

**GRScientific**

Conforms to ASTM/EN/ISO Standards



## **Aquamax KF *Plus***

*The Truly Versatile  
Coulometric Karl Fischer Titrator*

## Aquamax KF *Plus*

Aquamax KF *Plus* titrators have been specifically designed for the determination of water content. Combining coulometry with the Karl Fischer method, Aquamax KF titrators determine the water content of samples by measuring the amount of electrolysis current necessary to produce the required iodine – this is an absolute technique which does not require the calibration of reagents.

The Aquamax KF *Plus* is a truly versatile model which includes Low Drift Cell twin port glassware as standard. Suitable for a wide range of applications the Aquamax KF *Plus* can be used to determine water contents of liquids, gases and solids.

The Aquamax KF *Plus* offers many advantages over competition. Easy to use – simple to programme so that only a single button needs to be pressed for a titration, everything else is automatic. Results can also be downloaded via the Results Manager software package onto a pc spreadsheet.



## Results Manager

The screenshot shows the Results Manager software window. It has a menu bar with 'FILE', 'EDIT', 'EXPORT', and 'PRINT'. Below the menu bar, it displays 'Status: OK', 'Model: Aquamax KF', 'Serial#: 7100', and 'Calibrated'. The date is '20 June 2013'. The results table is as follows:

Run#	Time	Vol	Vol%	Value	Conc	Temp	Flag
1	12:45:08	0.00	0.0000	0.0700	10.00		
2	12:47:43	0.01	0.0000	0.0700	10.00		
3	12:49:17	0.00	0.0000	0.0700	10.00		
4	12:49:58	0.00	0.0000	0.0700	10.00		

Summary statistics at the bottom: Max: 10.0 ppm, Min: 10.1 ppm, Mean: 10.4 ppm, SD: 0.30, CV: 2.89

This is a windows application that allows you to view and print sets of results created by the Aquamax KF Titrator. It can download results directly from the titrator through a serial port connection, or open result files previously

saved to disk. The Results Manager package contains all necessary cables, connections, installation cd and user manual.

For those who need to use the titrator outside of the laboratory and do not have a pc or laptop with them, our removable flash drive (memory stick) will store all the results. This flash drive can then be connected to a pc and results downloaded through Results Manager when returning to the laboratory.

The Results Manager Software is supplied as an optional item with the Aquamax KF.

## Key Features

- Simple operation
- 10 user programmable methods
- 1ppm / 100%
- Results in ppm, mg/kg, % & µg water
- Multi language display & print out
- Small footprint
- Integral high speed printer
- Integral battery
- Fully portable
- Low drift cell design
- Results Manager software
- Automatically compensated errors (patented technique)

## Glassware

The Aquamax KF *Plus* is supplied complete with a unique Low Drift Cell glassware pack comprising titration vessel, generator electrode, detector electrode, desiccant tube and all necessary leads, septa, caps & fittings. A choice of generator electrodes is available, either with or without frit. For most applications the electrode with frit, and which uses both anode and cathode reagents, is preferred, however for some applications, for example polymers, a fritless electrode and single coulometric reagent is more suitable. The LDC glassware design is by far the easiest to use and also the most robust. The electrode locking system allows the joints to seal completely, without the use of grease or PTFE sleeves, and provides improved baseline stability. Hassle free assembly and disassembly.



## Areas of Application

### Raw Materials

- Inorganic and organic salts, oxides, peroxides and carbonates

### Pharmaceutical

- Tablets
- Salves and creams
- Drugs
- Vitamins

### Cosmetics

- Soaps, shower gels and shampoos
- Dental Care and mouth rinse products
- Sprays

### Beverages

### Dairy and Meat Products

### Honey, Molasses and Sugars

### Tobacco products

### Animal Feed

### Biological

- Proteins and gelatins
- Hormones and steroids
- Dried plant material
- Vaccines

### Petrochem

- Hydrocarbons
- Lubricating, motor oil and greases
- Hydraulic, insulating and transformer oils

- Mineral oils
- Crude oils,
- Petroleum products,
- Organic liquids,
- Surface active agents,
- L.N.G.,
- L.P.G.
- Refrigerant gas.

