ACM Instruments

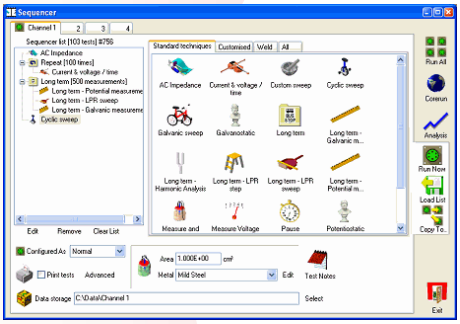
Electrochemical solutions

www.acminstruments.com
125 Station Road, Cark, Grange-over-Sands, LA11 7NY. England
Telephone: +44 15395 59185
Fax: +44 15395 58562
enquiries@acminstruments.com

Choose ACM Instruments

The solution to your needs

ACM Instruments designs, manufactures, markets and supports a wide range of electrochemical instrumentation which is sold in many locations worldwide. Our standard range of instruments feature a Potentiostat, Zero Resistance Ammeter (ZRA), Frequency Response Analyser (FRA) and Galvanostat in one enclosure. Our instruments can perform tests such as AC Impedance (EIS), LPR, current and voltage noise plus many more. We are also experts in custom building instruments and software for more unusual needs, so what ever you're looking for in electrochemistry you should ask us for a quote.



Expertise & Experience

At ACM our expertise is coupled with experience of one off projects so that we can guide you towards the ideal instrument for you're application or, for more unusual needs, work with you to create something new and innovative. We now have twenty years experience in making one-off instrumentation for our customers and we have many big name companies taking advantage of this great opportunity.

Total Care whatever your location

At ACM we pride ourselves on our good service and fairness to our valued customers. You won't find any expensive service contracts here, and when things do go wrong we like to have them solved as quickly as possible. To achieve this look at some of the benefits we offer all our customers free of charge:

- Õ Free Test Box for checking instrument reliability from the comfort of your lab.
- Õ Free Trouble shooter software for solving problems quickly there and then
- Õ Quick & easy access to technical support by phone and e-mail, ideal for both local and international customers.
- Õ Our directors answer the phones the majority of the time
- Õ Free software updates for the life of the instrument
- Õ Free 2 year warranty with every standard instrument

Value for money

You will find it difficult to find better value elsewhere. We offer high precision instruments to meet your
requirements, including software, testing hardware and great support. To be amazed at our prices contact us for a quote today.

Electrochemical Applications

Corrosion

Electrochemical techniques are a fast, accurate and versatile way to monitor corrosion rates. Much faster than weight loss coupons, accurate even to the lowest corrosion rates and versatile enough to cope with any test in laboratory or field. It is easy to see why electrochemical instruments are the bedrock of corrosion research. With twenty years experience in our specialist field of corrosion, we are the first choice when it comes to corrosion monitoring.

Paints & Coatings

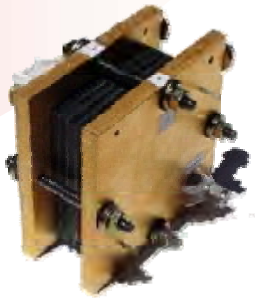
Often the ultimate in corrosion protection, a coating presents the paint scientist with a difficult system to test. The use of computer controlled test instruments allows paint to be studied. Our customers test painted samples for disbondment, water uptake, blistering, self inhibition and general failure all of which can be monitored in a scientific and rigorous manner using the ACM Instruments range of equipment.

Electrochemistry

From the experience with our electrochemist customers we know how important a highly sensitive potentiostat, fast sweep rates and pulse techniques are. That's why we have developed all three to appeal to the electrochemical market.

Batteries

Our battery customers demanded multiple channels and higher currents, and that is what we can provide with higher current versions of our Gill 8 and Gill AC. For even higher currents we offer the 'battery engine' instrument.



Fuel Cells

Accurately determining efficiency, diagnosing potential problems, or quality control (QC) for fuel cells can be undertaken by an electrochemical technique called Electrochemical Impedance Spectroscopy (EIS). Coupled with our high powered multi-channel instruments, ACM Instruments are an ideal choice for this kind of work.

Plus… any other application which requires electrochemistry!

