

GRScientific

**Aquamax KF
Volumetric**



Areas of application:

- Petrochemical
- Pharmaceuticals
- Cosmetics/Toiletries
- Food/Beverage
- Chemicals
- Power (electricity)
- Automotive
- Agriculture
- Universities
- Contract Laboratories

Aquamax KF Volumetric

Features and Benefits

- Very easy to use - intuitive keypad and function guide display
- Automatic and periodic elimination of bubbles which can form in the liquid circuit
- Automatic drift monitoring and compensation
- Flexible - can be used with different reagent brands
- 2 x 5ml syringes – one for the KF reagent and other for automatic dosing of standard for the titre (second syringe can also be used for different factor reagent or special reagents for ketones, amines, etc.)
Syringe volume dispensed in 40,000 steps
- 2 x built-in pumps - one for dispensing the solvent and other for emptying the vessel
- Automatic rest cycle (stand-by mode) if not used for 15 minutes
- Programmable – several easy to use programs for titration and standardisation
- Results expressed in ppm, mg/l, %, etc.
- Connects to external pc keyboard for easy text and sample information data entry
- Connects to different types of printers, pc and balances
- Data Logger – automatic data storage of last 55 analysis results



TiCom Software (optional)

| Program | Sample ID | Sample | Factor (mg/ml) | Result | Result (ml) |
|--------------------|----------------|-----------|----------------|-------------|-------------|
| KF Standard | batch 95875 | 0.19170 g | 4.7284 | 2.837 % | 1.150 |
| KF Standard | sample 3829 | 0.19580 g | 4.7284 | 6.518 % | 2.188 |
| KF Standard | sample 7676584 | 0.19580 g | 4.7284 | 3.408 % | 1.123 |
| KF Standard | 000003 | 0.31270 g | 4.7284 | 3.912 % | 2.587 |
| KF Standard | 000002 | 0.19360 g | 4.7284 | 4.629 % | 1.895 |
| KF Standard | 000001 | 0.21390 g | 4.7284 | 2.540 % | 1.149 |
| KF Standardization | STAND. (V) | 1.000 ml | | 4.728 mg/ml | 1.057 |

Communications software between Aquamax KF Volumetric and PC
Allows viewing and printing of all calculation input, calibration
and titration measurement data.

Reports on multiple samples can be generated directly and
exported to Excel or Access.

Printer (optional)



Following data will be printed (or sent to PC) after
a titration or standardisation:

Header, date and time, reagent factor, drift value,
sample ID code, titration result, final volume, titration
duration, user name.

How does it work

Usual procedure is

- 1** Automatic dispensing of the required volume of solvent into titration vessel
- 2** Neutralisation – initial titration to remove water from the solvent
- 3** Drift monitoring – after titration has concluded, the Aquamax KF automatically determines the vessel drift. This value is then deducted from later titration. The Aquamax KF will prompt the user if the measured drift value is greater than the programmed limit value.
- 4** Standardisation of titrant reagent – 4 standardisation methods can be selected by user. The Aquamax KF determines the reagent factor and automatically stores it in the titration programs.
- 5** Titrating the sample – the Aquamax KF prompts user to introduce the sample. Titration commences immediately or after programmed extraction period.
- 6** Results – Calculated results are displayed on the Aquamax KF screen, stored in the Data Logger and also sent to a printer or pc.
- 7** Emptying the vessel – The Aquamax KF can often perform several titrations on the same solvent. The built-in pump can be used to transfer the vessel contents directly to a waste container.
- 8** Next sample – if no other samples are analysed within 15 minutes the Aquamax KF will go into Rest Cycle (stand-by mode).

Rest cycle

If the Aquamax KF is not used for 15 minutes it will automatically go to stand-by mode.

