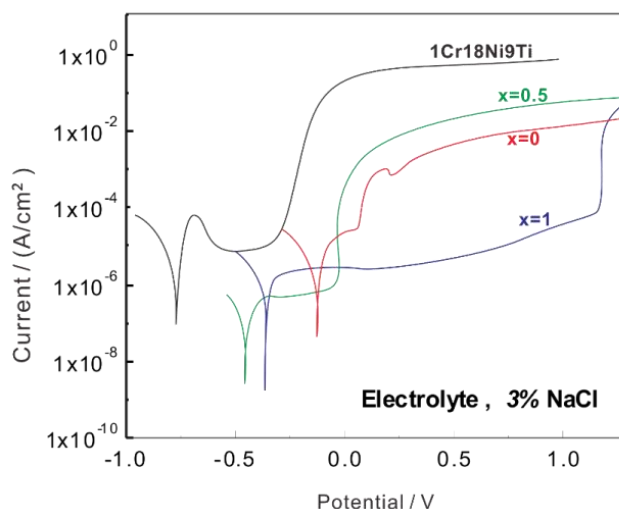
CS Studio software can achieve real time saving of the measuring data. The data can be automatically saved even in case of sudden power off.

CS studio kit has a built-in versatile timing policy for combined measurements, which can facilitate the automation of experiments and save time.

TECHNICAL ADVANTAGES

1. Polarization curve

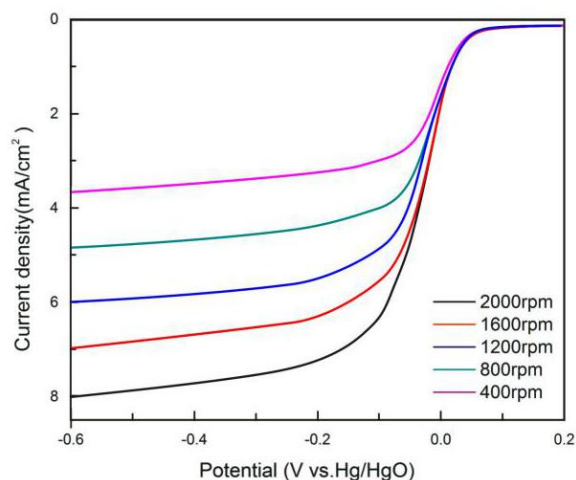
It can complete linear polarization curve and Tafel plot measurements. The user can set the anodic reversal current (passivation film breakdown current) of the cyclic polarization curve to determine material's pitting potential and protection potential and evaluate its susceptibility to intergranular corrosion. The software employs non-linear fitting to analyze polarization curve, make fast evaluation of material's anti-corrosion ability and inhibitors.



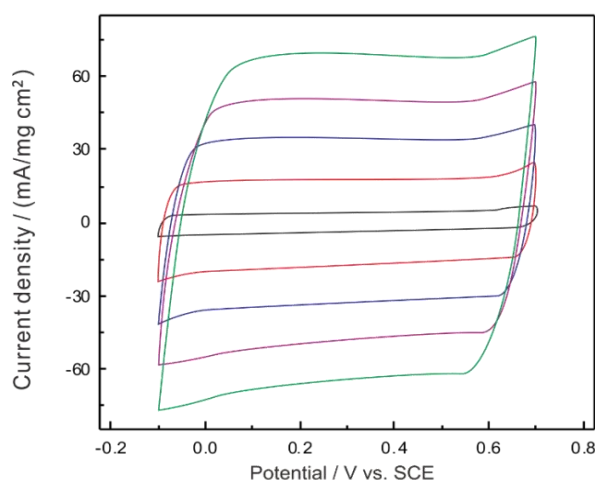
Polarization curve of Ti-based amorphous alloy & stainless steel in 3%NaCl solution

2. Voltammetry

It can do the following electroanalysis methods: Linear Sweep Voltammetry(LSV), Cyclic Voltammetry(CV). It integrates calculation of peak area, peak current and standard curve analysis.



LSV curve: mesoporous carbon material in 0.1M KOH



CV curves of PPy supercapacitor in 0.5 mol/L H₂SO₄