ACM Instruments are a little different to our competitors, we will take on just about any electrochemical application and/or specification and come up with the solution to meet your needs. We have been doing the 'one-offs' for years, so we have the expertise and experience to learn about and master your application to produce the desired outcome.

ACM NEWS

The FemtoAmp

The **Femto Amp** represents our most sensitive instrument to date. This attachment simply fits on to a standard Gill AC Instrument to allow the low current tests ideal for testing paints and coatings and for microelectrode work. For existing Gill AC users the Femto Amp can be fitted retrospectively at a slightly higher price. The Femto Amp is replacing our hugely popular paint buffer with much greater sensitivity and reliability.

The BI-STAT

The **Gill AC BI-STAT** is the most flexible bi-potentiostat on the market today. It can be used in any of three modes.
- As two independent Gill AC instruments
- As a Gill AC with fast sweep option
- As a bi-potentiostat in a variety of three ways

For more information on the best value bi-potentiostat around, visit our website or contact us for a datasheet.

The Test Box

The reliability of results is of significant importance to high precision instruments such as ours. But how often do we get the reassurance we need that the results appearing are as accurate as they can be? The answer is our **test box**, which we now offer free with all our instruments as part of total care, allowing regular calibration without the hassle.

The Trouble Shooter

When talking to customers who have experienced our competitors service we found that expensive service contracts and difficult to contact support departments were the norm. They liked our service, but we wanted to go one step further, and so our troubleshooting software was born. Given away free with all our instruments we hope the **trouble-shooter** will significantly improve the experience of potentiostat users.

Web Connected L·C·M™ Localised Corrosion Monitoring

Localised Corrosion Monitoring

Our latest electrochemical technique

Baker Petrolite in partnership with ACM Instruments have developed the new patented technique 'Localised Corrosion Monitoring', ideal for corrosion monitoring of various types of localised corrosion in a number of applications.

*LCM™ is ready to order now with any of our automated electrochemistry systems such as our Gill AC, Gill8 and field machines. There really is no reason to delay, as we are offering free software updates for this technique so you can keep pace with the continuing research of our committed LCM™ team made up of experts from both ACM Instruments and Baker Petrolite. Work in progress currently includes calculating pit depths, with latest updates available via our website www.acminstruments.com.

LCM™ technique explained:

Based on the detection and analysis of spikes in current and voltage across a cell the LCM™ technique is especially good at measuring the localised corrosion.

When spots of rust form during localised corrosion they are accompanied by cascades of current, rather than the continuous presence of I_{corr} that is the signature of more uniform corrosion.

These cascades can be seen as spikes in current vs. time plots. It is these spikes that the LCM™ technique is especially good at analysing which is why it is primarily aimed at monitoring localised corrosion. It can also be used to estimate the general corrosion rate, but this is more accurately determined using the LPR technique, which is also available on our instruments.

(*) LCM™ *Patents Pending*

BAKER HUGHES

ACM Instruments

Our instruments in a nutshell:

The Gill AC

The Gill AC is the answer to the majority of our customers' needs. Our flagship instrument is a Potentiostat, Galvanostat and Zero Resistance Ammeter with integral Frequency Response Analyser and Sweep Generator in one. Allowing electrochemical tests such as AC Impedance (EIS) and standard DC tests including LPR and current and voltage noise to be performed. The Gill AC provides a platform for a more complex electrochemical system with the addition of options. Making this instrument extremely versatile and great value for money.

To better meet your specific needs why not customise your instrument with our options, so versatile are our instruments that many of the options are available to be fitted retrospectively, making our instruments the right choice now and for the long term. Why not mix and match your options and go for a Gill AC fitted with Weld Test option, Femto amp and critical pitting temperature, you would not be the first to own this impressive piece of kit.

The Femto Amp

Femto Amp	Our new instrument for low current experiments, ideal for tests on paints & coatings and micro-electrochemistry.
100kHz Frequency Response	A new higher specification option to our Gill AC
BI-STAT	A versatile bi-potentiostat and dual gill ac system
Critical Pitting Temperature	Determines the temperature at which the initiation of localised corrosion occurs
High Power	A High power version of the Gill AC, ideal for battery and fuel cell work
Fast Sweeps	With a faster sweep rate, ideal for electrochemists
Weld Test Option	A Gill AC with four additional working electrodes for testing multi-metal systems such as welds and central heating systems.
Rack Mountable Unit	A Gill AC in a rack mountable unit, ideal for multi-instrument set ups.
Gill DC	A cheaper DC techniques only version of our Gill AC, without AC Impedance capabilities.

