AQUASTAR®

Karl Fischer Instruments

EMD

AQUASTAR® Karl Fischer

Instruments

Aquastar® Karl Fischer Instruments and accessories bring the highest quality and performance to any laboratory bench top. Whether testing for water content in finished products, acceptance testing for raw materials, or developing new products in the R&D lab, EMD Chemicals has two titrators that will get the job done right. Reliable and dependable, these titrators take only a minimum of bench top space and are matched to a complete line of Aquastar Karl Fischer reagents, standards, and chemicals that are designed to work superbly in your titration applications.

The AQV21 Volumetric and AQC22 Coulometric Karl Fischer titrators both feature innovative designs that add simplicity, flexibility, and accuracy to your work everyday.

AQUASTAR® Karl Fisher Titrators help take the guess work out of your analysis

Aquastar AQV21

Quick Start

The DVD Tutorial (included) gets you off to a quick start. It guides you, step-by-step through the setup, explains functions, and starts the first titration.

Easy to Use

The new Touch Screen interface allows the set up of daily tasks as dedicated icons on the Homescreen. Daily sample runs, solvent exchange and other routines can be simplified to a single click of a button, greatly shortening the learning time for new users.

Wide Range of Applications

Aquastar Karl Fischer titrators cover the entire range of water content determinations. With the appropriate reagent and accessories, these titrators can quantify water in the majority of samples.

liquids - direct titration
liquids - azeotropic distillation (EV2000L evaporator)
solids - external extraction/dissolution
solids - evaporation (AQD038 oven)

Comprehensive Documentation

Printouts from Aquastar titrators present a complete overview of the experimental details, including all information required by GLP, such as date, time, and user. The result is a permanent document that can be filed and referenced if when necessary.

Aquastar AQC22

Lab X® PC Software

Aquastar Karl Fischer titrators are powerful analytical tools that can be enhanced when connected to a personal computer. Lab X® light software, affords the efficient management of methods and allows for additional data evaluation and statistical analysis (purchased separately).

Initial Equipment Qualification for Titrators (IQ, OQ, PQ)

Designed to address ISO17025, A2LA, GMP, GLP and FDA CFR Part 11 requirements. Factory trained technicians use certified test equipment and traceable standards to guarantee the instrument is performing to our exacting standards. A compliance instrument logbook is included in the qualification package.

AQUASTAR® AQV21 Volumetric Titrator

Volumetric water content determination made easy

The volumetric Aquastar Karl Fischer AQV21 titrator is designed for a wide range of water content applications. Sample water content from as low as a few ppm to 100% can be determined quickly and precisely.

