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Conforms to ASTM/EN/ISO Standards



## **Aquamax KF *Plus***

*A 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 a built-in battery and printer to enable use in areas where the power supply is irregular. Low Drift Cell twin port glassware, results manager software and accessories are supplied as standard. As well as being a stand-alone instrument, the Aquamax KF Plus can be combined with an Oil Evaporator or a Solids Evaporator system. 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. At the top, it says 'GRScientific Results Manager'. Below that are buttons for 'CONNECT', 'SAVE', 'LOAD', 'EXPORT', and 'PRINT'. The status bar indicates 'Status: Disconnected', 'Model: Aquamax KF', 'Serial#: 7100', and 'Calibrated:'. The main area displays a table of results for 'Date: 20 June 2013', 'Results: 4', 'Result Format: ppm', and 'Calculation Mode: WSG'. The table has columns for 'Time', 'Date', 'Vol', 'Value', 'Density', 'Result', and 'Flag'. Below the table, summary statistics are shown: 'Max: 10.9 ppm', 'Min: 10.1 ppm', 'Mean: 10.4 ppm', 'SD: 0.30', and 'CV: 2.86'.

Time	Date	Vol	Value	Density	Result	Flag
07:46:50	0	0.82	1.0000	0.8700	10.25	
07:47:43	0	0.81	1.0000	0.8700	10.13	
07:48:37	0	0.90	1.0000	0.8700	10.92	
07:49:29	0	0.97	1.0000	0.8700	10.43	

This is a windows application that allows you to view and print sets of results created by the Aquamax KF Coulometric. 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 a standard item included 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
- Fully portable
- Low drift cell design
- Automatically compensated errors (patented technique)
- Results Manager software



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## 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 for combined operation with the Aquamax KF *Plus*

### Aquamax KF Oil Evaporator

For water content determination of additives, lube oils, base oils, automatic transmission fluids, hydrocarbon solvents, and other petroleum products.

### Aquamax KF Solids Evaporator

For water content determination of solids such as plastics, nylons, paper, powders, etc.



## 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.  
12V DC car adapter/internal battery

Dimensions: 250 x 245 x 120 mm  
Weight: 3.5 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
101001	Aquamax KF <i>Plus</i> Coulometric Titrator
101005	Results Manager Software Package
401511	Power Adaptor
502073	Paper Roll (Thermal) Single x2
503063	Gas Tight 1.0ml Syringe
503053	Titration Vessel LDC
503054	Detector electrode LDC
503055/ 503056	Generator Electrode ± frit LDC
503057	Electrode Lead x2
503058	Desiccant Tube LDC & Cap
503059	Pack Injection Septa (10 pack)
503070	Molecular sieve
503071	Stirrer Bar
503072	Polypropylene Funnel
503164	Luer Needle 19 Gauge (Screw Fit)



## 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)

**LABEQUIP**

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