The BI-STAT

Rack Unit Option

Weld Test Option

The Gill 8 / 12

This instrument known as the Gill eight or twelve depending on the number of channels, offers multiple sequential channels at an affordable price. Our software allows the user to treat these channels as independent and manages them in a time efficient manner.

The Weld Tester

Is the only instrument on the market designed specifically for the testing of welds. Its extra four working electrodes allows the measurement of the complex mix of metals and heat effected areas which are characteristics of welds. This versatile instrument can also be used to test any system which is a composite of a number of metal types, such as central heating systems.

The Field Machine

The field machine enables laboratory precision to be taken outdoors to oilrigs, pipelines, concrete walls and just about anything that needs corrosion monitoring in-situ. At ACM we do not believe that an instrument becomes suitable for the field just because you can plug it in to a laptop or because it has a handle. Our field instrumentation is made for the job, in sealed light mobile cases where there's even room for your laptop to keep safe from the elements! We even offer an option for remote internet monitoring/control from anywhere in the world.

Field Machine Options

- **ER (Electrical Resistance)**
- ***LCM™ (Localised Corrosion Monitoring)**
  Developed in partnership with **Baker Petrolite** this innovative electrochemical technique detects localised corrosion using electrochemical noise. *(*patents pending)*
- **LPRN (Linear Polarisation Resistance Noise)**
  Ideal for corrosion monitoring in multiple phase environments such as intermittent solutions and splash zones.
- **Field Unit (Remote Monitoring & Control)**
  Includes a built in mini PC, which when connected to a mobile phone allows remote monitoring and control from anywhere in the world via the internet.
- **Mini Field Machine**
  A mini version of our popular field machine which offers fewer techniques but at a lower price with greater mobility.

A Guide to our software:

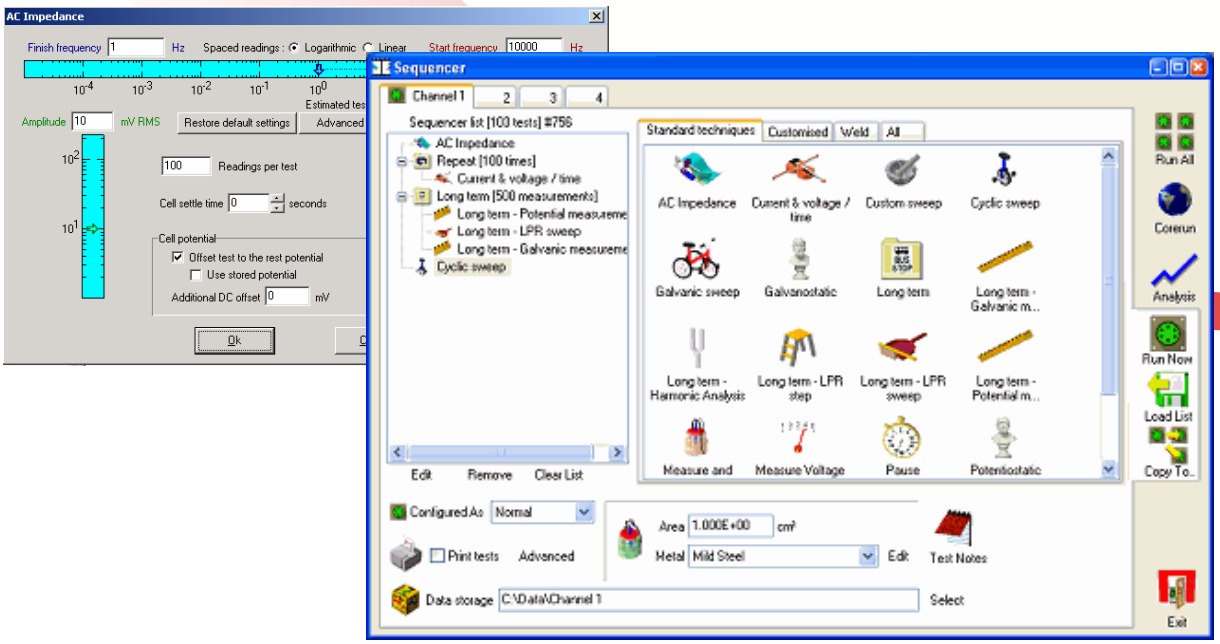
For ease of use our software is divided into three stages. Stage one is the sequencer, where tests are setup. The next stage is core running which collects the data whilst performing the test, real time plotting can be followed at this point. Finally our analysis software allows easy to use yet sophisticated handling of collected data.

