

OPSIS LiquidLINE KjelROC Autosampler

Automatic High Precision Kjeldahl System



WHY KJELROC AUTOSAMPLER?

OPSIS LiquidLINE brings innovation to a 100-year old reference method.

- Improved accuracy with unique Predictive Titration *
- Improved workflow with the user in the driving seat, having Ethernet/ Wireless and easy communication with other systems
- Fully automatic analysis of up to 25 samples. Insert a tube rack and return later to collect your results



* Patent Pending

IMPROVED ANALYTICAL RESULTS INCREASE USEFULNESS AND SAVES COSTS

- The OPSIS LiquidLINE Predictive Titration lowers the Relative Standard Deviation (rsd) and increases the flexibility with different indicators. This gives increased usability of your instrument
- Large refillable burette saves time and costs when moving between high and low protein content
- The possibility to select continuous or separate distillation/ titration increases the flexibility and gives unique low LOD and LOQ

FLEXIBLE WIRELESS/ETHERNET COMMUNICATION INCREASES EFFICIENCY AND REDUCES COSTS

- The possibility to send and receive weights and results, using several different devices, significantly reduces the integration and IT costs
- Data files are prepared to work with LIMS and other database systems
- The same computer can be used to enter data at the balance and transmit data to the KjelROC, leading to efficiency gains in your lab

AUTOSAMPLER SAVES COSTS AND IMPROVES QUALITY

- An Autosampler allows automatic analysis of up to 25 samples. Insert a tube rack and collect the results afterwards
- Improve handling and reduce errors by moving a complete tube rack into the Autosampler
- Prepared for ISO 17025 and GLP reduces time and costs when integrating the instrument into the Lab. IQ/OP/PQ documents can be purchased.

BENEFITS

After more than 25 years of experience within analysis, we will now raise the standard for Quality Instruments, Information Exchange and Analysis in samples like Food, Forage and Liquids. The KjelROC is prepared for the future with several new, unique, benefits.

HIGH PRECISION TITRATION SYSTEM

The KjelROC is designed for colorimetric titration and fully complies to standards issued by organisations such as AOAC, IDF and ISO. A unique Titration system, OPSIS LiquidLINE Predictive Titration*, lowers rsd which directly transforms to more precise results. A large burette with automatic refill during analysis will also secure a wide analysis range.

- OPSIS LiquidLINE unique Predictive Titration* lowers rsd and simplifies the use of different indicators
- The unique Predictive Titration* allows for automatic refill during analysis without affecting the precision
- 50 ml Burette and refill secures a wide analysis range and lowers the analysis time
- Burette with a resolution of 1.95 µl/step gives unmatched precision
- Easy exchangeable Glass Splashead minimises carry-over effects
- PTFE tubes limit air bubbles

* Patent Pending

THE UNIQUE PREDICTIVE TITRATION SYSTEM LOWERS THE RSD AND THE 50 ML BURETTE WITH AUTOMATIC REFILL MAKES IT EASY TO CHANGE BETWEEN HIGH AND LOW PROTEIN ANALYSIS.



FLEXIBLE WIRELESS/ETHERNET COMMUNICATION

Open file protocols decrease integration costs and the use of a flexible data format allows transfer to different computer systems. The KjelROC data format is open to be read by any text editor, database or spreadsheet. Easy exchange with Wireless/Ethernet* technology and standard File Transfer Protocol (FTP) reduces integration costs, no expensive investments in cables or dedicated software.

- OPSIS LiquidLINE Transfer Utility for easy transfer of weights and results. Possibility to export to LIMS systems. Transfer Utility applications for iPhone, iPad, PC and Mac are included together with the instrument.
- Transfer to and from laptop computers, tablets and mobile phones with an FTP client – basically any device that has a WiFi or Ethernet client. Offers unique flexibility to integrate the instrument into the lab at low cost.
- Transfer .csv formatted data directly to instrument, even directly from a computer connected to a balance. The KjelROC is using a well-documented and open exchange format that can be adapted to your own needs which saves integration costs.
- Add your own tags and information to transmitted data. Having your own Lab ID tags included into data files is no problem and of course everything is traceable – from weight entry to final result.

* Ethernet Interface on instrument and included KjelROC Router allows both Ethernet and WiFi communication



THE OPSIS LIQUIDLINE TRANSFER UTILITY MAKES IT EASY TO TRANSFER WEIGHTS AND RESULTS.

ADAPTIVE WORKFLOW

Use your existing lab procedures or use our ready-to-use programs. The instrument is fully flexible to adapt to your demands which reduces integration costs.