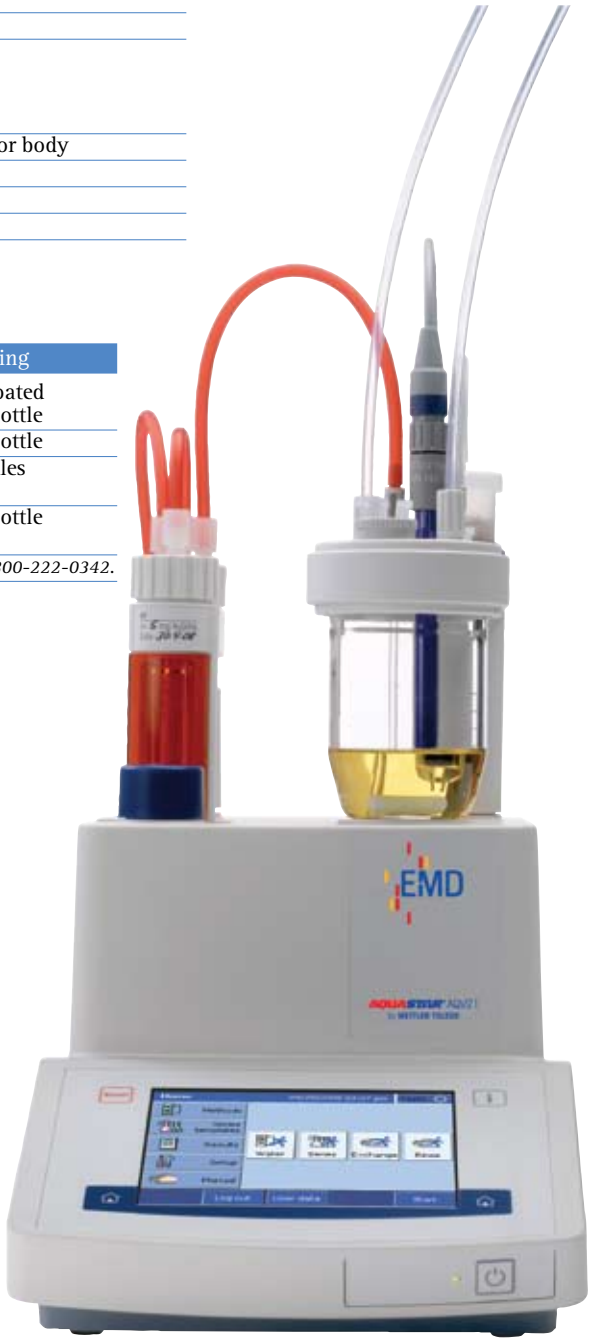
Aquastar AQV21 Volumetric Titrator	
Titration process	Volumetric Karl Fischer Titration
End point indication	Voltage measurement at a polarized double platinum pin electrode
Measurement range	100 ppm to 100% water
KF sensor input	Triaxial socket, -2000 mV to +2000mV (AC)
Burette capacity	5 mL
Display	TFT Color Touchscreen
Communication I/O ports	Balance (RS232C) USB-P25 printer (USB) Computer (USB) EPSON and HP compatible printers (USB)
Magnetic stirrer	Separate, removable assembly attaches to titrator body
Dimensions	210 mm (W), 333 mm (D), 320 mm (H)
Weight	Approx 5 kg
Power	100-240 VAC +/- 10%

Recommended Reagents and Standards

Volumetric KF Titration	Product #	Size	Packaging
Aquastar CombiTitrant 5	1.88005.1045	1 L	Poly-coated Glass Bottle
Aquastar CombiMethanol	1.88009.1045	1 L	Glass Bottle
Aquastar Water Standard 1% *Traceable to NIST*	1.88052.0010	10 x 8 mL	Ampoules
Aquastar Sodium Tartrate Dihydrate	1.06664.0100	100 g	Glass Bottle

For a complete list of KF reagents, standards, and chemicals, call EMD Customer Service at 1-800-222-0342.

AQV21 Standard equipment Product # - AXAQV21-1
• AQV21 titrator with built-in burette drive
• Removable DV1005 (5 mL) burette
• DM143-SC KF Electrode
• Solvent Manager pump system
• Titration vessel with plugs and tubing
• Magnetic stirrer with stirrer bar
• Brown glass bottle
• Tubing and small parts
• Installation / Quick Guide
• Tutorial DVD w/ Operating Instructions



Aquastar AQV21

AQUASTAR® AQC22 Coulometric Titrator

Coulometric water content determination made easy

The Aquastar AQC22 coulometer is ideal for water contents in the 1 ppm to 5% range. The AQC22 is optimized for simple routine determinations.

Aquastar AQC22 Coulometric Titrator	
Titration process	Coulometric Karl Fischer titration
End point indication	Voltage measurement at a polarized double platinum pin electrode
Measurement range	1 ppm to 5% (Approximate)
KF sensor input	Triaxial socket, -2000 mV to +2000 mV (AC)
Display	TFT Color Touchscreen
Communication I/O ports	Balance (RS232C) USB-P25 printer (USB) Computer (USB) Epson and HP compatible printers (USB)
Magnetic stirrer	Integrated
Dimensions	210 mm (W), 340 mm (D), 312 mm (H)
Weight	Approx 3.5 kg
Power	100-240 VAC +/- 10%

Recommended Reagents and Standards

Coulometric KF Titration	Product #	Size	Packaging
Aquastar CombiCoulomat Fritless *KF reagent for cell with or without a diaphragm*	1.09257.0500	500 mL	Glass Bottle
Aquastar Water Standard 0.01% *Traceable to NIST*	1.88050.0010	10 x 8 mL	Ampoules
Aquastar Water Standard 0.1% *Traceable to NIST*	1.88051.0010	10 x 8 mL	Ampoules

For a complete list of KF reagents, standards, and chemicals, call EMD Customer Service at 1-800-222-0342.