Our instruments come with standard software included in the price. These tests can include AC Impedance (EIS), Current & Voltage noise and Linear Polarisation (LPR). For more unique projects and measurements, our software design team have a long history of developing one off systems to match your requirements.

Sequencer

The sequencer is the part of the software which allows you to set up the timing and parameters of your tests within an easy to use interface. Simply drag the desired test such as AC Impedance into the sequence list, choose from a set of parameters, and away you go by pressing 'run now'. It could not be easier to set up multiple tests over multiple channels!

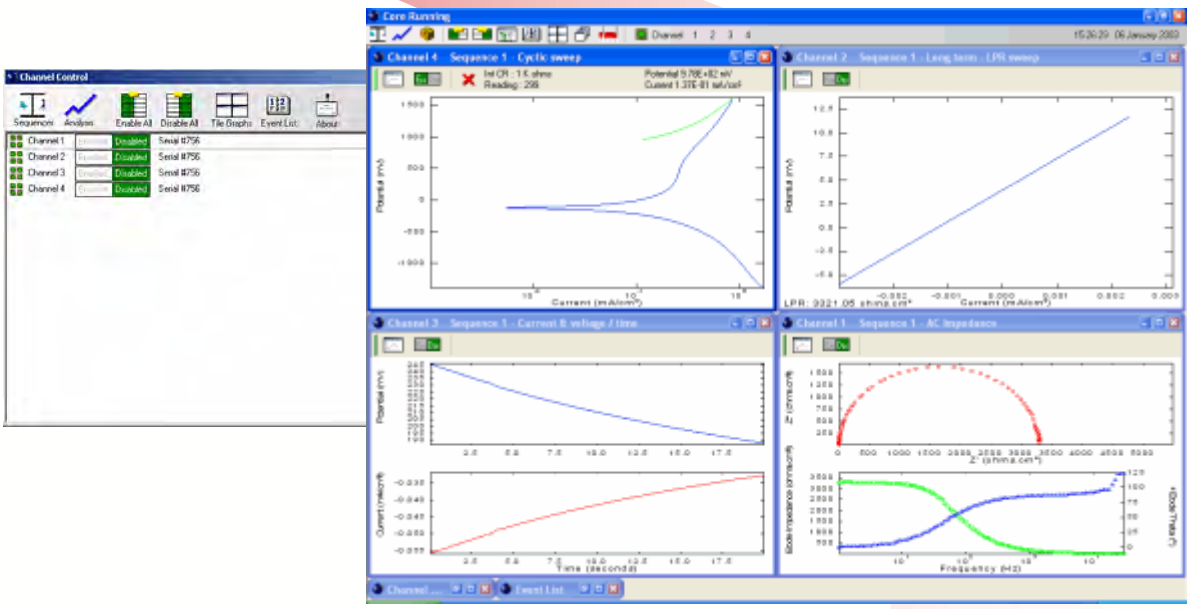
- Clear easy to use interface,
- ASTM standard database notebook,
- Create metal factors from a periodic table,
- Save common test set-ups for quick retrieval,
- Customised techniques easily created.



Core Running

Once tests have been set up and started. Core Running reliably handles data collection. Watch as valuable data is collected in real time by viewing graphs develop reading by reading. It is also a reassuring tool to check instruments are set up correctly by seeing real results instantly.

