ELECTROCHEMICAL ANALYZER

ABOUT THE SYSTEM

Electrochemical workstation is a general potentiostat/ galvanostat/ FRA designed for general purpose electrochemical measurements. The instrument is capable of a wide variety of electrochemical techniques, and is available with integrated simulation and fitting software functions for both impedance and cyclic voltammetry. The Electrochemical analyser constitis of a fast-digital function generator, high-speed data acquisition circuitry, a potentiostat and a galvanostat. With high performance in stability and accuracy with advanced hardware and well-functioned software, it is a comprehensive research platform for corrosion, batteries, electrochemical analysis, sensor, life science and environmental chemistry etc.

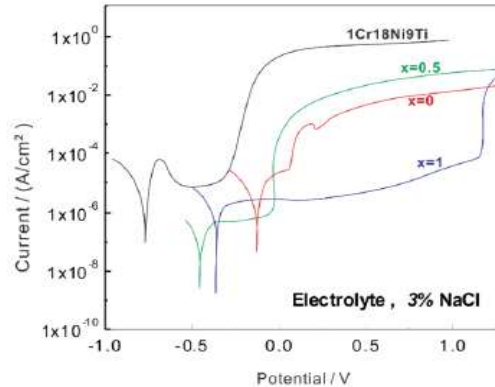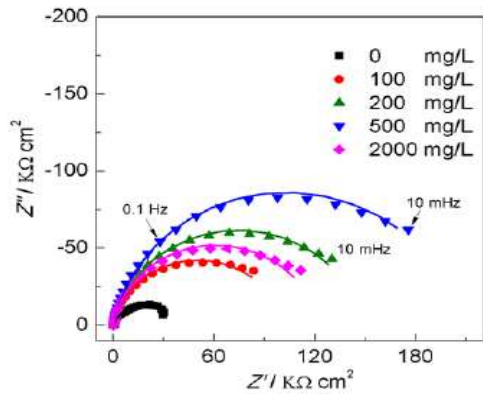## MODEL: PSM1735

Utility of Electrochemical analyser

- IMPEDANCE

- POLARIZATION CURVE

- VOLTMMETRY

- ELECTROCHEMICAL NOICE

- FULL FLOATING MEAUSREMENT

- USER DEFINED METHOIDS
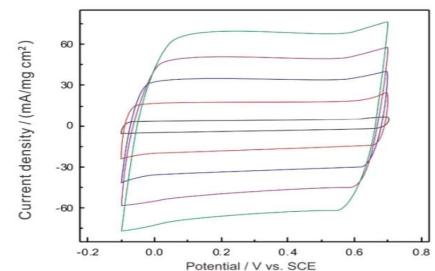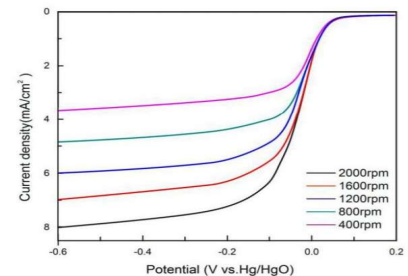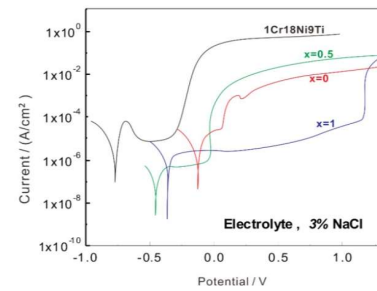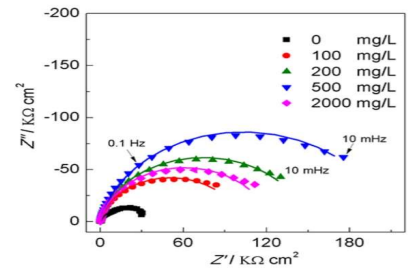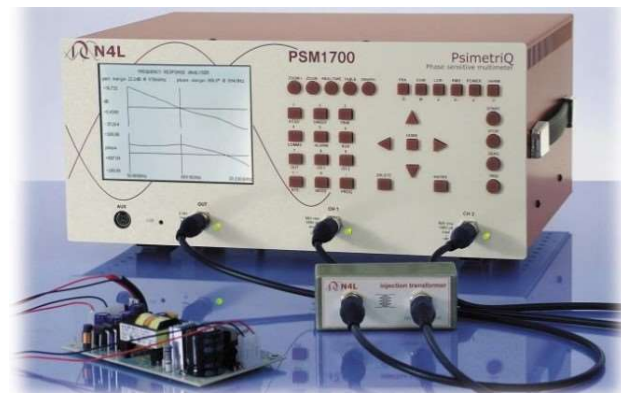
ELECTROCHEMICAL ANALYZER

