The Truly Versatile Coulometric Karl Fischer Titrator

Aquamax KF Plus

Conforms to ASTM/EN/ISO Standards
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

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

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

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.
Technical Specifications

**Titrination 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

**Titrination 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

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**Ordering Information**

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

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<tr>
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<tbody>
<tr>
<td>101005</td>
<td>Results Manager Software Package</td>
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<tr>
<td>503165</td>
<td>Solid Analysis Kit</td>
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<tr>
<td>620000</td>
<td>Aquamax KF Reagent Kit</td>
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<tr>
<td>503170</td>
<td>PRO25D Homogenizer 110V</td>
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<td>503171</td>
<td>PRO25D Homogenizer 220V</td>
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<td>503172</td>
<td>SB-1 Homogenizer 110V</td>
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<td>503173</td>
<td>SB-1 Homogenizer 220V</td>
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<tr>
<td>503174</td>
<td>20mm x 115mm Generator Probe</td>
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<tr>
<td>503175</td>
<td>20mm x 200mm Generator Probe</td>
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**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

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**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.