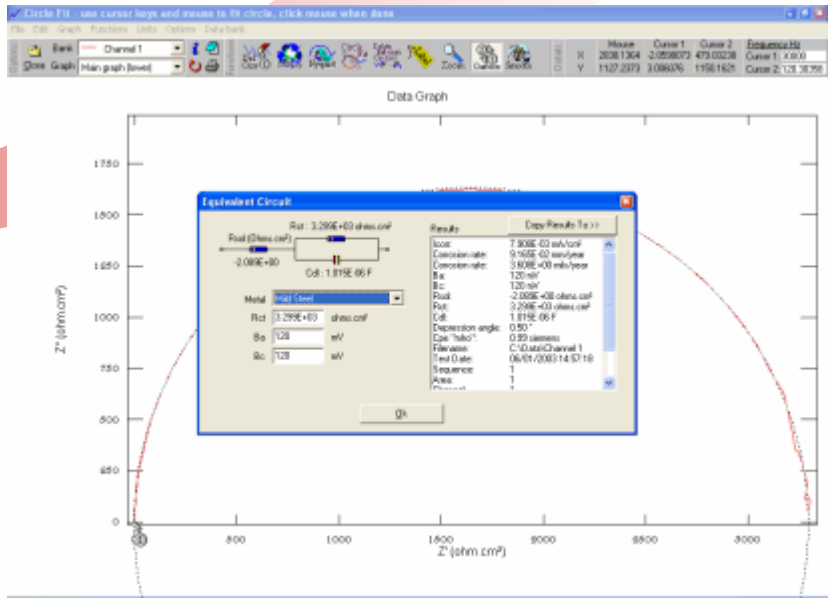
- Watch graphs draw in real-time
- Log data collection process
- Diagnose errors with data collection
- Control tests whilst in progress



Analysis

Analysis is perhaps the most important part of the process, when you get to see the results obtained, manipulate them and have the opportunity to interpret them with your knowledge and expertise. We therefore place great emphasis on making our analysis program powerful yet easy to use, and are continually improving it. We supply free software updates for the life of your instrument, so ACM software is never out of date!

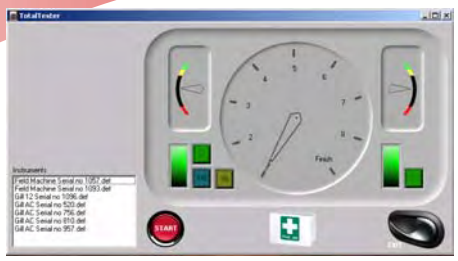
- Fast data exporting to Excel and compatible,
- Label, resize save and print graphs,
- EIS Circle fitting,
- Boukamp export,
- Tafel and LPR Rulers,
- FFT function for Current & Voltage,



A Guide to Total Care

Test Box

We now supply a free test box with every standard instrument we sell. The test box reassures our users that results are reliable and offers advice for instruments that do not pass the test. All this from the location of the instrument, ideal for our international customers.



Testbox software

The Testbox

Troubleshooting Software

To complement our new test box we also give away troubleshooting software to solve the most common problems our users encounter. We hope this will help to solve problems quicker and without the need for the expensive and time consuming shipping of instruments.

Great Telephone and E-mail Support

At ACM Instruments you get straight through to the very people who designed and made your instrument and software. This way you receive the expert advice you deserve quickly. The majority of the time our directors even answer the phone! E-mail on the other hand is particularly good for our many international customers. So if the troubleshooting software does not help you, then we should be able to.

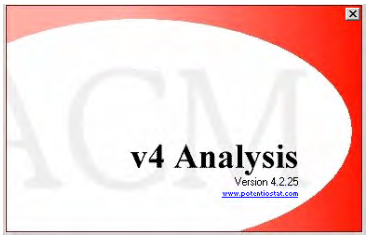
The troubleshooter

Two years warranty as standard

At ACM we offer a two years warranty with every standard instrument for no extra fee. So if your instrument does need to be returned it can be hassle free and at no extra cost. For total piece of mind you can upgrade to a five year warranty at low cost.

Free software updates

To ensure that your experience with our instruments remains as good as the day you receive them we offer free software updates for the life of your instrument. That way when you buy ACM, you buy the very latest software we have to offer for years to come.



One-off Projects

At ACM Instruments we do not just make our standard instruments, we can work with even the most demanding customer to find the best solution to their needs. We can offer a multitude of solutions based on past experience and if a completely new system or technique is required then with our expertise there is really no problem. One-off projects have been diverse and range from a mobile instrument to monitor corrosion of lampposts through to a system to test inhibitors for central heating systems. We have also completed many non-corrosion one-offs, for example our instrument which tested humans for the SARS virus.