### Plastics

### Surfactants

### Paints, lacquers and solvents

### Leather, paper and textiles

### Agriculture

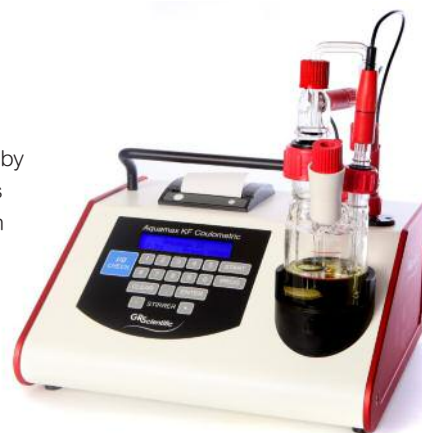
## Optional Accessories

### Solid Analysis Kit



When analysing solid or powder samples by direct introduction into the titration cell it is usually necessary to unscrew the injection port, introduce the sample and then reconnect the injection port. This optional

solid analysis kit simplifies the whole procedure and ensures that the titration cell is opened to the atmosphere for an absolute minimum period. Simply pull out the stopper which contains the septa, introduce the sample and then re-insert the stopper.



### Homogenizers



To conform to ASTM, API, etc, methodologies, it is necessary to homogenise crude oil samples prior to analysis.

The PRO25D is a powerful and versatile low cost digital homogenizer whilst the SB-1 model is a Silent Brushless Homogenizer which is maintenance free as it has no carbon brushes, so it runs cleaner and quieter.

- PRO25D Digital Homogenizer, with stand
- SB-1 Silent Brushless Homogenizer, with stand
- Saw Tooth Generator Probe

## Technical Specifications

Titration Method: Coulometric Karl Fischer titration  
Electrolysis Control: Patented "ACE" control system GB2370641  
End Point Detection: AC polarisation  
End point indication: Visual display/print out/acoustic beep  
Titration vessel: Low Drift Cell design, no grease or PTFE sleeves required  
Measuring range: Possible 1µg - 200mg water  
Typical 1µg - 10mg water  
Moisture range: 1ppm - 100% water  
Max. sensitivity: 0.1µg  
Max. titration speed: 2.24 mg per minute  
Max. current: 400 ma  
Drift compensation: Automatically controlled  
Precision: 10-100µg ± 3µg, 100µg-1mg ±3µg, above 1mg ±0.3%  
Start delay time: 0-30 minutes, user selectable  
End delay time: 0-30 minutes, user selectable  
Calculation modes: Weight/weight, (W/w) (user programmable)  
Weight/dilution ratio, (W/K)  
Volume/density, (V/SG)  
Volume/volume, (V/v)  
Display format: µg, mg/kg, ppm, %  
Print format: µg, mg/kg, ppm, %  
Statistics: max, mean, min values up to 99 runs  
Method storage: 10 user programmable methods  
Sample ID number: User programmable  
Stirrer speed: Microprocessor controlled  
Languages: Multi languages – user selectable  
Calendar/clock: Analysis time & date print out  
Battery low indicator: Display & print out indication  
Data outputs: USB and RS232 ports  
Removable Data storage: Flash drive (memory stick)  
Data Entry: 15 key touchpad  
Display: 40 character alphanumeric backlit LCD  
Printer: 42 character high speed thermal printer  
Power supply: 90-264V AC, 47-63 Hz.  
Dimensions: 290 x 255 x 130 mm  
Weight: 3.0 kg

## About G.R. Scientific

Key personnel at G.R. Scientific are recognised experts in titration technology and electrochemistry. They have designed and manufactured titrators since the early 1980's and are widely regarded as some of the leading specialists in this technology.

## Ordering Information

Part No.	Product
710003	Aquamax KF <i>Plus</i> Coulometric Titrator
401511	Power Adaptor
503073	Paper Roll (Thermal) Single
503063	Gas Tight 1.0ml Syringe
503053	Titration Vessel LDC
503054	Detector Electrode LDC
503055/ 503056	Generator Electrode ± frit LDC
503057	Electrode Lead
503058	Desiccant Tube LDC & Cap
503059	Pack Injection Septa (10 pack)
503070	Molecular Sieve
503071	Stirrer Bar
503156	Polypropylene Funnel
503164	Luer Needle 19 Gauge (Screw Fit)

## Optional Extras

Part No.	Product
101005	Results Manager Software Package
503165	Solid Analysis Kit
620000	Aquamax KF Reagent Kit
503170	PRO25D Homogenizer 110V
503171	PRO25D Homogenizer 220V
503172	SB-1 Homogenizer 110V
503173	SB-1 Homogenizer 220V
503174	20mm x 115mm Generator Probe
503175	20mm x 200mm Generator Probe

## Certificates

All Aquamax KF Coulometric titrators are supplied with a calibration certificate traceable to national standards.

For additional technical information, specifications, MSDS data, user manuals, and exhibition news, visit our website at:  
[www.grscientific.com](http://www.grscientific.com)

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