ACM Instruments

Gill 12 Data Sheet

A Gill 12 is housed in a robust fully screened metallic case with an internally screened mains supply. Internal circuit is a one double-sided board with a minimum of wire links for improved reliability and noise rejection. Mains input earth is electrically isolated to prevent troublesome earth loops, on board RS232 (Serial) link is optically isolated from noisy computer interference.

Gill 12 Standard Features

Capabilities - internal Potentiostat, Zero Resistance Ammeter, Frequency Response Analyzer and Galvanostat.

High Power - 2 Amp in built ZRA.

Channels - 12 sequential channels.

Software - functions with any Standard PC using Windows 2000, XP, Vista, 7 or 8. 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}, Harmonic Analysis, Galvanodynamic Sweeps, IR Compensation, Corrosion Rate LPR.

Cables - Everything needed to 'get you going': twelve electrode cables, 2.5m in length, terminating in gold plated crocodile clips. Mains cable (UK, Euro, USA or Australian as appropriate). Serial RS 232 cable 2m for connection to a standard PC.

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

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

Expandability - 16 x Gill 12s can be used from the same PC, totaling 192 channels!

Test Box - a dummy cell with 4 circuits for collecting sample data or testing the instruments calibration and functionality

Manuals - full manual including application notes on CD.

Warranty - 2 years return to base, can be extended to 8 years.

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

Options

Channels - 12 channels as standard. Available in Gill 6 to 20 channel configurations, or more if required.

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 (10mA to less than 1pA).

Weld Test - four additional ZRA for segmented, or mixed metals. Both DC and AC type Polarization tests and Galvanic tests can be applied to the couple in the same way as if it were a standard single test electrode.

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

Higher Power - Up to +/-30vdc compliance and 20amp in standard configuration. Higher voltage and current designs available on request.

Cables - longer, shorter, different probe connections.

Training - On site or off site, including installation.

Internet Control - remote operation anywhere in the world.

Guard Ring - typically used to monitor rebars.

Critical Pitting Temperature - determination of local corrosion critical temperature,

Electrical Resistance - precision measurement of ER probes.

Bubble Test software - addition software for simplifying inhibitor testing.

Bubble Test cell kits - includes probe, electrodes, vessel, lid, lid clamp, gas injection tube and vent.

Serial Cards or USB to Serial adapters – for connecting several instruments to the same PC.

Warranty - extendable to 8 years.

Included Accessories

Install CD
(software and manual)

Electrode Cables

Mains Cable

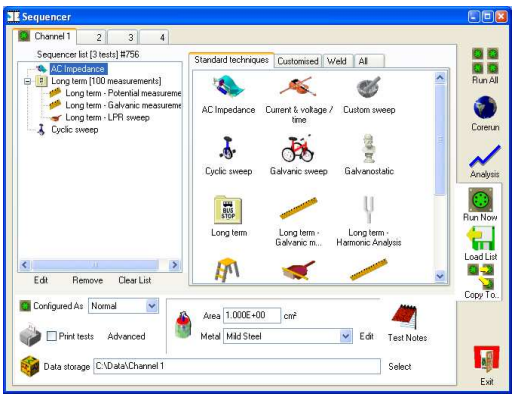
Serial Cable

USB to Serial adapter

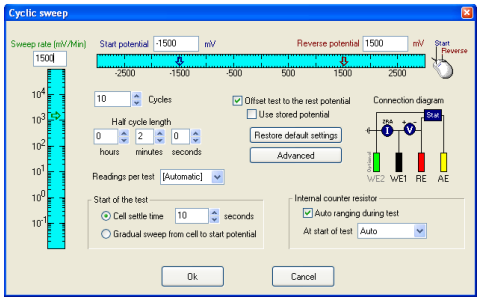
Total Tester Test box

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.



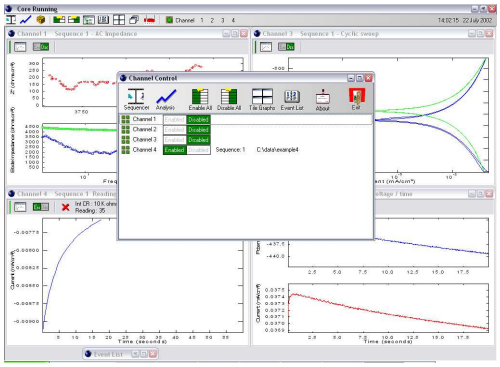
Sequencer – available techniques are displayed to the right, they are added to the sequence list on the left. A sequence list can be copied across channels, or channels can be treated individually.



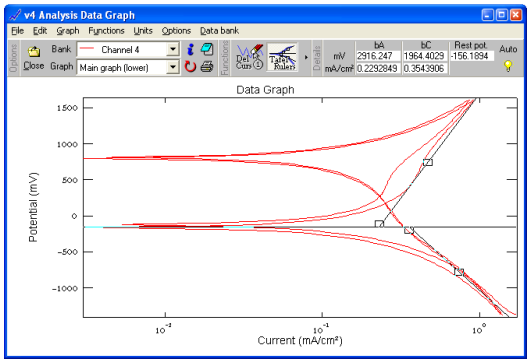
Typical technique setup page, shown is Cyclic Sweep. Each page smartly remembers last settings, keeping overall setup time to a minimum. Each page displays a connection diagram, displaying which parts of the instrument are in use and which electrodes should be connected.

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	53 * 18 * 32 cm
Power Supply	110 / 230 VAC 50-60Hz
Weight	10 Kg
Electrode Cable Length	2.5 Meters (can be increased)
Noise & Ripple	Less than 4µV
Potentiostat	
Compliance Voltage	± 18 V (can be a increased)
Sweep Range	± 3 V (can be increased)
Sweep Resolution	25 µV
Current Output	± 2 A
RE Input Impedance	Greater than 10^{12} Ohms
Frequency Response	100 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 2000 mA
Counter Resistors	1, 10, 100, 1K, 10K, 100K, 1M, 10MW
Input Offset Voltage	Less than 10 µV
Galvanostat	
Current Output	± 10 pA to 2000 mA
Potential Resolution	1 µV ± 0.0015% nonlinearity
Frequency Response Analyzer	
Frequency Range	10 µHz to 100 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 XP, Vista, 7 or 8.

Minimum PC Requirements – Any PC capable of running Microsoft Windows with a free USB port or RS232 port.

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