Elimination of bubbles

Using a novel control of the syringe, the Aquamax KF eliminates the well known problem of bubble formation in the reagent circuit

2 x 5ml syringes

One for the KF reagent and other for automatic dosing of standard for the titre. Second syringe can also be used for automatic dosing of a standard for titre determination or for other factor reagents or special reagents



2 x Electrovalves

These are fitted to top of each syringe and control flow direction of solvent and reagents



2 x Peristaltic pumps

One used for solvent dispensing, other used for emptying titration vessel



Technical Specifications

| | |
|-----------------------------|---|
| Non-volatile memory: | Up to 10 titration programs, Clock/calendar, Header texts: 2 lines x 40 characters. Name of up to 4 operators Program comments: 8 lines x 40 characters Up to 55 results stored in Data Logger |
| Languages: | English, Spanish, French, Italian |
| Display: | Graphic backlit LCD, 128 x 64 dots |
| Keypad: | Membrane, 7 keys, guaranteed up to 6 million strokes per key, |
| Material: | PET with protective treatment |
| Measuring ranges: | From 0.1 mg up to 100% water |
| Syringe volume: | Standard syringe 5 ml |
| Resolution: | 1/40000 of syringe volume |
| Dispensing accuracy: | (as relative error) $\leq 0.2\%$ for volumes higher than 10 % of the syringe |
| Dispensing reproducibility: | $\pm 0.1\%$ for volumes higher than 10 % of the syringe |
| Liquid contact materials: | Syringe: borosilicate glass and PTFE Electrovalve: PTFE and KEL-F. Tubes: PTFE |
| Inputs and outputs: | Polarised electrode, BNC connector. For external keyboard, miniDIN connector. RS232C bidirectional for PC or printer, telephone connector. RS232C for balance, telephone connector Stirrer control: On/Off and speed, RCA connector |
| Power supply: | 90-264 VAC, 47-63 Hz, 24 V DC |
| Electrical safety: | Meets EC, EN 61010 |
| EMC: | Meets EC, EN 50081-2 and EN 50082-2 |
| Permitted temperatures: | Operating: 15 – 40 °C. Storage: -10 – 50 °C $\leq 80\%$, relative humidity, non condensing |
| Enclosure: | ABS and enamelled steel |
| Physical parameters: | Weight: 4 kg approx. Dimensions: 130 x 160 x 300mm |

Certificates

All Aquamax KF Volumetric are supplied with:

- EC Declaration of conformity according to directive C.E.M. 89/336/CE
- Calibration test of dispensed volume with the syringe
- Specifications certificate and mV measuring test.

For additional technical information, specifications, MSDS data, user manuals, and exhibition news, visit our website at:

www.grscientific.com

Ordering Information

| Part No. | Product |
|--|---|
| 91000 | Aquamax KF Volumetric titrator |
| Supplied Accessories (also available as spare items) | |
| 91-8736 | 1 x Power supply 90-264 VAC, 47-63 Hz, 24 V DC |
| 91-9228 | 2 x TLL SL syringe, 5ml |
| 91-8708 | 2 x Burette inlet tube with bottle cap, DIN 45 screw |
| 91-8701 | 2 x Burette outlet tube with antidiffuser device |
| 91-9200 | 5 x Drier cartridge with molecular sieve |
| 91-8705 | 1 x Inlet pump tube (for solvent dispensing) with bottle cap DIN 45 screw |
| 91-8710 | 2 x Inlet & Outlet tubes with conical adapter |
| 91-8729 | 1 x Outlet pump tube with bottle cap DIN 45 screw |
| 91-9160 | 1 x Support for electrode & tubes with magnetic stirrer and vessel |
| 91-5264 | 1 x Double platinum electrode |
| 91-9055 | 1 x Electrode cable with BNC connector |
| 91-8734 | 1 x Pack (10) white "O" rings |

Optional Accessories

| Part No. | Product |
|----------|---|
| 91-8201 | Thermal printer CT-S280, 40 columns |
| 91-8200 | Dot matrix printer |
| 91-9013 | Standard PC keyboard |
| 91-8682 | TiCom software kit for communication between Aquamax KF and PC Includes CD with software and cable |

About G.R. Scientific

The key personnel at G.R. Scientific are recognised experts in Karl Fischer titration technology. They have designed and manufactured Karl Fischer titrators since the early 1980's and are widely regarded as some of the leading specialists in this technique. G.R. Scientific also manufacture KF titrators for several OEM (private label) customers.

GRScientific

G.R. Scientific Limited, P.O. Box 242, Ampthill
Bedfordshire, MK45 5AQ United Kingdom

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