AQC22 Standard equipment Product # - AXAQC22-1
• **AQC22 titrator**
• **Coulometric cell, without diaphragm**
• **DM143-SC KF Electrode**
• **Solvent Manager pump System**
• **Titration vessel**
• **Magnetic stirrer with stirrer bar**
• **1 brown glass bottle**
• **Small parts**
• **Installation / Quick Guide**
• **Tutorial DVD with Operating Instructions**

* coulemetric cell with diaphragm sold separately order #AQ51108751

Aquastar AQC22

AQUASTAR® Accessories
expand the utility of KF titrators!

EV2000L Oil Evaporator
Product # AXEV2000L-1

Extraction process	Azeotropic distillation
Heater	Insulated micro heater
Temperature control	PID(Proportional-Integral-Derivative)
Temperature range	Ambient to 200º C (max)
Carrier gas	Nitrogen 30 -300 mL/min
Dessicant	Zeolite
Typical solvents	Toluene, xylene
Unit operation	Manual
Dimensions	220 mm (W), 300 mm (D), 200 mm (H)
Power	110/240 VAC +/- 10%, CE marked

AQUASTAR® Installation and Qualification Services

KF-INSTALL	Basic Installation by a Technician (no certification)
EQ-AQC22	Full Equipment Qualification with Documentation
EQ-AQV21	Full Equipment Qualification with Documentation
EMDEW	Extended Warranty
EMDEWP	Extended Warranty Plus

DO308 Karl Fischer Oven
Product # AQDO308

Extraction process	Evaporation
Heater	Resistance Heater
Temperature control	Potentiometer
Temperature range	40º C to 300º C
Carrier gas	Nitrogen 200 -250 mL/min
Dessicant	Silica Gel, Molecular Sieves
Unit operation	Manual
Dimensions	520 mm (W), 220 mm (D), 390 mm (H)
Power	120 v, 50/60Hz, CE Marked

USB-P25 Dot Matrix Printer
Product # AQUSB-P25

Printing Unit	Dot matrix, 5 x 7 dots, 24 characters per line
Printing Speed	2.3 lines per second
Interface	USB (connection cable included)
Paper	58 mm wide, 2 rolls included (AQ12120799)
Ribbon Cartridge	black, 1 included (AQ12120798)
Dimensions	120 mm (W), 203 mm (D), 73 mm (H)
Power	100-240 VAC, 50/60Hz

AQUASTAR® Accessories
Ordering Information

For the AQV21 Volumetric Titrator

Basic Replacement Supplies	Product #
1L Amber Glass Bottle	AQ71296
3 Hole Adapter	AQ23982
Bottle Cap	AQ23937
Connector	AQ23957
Cover for Titration Vessel	AQ51107462
Drying Tube Holder	AQ23915
Drying Tube with Cover	AQ23961
Fastener Screw	AQ51107474
Gasket for Bottle Cap	AQ23981
Magnetic Stirring Bar	AQ51191159
In-use cover	AQ51105567
O-ring for Titration Vessel	AQ51190366
O-rings for Screw Tops, 4/pk	AQ51107496
Pump Tubing	AQ51107481
Seal for Drying Tube	AQ51107492
Septum Stopper, ST 10, 10/pk	AQ23949
Septum Stopper, ST 24, 10/pk	AQ23950
Set of Stoppers for 3 Hole Adapter	AQ25883
Silicon Tubing, 133mm	AQ51107480
Solvent Manager	AQ51105600
Stopper, 7.5mm	AQ23452
Thermostatable Vessel	AQ51107497
Threaded Ring for Titration Vessel	AQ51107459
Titration Vessel	AQ51107463
Visco-spoon	AQ51107668
Weigh Boat, Glass, 20x60, 5/pk	AQ23951
Weigh Boat, PE, 25x65, 5/pk	AQ23953
Weigh Boat, Glass, 30x80, 5/pk	AQ23952
Weigh Boat, PE, 38x100, 5/pk	AQ23954
Burettes and Accessories	
5mL Burette	AQDV1005
10mL Burette	AQDV1010
20mL Burette	AQDV1020
Anti-Diffusion Tips, 5/pk	AQ23240
Centering Ring, 5mL	AQ51107519
Centering Ring, 10mL	AQ51107520
Centering Ring, 20mL	AQ51107521
Connection Tubing	AQ51107129
Dispensing Tube, 70cm	AQ25687
Glass Cylinder, 5mL	AQ51107100
Glass Cylinder, 10mL	AQ51107101
Glass Cylinder, 20mL	AQ51107102
Locking Screw for Burette	AQ51107518
Piston, 5mL	AQ51107115
Piston, 10mL	AQ51107116
Piston, 20mL	AQ51107117
Stopcock with Ceramic Valve Disk	AQ51107525
Stopcock with Teflon Valve Disk	AQ51107537
Suction Tube, 83cm	AQ25688
Printers / Software Sections	
USB Dot matrix printer (Cable included)	AQUSB-P25
AQUSB-P25 printer paper, 5 / pk	AQ12120799
AQUSB-P25 printer ribbon	AQ12120798
Lab X light Titration software	AQ51106550