Monitoring Corrosion of lamp-posts

What was needed was a small portable instrument which could be taken out to lampposts in situ to test how corroded they were for safety purposes. A method which enabled lampposts to remain in place was essential, whilst testing corrosion both above and below the surface.

ACM Instruments provided an instrument made for the job, which provided ICorr and Ecorr on LCD displays in a quick and reliable way. Far more effective then qualitative checks or digging up individual posts as a random check.

FEATURES

- ... Portable
- ... Battery and Charger
- ... Six LCD Displays
- ... Applies 5 Currents
- ... Displays Icorr & Ecorr
- ... Automatic

APPLICATIONS

- ... Column Root Corrosion
- ... Standard Test
- ... Safety Testing
- ... Other Soil Corrosion
- ... Galvanostatic Use

Testing Central Heating Inhibitors

Central heating faces particular problems as a system vulnerable to corrosion. It is made from many different components and is subjected to high temperatures. This makes standard instruments inappropriate, but the ‘Heating Investigator 4’ was built for the job.

Much like our weld tester, the HI4 features multiple working electrodes, for each of the component metals, perhaps copper, aluminium, mild steel and brass. Temperature measurement and very flexible temperature control is built into each channels sequence, as is control of a stirrer. This allows tests to be performed under a combination of time and temperature, as in real heating systems.

FEATURES

- ... Four Channels
- ... Four WE's per Channel
- ... Temperature Control
- ... Stirrer Control
- ... Offset ZRA's
- ... 500 mA ZRA's
- ... 2 A Potentiostat

APPLICATIONS

- ... Domestic Heating
- ... Industrial Heating
- ... CPT Testing
- ... Mixed Metal Systems
- ... Aqueous Inhibitors
- ... Down Hole Inhibitors

To discuss how electrochemistry could be used in your application or if you have more specific needs than those met by our standard range of products simply contact us and we will point you in the right direction. You don’t have to be an expert to have a one-off instrument!

International Dealers

Bahrain, Bangladesh, Iraq, Jordan, Kuwait, Lebanon, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Syria, U.A.E.

Abdul Kader
Accutrol Asia Eng. Equip. Est.
Tel: (971) (6) 573 9930
Fax: (971) (6) 573 9929

accutrol@emirates.net.ae

India

M. Ravichandran
M/s Techscience Services Pvt. Ltd.
Chennai,
India.
Tel: 0091-44-22322612
0091-44-22312637
Fax: 0091-44-22311264

techscience@eth.net

Iran

J. Vaghefi
PanaCo. Inc,
Tel: 98 21 8772955
Fax: 98 21 8789684

panaco@neda.net

Mexico

Enrique Martinez
IMICORR,

Tel: +52-55-56843557
Fax: +52-55-56843557

imicorr_em@infosel.net.mx

Romania

Russi Scientific Instruments
3, Tudor Vianu Str.
011635 Bucharest 1
Romania
Tel: +40.21.231 0538
+40.21.231 0539
Fax: +40.21.230 1634

info@russi.ro

Singapore

Darryl Low
Tritech Scientific Pte Ltd
7 Toh Guan Road East #04-02
Singapore 608599
Tel: (65) 62551605
Fax: (65) 62551607

darryl@tritechsci.com.sg

South Africa

AMS Laboratory Technologies (Pty) Ltd
Unit20, Point Business Park
Cape Town
7442
Tel: +27 21 555 2764
Fax +27 21 555 2767
Cell +27 83 252 6758

sales@amslt.co.za
www.amslt.co.za

Taiwan

David Liu, Kevin Yang
Atlas Equipment Corporation / Atlas Technology Corp.
Tel: 886-2-22320556
For David Liu ext. 6666
Kevin Yang ext. 2019
Fax: 886-2-22316657

kevin@atlasgroup.com.tw

USA

David Gulliver
BST Instruments LLC
(specialises in fuel cells & batteries)
Tel: (918) 231 0933
Fax: (918) 491 9739

d.gulliver@bstinstr.com

Contact ACM Instruments

125 Station Road,
Cark,
Grange-over-Sands,
Cumbria.
LA11 7NY
United Kingdom

Tel: +44 (0)15395 59185
Fax: +44 (0)15395 58562

Sales & Marketing:
enquiries@acminstruments.com

Technical Department:
john@potentiostat.com

Software Support:
andrew.h@potentiostat.com