- With our adaptive workflow you are always in control, for example handling express samples with no previous weight entry, weight entry via touch screen or weight entry from an external device. Any combination is possible.
- Customisable touch screen to define your own workflow. For example, you can personalise settings for results types, methods or analysis sequence to simplify your daily routine. Your dedicated buttons for operation are accessible directly at start-up.
- The KjelROC offers different access levels and menus according to GLP requirements. A dedicated menu allows the lab manager to further control settings of the instrument such as Burette test, Titration Endpoints, Factory defaults and Time & Date.
- An extensive set-up of User Protection safety systems is included in the KjelROC. Sensors will, for example, detect if tube is missing or if protection door is open. Automatic Tube Draining eliminates the need for handling hot reagents after distillation.
- The Autosampler is using 250 ml sample tubes. It is also possible to manually insert other tubes into the KjelROC Analyzer such as 100, 300, 400 and 750 ml. Please consult OPSIS LiquidLINE regarding required adapters.



AN OVERVIEW OF THE WHOLE RACK WITHOUT POP-UP DIALOGUES - A SYSTEM WITH THE USER IN MIND.

AUTOSAMPLER

An Autosampler allows automatic analysis of several tubes in a sequence, without manual intervention. The KjelROC Autosampler has several features.

- Allows analysis of a complete tube rack with 20 sample tubes and 5 extra tubes for additional analysis
- An extra row of tube samples allows easy analysis of blanks outside of the tube rack, running autoblanks or running express samples.
- All tubes can be moved directly into the Autosampler in one step, without having to move tube by tube. No risk to mix tubes during the movement from digester to distillation.
- Easy to clean all sensitive parts for daily and monthly maintenance.
- The sampler can easily be switched-off and the Analyzer can then be used independently if so required.



IT IS EASY TO INSERT A TUBE RACK INTO THE AUTOSAMPLER. A FRONT DOOR PROTECTS THE OPERATOR DURING OPERATION.



IT IS EASY TO OPEN AND CLEAN THE AUTOSAMPLER INSIDE.

OPSIS LIQUIDLINE MAINTENANCE PROGRAM

OPSIS LiquidLINE tools allow easy diagnostics and follow-up of both instruments and components, for both customer and service engineers which greatly reduces risk for stand-still of instrument.

KD-625-B KJELROC AUTOSAMPLER

Analytical Data Analyzer	
KD-310-B Analyzer	Colorimetric Titration, system based on three RGB color sensors that allow use of a wide range of indicators. Unique Predictive Titration system automatically adjust titration speed on the actual distance from the end point. PTFE tubing used throughout to eliminate formation of air bubbles between burette-titration vessel.
Measuring range w/o burette refill	0,1 – 225 mg N
Recovery	> 99.5% (1-200 mg N)
Burette volume	Interchangeable burette 50 ml (automatic refill during analysis)
Dosing accuracy	1.95 µl/step
Accuracy/Precision %rsd	0.75% at N levels 1 - 225 mg
Distillation speed	40 ml/min at 230V
Distillation time	3.5 – 4 min (10 mgN), 5-5.5 min (225 mgN)
Technical Data Analyzer	
Operating temperature	5°C – 40°C, max 80 % relative humidity
Power supply	190 – 240 VAC, 50 – 60 Hz, 10A, max 2200 W
Water consumption	Cooling water 1,75 l/min at 20° C, Steam generator water approx.200 ml/analysis
Dimensions (WxHxD) and weight	430 x 700 x 330 mm, 30 kg
Graphics display	7" 800 x 480 colour touchscreen
Safety	Safety sensors (Tube in Place, Protection and Service door), Steam Generator sensors, Cooling Water Measurement, Drip Tray, Tank level detectors
Electronic steam regulation	10 – 100%
Distillation head	Easily exchangeable Splashhead with only one tube connector made of glass to reduce carry-over effects.
Password protection	Three Levels with separate Managers Menu
Reagent level warning	4 x RJ-11 (External tank levels), 1 x RJ-11 (titration tank), OPSIS LiquidLINE flexible level detectors (optional accessory)
Data communication	Ethernet (RJ-45) interface. Included KjelROC router for Wireless, 802.11 b/g.
Automatic distillation and titration	Programs for automatic control of cooling water, dilution water, sodium hydroxide and receiver solution as well as automatic emptying of tube and titration vessel. Automatic control of Water cooling, Selectable delay times and cleaning program.
Programs	Kjeldahl, Direct Distillation, Auto Clean, Auto Blank Methods, Manual. User-configured five program buttons directly accessible from main menu (unlimited combinations).
Technical Data Sampler	
Dimensions (WxHxD) and weight	930 x 910 x 730 mm, 85 kg (excluding KjelROC Analyzer)
Power consumption	Using power from KjelROC Analyzer
Safety	Door Sensors, tube in place sensors, all moving parts and tubes inside sampler with no risk for user contact. Easy to clean interior with removable drip trays.
Capacity	20 sample tubes in Tube rack plus 5 extra tubes (E1-E5) for blanks, autoblanks, express samples.

Specifications subject to change without notice

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