TECHNICAL ADVANTAGES

IMPEDANCE

Electrochemical analyser applies a relation between double-channel over-sampling & integral algorithm and has strong anti-interference ability. It is suitable for EIS measurements of high-impedance system. We can also obtain Mott-Schottky curve and differential capacitance curve. During testing the software can display real-time open circuit potential without entering.

POLARIZATION CURVE

It can complete linear polarization curve. The user can set the cathodic reversal current protection of the cyclic polarization curve to determine that the material is indentation potential and protection potential and evaluate its susceptibility to intergranular corrosion. The software employs non-linear fitting to analyse polarization curve, and can make fast evaluation of material's anti-corrosion ability and inhibitors.

VOLTMMETRY

It can do the following electroanalysis methods: Linear Sweep Voltammetry, Cyclic Voltammetry, Staircase Cyclic Voltammetry, Square wave voltammetry, Differential Pulse Voltammetry, Normal Pulse Voltammetry, AC voltammetry, Stripping voltammetry etc. It integrates calculation of peak area, peak current and standard curve analysis.

ELECTROCHEMICAL NOICE

High-resistance follower and zero-resistance ammeter, it measures the natural potential/current fluctuations in corrosion system. It can be used to study pitting corrosion, galvanic corrosion, crevice corrosion, and stress corrosion cracking etc. Through noise spectrum, we can evaluate the inducement, growth and death of metastable pitting and crack. Based on calculation of noise resistance and pitting index, it can complete localized corrosion monitoring.

ELECTROCHEMICAL ANALYZER

FULL FLOATING MEAUSREMENT

Electrochemical analyser uses full-floating working electrode. It can be used for autoclave electrochemical measurements, on-line corrosion monitoring of metallic components under the ground (rebar in concrete, etc.)

TECHNICAL SPECIFICATION

MODEL	PSM1735
Frequency range	10µHz to 35MHz
Frequency accuracy:	0.5% range + 0.05% reading + 0.05mV
AC signal amplitude:	1mV~2500mV
Signal resolution	0.1 mV RMS
DC Bias:	10~+10V
Output impedance:	50Ω
Waveform:	Sine wave, triangular wave and square wave
Wave distortion:	<1%
Scan mode:	Logarithmic/linear, increase/decrease
Integral time:	minimum: 10ms or the longest time of a cycle
Maximum:	106 cycles or 105s
Measurement delay	0~105s
Potential automatic compensation range	-10V~+10V

SOFTWARE FEATURES

Electrochemical analyser software provides the functional integration kit which can complete the calculation of peak height, peak area and peak potential of CV curves. Electrochemical workstation also provides powerful non-linear fitting on Butler-Volmer equation of polarization curve. It can also calculate limitation of 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. Electrochemical workstation software can achieve real time saving of the measuring data. The data can be automatically saved even in case of sudden power off. Electrochemical workstation kit has a built-in versatile timing policy for combined measurements, which can facilitate the automation of experiments and save time. Battery analysis: charge & discharge efficiency, capacity, specific capacitance, charge & discharge energy etc analysis: Bode, Nyquist, Mott-Schottky plot