ACM Instruments

# Speedy 9 Data Sheet

The Speedy 9 is actually 10 of our DSP based Gill DC boards in one box. This allows simultaneous measurement from nine cells using all of our conventional DC techniques via the Sequencer software. The tenth DSP board is the Speedy 9's ace-in-the-hole. This is dedicated to supplying incredibly fast sweeps to the other 9 boards, allowing them to concentrate on very rapid analysis indeed.

**Speedy 9 Standard Features**

**Capabilities -** internal 9xPotentiostat, 9xZero Resistance Ammeter (extra software required for Galvanostat).

**Software** - functions with any Standard PC 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.

**Cables -** Everything needed to 'get you going': 2.5M electrode cables, terminating in gold plated crocodile clips. Mains cable (UK, Euro, USA, Australian or bare as appropriate). 9xSerial RS 232 cable 2m for connection to a standard PC.

**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.

**Included Techniques –** Speedy Cyclic Voltammetry, Current & Voltage Noise, Cyclic Sweeps, LPR {Sweep / Step}, Potentiostatic, Long Term {Potential / Galvanic / LPR}, Corrosion Rate LPR.

**Channels –** 9 Independent Parallel Channels (Speedy Cyclic Voltammetry all channels work in unison).

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

## Options

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

**Higher Power -** 600 Volts or 1000 Amps.

**Extra Channels** - 32 channels per instrument

**Cables -** longer, shorter, different probe connections.

**Training -** On site or off site, including installation.

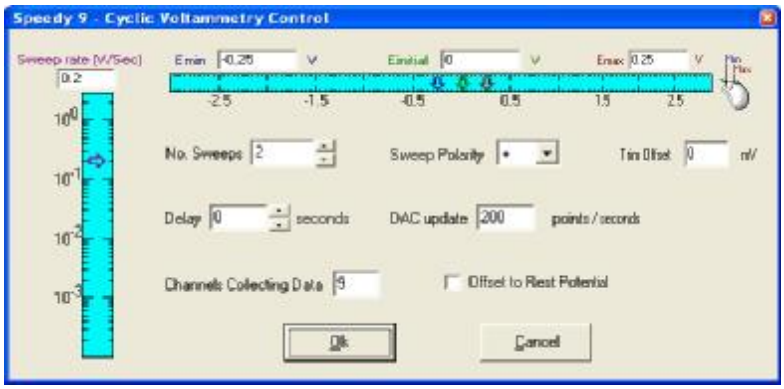
**Internet Control -** remote operation anywhere in the world.

**Serial Cards** - fit inside a standard PC providing 4 or 8 extra ports.

**PC** - ACM are able to supply or specify a suitable computer.

## Speedy Cyclic Specific

When collecting fast cyclic voltammetry the 10th instrument is used to generate the cyclic sweep at rates up to 200 DAC sets per second, the other 9 instruments record sweep data for each channel, as many as 60 points per second (limited by mains frequency):




In the above example a sweep is performed -250mV to +250mV, taking just over 4 seconds (2 sweeps) at a resolution of 1.25mV.

**Included Accessories**

Install CD

Manual

Serial Cable

Electrode Cables

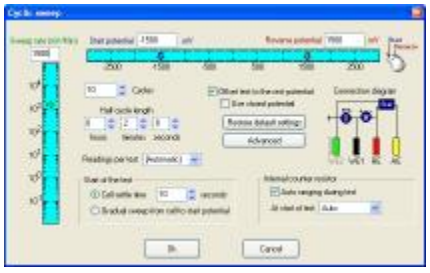
Mains Cable

Serial Adaptor

**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.

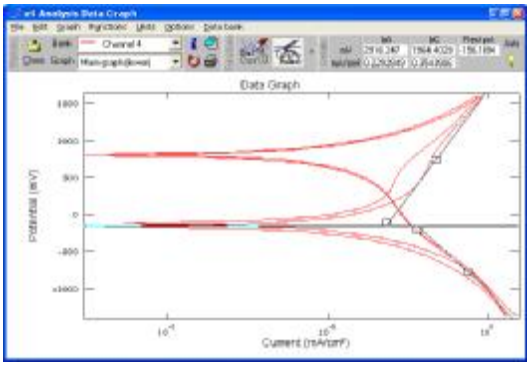
Sequencer – available techniques are displayed to the right, they are added to the sequence list on the left. A sequence list can be copied across channels, or channels can be treated individually.



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 Options** | 10 separate instruments, or all housed in same case. |
| **Power Supply** | 110 / 230 VAC 50-60Hz |
| **Electrode Cable Length** | 2.5 Meters (can be increased) |
| | |
| **Potentiostat** | |
| **Compliance Voltage** | ± 15 V |
| **Sweep Range** | ± 3 V (can be increased) |
| **Sweep Resolution** | 25 µV |
| **Current Output** | ± 500 mA |
| **RE Input Impedance** | Greater than $10^{12}$ Ohms |
| **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 |
| | |
| **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 (10 serial ports can be provided with 1 8 port card), pentium 100, 64MB RAM (dependant on operating system), 40MB free disc space, CD Rom drive.

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Tel: (0)15395 59185 Fax: (0)15395 58562 Email: r.p.gill@acminstruments.com www.potentiostat.com