

Field Machine Data Sheet

The Field Machine brings a laboratory out on-site, no sacrifices were made to obtain portability, a Field Machine is very much as capable as it's fixed laboratory counterparts.

Housed in a professional slim black case, fully waterproof a go anywhere instrument, from Sahara heat to the cold of Alaska. A long battery life ensures prolonged testing in the field.



Field Machine Standard Features

Capabilities - internal Potentiostat, Zero Resistance Ammeter, Frequency Response Analyzer and Galvanostat (extra software required for Galvanostat).

Software - functions with any Standard PC (suited portable can be suggested / purchased at time of order) using Windows 95, 98, ME, NT4, 2000 or XP (we recommend XP for improved reliability). A complete suite of standard AC and DC techniques is supplied with the popular Sequencer.

Included Techniques - Current & Voltage Noise, AC Impedance, Cyclic Sweeps, LPR {Sweep / Step}, Potentiostatic, Long Term {Potential / Galvanic / LPR}, Corrosion Rate LPR, IR Compensation, Harmonic Analysis, Galvanodynamic Sweeps. Standard included techniques can be removed for cost saving.

Cables - Everything needed to 'get you going': electrode cables 2.5m terminating in banana plugs, a universal adaptor is supplied also for quick wiring to any probe type. Mains cable (UK, Euro, USA, Australian or bare as appropriate). 2x Serial RS 232 cables 2m & short. Car cigarette adaptor and battery cable.

Low Noise Susceptibility - optically Isolated from PC, fully shielded, toroidal transformer, mains rejection measurement, filters on mains power supply.

Self Calibration - active self calibration at the start of each test, to remove thermal induced offsets.

Power - Mains & 12V input, inbuilt charger, 12V output for portable computer.

Manuals - A full manual including application notes housed in a water resistant book.

Warranty - 2 years return to base, can be extended to 5 years.

Channels - Single channel (up to 12 can be specified)

Included Delivery - to any part of the world typically covered by courier companies.

Options

Channels - expandable to 12 channels.

Software - custom elements, especially logging techniques created to your exact specification, call us, we are always glad to oblige. A Field Machine can also be controlled from your own software with our supplied DLLs (dynamic link libraries).

Paint Buffer - Increased impedance measurement by two decades.

Weld Test - weld test option, four additional ZRAs for segmented, or mixed metals.

Extra Inputs - 6 Voltage or temperature inputs (such as K-Type thermocouples),

Cables - longer, shorter, different probe connections.

Training - On site or off site, including installation.

Internet Control - remote operation anywhere in the world.

Critical Pitting Temperature - determination of local corrosion critical temperature,

Electrical Resistance - precision measurement of ER probes.

Guard Ring - typically used to monitor rebars.

Warranty - extendable to 5 years.

Included Accessories



Install CD



Manual



Universal
Interfaces



Electrode Cables



Charger



Car Adaptor



2 Serial Cables



Battery Cable



Mains Cable



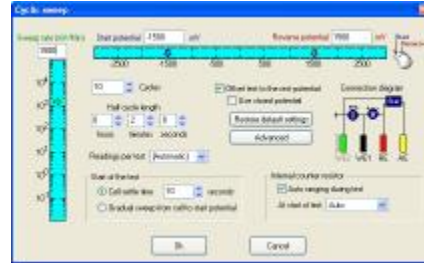
Carry Bag

Software Overview

At the heart of an ACM system is a Sequencer and Core Running application, now into Version 5 the emphasis is on reliability. Working in unison, Sequencer setups up a sequence of techniques and Core Running collects data from a sequence of techniques. The Sequencer was designed to be easy to use, with an intuitive interface, one that is common across the range from Data Collection to Analysis; learning effort is kept to a minimum.



Sequencer – available techniques are displayed to the right, they are added to the sequence list on the left. A sequence list can be copied across channels, or channels can be treated individually.

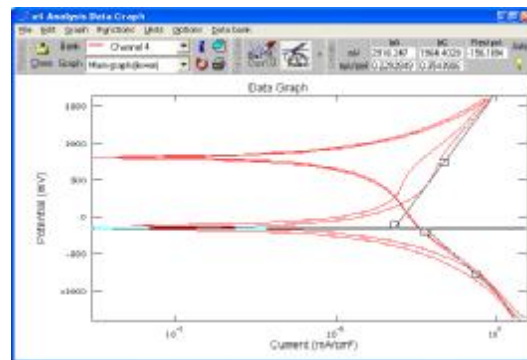


Typical technique setup page, shown is **Cyclic Sweep**. Each page smartly remembers last settings, keeping overall setup time to a minimum. Each page displays a connection diagram, displaying which parts of the instrument are in use, and which electrodes should be connected.

Test Notes allows entry of a complete ASTM G107 notebook, hundreds of optional fields can be entered to catalogue your experiment, metals, temperature, environment, etc..., fields are saved in a global database for searching and cross-referencing at a later date. Onto data collection, pressing one button in the sequencer **Run All** starts data collection:



Core Running – data collection control at your finger tips. View each channel individually, or tile all, instantly display any one of the last 10 collected tests, printing on operator demand.



Analysis – display multiple plots on same graph, smooth, delete points, label, zoom, all catered for. A raft of standard analysis functions is included such as Tafel rulers, AC Nyquist Circle fits, C&V FFT analysis, point to point.

Once in the analysis, data is quick to load, browse and display, test parameters are obtainable, including rest potentials. A quick export to a multitude of packages such as Excel is supported; graphs can be clipped into a word document.

Technical Specifications	
Case Dimensions	47 * 36 * 17 cm
Power Supply	110 / 230 VAC 50-60Hz, or 12V DC
Internal Battery	Lead Acid 12V 7 Amp/Hour
Weight	9 Kg
Electrode Cable Length	2.5 Meters (can be increased)
Noise & Ripple	Less than 4µV
Potentiostat	
Compliance Voltage	± 12 V
Sweep Range	± 3 V (can be increased)
Sweep Resolution	25 µV
Current Output	± 500 mA
RE Input Impedance	Greater than 10 ¹² Ohms
Frequency Response	30 KHz (1 to 100K Ohm load)
Measurement Accuracy	21 Bit A/D (full mains rejection)
Measurement Resolution	1 µV ± 0.0015% nonlinearity
Potentiodynamic Sweep Rate	200 mV / Second
Zero Resistance Ammeter	
Current Range	10 pA to 500 mA (Eight Ranges)
Counter Resistors	1, 10, 100, 1K, 10K, 100K, 1M, 10MΩ
Input Offset Voltage	Less than 10 µV
Galvanostat	
Current Output	± 10 pA to 500 mA
Potential Resolution	1 µV ± 0.0015% nonlinearity
Frequency Response Analyzer	
Frequency Range	10 µHz to 30 KHz
Amplitude	1 to 232 mV
Impedance Error	< 2% for 1 to 100K Ohm Loads
Theta Error	< 1 ° for 1 to 100K Ohm Loads
Averaging	Configurable adaptive averaging
Sample Rate	1 MHz (true continuous sample rate)
ADC	12 Bit
DAC	12 Bit
Operational Temperature	-5 °C to 72 °C
Calibrated Temperature	25 °C

Requirements

Operating System - Windows 95, 98, ME, NT4, 2000 or XP (we recommend XP for improved reliability).

Minimum PC Requirements – Standard PC with free serial port, Pentium 100, 64MB RAM (dependant on operating system), 40MB free disc space, CD Rom drive.