Replacement Indicator Electrode	
DM143 Double Pin Platinum Electrode	AQ51107699
60 cm Electrode Cable, LEMO	AQ89601
KF Oven & Evaporator	
KF Drying Oven	AQDO308
Oil Evaporator	AXEV2000L-1
Aluminium Inserts for DO308, 50/pk	AQ51108649
Glass Sample Boat for DO308	AQ51108657
Replacement Sample Tube	AQ51371218
Septum, Stopper, 10/pk	AQ23276
Tube set for DO308	AQ51108676
Cables	
AE Balance Cable	AQ21815
Cable to AT Balance	AQ229029
LC Connection Cable, AG,AB,PB,PG	AQLC-RS9
RS9 Cable to AB, AX, PB, PG-S	AQ11101051
USB A-B Computer Cable	AQ110617
Professional Services	
Installation Service/No Certificate	KF-INSTALL
EQ for AQV21 w/Documentation	EQ-AQV21
Extended Warranty	EMDEW
Extended Warranty Plus	EMDEWP

Thermostatable vessel

For the AQC22 Coulometric Titrator

Basic Replacement Supplies	Product #
1L Amber Glass Bottle	AQ71296
Bottle Cap	AQ23937
Cell Generator Cable	AQ51107830
Coulometric Cell with Diaphragm	AQ51108751
Coulometric Cell without Diaphragm	AQ51108753
Curved Drying Tube	AQ51108639
Drying Tube with Cover	AQ23961
Fastener Screw	AQ51108752
Gasket for Bottle Cap	AQ23981
Glass Drying Tube	AQ51108733
Holder	AQ23960
Magnetic Stirring Bar	AQ51191159
Seal for Drying Tube	AQ51107492
Septum, 12/pk	AQ51108740
Silicon Grease	AQ71300
Teflon Stopper with Septum	AQ51108741
Teflon Tubing, 80cm	AQ23936
Titration Vessel for AQC22	AQ51108732
Weigh Boat, Glass, 20x60, 5/pk	AQ23951
Weigh Boat, PE, 25x65, 5/pk	AQ23953
Weigh Boat, Glass, 30x80, 5/pk	AQ23952
Weigh Boat, PE, 38x100, 5/pk	AQ23954
Replacement Indicator Electrode	
DM143 Double Pin Platinum Electrode	AQ51107699
60 cm Electrode Cable, LEMO	AQ51109183
KF Oven and Evaporator	
KF Drying Oven	AQDO308
Oil Evaporator	AXEV2000L-1
Aluminium Inserts for DO308, 50/pk	AQ51108649
Glass Sample Boat for DO308	AQ51108657
Replacement Sample Tube	AQ51371218
Septum, Stopper, 10/pk	AQ23276
Tube set for DO308	AQ51108676
Cables	
AE Balance Cable	AQ21815
Cable to AT Balance	AQ229029
LC Connection Cable, AG,AB,PB,PG	AQLC-RS9
RS9 Cable to AB, AX, PB, PG-S	AQ11101051
USB A-B Computer Cable	AQ110617
Professional Services	
Installation Service/No Certificate	KF-INSTALL
EQ for AQC22 w/Documentation	EQ-AQC22
Extended Warranty	EMDEW
Extended Warranty Plus	EMDEWP

Coulometric Cell with Diaphragm

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